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in the family of origin of mothers of pre-school children

A structural
and artificial
intelligence approach

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Wydawnictwo Naukowe
Uniwersytetu Kardynała Stefana Wyszyńskiego
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Warsaw, 8th of December 2019, Agnieszka Szymańska

Introduction

The problem of parental mistakes and their relationship to the development of a child's personality has aroused the interest of psychologists since the beginning of psychology (Kutter, 2000). Parental mistakes have always been treated as a factor which determines the personality disorders of children. They certainly are not conducive to the development of emotional competence in children (Szymańska, Aranowska, & Torebko, 2017). So far, many studies have revealed a negative correlation between parental mistakes and a child's development (Carver, Timperio, Hesketh, Crawford, 2009; Chłopkiewicz, 1975a, 1975b; Winterhoff, 1997). It should be noted that parental mistake is a construct completely different from the parental styles or attitudes described by Ziemska (Schaeffer, 1959, 1965; Ziemska, 1973). It is also different from such popular constructs as parental control or directiveness (Baumrind, 1967, 1971; Baumrind & Black, 1967; Kuczyński, 1984; Szymańska, 2017a). Research on the relationship between parental mistakes and child development, however, do not lead to unambiguous conclusions (Rose-Krasnor, Rubin, Booth, & Coplan, 1996; Szymańska, 2009).

The history of psychological as well as pedagogical thought identifies parental mistakes with stress experienced by educators and parents. It is worth noting that: "Korczak also warns the educator: 'In this confusion, you can easily become a tyrant when you do not realize that when you act in difficult situations, you can make a mistake, an irreversible mistake'" Gurycka (2002, p. 113).

Korczak was followed by other authors, Professor Antonina Gurycka in particular, who in her theory also based the formation of parental mistakes on a difficult situation experienced by the parent, namely mental stress (Gurycka, 1990). With mistakes, we are talking about a factor that is not only determined by a difficult parenting situation, but which also determines the development of personality disorders. In this way, it becomes a mediating factor between the parental difficulties (psychological stress) experienced by a parent and the formation of personality disorders in their children. The research and analysis conducted in this area actually show that a difficult situation, i.e., mental stress, may be associated with the occurrence of parental mistakes (Szymańska & Aranowska, 2016).

Can parental mistake be passed down from generation to generation, though? Can we say that the mistake is in some way "inherited" or transferred? In the case of parental mistake, we are talking about a transfer, i.e., a certain unconscious message, which is not necessarily an explicit, conscious one. We cannot talk about a transmission in the case of a mistake, as the mistake does not transmit. No one knowingly transmits parental mistakes. Transmission is an explicit message, e.g., a television broadcast. A mistake is the result of an action that was not planned by the parent. It can arise as a coincidence of very difficult circumstances that the family, for example, was unable to cope with. Korczak pointed to this kind of situation. Is the transfer of parental mistakes possible? Do people who have experienced more parental mistakes in their own families of origin themselves pass more parental mistakes to their children? If such a transfer exists, is it related to a parent's role, i.e., being a mother or father? Do children transfer mistakes they experience from their mother or father? These are further questions that entail reflections on the transmission of parental mistakes.

When considering the transmission of parental mistakes, the issue should be grounded in the parent experiencing parental difficulty. One should seek the answer to the question: are people who have experienced more parental mistakes from their parents when they were children more prone to experiencing stress while raising their children, as a consequence of which they make more parental mistakes? This is a further question that arises in the context of the transfer of parental mistakes. Questions and answers to these questions are the goal of the scientific research published in this work.

Our considerations begin with the statement that personality development has always been equated with the formation of parental mistakes. It has long been thought that the formation of personality disorders — as well as a locus of external control as a certain personality trait of a person — is associated with very negative childhood experiences (Gierowski, Lew-Staranowicz, & Mellibruda, 2002). Therefore, it is worth considering not only how the experience of parental mistakes in childhood translates into parental mistakes committed as an adult, but also what personality traits characterize those who experience more parental mistakes in childhood and those who experience fewer. What characterizes them in the locus of control? Are they really, as psychologists say, characterized by the external location of control? Answers to these questions are also the subject of the research herein.

The parent, shaping the child's personality, does so by choosing "parental goals," or personal characteristics which they want the child to develop. These goals are called "a child's personality project." Choosing the wrong goals is what Gurycka calls

the first parental mistake (Gurycka, 1980). In her theory regarding the upbringing process, she points out that parental goals shape situations in a child's life, as a result of which a child acquires specific experiences. If these parental goals were incorrectly selected and wholly mismatched to the child's abilities, then a specific upbringing mistake arises, as a result of which the child acquires negative experience for their own development. These experiences can shape the system of values and the future parental goals of these children when they become parents themselves. This is because in parental goals, i.e., personality projects, the system of values and norms which prevails in society is included (Gurycka, 1979). Therefore, childhood experiences — especially negative ones — may be related to the shaping of the value system as well as the selection of future parental goals, i.e. the personality project that a given child, as a parent, will want to pass on to their children in the future. Therefore, whatever happens in the family of origin, the experience gained from it not only determines the formation of a parents' personality, but also shapes their value system and the choice of parental goals that they will choose for their own children.

As psychotherapists note, the ability to meet one's needs is extremely important for the proper functioning of personality (Zinker, 1991). Actually, throughout the entire upbringing process, parents provide children with various skills. One of them is the ability to take care of oneself, of one's own welfare, to satisfy one's own needs. The inability to meet one's needs leads to very serious internal conflicts. An important factor determining disturbances in the ability to meet one's own needs may be negative childhood experiences. Parental mistakes can contribute to the lack of ability to meet one's own needs and thus to the malfunctioning of a child's personality.

The issues discussed above, i.e., personality formation, locus of control, meeting needs, shaping of the value system and choice of parental goals, is the subject of the analysis conducted in this work. We will consider to what extent mothers bringing up preschool children experienced parental mistakes in their own families of origin and to what extent they commit mistakes themselves. We will also consider what personality traits they have, what locus of control they have, what system of values they have, what preferences they have in choosing parental goals and whether they can meet their own needs or not. Therefore, the subject of the research carried out in this work was to take into account not only the transfer of parental mistakes, but also an attempt to look at the personality system of mothers.

In this way, we try to answer a question that has long been posed in psychology, namely, is the parental mistake related to experiencing parental difficulties and does it contribute to or is it a factor which determines the formation of a child's personality traits?

We will conduct our analysis on a sample from the adult female population who have preschool children. Why was this target group chosen? First of all, earlier research was conducted on parents of preschool children and on their parental mistakes (Szymańska, 2011; Szymańska & Aranowska, 2016). The current research is the continuation and verification of previously discovered dependencies. Secondly, it is suspected that parental mistakes may have the strongest effect on younger children. This is because it is associated with a child experiencing a very strong stress response. A mistake leads to very negative experiences for the child. The child has to deal with these negative experiences (Perkins Quamma & Greenberg, 1994). The younger the child is, the more limited his/her repertoire of strategies for self-management of a stressful situation.

It should be noted that a child may experience a mistake made by educators at school or by parents. A parental mistake is defined as a mistake in the home. A child has less ability to deal with such a mistake. Educational mistakes made at school may have less of an impact on a child because the child at home has "allies" in the form of parents, to whom he/she can complain and from whom he/she can get advice. Meanwhile, after a mistake is made by the parents, the child has nowhere to relax, or at least has fewer options for such a recovery. The smaller the child is, the less of a repertoire of strategies he/she has to react in a difficult situation surrounding a mistake. The child becomes a kind of hostage in this situation. An older child or a teenager can break free. He/she can leave the house, for example, and go out with his friends. A young child or preschooler cannot leave.

To provide answers to the questions posed in this work, the latest methods of data analysis are used, which will allow the hypotheses to be verified. Structural models and artificial intelligence algorithms will be used. Structural models will be used to test the structure that determines the relationship between parental stress and parental mistakes. Algorithms will determine any connections of parental mistakes with personality traits and the value system, locus of control, the child's temperamental traits, the mothers' parental goals and the meeting of mothers' needs. The methods of data analysis used are of particular importance in this project. It would simply be impossible to answer the questions posed herein without them. Hence, because of its importance, the name of the method can be found in the title of the book.

This book consists of the following parts. The first part, entitled "The Rationale for the Research on Parental Mistakes," discusses the relationship between the stress experienced by mothers in the upbringing process, parental mistakes, the transfer of parental mistakes, mothers' personality traits, mothers' locus of control, mothers' value system, mothers' parental goals, the meeting of mothers' needs and

children's temperamental traits. This part of the work presents two models. The first model describes the relationship between parental difficulties and parental mistakes and how the experience of stress becomes a factor in determining the occurrence of parental mistakes. The second model presents the relationship between parental mistakes experienced in childhood and personality traits, the system of needs and values, the locus of control, the mothers' parental goals and their perception of the children's temperamental traits.

The methods of data analysis are discussed next. It can be seen that the questions posed at work are very complex. They include not only individual variables, but a whole group of variables, which means that special analysis methods must be used that will allow such a wide spectrum of variables to be studied in one analysis and to be able to estimate the statistical significance of the results (Brzeziński, J., Stachowski, 1984). Two classes of methods were used: a) a system of structural equations for testing theoretical structures and b) artificial intelligence algorithms for analyzing verbal data, determining the coexistence of many variables and building predictive models.

In the "Research Methods and Procedures" section, the test sample, research tools and reliability measures are approximated. It is worth emphasizing here that for each tool not only are the results of the confirmatory factor analysis presented, but also four measures of reliability: Cronbach's α; the modern reliability measure, which is the RO2 coefficient; Jöreskog's coefficient — used to determine the reliability of the latent variable — and the measure of reliability proposed by Aranowska, which is an amendment to Jöreskog's formula. This part of the work may be very interesting for psychometrists interested in how the reliability of research tools used for analysis is presented, both in view of the classical theory and the theory of generalizability (Aranowska, 2005, 2016; Arce & Wang, 2012; Brennan, 2010; Guler & Gelbal, 2009; Hornowska, 2003; Hughes & Garrett, 1990; Ibrahim, 2011; Ziegler, Poropat, & Mell, 2014).

The study also strived to create the most homogeneous test group; in this case, mothers were studied. It is also easier to reach the population of mothers than the population of fathers, and this fact is not without significance. It should also be noted that the current project completed in this population is not the end of research on parental mistakes. In the future, research will have to be carried out on other populations of parents raising children in different age groups, and especially on fathers.

In the "Discussion of Results and Conclusions" section, the research achievements are discussed and a reflection on the future of research on parental mistakes, including the possibility of building expert systems, is presented.

THE RATIONALE FOR THE RESEARCH ON PARENTAL MISTAKES

Basic Concepts in Antonina Gurycka's Theory of Parental Mistakes

Parental Mistakes – General Information

Upbringing psychology is a field that deals with explaining the development of a child's personality as a result of the upbringing process, and thus, the child's interaction with parents or educators (Gurycka, 1979). The upbringing process takes place in upbringing institutions, i.e., in the family (Gurycka, 1979).

During the upbringing process, parental mistakes may arise. According to Susan O'Leary, one parental mistake is parents using inefficient methods to prevent a child from misbehaving. In O'Leary's concept, a mistake is recognized in a behavioral way. The parent makes the mistake by using ineffective parental control, as a consequence of which the child's behavior is not in line with expectations (O'Leary, 1995). O'Leary distinguished three mistakes: a) high reactivity of the parent, manifested in anger or irritation, b) submissiveness and c) verbal interactions on the child's bad behavior reduced to tormenting comments directed towards him/her. O'Leary does not specify what factors lead to parental mistakes.

Gurycka's theory chronologically arose earlier than O'Leary's theory. According to Gurycka, "Parental mistake is such behavior of the parent which is the real reason (or risk) of harmful effects for the child's development" (Gurycka, 1990, p. 24). In defining the concept of parental mistakes by referring to its effects, Gurycka operated a partially probabilistic definition. Parental mistake is associated with risk, and therefore with a certain probability of consequences for the child's development. In relation to probabilistic concepts, allegations of blurring and indecidability do not apply because the designations of these concepts are included in the scope of the term with only a certain probability (Maruszewski, 2003; Szymańska & Aranowska, 2016; Szymańska & Torebko, 2015). Therefore, as Gurycka goes on to say: "When we are unable to determine the negative effects of a particular educator's behavior, we are talking about a possible mistake, and thus one that carries the risk of these effects. And we can only speak about a factual mistake if we can establish this relationship" (Gurycka, 1990, p. 24).

Therefore, all parental behaviors included in the realm of parental mistakes by the author of the concept of parental mistakes (Gurycka) carry the risk of negative effects on the child's development. Unfortunately, we do not know how big this risk is. The current study is another in a series which attempts to show the relationship between experiencing parental mistake and child development.

Figure 1 presents a circle of parental mistakes by Gurycka. Three axes cross this circle. The first axis is the extreme emotional acceptance of the child vs. the extreme emotional rejection of the child, known as the axis of warm–cold mistakes. The second axis is the parent's (or educator's) excessive focus on the child vs. excessive focus on oneself. The third axis is the parent's (or educator's) excessive focus on the child's activities vs. underappreciation of the child's activities. The axis of warm–cold mistakes the first axis divides the mistakes of child idealization from strictness (rigor) and of self-accentuation from indifference. Cold mistakes include strictness, aggression, constraint of the child's activity and indifference. Warm mistakes include idealization of the child, doing things for the child, indulging the child and self-accentuation by the parent. The second and third axes run in the same place, namely, between the mistakes of doing things for the child and indulging him/her and the mistakes of aggression and constraining the child's activity.

Gurycka specially identified three axes, despite the fact that two run in the same place, in order to indicate that paying excessive attention to the child or to the parent is not the same as focusing on the activity of the child or underappreciating his/her activities. Qualitatively, these are completely different phenomena.

Gurycka also identified a ninth mistake, which is inconsistency. It is presented under the circle in Figure 1. It consists of mixing mistakes, e.g., combining strictness with constraint of the child's activity, strictness with indifference, aggression with indulging the child, etc.

For each parental mistake, Gurycka indicated the image of the child in the mind of the parent which is associated with the mistake. The nine parental mistakes presented by Gurycka are described below.

The mistake of strictness (rigor) belongs to the dimensions of cold and focus on the child. According to Gurycka, behaviors at risk of this mistake include controlling the child's behavior, absolute obedience, pedantry and precise requirements. Correct behaviors that can help to avoid this mistake include making appropriate requirements of the child and controlling compliance with instructions through an appropriate system of strengthening penalties and rewards, as well as considering the child's opinion. The representation of the child in the mind of the parent who falls victim to this mistake consists of identifying the child with the activity

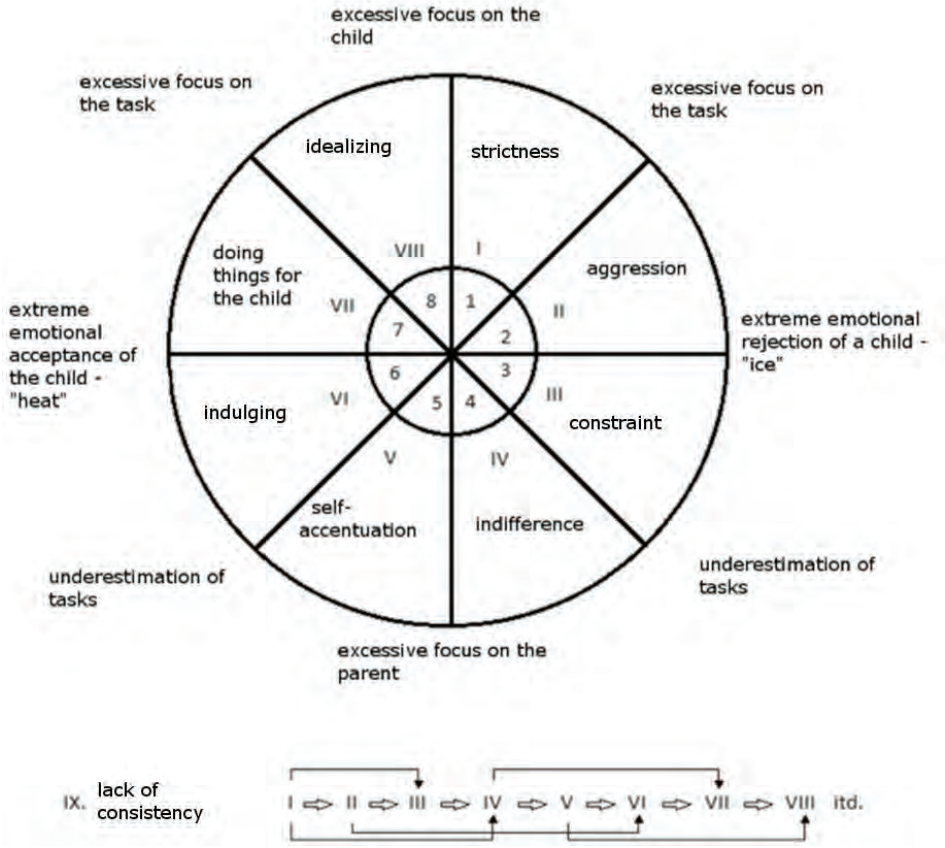


Figure 1. **Circle of parental mistakes and the inconsistency mistake. Based on A. Gurycka, 2008, *Mistakes in upbringing*, in: E. Kubiak-Szymborska and D. Zając (ed.), About upbringing and its antinomies, Bydgoszcz: WERS, p. 336.**

and perceiving the child's behavior and its effects as a particularly important aspect of their upbringing.

The aggression mistake belongs to the dimensions of cold and focus on the child's activities. Aggression is about verbally, physically or symbolically attacking a child and humiliating him/her. Behaviors that avoid this mistake include tolerance of the child and resolving problems and conflicts between the parent and child through compromise and rational agreement. The image of the child associated with this mistake is that of a threat to the parent.

The mistake of constraining the child's activity is one of the cold mistakes and one related to underappreciating the child's actions and focusing on the parent.

Constraining the child's activity consists of interrupting the child's activity without good reason or replacing it with another activity. Gurycka describes correct behavior, which should avoid the mistake of constraining the child's activity, as directing the child's activity or looking for a replacement activity together with the child. The perception of the child that contributes to this mistake would be that his/her activity is less important than the parent's tasks and activities.

The mistake of indifference belongs to the cold and parent-centered mistakes that undervalue the child's activities. This mistake consists of a lack of interest in the child and his/her affairs or problems. Correct behavior that can help to avoid this mistake includes accepting the child and creating conditions for the child to express his/her independence. The perception of a child in the mind of a parent which contributes to the mistake of indifference would be that the activities and needs of the child are not very important to the parent and that the child is an aggravating person to parent against which the parent must defend.

The mistake of self-accentuation is one of the warm and parent-focused mistakes that undervalue the child and his/her activities. A parent's self-accentuation involves emphasizing one's own qualities and advantages and expressing a desire to impress the child with one's own achievements and skills, while emphasizing the weaknesses of the child. Correct behaviors that can help avoid this mistake include balancing the parent's needs with the child's needs, modesty in presenting oneself and balancing one's own abilities and potential with the requirements of the child. The perception of the child in the mind of the parent that contributes to this mistake is that of weak and inefficient being who is shaped by a wiser and better parent, while perceiving of oneself as a particularly important member of the child-rearing interaction and overestimating one's own qualities.

The mistake of indulging the child is one of the warm and parent-centered mistakes that underestimate the child and his/her activities. An example of indulging a child is fulfilling his/her whims, demonstrating the parent's helplessness and giving in to the child's demands against the parent's requirements. Correct behaviors that can help avoid this mistake include negotiating and agreeing on the requirements of both the parent and the child as well as the extent to which requests and needs are to be met. The perception of the child that contributes to this mistake is one where child's upbringing is seen as excessively difficult for and threatening to the child.

The mistake of doing things for the child is a warm mistake and focuses on both the child and his/her activities. Doing things for the child includes behaviors such as performing tasks and responsibilities for the child, taking over his/her activities and not letting the child finish his/her own activities. Behaviors that can help to avoid this mistake include helping a child to fulfill his/her duties and interacting with him/her while keeping the child active. The perception of a child in the mind

of the parent that contributes to this mistake is that of someone who requires special care or is weak, helpless, tired, incapable, handicapped, etc.

The mistake of idealizing a child is a combination of excessive warmth and focus on both the child and his/her activities. This mistake involves constant care of the child, intrusion into his/her activity, constant interest in the child under the guise of protecting him/her against danger and behaviors incompatible with the ideal pattern established by the parent. Correct behaviors that can help avoid this mistake include adequate support of the child's activity and criticism combined with the child's acceptance. The image that contributes to this mistake is that the environment is threatening to the child and that the child's advantages are greater than they truly are.

The lack of consistency mistake is the result of parental behavior belonging to different categories of mistakes within a specific situation. It is most often associated with a combination of many parental mistakes.

Gurycka's theory of parental mistakes is a structural theory that describes the elements of the theory and the relationship between them. According to Gurycka's theory, the inability of a parent to achieve parental goals contributes to parental difficulties and stress; in turn, the parent's attempts to defend himself/herself against the stress develops an image of the child, which causes him/her to apply pressure or to withdraw from the upbringing situation. Then, a situation arises in which parental mistakes occur. However, in order to understand why this happens, the theory of the upbringing process should be presented in Gurycka's terms: and therefore, the importance of achieving parental goals, upbringing situations and experiences of the child derived from upbringing situations in the development of his personality traits.

Parental goals in the family of origin may affect the development of personality traits and the system of a parents' needs and values, as described by Gurycka in her book, *The Structure and Dynamics of the Upbringing Process* (1979). According to Gurycka, when choosing parental goals, a parent thinks about the development of appropriate psychological traits that a child should develop. To achieve this, (s)he plans situations in which the child will gain relevant experience, which will help shape his/her personality. This diagram is presented in Figure 2.

When choosing parental goals, the parent decides what experiences the child must gain in order to develop chosen traits. Situations are then selected according to these experiences. During this process, the parent must control the course. If a child develops characteristics too slowly or if (s)he develops qualities other than those planned by the parent, the parent must further align the parental goals which were set and the child's level of development. (S)he does this by choosing different situations in which the experience of the child is strengthened (or weakened)

and by choosing other parental goals (Gurycka, 1979). Therefore, the parent must constantly monitor progress in achieving parental goals and make corrections if necessary. Figure 2 presents the extension of Gurycka's model which was made by Szymańska and which describes the parent's activity during the selection of parental goals.

As one can see, a parent's activity is decisive and controlling. The parent compares the level of achievement of the goals set. If the goals have been achieved, the process ends. If not, the parent must change goals or choose different situations. How do experiences arise in the situation? What is experience itself? And how does it affect the formation of personality traits?

The experience of the child plays a central role in the upbringing process. It is an internal condition, information that the child acquires when interacting with a parent or guardian. According to Gurycka, experience is a function of the child's activity and emotions (Gurycka, 1985). The greater the child's activity and the more emotionally experienced, the deeper, stronger and more lasting the experience.

According to Gurycka and her team, experience is an internal condition, something which the child gains in situations; it is information. "This information has regulatory power in relation to future human behavior. The concept of information is treated here by us in a colloquial and broad perspective as all messages. The experience of man *D* understood in this way is information *inf* — which is a function of his activity, *A* — human participation in the situation and emotions is *E*, so *D* = *inf* / *A*. *E* /" (Gurycka, 1985, p. 21). Gurycka also mentions generalized experiences, which according to her are an authentic upbringing effect and are the transfer of experience gained in one situation to similar situations or the assignment of a more general meaning to them.[1] "We will call the generalized experience an internal condition for changes in the personality of the child" (Gurycka, 1985, p. 21).

Gurycka writes that the experiences which a child will acquire are based on the strength of the experience: "However, it can be assumed that if a parent provided strong experiences in a particular field, then in the course of his actions the child will choose such forms of behavior that will be consistent with his experience. The strength of experience depends on the emotional tension that accompanies human

[1] For example, a child in one situation learned that he/she should give his/her seat on a bus to older people. In subsequent situations related to giving seats to the elderly, the child does so again (he/she has internalized that knowledge and incorporated it into his/her own behavioral repertoire), but this knowledge can also be extended to all situations related to helping the elderly.

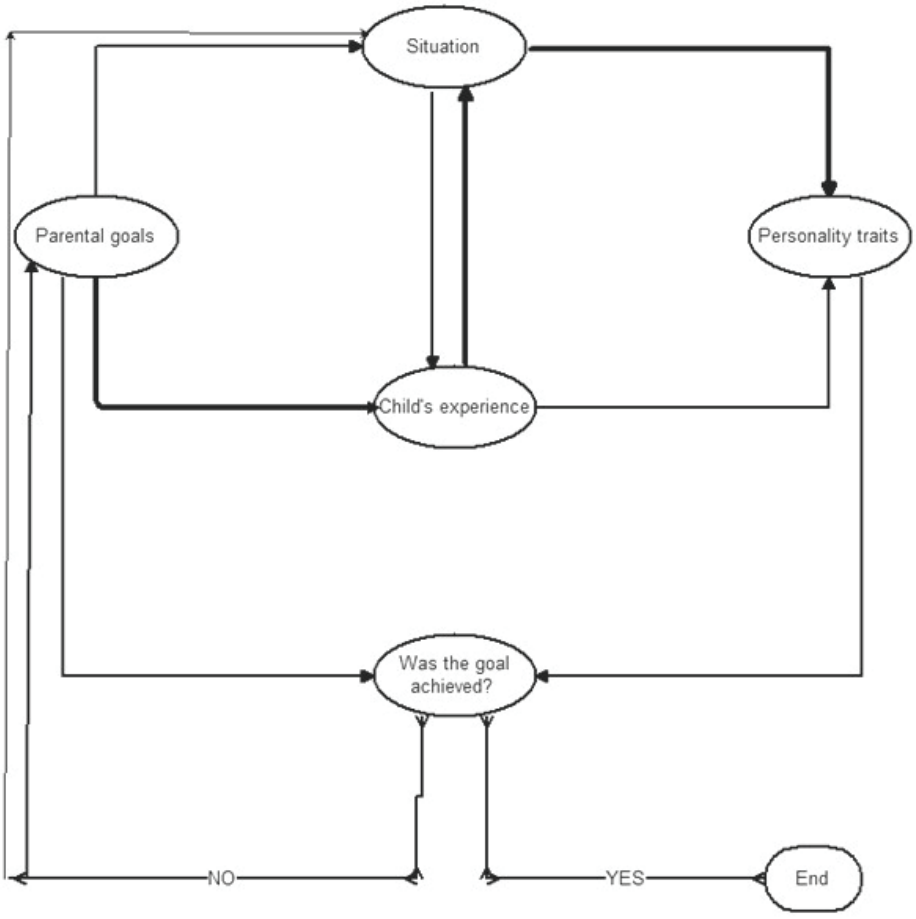


Figure 2. **Flowchart of a parent's activity while choosing parental goals showing Gurycka's model as extended by Szymańska. The thin lines represent the parent's course of action, while the bold lines represent the parent's course of thinking.**

activity" (Gurycka, 1985, p. 22). Let us remember that, as Gurycka notes, experiences *D* are a function of activity *A* and emotions *E*.

$$D = \mathrm{f}\,(E\,,\,A)$$

This suggestion is presented in Figure 3.

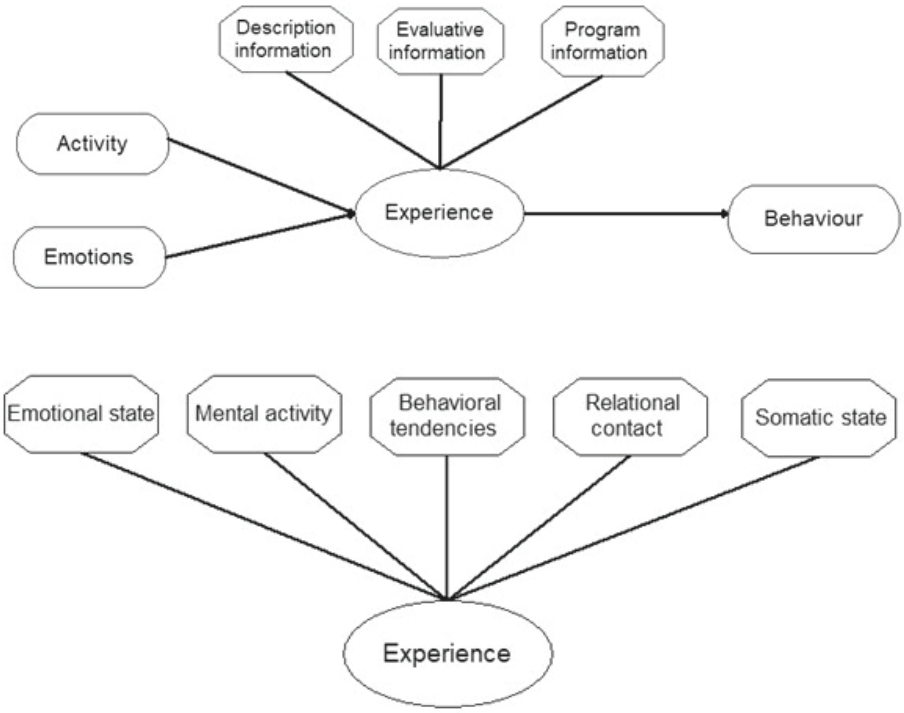


Figure 3. **Experience in terms of Gurycka (1985) and Greenberg (2002)**

It should be noted that Gurycka describes the experience in a processual manner, presents the input process variables — activity *A* and emotions *E* — then the information acquired by the person constituting the essence of experience *D*, then the final effect, which is the behavior.

Gurycka lists three categories of experiences, depending on the information on which they are based. These are "descriptive information" (related to knowledge of reality), "evaluative information" (an assessment of reality) and "programming information" (information on how to deal with similar situations in the future is a directive on conduct). Gurycka also divides experience by its types: "situational experience," that derived from a specific situation (including all active contact with reality), "generalized experience" (applied to situations similar to those in which it arose) and finally, "life experience" (structured and independent in relation to the functioning of human personality).

A very valuable element of the concept of experience according to Gurycka is putting it into dynamic categories, showing the input and output variables of the process (a very clear feature of many of Gurycka's concepts: their dynamics and process). Other known descriptions seem to describe experience in static terms, in which experience is a structure containing the elements of emotion, mental activity, behavior and interaction with others (Greenberg, 2002). The somatic state should also be added to these four elements. The diagram showing experience in static terms is presented in Figure 3 below Gurycka's model.

But what is this perception and experience? When we say that someone has experienced something, we often use words such as "survived," "felt" or "gained." The Polish dictionary defines experience "as a whole process of perceiving reality or all perceived facts, all information obtained on the basis of observations" (Szymczak, 1978). Experience and perception are therefore synonymous and constitute the heart of the upbringing process. They are a latent, barely perceptible variable, whose existence we can infer — though only on the basis of its five basic components, i.e., emotional state, somatic state, behavioral tendency, mental activity and relational contact.

"Emotional state" refers to emotions and feelings, "somatic state" to bodily experiences, "behavioral tendency" to behaviors, "mental activity" to emerging thoughts and imagination and "relationship contact" refers to the mutual reference of partners' interaction (behaviors). A child may experience negative emotions, e.g., sadness or anxiety, while at the somatic level he/she may experience, e.g., a stomach ache, headache or trembling arms and legs. The child's behavioral tendency may be related to, for example, hiding, cowering or — on the contrary — throwing things, rebelling, screaming or, in other words, crying. Mental activity can concern both thoughts and ideas about the representation of oneself ("I was bad and that's why it happened to me"), the representation of a parent ("my mother is bad") or the mutual relationship ("my mother doesn't love me" or "I don't love my mother anymore"). As well as descriptive information, there is evaluative and programming information. It should be noted that the mutual relationship is a representation in the child's mind of the parent's relationship to the child and the child's relationship to the parent, which is expressed in the relationship with the parent. Parent–child contact is the last component of reception and is also the most specific component. It can be said that it combines reception with effect. When it comes to representation, reference to a parent is a perception; when a behavioral factor towards a parent appears, this is an effect.

In analyzing a child's experience — including negative experience — one should remember that not only the type of experience but also its intensity has an impact on the power of influence. At this point, Gurycka should be quoted: "Similarly, it

happens that the upbringing environment, 'life,' can even fix parental mistakes (undesirable effects of upbringing), if the child's experiences in this area are not very strong" (Gurycka, 1985, p. 22) Such an approach, although very comforting, creates further methodological complications because it allows for a corrective effect from other variables. An example of such a corrective effect can be the relationship of a child with his/her grandmother or grandfather. Even in the case of a disturbed or completely broken relationship with the mother or father, when a child does not have contact with his/her parents, a close relationship with his/her grandparents can have a particularly corrective effect on the child's development. This example shows how multifaceted the upbringing process is and how many variables can mediate the formation of a child's personality framework. These considerations force us to examine the upbringing process in cause and effect categories, in which the number of intermediary variables (both mediators and moderators) should be taken into account.

Analysis of a child's experience in various upbringing situations, particularly the situations we suspect may be a cause of negative childhood experiences, seems to be one of the key directions of research in contemporary upbringing psychology. However, it cannot be said that the analysis of human experience is something new in sociology and psychology; on the contrary, it is the basis of these sciences, and although it is extremely difficult to study in terms of methodology, it is still the heart of the social sciences. According to Nowak: "In the sciences of people and societies, in the sciences of culture, observation — according to Dilthey — it is not enough, in addition, that the phenomena observed must be understood. This understanding consists of becoming aware of what the people observed by the researcher think and feel, what motives direct their actions, how they comprehend the meaning of their actions and what they believe them to do" (Nowak, 2007).

Gurycka describes the experience in the upbringing process from a developmental and personal approach, which focuses on the child as a developing entity in the course of the upbringing interaction (Gurycka, 1979; 1985). The basic approach here is to assume that the upbringing system is implemented by people and its effects are realized in children. Gurycka puts experience in the development and personal approach as an effect of upbringing interventions and, thus, the upbringing situations which are experienced — hence the second name for this approach, the situational approach. Gurycka has this to say about it: "The situational approach arose from the conviction that the most important thing in upbringing is what is happening in the educated entity under the influence of actions directed at it directly through the group or its task" (Gurycka, 1985, p. 8). Therefore, the most important thing in the whole dynamics of this process is the child's experience, because the effectiveness of his/her upbringing depends on it.

The educator[2] (a teacher or parent), being aware of his goals, exerts an upbringing influence by creating various situations in which the child participates. This joint participation is an upbringing interaction, and its individual effect is the experience gained by the child.

A Theoretical model of constructs which condition the creation of parental mistakes

The concept of parental mistakes by Gurycka enabled the reconstruction of the theoretical model describing the formation of parental mistakes: a) strictness (rigor) and aggression, b) constraint and indifference, c) self-accentuation and indulgence and d) doing things for the child and idealization of the child. The theoretical model is presented in Figure 4.

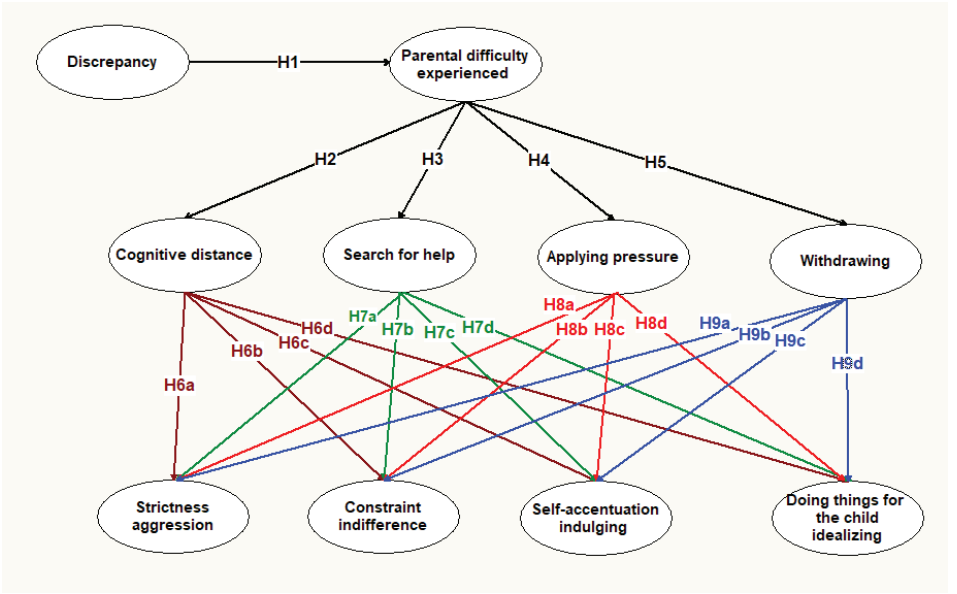


Figure 4. **Theoretical model describing the formation of parental mistakes**

[2] Gurycka states that parental goals exist in every upbringing institution and any person who plays the role of an educator can have them (Gurycka, 1979). She also says that the full range of all upbringing institutions is unknown to us, but they undoubtedly include ones such as school, family, a scout team or peer group (Gurycka, 1979).

The reconstruction of the theoretical model consists of an analysis of the material concerning a given theory in a special way: a) the scope of the concepts of the theory, b) the laws of the theory and c) the principles limiting the operation of the theory. When reconstructing the theory in structural terms — according to Szymańska — it acquires a structure (Szymańska, 2016b). Therefore, the scope of the structure is indicated, i.e., by the sequence of elements belonging to it and the characteristics of the structure, and thus by the relationship between the elements of the structure. This method of reconstructing a theory is called axiomatization of the theory (Jonkisz, 1998; Szymańska, 2016b).

As Szymańska states, "During the reconstruction of the theory, the scope of the structure is given, i.e., all its elements are specified: ranges of concepts are specified, the concepts which are specific to a given theory and which are borrowed, as well as the relationships between them. Relationships between the theory and other theories are shown. The range of possible models of the studied theory is presented. The model is then presented using a mathematical graph showing the scope of the structure, i.e., it presents all the elements and the relationships between them. In this way, specific hypotheses are put forward that relate to the relationship between elements in the structure of the model" (Szymańska, 2016b, p. 97).

The structural model as a reconstruction of a theory which is subject to verification is called the "substantive model" or the "model of the substantive process." The model is a structural reconstruction of the theory, i.e., it represents the assumptions of the theory (Gospodarek, 2009). The model, according to Roman Konarski, often describes a cause-and-effect phenomenon (Konarski, 2009). Although the models do not test cause-and-effect relationships, when the theory of such a phenomenon is described by the model, its correctness becomes probable, when it turns out during testing that the model fits the data.

During reconstruction, the researcher should consider all key variables to describe the phenomenon by the model. However, the issue of entering all variables into the model is also problematic. During the reconstruction, the law of model simplicity should take priority. Complex models with many variables and many relationships between them are very difficult to interpret. Therefore, the variables in the model should be limited to the most important, the ones which explain a given phenomenon. In the case of structural modeling, this principle — called Occam's Razor — takes on a special character. If we were to transfer it to modeling science, we would have to state that of two models that explain the phenomenon equally well, this model which is simpler is the better one. The best of the alternative models is selected according to this rule.

In summary, when building a model, care should be taken not only for the model to explain the phenomenon well, but also for relationships between variables to be

meaningful and easily interpreted. The theoretical model presented in Figure 4 describing the formation of parental mistakes is a 10-part structure (scope of the structure), which is characterized by 21 relationships between its elements. The main exogenous (explanatory) variable of the model is discrepancy. The model has four endogenously explained variables, which are the four pairs of parental mistakes: a) strictness and aggression, b) constraint and indifference, c) self-accentuation and indulgence and d) doing things for the child and idealization of the child. The variable of experiencing parental difficulties and the four responses to stress — that is, a) cognitive distance, b) seeking help, c) applying pressure and d) withdrawal — are endogenous (internal) variables of the model, which simultaneously are explained and explain other variables in the model. These are the mediation variables in the model.

According to Gurycka's concept, an analysis of the upbringing process should begin with a study of discrepancies, i.e., the difference between the child's current level of development and the parental goal for development, or the features that the parent wants the child to develop. The greater the discrepancy, the stronger the parental difficulties the parent experiences. This is the first research hypothesis of the research carried out. In Figure 4, it is marked with the symbol "H1."

As a result of *experiencing parental difficulties*, the mother may adopt one of four reactions to a difficult situation (stress), consisting of two adaptive and two non-adaptive reactions. The mother may try to cognitively distance herself from the situation and try to solve it. The second research hypothesis raises this problem ("H2," Figure 4). She may instead try to find help from other people in solving the difficult situation, e.g., family members or institutions (a psychologist or school counselor), etc.; the third research hypothesis raises this problem ("H3," Figure 4).

In a difficult situation, the mother can also react using one of two non-adaptive responses. The mother may apply pressure to the child. The fourth research hypothesis raises this problem ("H4," Figure 4). She may withdraw from the relationship with the child. The fifth research hypothesis raises this problem ("H5," Figure 4).

Antonina Gurycka, in her theory of parental mistakes, pointed out that when a parent is trying to cope with difficulty and applies pressure, this may lead to the parent committing a parental mistake. The result is similar when withdrawing from the relationship with the child. However, Gurycka did not hypothesize about the two adaptive responses to stress and their relationship with committing parental mistakes. The theoretical model is therefore extended by these two reactions (see Figure 4).

The model assumes that cognitive distance is associated with committing parental mistakes. This is the essence of the sixth research hypothesis. The relationships between cognitive distance and various mistakes make up further hypotheses: the

relationship between cognitive distance and strictness and aggression is the H6a hypothesis; constraint and indifference, the H6b hypothesis; self-accentuation and indulgence, the H6c hypothesis; and doing things for the child and idealization, the H6d hypothesis.

The relationship between seeking help and the different parental mistakes is the seventh hypothesis: the relationship between seeking help and strictness and aggression is the H7a hypothesis; constraint and indifference, the H7b hypothesis; self-accentuation and indulgence, the H7c hypothesis; and doing things for the child and idealization, the H7d hypothesis.

The relationship between applying pressure and strictness and aggression is the H8a hypothesis; constraint and indifference the H8b hypothesis; self-accentuation and indulgence the H8c hypothesis; and doing things for the child and idealization the H8d hypothesis. The relationship between withdrawal, strictness and aggression is the H9a hypothesis; constraint and indifference the H9b hypothesis; self-accentuation and indulgence the H9c hypothesis; and doing things for the child and idealization the H9d hypothesis.

Justification of the elements of the theoretical model of constructs which condition the formation of parental mistakes

Balancing the discrepancy between the parental goals assumed by the mother — the features that she wants to shape in her child — and the child's level of development, in terms of the traits being developed, is associated with the effort that the mother must make to balance the discrepancy. Therefore, the discrepancy in Gurycka's theory of parental mistakes is related to the parent's experiencing of difficulties (Gurycka, 1990). The state of discrepancy creates a difficult situation that a parent must deal with. The relationship between discrepancies and the mothers' experiencing of parental difficulties is the content of the first research hypothesis (H1).

The experience of difficulty shapes the representation of the cause of this state and makes a person react to difficulty in accordance with their ability to overcome difficulties. This ability may be conditioned by the representation of the object that caused this difficulty. In the current model (Figure 4), representation is not tested, but the direct relationship between mothers experiencing parental difficulties and stress responses, i.e., the ways of dealing with these difficulties, is tested. It was assumed that in the face of difficulties, a mother could adopt one of two adaptive responses to stress: a) cognitive distance or b) seeking help.

When experiencing parental difficulties, a mother may try to gain cognitive distance, to distance herself from the situation in order to understand and solve it. It is a coping mechanism that requires a calm and rational view of the situation.

The second hypothesis (H2) raises this issue. The model assumes that the cognitive distance can be associated with all parental mistakes (Figure 4). By adopting cognitive distance, the mother may make mistakes: strictness and aggression (H6a), constraint and indifference (H6b), self-accentuation and indulgence (H6c) or doing things for the child and idealization of the child (H6d).

However, the mother may react differently. Responding at a distance can be difficult or impossible in some situations and the mother may be forced to seek help from others. Such help can be provided by a close relative, e.g., the mother's parent, friend, etc., or people working in institutions that support families, e.g., psychologists or educators. This issue is addressed by the third hypothesis (H3). The model assumes that seeking help can be associated with all parental mistakes (Figure 4). In seeking help, the mother may make parental mistakes: strictness and aggression (H7a), constraint and indifference (H7b), self-accentuation and indulgence (H7c) or doing things for the child and idealization of the child (H7d).

However, the mother may try to cope with the difficult parental situation by attempting to combat it with pressure. The fourth hypothesis (H4) raises this problem. Gurycka points out that as a result of applying pressure, a parent may begin to make parental mistakes (Gurycka, 1990). The model assumes that applying pressure can be associated with all parental mistakes (Figure 4): strictness and aggression (H8a), constraint and indifference (H8b), self-accentuation and indulgence (H8c) or doing things for the child and idealization of the child (H8d).

Finally, the mother may adopt one other method in order to combat the difficulty: withdrawing from the parental situation and interaction with the child. The fifth hypothesis (H5) addresses this problem. Gurycka assumed that when dealing with difficulties in this way, the parent can also make parental mistakes (Gurycka, 1990). The model assumes that the withdrawal of the mother can be associated with all parental mistakes (Figure 5): strictness and aggression (H9a), constraint and indifference (H9b), self-accentuation and indulgence (H9c) or doing things for the child and idealization of the child (H9d).

To sum up, the model assumes the existence of a relationship between the methods of coping with parental difficulties and all parental mistakes; however, according to the theory assumed by Gurycka, only the reactions of applying pressure and withdrawal are associated with parental mistakes. The links between adopting cognitive distance or seeking help with parental mistakes stem from an extension of Gurycka's model. They were not proposed by the author of the theory of parental mistakes.

Relationships between elements of the theoretical model of the experience of parental difficulty and the response to stress and parental mistakes

Inability to achieve parental goals and mothers' experience of parental difficulties

According to Gurycka, parental goals, i.e., personality traits that parents want to develop in a child, are the main points in the upbringing process. The proper selection of parental goals is a selection that matches the child's abilities. In other words, the parent should not try to develop personality traits in the child that are inappropriate for his abilities, age and temperamental traits. Gurycka calls the wrong choice of parental goals the first parental mistake (Gurycka, 1980).

Progress in the development of personality traits planned by a parent occurs in different ways. Children develop some qualities faster, others more slowly. The difference between the trait planned by the parent and the child's current development of the trait being planned is called a "discrepancy."

Gurycka identifies two types of parental goals: a) traits that parents want their children to develop — desirable or positive goals — and b) traits that parents absolutely do not want children to develop — unwanted or negative goals. The parent may therefore try to make the child develop certain traits or to counteract the development of other traits. The distance from desired goals is called a "positive discrepancy," while the distance from unwanted goals is a "negative discrepancy."

A positive discrepancy arises when the child does not develop the characteristics that parents would like to develop. A negative discrepancy arises when a child develops features that parents do not want to develop.

As Gurycka notes, a discrepancy creates a difficult situation for a parent which must be dealt with. In the event of a discrepancy, the parent must agree on the difference between the desired goal and the child's current state in terms of the feature being taught. Therefore, a parent can change the parental goal or use other methods to develop the child's personality traits.

Tomaszewski states that every difficult situation is more or less a hazardous situation. A threat then occurs, "when there is an increased likelihood of some value which valued by the actor being violated, such as life, health, himself and his loved ones, property, rights, social position, his good name, his own work, views, well-being or assessment, etc. ... [A]ny difficult situation to a greater or lesser extent is a threat, since any difficulty may hinder the performance of the activity, and this in turn may cause consequences for its actor. It should also be remembered that the concept of difficulty is a relative concept: what is difficult for one person may not be for another, and what is difficult for a given person when he is in a certain state (e.g., when he is tired), may not be difficult in a different state (e.g., when he is at rest). Because man is an element of his own situation, the situation may depend on his own state and his condition may depend on the state of other elements of the situation.

In psychological literature, a lot of attention has been devoted to the subjective reactions of man to difficult situations. These reactions are very complex and are usually referred to as stress"(Tomaszewski, 1975, pp. 34–35).

Thus, the experience of parental difficulty is called the parent's internal condition, caused by a difficult situation related to raising a child. According to Gurycka, the experience of parental difficulty occurs when there is a discrepancy between the parental goal and the child's current level of development in terms of the feature being taught. In other words, when a parent cannot achieve a parental goal, the probability that they will experience difficulties increases.

Previous studies have shown that, in fact, the relationship between a discrepancy and the parent's experience of parental difficulties is high (Szymańska, 2012; Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017). The previous study was conducted in two trials. In both cases, this relationship exceeded the value of $\beta = 0.70$. So, the relationship between experiencing parental difficulties and discrepancy is high.

Mothers' experience of parental difficulties and their reactions to difficult situations (stress)

Experiencing difficulties as a result of being in a difficult situation (i.e., experiencing mental stress) demands that a person cope with it (Cooper, 2009; Heszen-Niejodek, 2002; Power, 2004; Terelak, 2008). Gurycka states that in a situation of difficulty, a parent can react by *withdrawing* from a stressful situation or by *applying pressure*. Gurycka refers to both of these reactions in Reykowski's theories, which were described in the *Track of Specific Changes* (Reykowski, 1966). These are two

non-adaptive responses to stress. They have already been documented in the animal world (Selye, 1956).

Reykowski also describes two adaptive reactions: *taking cognitive distance* and *seeking help*. Adopting cognitive distance involves a cool, unemotional distance from the situation in order to view it from another perspective and find a way to solve it. This requires a person to control him- or herself and remain calm despite the difficulties (Reykowski, 1966). It can be expected that the more stress increases, that is, the more difficult the situation is, the more difficult it is for a person to maintain this distance. The second adaptive response to stress is to seek help from other people (e.g., from parents or friends) or institutions.

Szymańska and Dobrenko described a model in which these four responses to stress were related to parents experiencing parental difficulties as a result of their inability to achieve their parental goals (Szymańska & Dobrenko, 2017). The model was tested using a system of structural equations. It turned out to be well-matched to the data. It revealed that a parent's withdrawal strongly correlates with a parent experiencing stress and having an image of the child and his/her activity as being less important than the parent's activity. The correlation of parental difficulty with such an image of the child and his/her activities in the mind of the parent was $\beta = 0.93$ ($p < 0.005$), while withdrawal with such an image had a β-value of 0.80 ($p < 0.005$). These correlations were strong. The application of pressure in this model was moderately associated with the entire structure. The correlation between the application of parental pressure and a perception of the child was $\beta = 0.57$ ($p < 0.005$). The adoption of cognitive distance was negatively associated with the entire structure. The relationship between cognitive distance and a perception of the child was $\beta = -0.71$ ($p < 0.005$). No relationship between seeking help and the stress response was revealed. The correlation between the perception of the child and seeking help was $\beta = 0.04$ (not significant).

The results of structural models confirmed, therefore, that experiencing difficulties (stress) is most strongly associated with parental withdrawal (high correlation) and pressure (moderate correlation). On the other hand, taking cognitive distance is strongly negatively associated with the parent's experience of stress. In other words, as stress increases, the parent's cognitive distance from the situation decreases. Seeking help turned out to be unrelated to the whole structure which describes a parent's experience of difficulty (stress) in an upbringing situation.

The current research tested these relationships again. This time, however, the direct correlation with a mother's experience of difficulties (stress) was checked. In other words, the image of the child does not mediate the relationship between experiencing difficulties and applying stress responses. This procedure was applied in order to simplify the model. The methodology does include, however, whether

there is a direct relationship of a mother's experience of parental difficulties with stress responses, without taking into account the representation of the child in the mind of the parent.

Finally, referring to the discussion that was taking place in the world regarding *coping styles and coping methods*, or "coping strategies," it should be stated that the coping methods discussed here are closer to coping strategies than styles as such (Lazarus & Folkman, 1987). As a reminder, a strategy is a specific action that an individual undertakes to cope with various stressful situations, while a coping style is an attribute of an individual understood as a permanent personality disposition of the individual to deal with stressful situations in a certain way or, as Heszen-Niejodek says, it is a repertoire of coping strategies in stressful situations (Strelau, 2014).

When discussing how a parent deals with a stressful situation, we understand here rather a behavior which is not necessarily characteristic of the parent and related to his/her style of coping, but with this specific, difficult upbringing situation related to the inability to achieve parental goals. In other words, we cannot say that the parent has such tendencies to respond in different situations, but rather that (s)he reacts to a specific situation of difficulty (related to the inability to achieve parental goals) in a given way. In essence, we are talking about a way or strategy, not a style.

Of course, we cannot exclude the possibility that people who, when experiencing parental difficulties, react by applying pressure, for example, may also have this style of response. However, based on the test results obtained here, we cannot unequivocally confirm or rule it out. Therefore, the interpretation of a parent's behavior in a stressful situation concerns his/her behavior, and thus the strategy, not the style of behavior. The research described herein does not provide sufficient evidence to support the thesis on parental behavior styles.

Non-adaptive responses to stress and mothers' parental mistakes

Gurycka's two non-adaptive responses to stress, i.e., applying pressure and withdrawing, associated with making parental mistakes. According to Gurycka, "an imperious man, convinced of his superiority over an interaction partner, will continue to act in accordance with his representation of the entire system (the whole situation), as long as he maintains the interaction in his own way until he encounters an obstacle, e.g., a negative rating. Only then will his tendencies make him look for ways to maintain his line of action 'despite everything' and begin to make obvious mistakes" (Gurycka, 1990, p. 44).

This pressure mechanism can lead to parental mistakes. Thus, Gurycka associated with parental mistakes the parent's use of pressure as a defensive response

to stress. In our present work, we will test whether committing parental mistakes is related to the parent's (mother's) reaction to stress by applying pressure. We do not indicate which of the mistakes could be more strongly associated with applying pressure than others. It seems, however, that cold mistakes, i.e., strictness and aggression, as well as constraint and indifference may be more strongly associated with mothers applying pressure than warm mistakes, i.e., self-accentuation and indulging the child, and doing things for the child and idealizing him/her.

Also, the second non-adaptive method of combating stress, withdrawal from the upbringing situation, should be associated with parental mistake. Withdrawing can lead to parental mistakes because it can be manifested by abandoning attempts to teach a child or to exert parental influence. This attitude of withdrawal is not so much related to the permissive style as it is grounded in educational failures, i.e., in the impossibility of achieving parental goals. It can lead to the most dangerous consequence of parental mistakes which Gurycka wrote about, namely, a broken upbringing interaction (Gurycka, 1990). This is nothing more than a broken relationship between parent and child. It occurs when, for example, the parent does not want to interact with the child or, conversely, the child does not want to interact with the parent. Gurycka indicates that the breaking of parental interaction is the most dangerous consequence of parental mistakes, because it carries the greatest threat to the proper development of the child.

Adaptive responses to stress and mother's parental mistakes

The two adaptive responses to stress, i.e., seeking help and taking cognitive distance, seem to be negatively associated with committing parental mistakes. If the parent knows how to distance himself/herself, take a different perspective and look at the situation from the side in order to solve the difficulties, this ability can protect him/her from committing parental mistakes. The parent can then look at the child differently, understand the situation in a different way, see something (s)he has not seen, if (s)he is able to control negative emotions and solve the situation in a way that would bring benefits to the child's development.

The result is similar when a parent seeks help from other people. Acquiring consultation, support and advice can also help a parent not only cool off, but also adopt the right perspective. The advice of another person can make a parent see something the parent hasn't seen before, to look at the child differently or learn something they didn't know about childrearing. It would also lead to him/her not making parental mistakes.

The previously conducted analyses have shown that there are two groups of people who are similar and at the same time different from each other in terms of adopting these two responses to stress. The first group of people includes those who can cognitively distance themselves from the situation, but do not seek help from other people. The second group includes those parents who try to cognitively distance themselves from the situation while simultaneously willingly and often seeking help from other people: family, friends, educational institutions, etc. (Szymańska, 2017c).

No studies have been conducted on the relationship between adaptive responses to stress and parental mistakes. It can be expected, however, that the relationship between cognitive distance and seeking help should be negatively related to a mothers' committing parental mistakes.

Parental mistakes experienced by mothers in childhood and the ways of coping with difficulties in raising their own children

Whether the mother has experienced more or fewer parental mistakes as a child can determine whether she also experiences more stress in the process of raising her own child and whether she makes more parental mistakes. It seems that people who, as children, experienced more parental mistakes on the part of their parents may be more susceptible not only to making parental mistakes, but also to experiencing stress and having difficulties in raising their children. These people may take less adaptive responses to coping with difficulties and stress.

Where does this supposition come from? It stems from the knowledge about how experiencing difficulties and stress long-term or permanently has an impact on one's psyche. A child who is subjected to parental mistakes experiences severe stress. A parental mistake is a situation that not only arises from the difficulties experienced by the parent, but also brings about great difficulty for the child as well. In a situation of parental mistakes, the child must survive this situation, deal with it and somehow solve it. The younger the child, the fewer strategies for solving situations that are associated with severe stress the child has. Therefore, many psychologists speculate that the impact of parental mistakes is stronger on young children than on older children. If a child experienced the parental mistakes of his parents for a long time, i.e., was exposed to severe stress and difficulties, it could affect his psyche. It is known that experiencing stress is very exhausting for the body. It causes not only mental problems, but also somatic disorders. It contributes to the weakening of immunity. Problems with adapting to difficult situations not only affect mental resilience, but also contribute to shaping future methods of dealing with difficulty. A person may be less resistant to mental stress in the future. Prolonged stress also causes behavioral changes. It contributes to aggressive behavior, hyperactivity, impatience, withdrawal, apathy or even depression. Therefore, it should be expected that a person who experienced more parental mistakes as a child may have more problems coping with difficulties and stressful situations, as well as of course making more parental mistakes in such situations.

In the present study, it is tested whether the described structural model is equally well-matched in the groups of mothers who experienced more and fewer parental mistakes. It is checked whether the relationships between the discrepancy, the difficulty experienced, the ways of coping with stress and the parental mistakes made are equally strong in the groups of mothers who experienced more and fewer parental mistakes in childhood. This procedure is used to test whether the stress response is just as strong in mothers who experienced more of fewer parental mistakes.

The transfer of parental mistakes in mothers' families of origin

Based on the analysis of the literature on parental mistakes (Gurycka, 1990, 2008), the formation of personality frameworks, the system of needs and values, the location of control and the selection of parental goals in the upbringing process (Gurycka, 1990, 1994, 1996), a theoretical model was created that would interpret the transfer of mistakes in a mother's family of origin. The model is presented in Figure 5.

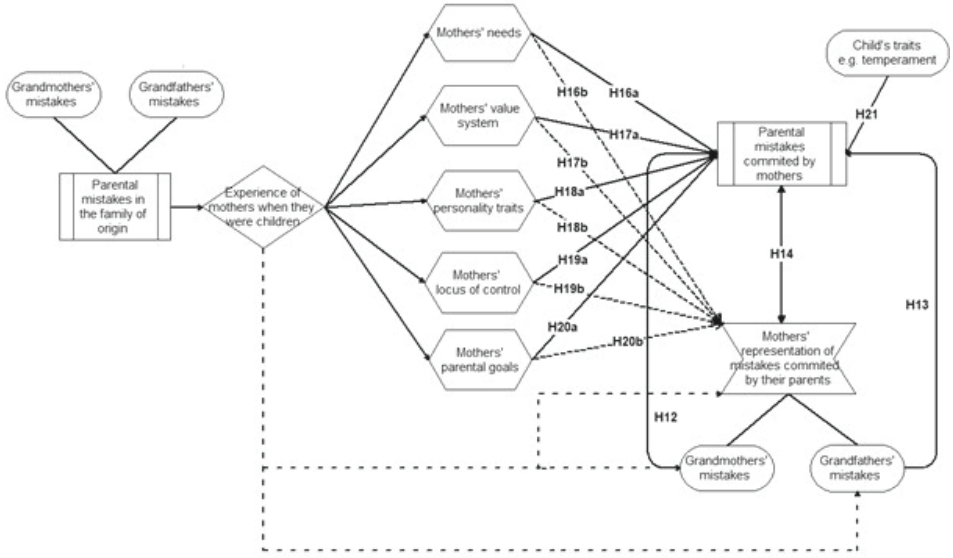


Figure 5. **Theoretical model describing the transfer of parental mistakes in a mother's family of origin**

The model includes the important (though not all) constructs that may affect the transfer of parental mistakes. There may be many other constructs that are

factors in the transfer of parental mistakes. In this work, we will only analyze the ones selected because they are most often mentioned in the literature.

In the proposed model, parental mistakes made by a mother's parents (i.e., parental mistakes in the family of origin) are situations that determined the experience of the mother when she was still a child. These experiences contributed to the creation of the mother's representation of the parental mistakes of her parents (grandmother and grandfather), to the development of personality traits, the locus of control, her system of values and needs and, as the author of the model assumes, they formed the basis for generating future parental goals that the mother will choose for her children. How parental mistakes and the experience gained from them become a factor which determines the development of these characteristics will be described in the following chapters.

The characteristics of mothers and the parental mistakes of their parents (grandmothers and grandparents) which they experienced are determinants of the parental mistakes they in turn may make as mothers. The model takes into account five characteristics of mothers: the mother's needs (Figure 5, H16a), the mother's value system (Figure 5, H17a), the mother's personality traits (Figure 5, H18a), the mother's locus of control (Figure 5, H19a) and the mother's parental goals (Figure 5, H20a). These features were shaped in the upbringing process of the mother when she was a child and they successively affect the upbringing of her children. It is assumed that mothers who have certain characteristics may more often make parental mistakes. Which characteristics of mothers are related to which parental mistakes is a research question and the subject of analysis carried out in this work. The model assumes that a mother's parental mistakes are determined not only by the characteristics of the mother, but also by the characteristics of her children, e.g., the children's temperamental traits (Figure 5, H21).

The characteristics of mothers are not only determinants of their parental mistakes, but they can also determine how mothers perceive their parents' parental mistakes. It is known that mothers are not able to estimate the real parental mistakes of their parents, but they can provide information on how they perceive those mistakes, and thus how they remembered and experienced them, and what representation they have. Of course, the child does not remember all events exactly. As Howe says, even when they are accompanied by powerful emotions, it is impossible. Therefore, what is remembered is the general representation of those events. When an event repeats, the overall experience is remembered. As Howe notes, "repetitive experiences can lead to an overall representation of an event that retains the essence of a similar experience at the expense of memory for each individual episode" (Howe, 2000, p. 52). Because a parental mistake is an event that repeats, an adult may not remember it in exact detail. But (s)he maintains a general impression

of those events, e.g., that Dad was often indifferent, and that Mom often shouted, etc. In one's memory, there is a trace that is a generalized representation of what happened. Sometimes this general impression is also called a generalization of experience (Gurycka, 1990; Howe, 2000). As Howe says, "Regarding the appearance of general representations, it has been argued that schemes or scripts are learned (or extracted from experience) by children, and that these representations may be among the first to characterize the way the world works" (Howe, 2000, p. 52).

Gurycka notes that the person's locus of control can determine their perception of their parents' parental mistakes (Gurycka, 1990). Therefore, the model assumes that mothers' perception of parental mistakes (grandmothers' and grandfathers') can also be a determining factor for mothers' parental mistakes (Figure 5, H12, H13 and H14) and at the same time this perception is itself determined by the characteristics of the mothers (Figure 5 , H16b, H17b, H18b, H19b, H20b).

In this model, the characteristics of mothers, on the one hand, mediate the relationship between a) real parental mistakes that once were made by a mother's parents (today we no longer have access to them) and her perception of her parents' parental mistakes and b) between her parents' (grandmothers' and grandfathers') parental mistakes and the mistakes she herself makes. The characteristics of mothers are mediators in the relationship between the real mistakes of the mothers' parents and the mother's own parental mistakes. However, in the relationship between mothers' perception of their parents' parental mistakes and the mothers' parental mistakes, they are moderators (i.e., they can moderate and shape the way a mother perceives her parents' parental mistakes). As can be seen in Figure 5, the hypotheses were made only among three groups of variables: a) the characteristics of mothers, b) the perception of the parental mistakes of grandparents in the eyes of mothers and c) mothers' parental mistakes. This was done because real mistakes are no longer available to us. We can only examine the representation of these mistakes.

This general theoretical model shows a certain area in which the analysis presented in the work will be conducted. It should be noted that in the proposed model, parental mistakes in the family of origin are the main exogenous (external) variable of the model. It is from these mistakes that the analysis of the whole process begins. In this sense, they are considered a factor which determines the development of personality traits, the system of needs and values of mothers, the locus of control and even the selection of their parental goals. The characteristics of mothers listed here have the status of endogenous (internal) variables of the model and at the same time of mediators for the way mothers perceive their parents' parental mistakes. They also explain the parental mistakes directly made by mothers. There is one more exogenous (external) variable in the model: the child's

temperament. This is the external variable of the model because it is not explained by any other variable in the model.

The following three assumptions have been made in creating the model:

1) Parental mistakes made by a mother's parents (i.e., the grandfather's and grandmother's parental mistakes) are factors which determine the mother's own parental mistakes, as they shaped her system of needs and values, as well as the personality traits, locus of control and preferences connected with the mother's parental goals.
2) A mother's characteristics are mediating variables that moderate the relationship between her perception of parental mistakes in her family of origin and her parental mistakes.
3) A child's temperamental traits are also factors which determine whether a mother commits parental mistakes. This selected trait of a child is biologically conditioned and there is no need for it to be explained by psychological variables. At the same time, a child's biological background affects the child's upbringing even in the first days of its development and it can have a significant impact on a mother's parental mistakes, especially if the child's temperamental features are a combination of a "difficult" temperament.

A general theoretical model was built on these three assumptions. It is referred to as the "general theoretical model" because it does not describe exactly what characteristics can be the determinants of which parental mistakes, but it only represents a certain area of analysis and research carried out herein. In the following chapters, the paths in the model will be approximated, i.e., the relationships between the constructs described in the model will be presented.

Mothers' perceptions of their parents' parental mistakes and of their own parental mistakes

In this chapter, we will discuss the relationships that may occur between parental mistakes experienced in childhood, the representation of parental mistakes of parents and the parental mistakes made by adult women. Let's remember that the model presented in Figure 5 assumes that a mother's representation of the parental mistakes made by her parents (grandmothers' and grandfathers' parental mistakes) can also be a determining factor for mothers making parental mistakes. This is the basis of the three research hypotheses (H12, H13 and H14). Why is this so?

The experience gained from the upbringing process becomes a hidden message, the transfer of future parental mistakes. In contrast to the transmission, which implies an explicit message, we are talking about the transfer of a concept of a more

hidden, unconscious message. In a way, we're referring to the Freudian concept of transference, but only when it comes to the secrecy of the message. This is not synonymous with transference, in the way it is understood in psychotherapy, i.e., "shifting emotions, desire, fantasy, from the former person to the present" (Sokolik, 2005). It seems that parental mistakes are not transmitted. Values in the family can be transmitted, but not parental mistakes. This does not mean that mistakes cannot be passed on. However, this message has a different character. Parental mistakes seem to affect experience, which is gradually built not only into the system of values, but also into personality traits. In a special way, this experience shapes the representation of being a father or a mother, i.e., the representation of the role of a parent. This representation refers to how a parent should behave towards a child and how the child should behave. Therefore, a person learns parental mistakes as a certain message, through the upbringing interaction called modeling (Gurycka, 1979).

This message, however, is not completely unconscious. To some extent, it is subject to modification. It can be moderated provided that the person has managed to consciously transform his/her own experiences, give them a more correct character, i.e. gain new corrective experiences. It is often heard that someone says, "I will not do as my parents" or, on the contrary, that someone agrees with their parents, for example, "My parents were strict with me and it turned out good for me." This shows that people assess with their cognitive system what they experienced in their childhood. In other words, they assess whether their experience contributed to their development or not. What they remember from this experience, they try to implement in their child's upbringing or, on the contrary, they distance themselves from it, not allowing their child to have similar experiences. How a person assesses their own upbringing and to what extent they agree with their parents can affect their own children's upbringing process.

However, only a certain part of this message is subject to conscious assessment. It seems that a lot of information about what the upbringing process should look like, what should be done or not done towards one's own children, is transmitted in a completely unconscious way and is not subject to correction in the future. A human being can only correct his/her experience to some extent; (s)he is not able to correct everything. Therefore, if someone has experienced many parental mistakes, undergoing psychotherapy can be corrective only to some extent and can only modify some of his/her behavioral patterns. A parent can also learn new ways of responding to the difficulties which arise while raising a child by participating in various workshops and training courses. However, these opportunities are limited. It should be remembered that the psychotherapeutic process — as research shows — is effective for about 60%-70% of people who use it and, moreover, it provides the

greatest benefits to those who can build a good relationship with their psychotherapist (Hall, Ferreira, Maher, Latimer, & Ferreira, 2010; Howgego, Yellowlees, Owen, & Meldrum, 2003; Karver et al., 2008; Szymańska, Dobrenko, & Grzesiuk, 2015, 2016). As modern models show, a good relationship with a psychotherapist directly explains the effectiveness of psychotherapy (Szymańska, Dobrenko, & Grzesiuk, 2017). In contrast, people with features of an inhibited personality may have problems successfully building such a relationship (Grzesiuk, Szymańska, & Dobrenko, 2017). A child may develop an inhibited personality if (s)he experiences many parental mistakes, especially the mistake of constraining one's own activity (Chłopkiewicz, 1975b; Gurycka, 1977). Having experienced many parental mistakes can prevent the effectiveness of psychotherapy precisely because it prevents one from building good relationships, with a psychotherapist as well, and thus it prevents the individual from getting a *corrective experience*.

Therefore, it is assumed that part of a parent's own experience and what a parent has learned can be passed on to their children, regardless of whether they are aware of it, or whether they want to do so or not. We call this the *transfer of parental mistakes*, which is the unconscious part of the upbringing process consisting in passing parental mistakes on to children. The study will investigate whether there is a convergence between parental mistakes experienced in a mother's own childhood and parental mistakes made by those mothers, particularly the severity of these parental mistakes.

How someone assesses one's own experience from one's own upbringing is sometimes very difficult to understand, even for the child's parents. Gurycka points out that the perception of parents' parental mistakes may be conditioned by their own psychological features, such as the locus of control (Gurycka, 1990). Therefore, the relationship between real parental mistakes, the experience of these mistakes and the so-called retrospective assessment of these mistakes is very complicated. In the next chapter, it is described why in some situations some people may judge some behaviors to be mistakes, while others perceive them not to be. At this point, it should be noted that this assessment of the parental mistakes of one's parents can be very surprising, even for the parents themselves. Parents sometimes hear with amazement how harshly their children assess their behavior and how strongly they indicate that it had a negative effect on their development. Sometimes, it is the other way around: parents are surprised that what in their opinion was a difficult situation for their child almost goes unmentioned by the child at all. The upbringing interaction is a specific social relationship involving two people. Each of them perceives and experiences it differently (Gurycka, 1979). When examining parental mistakes, this should be always remembered.

Mothers' perceptions of their parents' parental mistakes, meeting their needs and their parental mistakes

In this chapter, the relationships that may occur between mothers' perceptions of their parents' parental mistakes, the shaping of the system of mothers' needs, satisfying those needs and mothers' parental mistakes are introduced.

The dynamics of the process leading to the formation of human personality is strongly associated with both parental goals and upbringing situations (including parental mistakes), and above all, with the experience of the child resulting from upbringing situations. The model presenting the dynamics of child personality development described by Szymańska is presented in Figure 6.

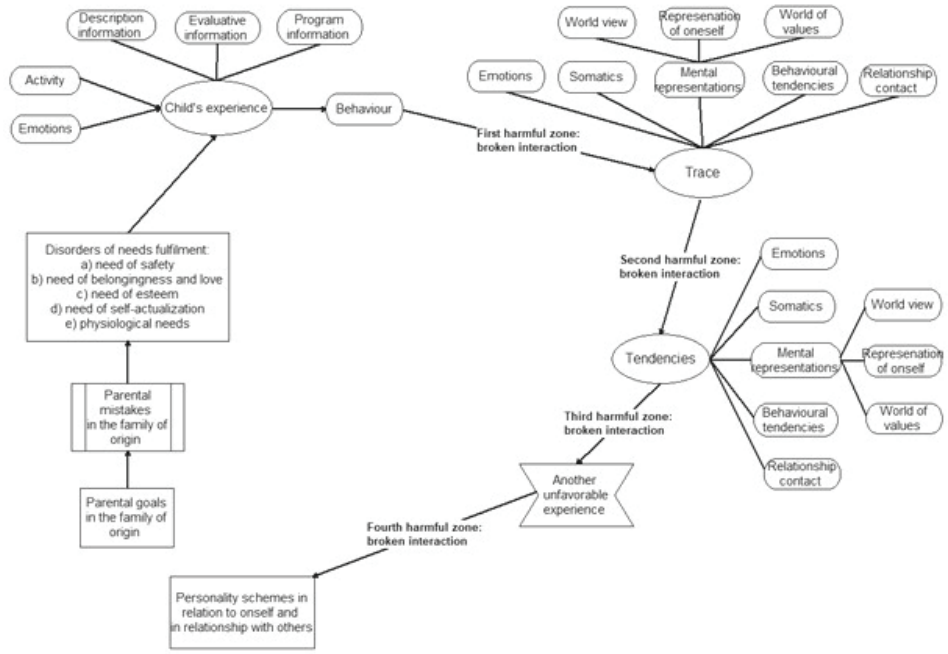


Figure 6. **Model of the development of personality patterns and the system of needs and values constructed by Szymańska**

In the model of personality pattern development, experience formation is preceded by the satisfaction of needs. If the child is able to meet their needs, it is unlikely that the experience gained from the situation would be detrimental to their development. If the child is not able to meet his/her needs, the likelihood that the

child's experiences will be detrimental to his/her development increases. Such basic needs include a) physiological needs, b) the need for safety, c) belongingness and love, d) good self-esteem and e) self-actualization (Łukaszewski, 2001). These are the basic needs described in Maslow's pyramid of needs, strongly associated with the development of the child's activity and thus having a huge impact on the development of his/her experiences.

The literature, especially in psychotherapy, strongly emphasizes the impact that an inability to meet childhood needs has on subsequent human experiences and the development of the system of values and needs in adult life. According to psychotherapists, needs which go unmet in childhood are strongly met by people in their adult life (Zinker, 1991). Satisfying or not satisfying the needs of a child affects his or her upbringing experience and, in this way, influences the formation of personality patterns. This suggestion is presented in Figure 6, in which satisfying needs is directly related to parental mistakes and precedes shaping of the child's experience.

As we remember, Gurycka pointed out in the theory of parental mistakes that it is not always a situation that we would classify as wrong in reality, but rather a situation that creates a negative experience for the child's development (Gurycka, 1990, 2008). In other words, it is the child's experience and traits that determine whether there has been a parental mistake. Gurycka only generally indicated the reasons why in some children the same event may be considered an experience of a parental mistake and in others it is not. According to the author of the theory of parental mistakes, it can be detached by the temperamental features of the child, his/her previous experiences, etc. An analysis of psychological theories allows us to suppose that one of the key reasons would be the child's ability to meet his/her needs in a given situation which we would define as erroneous, and that this ability to satisfy needs would be a factor determining the quality of a child's experience.

The first four needs in Maslow's Pyramid are needs of deficit, while the need for self-actualization is a growth need. The implementation of needs from each subsequent level of the hierarchy is possible as long as the previous needs from the lower level have been met. Therefore, the most basic needs are physiological, then the need for safety, third is the need for belonging and love, next is the need for self-esteem and the fifth is the need for self-actualization (Drat-Ruszczak, 2001). Physiological needs are associated with satisfying physical needs such as food and rest. These are the basic needs that must be met for the proper functioning of the body. The need for safety can be deprived by a lack of stability in one's environment, chaos, economic deficits, various threatening stimuli and social conflicts. The need for love and belongingness is threatened when a person experiences a deficit of affection or feels alienated, lonely or objectified. A deprivation of this need triggers actions designed to achieve love and belongingness.

The source of deprivation of the fourth need in the hierarchy, that of self-esteem, may be a person's low social position, a perceived lack of strength, achievements, competence or prestige, a bad reputation, negative assessment from others, etc. Finally, the need for growth or self-actualization is associated with cognitive needs, the expansion of knowledge, understanding the world — in other words, becoming yourself. "It is pure joy to create, express oneself, achieve humanity, etc." (Łukaszewski, 2001, p. 434).

According to Maslow, the higher one's needs are, the higher one's values should be (Maslow, 1987). As noted by Schwartz and Sagie, an increase in resources in the form of national income and improved living conditions allows people to free themselves from a preoccupation with needs and to attach greater importance to the values of transcendence (Schwartz & Sagie, 2000). Maslow noticed that it is this preoccupation that can cause some people, despite having well-met safety and physiological needs, still assign a very high value to them. Conversely, people with unmet lower needs may be oriented towards higher needs. This is explained by a sense of threat to meeting needs (Winston, Maher, & Easvaradoss, 2017). Someone may have lower needs on an average level, but not experience the threat of losing them, and thus not be absorbed by these needs. This person can then assign more weight to values of transcendence.

Studies show that the need for self-actualization is indeed positively related to the values of openness to change: Self-Direction Action, Self-Direction Thought, Stimulation and values related to self-transcendence: Universalism and Tolerance, Universalism and Nature and Universalism and Concern (Winston et al., 2017). However, a preoccupation with the need for safety with the values of Personal Security, Power and Dominance and negatively with Universalism and Nature. Absorbing physiological needs with Tradition, the need for belongingness and love, the need for esteem, Achievement, Power and Resources, Power and Dominance and Face (Winston et al., 2017).

Humans strive to meet their needs. Satisfying a need becomes one of the primary activities to which a person devotes his/her energy and attention. The inability to meet a need is therefore recorded as a very negative experience. We know that situations which are accompanied by very high activity and strong emotions are permanently recorded in one's memory (see Figure 3). Needs are also met in specific situations. If the needs are not met in a given situation, then an effort is made to meet them quickly. When this fails, the situation becomes difficult and is strongly recorded in the experience. We speak of such situations as deprivation situations (Tomaszewski, 1975). Preoccupation with a given need may arise. Despite the fact that a person has satisfied a particular need, the potential loss of it is absorbed by the person, causing him/her to focus on it constantly.

It seems that the ability to meet needs mediates the relationship between a potential erroneous situation and the child's experience. If in a given situation, e.g., having a strict parent, a child can meet his/her needs, then there is no need for it to become an unfavorable experience, or it may be a very weak one. Only a serious disturbance of needs can cause the situation to be remembered negatively and perhaps to be judged as erroneous in the future; moreover, a person can be absorbed by a need that (s)he could not satisfy as a child.

The theories of satisfying needs and creating experience bring to mind the existence of corrective factors for parental mistakes, factors that can buffer (reduce) the negative impact of potential erroneous situations. To illustrate this, one can imagine a situation in which one parent is aggressive towards a child. Aggression is a behavior of a parent that causes fear in a child — the need for security is under threat. Imagine, however, that the other parent notices the situation and takes the child to the cinema and tries to spend a nice time with him/her. The sense of security returns and the child may not even remember the situation. However, frequent exposure to aggressive situations by a parent can seriously upset the child's sense of security. The following needs can be at particular risk due to certain parental mistakes:

The need for safety: aggression and strictness

The need for belongingness: indifference

The need for self-actualization: constraining the child's activity

The need for self-esteem: strictness, aggression, constraint, indifference, self-accentuation, doing things for the child and even indulgence and idealization of the child.

Therefore, it seems that people who had their needs met in childhood may have a representation of their parents as people who did not make many parental mistakes. People who had fewer satisfied needs may retain a representation of their parents as having made more of these mistakes. However, it should be remembered that when talking about this representation (or as perceived by Gurycka) we refer to the child's experience and not to the assessment of the real situation.

There is a good chance that people who had their needs met as children are able to meet them as adults. The ability to meet one's needs is an important skill that one learns during development. Initially, parents meet their children's needs and a person acquires this skill in their upbringing. If someone's parents did not meet his/her needs, he or she may not be able to take care of his/her needs as an adult or may be unable to even recognize them (Zinker, 1991).

A person who knows how to take care of their needs can also take better care of their children's needs and, by understanding these needs, can make fewer parental mistakes. Will mothers whose needs were better met see their parents' mistakes

as fewer or less significant? Will they also make fewer parental mistakes? We will try to answer these questions in the current research by testing hypotheses H16a and H16b, which assume these relationships (Figure 5).

Mothers' perceptions of their parents' parental mistakes, their value system and their parental mistakes

In this chapter, we introduce the relationships that may occur between mothers' perceptions of their parents' parental mistakes, the formation of the mothers' value systems and their own parental mistakes.

The formation of personality patterns does not occur directly. Personality does not immediately develop from experience gained in specific situations. It can be said that before experience influences personality development, it evaluates and transforms. Let's take a closer look at how this happens.

When the creation of experiences and the upbringing interaction are broken as a result of parental mistakes, it leaves behind traces in the human psyche. This is the first harmful zone of parental mistakes (see Figure 6). This trace consists of memories of a past experience. It leaves behind a record relating to the elements of the experience which the person had. This record applies to a) the emotional state, b) somatics, i.e., what the person experienced in their body, c) the recording of behavior, i.e., what (s)he did (behavior) and d) relational contact, or how to relate to other people, and eventually a record is created of e) the mental representations concerning the world and oneself, which consists of: e1) one's worldview, e2) self-image and e3) the world of values (Gurycka, 1994). This suggestion is presented in Figure 6.

Very adverse experiences can cause different traces and tendencies. Depending on the original information obtained from experience (descriptive, evaluative and programming), such traces may remain in the mind. For example, an experience in which negative information was recorded at the descriptive and evaluative levels that described people as only taking care of themselves can create a record in which people will be perceived as selfish and the individual will have an image of himself/herself as endangered. The program information that a person will shape in his/her mind can be reduced to caring for himself/herself — and, at most, his/her loved ones — and being indifferent to the public good. This program information, together with value information, which make up the elements of experience, will shape the individual's worldview and value system. It will determine what is important and what is not important and which activities should be undertaken in the future. This is how a system of human values and attitudes can arise.

According to Gurycka, one's worldview is a representation of the world in terms of common knowledge about the world. Colloquial knowledge is called "knowledge formed by natural development, that is, by the natural contact of the individual with the object of knowledge or with other individuals who communicate or negotiate with the person knowing the content of knowledge" (Trzebiński, 1992 after: Gurycka, 1994, p. 12). Speaking about worldview, one should emphasize its subjective character, and therefore the difference between the real world and the way a person perceives it. Also, although there are dynamic relationships between the worldview and the world of values, according to Gurycka, they are two different concepts that should definitely be separated. Therefore, worldview refers to a person's perception of the world. On the other hand, according to Gurycka, "they are criteria, categories used to describe and evaluate the world as it is and as such are expressed in axiological form. These are questions and answers about what is valuable, which criteria are ideal for assessing the world. There are different domains of values, each of them has its own reasons for existence and a certain range of autonomy, the values are connected in a certain system so that it can be assumed that there is a 'universe of values.' This 'universe of values' is an ideal world, a world of values" (Gurycka, 1994, p. 14).

Therefore, worldview has a significant meaning in shaping the value system. It describes the world that a person sees it, while the value system refers to the world in which it "should be" and to the behavior that a person should adopt. The value system is therefore close to programming information, concerning a certain "script of behavior." It can be a system of personal or family or even social values; it is rooted in experience. Therefore, as such, it is shaped and undergoes an upbringing process and, of course, an educational process. By shaping experience properly, values are formed. To develop patriotic values, information is provided, an atmosphere is created, the importance of holidays and national celebrations is emphasized, which creates the right emotions and stimulates activity by consolidating these values. And vice versa. If a person wants someone not to absorb them, (s)he arouses aversive emotions, e.g., by embarrassing or mocking him/her.

As Maria Pulinowa says, "value is a vague concept, it ambiguously defines very different classes of objects and phenomena" (Pulinowa, 2003, p. 104). Schwartz defines values as "a cognitive representation (usually a belief) of a motivational, worthy desire beyond a situational goal" (Cieciuch, 2013, p. 23). Schwartz has selected 19 values: Achievements, Hedonism, Stimulation, Self-Direction and Action, Self-Direction and Thought, Universalism and Tolerance, Universalism and Nature, Universalism and Concern, Benevolence and Caring, Benevolence and Dependability, Humility, Conformity Interpersonal, Conformity and Rules, Tradition, Societal

Security, Personal Security, Face, Power and Resources and Power and Dominance (Cieciuch, 2013a, 2013b).

According to Rokeach, values are one of the central elements of human personality, which also includes attitudes, social norms, interests and needs. The author divides values into two types: a) autotelic and instrumental values. Autotelic values relate to the ultimate goals of existence, while instrumental values define socially accepted types of behavior, e.g., ambition, responsibility, self-control or honesty (Pulinowa, 2003).

Gurycka believed that people who have a "people-like" attitude make fewer parental mistakes (Gurycka, 1990). Attitudes to people are expressed in values. These are as follows: Universalism and Tolerance, Universalism and Nature, Universalism and Concern, Benevolence and Caring, Benevolence and Dependability, Humility, Conformity Interpersonal, Conformity and Rules, Tradition, Societal Security and Personal Security; 11 out of the 19 values follow Schwartz's typology. Schwartz and his team called these values Social Focus, and therefore focused on others. This would mean that mothers who are characterized by high scores in the above-mentioned values may make fewer parental mistakes. People who particularly respect values focused on others are likely to have experienced fewer parental mistakes and therefore to have an impression that their parents did not make many parental mistakes. The relationship between the system of values and parental mistakes makes up the 17th research hypothesis (H17a and H17b).

Mothers' perceptions of their parents' parental mistakes, their personality traits and their parental mistakes

In this section, we introduce the relationships that may occur between mothers' perceptions of their parents' parental mistakes, the formation of mothers' personality traits and the parental mistakes made by mothers.

If "traces" are generalized — as Gurycka maintains — the initial "trace" will turn into a "tendency" towards a particular way of feeling, behaving, interacting and perceiving the world and itself. This is the *second zone of harmfulness of parental mistakes* (Gurycka, 1990) (see Figure 6). These trends are certain fixed styles of thinking, behavior and emotional states most commonly experienced by people. A person may have a specific "susceptibility" to certain feelings, thoughts and behaviors.

Further unfavorable experiences will strengthen trends. This is the *third zone of harmfulness of parental mistakes*. Finally, as a result of the repetition of subsequent unfavorable experiences, the tendencies will consolidate and become personality

patterns — i.e., certain fixed, ossified structures of feeling, behaving and entering into specific interactions, and above all, how we perceive the world and ourselves and the evaluation system. This is the *fourth harmful zone of parental mistakes* (see Figure 6).

Diagrams are elements of the human personality structure which result from experience. The patterns can be divided into two main categories: those tendencies which relate to oneself and those which relate to others (Mellibruda & Sobolewska-Mellibruda, 2013). They reflect some of the main references to oneself and to others. Simultaneously applying patterns to oneself and to others characterizes specific personality traits. One example would be a combination of a pattern of manipulating and exploiting others, along with adoration and self-accentuation, which makes up the narcissistic personality traits (Millon & Davis, 1996).

One of the most commonly described personality traits in psychology is connected with the typology of traits recognized as the five-factor personality model, which consists of Neuroticism, Extraversion, Openness to experience, Conscientiousness and Agreeability (Alessandri & Vecchione, 2012; Barbaranelli, 2002; Becker, 1999; Griffin & Samuel, 2014; Schnabel, Asendorpf, & Ostendorf, 2002; Sękowski, Klinkosz, et al., 2008; Strelau, 2002; K. M. Thomas et al., 2013). Modern research shows that there are relationships between the Big Five and personality disorders (De Fruyt et al., 2013; Donnellan & Robins, 2010; Gramzow et al., 2004; Strus et al., 2017). Personality traits are examined not only by the questionnaire method, but also by the lexical method (Gorbaniuk, Budzińska, Owczarek, Bożek, & Juros, 2013; Saucier, 2008; Saucier & Goldberg, 2001).

According to the Digman's and DeYoung's models, conscientiousness, agreeableness and emotional stability belong to the Alpha meta-trait, and extroversion and openness to the Beta one (DeYoung, Peterson, & Higgins, 2002; Digman, 1997). Alpha has been called *Stability* because it relates to stable functioning in the emotional, motivational and social spheres. In turn, Beta was called *Plasticity* because it reflects a behavioral and cognitive flexibility associated with the tendency to engage in new experiences. Digman and DeYoung referred the notion of meta-features to the higher-order factors of the Big Five. Subsequently, Strus, Cieciuch and Rowiński proposed the assignment of the characteristics of the Big Five to their meta-traits and described them in the "Circumplex of Personality Meta-traits" (CPM). This model, apart from the Alpha and Beta features, has been extended with the Delta and Gamma meta-traits. According to the Polish authors, "A meta-trait of personality is therefore a feature — a dimension of personality related to individual differences in thinking, feelings and behaviors" (Strus, Cieciuch, & Rowiński, 2014a).

The Circumplex of Personality Meta-traits Model describes the four paired personality meta-features: Alpha, Beta, Delta and Gamma.

Alpha on its positive side (Alpha Plus) contains features called *Stability*. At the opposite pole (Alpha Minus), it has the characteristics of *Disinhibition*. Alpha Plus contains features related to stability in the social, emotional and motivational sphere, an ethical attitude to the world and the ability to postpone the gratification of needs. People who have developed this trait are characterized by socialization and social adaptation. Alpha Minus contains features related to disinhibition, which is characteristic of anti-social behavior and characterized by antagonism to social norms.

Beta on the positive side of its spectrum contains features called Plasticity (Beta Plus), and on its negative side *Passiveness* (Beta Minus). Beta Plus, *Plasticity*, contains features related to cognitive and behavioral openness to changes, involvement in new experiences, exploration, initiative, inventiveness and focus on personal growth. Beta Minus, *Passiveness*, contains features such as apathy, submissiveness, cognitive/behavioral passivity and stagnation.

The positive side of the Delta spectrum contains the features referred to as *Self-restraint* (Delta Plus), and on its negative side as *Sensation-seeking* (Delta Minus). Delta Plus's *Self-restraint* is characterized by a tendency to adapt, high behavioral control, conformism and conventionalism. Delta Minus, called *Sensation Seeking*, represents impulsiveness, emotional lability, the search for stimulation, dominance over others and expansiveness.

Gamma Plus contains features called *Integration*, while Gamma Minus consists of *Disharmony*. Gamma Plus is characterized by balance, integration and efficiency in achieving goals, warmth and a pro-social attitude towards other people. Gamma Minus is a feature of disharmony, which is characterized by inaccessibility, distrust, depression, pessimism and low psychological well-being.

This classification of traits into positive and negative meta-features shows (to some extent) which combination of the Big Five traits may be desirable for personality development. According to the authors of the Circumplex of Personality Meta-traits Model, the Gamma Plus meta-feature is evidence of an integrated personality.

Continuing the reflection on the development of personality as a result of the experience of parental mistakes, we can conclude that it should be expected that women who experienced fewer parental mistakes in childhood will have developed precisely those personality meta-attributes which are assigned to the meta-trait Plus axis. Hypothesis H18b states that this is so. It should also be expected that they themselves make fewer parental mistakes. This supposition is based on Gurycka's theory, which assumed that people with personality traits "towards people" make fewer parental mistakes (Gurycka, 1990). Hypothesis H18a speaks of this.

The attitude "towards people" is particularly expressed in the following personality meta-traits: a) Alpha Plus or *Stability*, due to its ethical attitude towards the

world, stability in the social and emotional sphere and adaptation to standards, b) Gamma Plus, i.e., *Integration*, which is characterized by a pro-social and warm attitude towards other people, c) *Self-restraint*, i.e., in the Delta Plus meta-trait, which is expressed in the tendency to adapt and control one's own behavior, and d) *Plasticity*, which is found in Beta Plus and is characterized by openness to new experiences and initiative. It is therefore expected that people who have developed these personality meta-traits will make fewer parental mistakes.

The relationship between experiencing parental mistakes (the representation of them), personality traits and a mother's parental mistakes is the essence of Hypothesis H18a and H18b (Figure 5).

Mothers' perceptions of their parents' parental mistakes, their locus of control and their parental mistakes

In this section, we introduce the relationships that may occur between mothers' perception of their parents' parental mistakes, the locus of mothers' control and their parental mistakes.

Rotter introduced the concept of the locus of control to psychology in the 1950s. There are two types of loci of control, namely internal and external (Gierowski, Lew-Staranowicz, & Mellibruda, 2002). A person with an *internal locus of control* ascribes the causality of events to him- or herself and sees in him- or herself the causative force of events that happen to him/her; (s)he feels responsible for his/her actions. On the other hand, people with an external locus of control feel much less influence on the reality that surrounds them, they attribute the causative power of what the situation is and how it ends to external factors and they attribute external factors to their own faults. People with an *external locus of control* are more dependent on the environment, they feel much worse in a situation where they can control the situation themselves, and they feel better when the situation is under external control, i.e., not under their control.

Gurycka notes that "children with an internal locus of control may perceive the behavior of an educator differently than [those] with external locus of control." Therefore, they may experience it differently (Gurycka, 1990, p. 50). According to Gurycka, the internal locus of control may pose a certain threat to a child who, in the event of parental mistake, will prescribe to oneself a low personal value. The author of the theory of parental mistakes did not, however, set detailed hypotheses regarding the locus of control and its relationship with the assessment of parents' parental mistakes. However, the literature indicates a possible relationship between an external locus of control and adverse development conditions, such as insecurity,

emotional rejection by loved ones and a lack of consistency in the educational methods used (Gierowski Lew-Staranowicz, & Mellibruda, 2002).

As Gierowski, Lew-Staranowicz and Mellibruda put it, "Gaining a belief in the relationship between behavior and empowerment leads to a sense of internal control. A lack of belief in the existence of this relationship determines the sense of external control. Whether the internal or external locus of control is created in the process of personality development is determined by the reinforcements and psychological situation obtained in life" (Gierowski, Lew-Staranowicz, & Mellibruda, 2002, pp. 722–723). Although this relationship has not been revealed in studies conducted in Poland, it is assumed that criminals are characterized by an external locus of control. The locus of control has always been associated with negative childhood experiences and even with the possible development of psychopathology (Gierowski Lew-Staranowicz, & Mellibruda, 2002).

People who experienced independence in childhood, had enough space to make their own decisions and to observe the effects of their decisions, may have a more developed internal locus of control. Conversely, people who experienced very strong control from parents, were brought up in an authoritarian, strict environment, could perceive the world as a place where they have little to say and, in general, where situations do not depend on them, but on external factors; they may have a more developed external locus of control.

It is expected that people who have a more developed external locus of control may have experienced more parental mistakes on the part of their parents than people who have a lower external locus of control. People who also have a higher external control locus can make more parental mistakes themselves.

The relationship between the representation of a mother's parents' parental mistakes, her locus of control and her own parental mistakes is the essence of Hypotheses H19a and H19b of this research.

Mothers' perceptions of their parents' parental mistakes, their parental goals and their parental mistakes

In this section, we introduce the relationships that may occur between mothers' impression of their parents' parental mistakes, mothers' parental goals and the parental mistakes they commit.

We will begin the discussion of parental goals from the description of them found in Polish theories and we will then cite the way they are understood in foreign theories. It should be noted at the outset that these differences are not major and that the general understanding of parental goals is similar. Parental goals are

personal traits that an educator wants to shape in a child. "The purpose is to determine what the 'pupil' is to be like, what we want to make of him and what properties we will follow when exerting influence or analyzing the direction of this influence" (Gurycka, 1979, p. 145).

According to Gurycka, parental goals are immersed in the upbringing ideal: "The creators of the programs and people responsible for educating educators derive proper goals from the upbringing ideal" (Gurycka, 1979, p. 153).

Gurycka believed that childrearing goals may arise in every educational institution. "In this perspective, the upbringing process is an intentional influence on the achievement of a specific upbringing goal. It is irrelevant in which of the upbringing institutions, or which of the educators is launching it, but what purpose it serves" (Gurycka, 1979, p. 132). "We do not have an up-to-date, complete classification of upbringing environments or rules for making such a classification. They will be upbringing institutions such as school, family, a scout's team, a common room or having legal status" (Gurycka, 1979, pp. 65–66).

When talking about parental goals, we refer to the "personality design" of the child in the mind of the parent. "When we talk about the purpose of upbringing, we mean the personality of the child, which should be shaped, i.e., the personality of the man whose development we are managing, so we are thinking about his personality project" (Gurycka, 1979, p. 155). Here, the differences between the "personality design" of the child in the mind of the parent and the representation of the child in the mind of the parent should be explained. The main difference is that the representation is formed as a result of the experience of interaction with the child (Gracka-Tomaszewska, 1999). A representation is a film, a photo, an image, and thus represents how a parent perceives what a child is (Gurycka, 1994). While the "personality design" refers to the planned features of a child that he or she does not yet have (or has only developed to some extent) but which the parent would like him/her to have.

Upbringing goals are immersed in the upbringing ideal from which they are derived. What is an upbringing ideal? "This upbringing ideal sets a set of basic values" (Gurycka, 1979, p. 153). It contains values that the educator should shape in himself/herself. These can be the prevailing values of a given culture or society. In any case, the ideal represents larger, broader standards than just the preferences of the parent (educator).

The parent is a "carrier" of parental goals (Gurycka, 1979). From these values (s)he chooses and implements them according to his/her preferences. Parental goals cannot be completely detached from the values and norms which prevail in the culture (Cupito, Stein, & Laura M. Gonzalez, 2015; LeVine, 1974, 1980; Rowe & Casillas, 2010). They are deeply rooted in it. On the other hand, the claim that

parental goals do not equate to anything but cultural norms is a truism and at the same time a serious understatement. For each child, the "package" of parental goals can be different. The method of their selection remains with the parent.

Some of the goals are likely made knowingly. Parents easily realize them when asked to list them. Research conducted over the years on parental goals shows that parents do not avoid answering questions regarding their parental goals (Szymańska, 2010, 2011; Szymańska & Aranowska, 2016).

In addition to proper upbringing goals and upbringing ideals, there are other types of goals, called instrumental and contributive goals. These are specific goals that are means to achieving upbringing goals. We can think of instrumental goals as those whose achievement is necessary in order to achieve the right upbringing goals. For example, a parent needs to teach a child to listen in order to develop sensitivity characteristics. Contributive goals, on the other hand, are staged, partial goals, and they are components of other goals. For example, sensitivity for animals may be a component of overall sensitivity.[3]

Gurycka distinguishes two types of parental goals, namely desirable and undesirable goals. According to her, desirable goals are personality traits that parents want to instill in their children. In contrast, undesirable goals are features that parents do not want to instill in their children: "the purpose of upbringing is to make intended modifications within the personality. These modifications include developing certain features, correcting others, suppressing or preventing the appearance of undesirable features" (Gurycka, 1979, p. 145).

Much like Gurycka, foreign authors write about parental goals. For example, Grusec, Goodnow and Kuczynski state that "it makes sense that parents distinguish between varieties of acceptance and that they have in mind bands of behaviors that range from what is ideal to what is acceptable, tolerable and, finally, 'out of the question'" (Grusec, Goodnow, & Kuczyński, 2000, p. 208). Thus, a parent makes a choice between features, categorizing them as desirable through unacceptable traits.

This basic information about parental goals makes it clear how the selection of parental goals is related to the system of parents' values and their personality traits. However, the beginning of the choice of which goals to set for their children can extend to far-reaching experiences that parents experienced in their childhood. Reflecting on their own upbringing, what they experienced in childhood may contribute to the shaping of their own parental goals. Parents may try to set goals similar to those set by their parents or, on the contrary, depending on how

[3] Sensitivity is a very broad, multi-dimensional feature whose elements do not necessarily correlate with each other. Someone may be sensitive to the beauty of nature but not be sensitive to other people at all.

they experienced the parental influences of their own parents, they may set different goals. Of course, parental mistakes could have had a special impact on shaping this experience. We often hear a parent say, "I won't do like my mother, my child will have it differently, my child will have more freedom, my child will decide who he is," etc., or vice versa, parents often say they agree with their parents, that they would do the same. This shows that their parental goals are related to their childhood experiences.

In the current study, we aim to investigate whether mothers who experienced more parental mistakes in childhood will instill different personality traits in their children than mothers who experienced fewer parental mistakes, and which traits they choose to develop. One would expect — based on theoretical knowledge — that it will be similar to the idea presented in Figure 5. The selection of parental goals is deeply rooted in the experiences from one's own childhood and is associated with one's perception of parents' parental mistakes, and thus the experience of these mistakes. Is it also related to mothers' parental mistakes? In other words, is the formation of certain personality traits associated with parental mistakes? Gurycka in 1985, even before the theory of parental mistakes arose, in her book entitled *Applied Educational Psychology*, wrote that the wrong choice of parental goals is the first parental mistake (Gurycka, 1980). Previously studies have shown that the experience of parenting stress is associated with the formation of Delta Plus personality traits (*Self-restraint*) in children and the suppression or prevention of Delta minus trait development in children (*Sensation seeking*) (Szymańska & Aranowska, 2019). We know that parental stress is associated with committing parental mistakes (Szymańska, Aranowska, 2016). Therefore, do mothers who make more parental mistakes and who have experienced more parental mistakes from their parents instill in their children different personality traits than mothers who have experienced fewer mistakes and who make fewer parental mistakes? We will try to answer this question. In the study, this question is posed in Hypotheses H20a and H20b.

Mothers' perceptions of their parents' parental mistakes, their own parental mistakes and their perception of the temperamental traits of their children

In this chapter, we introduce the relationships that may occur between mothers' representations of their parents' parental mistakes, the mothers' own parental mistakes and their children's temperamental features.

There is no single definition of temperament. Temperament is perceived very differently by different researchers. According to Jan Strelau, one can distinguish

a number of characteristics common to what we call temperament: a) temperament is understood as behavioral traits, so temperament is one of the components of the personality structure, b) temperament is manifested by relative stability throughout one's life and is less volatile than other mental properties, c) it has a biological basis and differences in individual temperament traits are genetically determined and d) temperamental traits are noticeable in the form of primary emotions and motor skills starting in early infancy (Strelau, 2001b). Temperament can be a predictor of the child's future personality traits (Buss & Plomin, 1984; Caspi & Silva, 1995). Taking these characteristics into account, Strelau proposed the following definition: "Temperament refers to relatively constant personality traits which are present in humans from early childhood and which have counterparts in the animal world. Being primarily determined by innate neurobiochemical mechanisms, temperament is subject to slow changes due to puberty and an individually specific interaction between the genotype and the environment" (Strelau, 2001b, p. 693).

An essential element to the discussion of children's temperament is Thomas and Chess's theory of temperament types (Strelau, 2001b). The authors referred to the child's style of behavior and identified nine categories of temperament: a) activity, b) rhythmicity, c) approach–withdrawal, d) ease of adaptation, e) response threshold, f) reaction strength, g) mood, h) distraction and i) range of attention and perseverance. Thomas and Chess dealt with the difficult temperament, which, according to their research, represents about 10% of the children's population. Difficult temperament is a constellation of a lack of regularity, withdrawal, difficulty in adapting, a high reaction force and negative emotions prevailing over positive ones. According to Thomas and Chess, this is a constellation that promotes the development of behavioral disorders in children, provided that there is no inhibitory factor, which is a match between the child's temperament and the parent's temperament. If there is a good fit, i.e., the child's temperament agrees with the parent's temperament, there are no developmental disorders.

Of course, this is not the only theory of difficult temperaments. Other authors additionally mention extremely high activity and ease of distraction or, on the contrary, very strong concentration as a constellation of difficult temperament (Stephens, 2007). Szymańska and Aranowska studied the relationship between children's temperamental traits and parental stress experienced by their parents. The study confirmed agreement on one finding, namely, that children whose parents (both boys and girls) were experiencing stronger stress had a much higher bad mood and a lower good mood than the group of children whose parents had lower parental stress. This study is one of many which confirm the theory of Thomas and Chess, at least in terms of the temperamental characteristic of mood. No statistically significant differences were found for the perseverance trait. However, in the case

of the feature of flexibility, it was the group of parents who experienced stronger stress who indicated that their children were characterized by high temperamental flexibility (Szymańska & Aranowska, 2019b).

As suggested in Figure 5, a child's temperamental traits may be a determining factor in the formation of parental mistakes. Many studies actually confirm that the child's temperamental traits are related to stress experienced by the parent. Studies have shown that a child's temperament can strongly condition parents' attitudes towards their children (Kiel & Buss, 2012; Kim & Kochanska, 2012; Vachha & Adams, 2005). A child's temperament can also moderate many parental behaviors (Casanueva et al., 2010; E. J. Lee, 2013; Phillips, Crowell, Sussman, Fox, & Hane, 2012; Puura et al., 2013; Kochanska & Kim, 2013; Denissen, Aken, & Dubas, 2009; Gurycka, 1979, 1985). The child's temperament can determine the way a parent experiences interaction with the child, and in particular the level of stress experienced by parents (Bruning & Mcmahon, 2009; Casalin, Tang, Vliegen, & Luyten, 2014; Laukkanen & Ojansuu, 2014; Mclean, 2012; Oddi, Murdock, & Vadnais, 2013).

As previously mentioned, the study showed that a child's temperamental traits are related to the stress experienced by the parent. Do the parents who make more parental mistakes have children who have a more difficult temperament type than the group of parents who makes fewer parental mistakes? This question is posed by Hypothesis H21. We will try to answer this question in our research.

We will also investigate how the arrangement of temperamental features of the child and the mother's parental mistakes relates to parental mistakes made in the mother's family of origin, i.e., the child's grandmothers and grandfathers. If it turns out that mothers who make fewer parental mistakes have children with easier temperamental traits, and if their parents also made fewer parental mistakes, it would be very interesting when it comes to a child inheriting temperamental traits. Of course, we cannot clearly verify this hypothesis or make such a hypothesis in this study. We can, however, try to check whether there is a connection between the number of parental mistakes in the family of origin, the quality of the grandchildren's temperamental traits and the number of parental mistakes made by mothers.

Methodological aspects of research on parental mistakes

The method of measuring parental mistakes — Psychometric aspects

Parental mistakes can be measured by three methods. Gurycka used the methods of experimentation, non-participatory observation and questionnaire. The experiment was based on the fact that the investigating psychologist took on a role of one of the participants of the upbringing situation, e.g., a teacher, and provoked incorrect upbringing situations. It was then observed how the children reacted and feedback was collected from them on what they thought and how they felt in this situation, as well as how they assessed it (Gurycka, 1990).

The second method used was the questionnaire method. Gurycka and her team constructed scales for measuring parental mistakes. The "Questionnaire of the Parent's Self-perception" is a self-description questionnaire. Parents assess their own parental mistakes. The "Questionnaire of the Child's Perception" is a questionnaire that is filled out by the child; it assesses the parental mistakes made by the child's father and mother.

The third method used by Gurycka was the non-participatory observation method. In this method, the psychologist observed the interaction of children with parents and teachers and assessed how often the parental mistakes occurred during the interaction.

Therefore, we are dealing here with three methods of measuring parental mistakes. There is also a fourth method of measuring parental mistakes that Szymańska uses — the projection method. It creates a certain projection of an upbringing situation in which parental mistakes arises. The examined child talks about the situation of the child from the projection story and his/her experiences and emotions (Szymańska, 2019).

In the present work, the parental mistake is measured using the questionnaire method. Moreover, original tools for measuring parental mistakes which were developed by Antonina Gurycka and her research team are used. Szymańska, using

Gurycka's measuring scales, tested the circular structure of parental mistakes (Szymańska & Torebko, 2015). The study, in which the "Questionnaire of the Parent's Self-perception" was used, showed that the model is indeed of a circular nature. The only caveat one can make is regarding the mistake of indulgence, because when testing whether it belongs to the structure of mistakes concentrating on the parent and underestimating the child's activities, this mistake "broke out" of the common structure to which it should belong, together with the mistake of self-accentuation by the parent. This time, it was also decided to use Gurycka's questionnaires in order to determine how the original research tools constructed by Gurycka would correlate with other psychological constructions. Gurycka's original tools have special research value. They operationalize the characteristic which is parental mistake prepared personally by the author of the theory of parental mistakes. Therefore, they show how Gurycka proposed to measure parental mistakes. It was decided to use them firstly to determine the relationships between parental mistakes operationalized by Gurycka and other psychological features, and secondly to confirm the psychometric properties of the questionnaires. The psychometric properties of these questionnaires are unknown. Szymańska and Torebko described them only for the "Questionnaire of the Parent's Self-perception" (Szymańska & Torebko, 2015). In the current study, this topic will be developed. The psychometric properties of the "Questionnaire of the Child's Perception" used to investigate parental mistakes from the child's perspective will be given. Another very important element is the question of whether parental mistakes can be reduced to meta-traits, as demonstrated by Szymańska and Torebko (Szymańska & Torebko, 2015). In the current study, we will also focus on this issue. Szymańska and Torebko showed that every two mistakes belong to the same dimension. The mistakes of strictness and aggression belong to the dimension of cold and focus on the child and his/her activities; constraint and indifference are among the mistakes of cold, focus on the parent and underappreciation of the child's activities; the mistakes of self-accentuation and indulgence are examples of warm mistakes, focus on the parent and underappreciation of the child's activities; finally, doing things for the child and idealizing the child are warm mistakes focused on the child and his/her activities. Earlier research on a small sample showed that these variables indeed make coherent meta-traits. Therefore, the structure of parental mistakes can be reduced to four dimensions. The study also showed that they fit well into the structure of warm and cold mistakes as well as those focused on the child and his/her activities, as Gurycka had predicted in the circle of parental mistakes (except for the above-mentioned mistake of indulgence) (Szymańska & Torebko, 2015). In the current study, we will try to verify whether the previous study led to the right conclusions, whether mistakes can be reduced to four meta-traits. However, we will not focus on re-testing the

circular structure of parental mistakes, as it will not be needed at this time to verify the theoretical models (Figures 4 and 5). This is the subject of other studies that will be published elsewhere.

The method of analyzing parental mistakes using artificial intelligence algorithms and structural equations systems

The analysis of parental mistakes and their relationships with other features included in the theoretical models presented in Figures 4 and 5 takes place in several stages.

The first stage involves performing qualitative analyses, i.e., calculating the frequency of the characteristics listed by mothers for parental goals and checking which words form clusters, i.e., co-occur. At this stage, the verbal data is also converted into numbers. The analyses are performed using Text Mining algorithms (Elder et al., 2012; Nisbet, Elder, & Miner, 2009; Szymańska, 2017b). This is the first stage of analysis and at the same time the stage where the data set is prepared for further calculations.

The second stage consists of classifying traits listed by mothers in their parental goals and assigning them to meta-traits of personality according to the typology presented in the Circumplex Personality Model (Strus et al., 2014a). In this way, factors of parental goals arise that are used for further analysis.

The third stage consists of using a system of structural equations to test the correctness of the model presented in Figure 4.

The fourth stage involves conducting cluster analysis using data mining algorithms, which plots the number of profiles in the population in the range of variables included in the theoretical models (Figures 4 and 5). At this stage, the mothers' perceptions of the levels of parental mistakes committed in their family of origin is also linked to their parental mistakes and their personality traits, systems of needs and values, loci of control and chosen parental goals.

The fifth stage consists of empirically verifying the theoretical model presented in Figure 4. The verification is carried out using artificial neural networks. On the basis of all values in the model, the level of the mothers' parental mistakes is predicted using neural networks. The first and second stages concern the preparation of the database and as such are not presented in the book.

Determining the fit of the theoretical model using a system of structural equations

A structural reconstruction of Gurycka's theory was made for the formation of parental mistakes as a result of the experience of parental difficulties and response to stress. The graph of the structural model, which is a reconstruction of the verified theory, is presented in Figure 4. The task of this research is to test the correctness of this model. For this purpose, the method of structural equations is used. Much has been written about the method of testing using a system of structural equations (Bartholomew, Steele, Moustaki, & Galbraith, 2008; Hair, Black, Babin, Anderson, & Tatham, 2006; RH Heck & Thomas, 2009; RH Heck, Thomas, & Tabata, 2010). In this chapter, we will only present general assumptions concerning testing models.

Systems of structural equations are used to test the correctness of theoretical models. These models are most often reconstructed on the basis of theory, i.e., they reproduce the structure of the theory and its characteristics. As Szymańska says: "When reconstructing a theory in structural terms, its structure is given. A structure is a system of the form <Xj, Rj>, where *Xj* is a series of elements that make up the structure, also called the scope of the structure. In turn, *Rj* is the relationship between the elements of the structure, i.e., the characteristics of the scope of this structure. The types of relationships between elements of a given structure are called axioms. The method of reconstructing the theory, called the axiomatization of a theory, is therefore determining the types of relationships between its elements. There are no restrictions on the number of *Xj* elements or *Rj* elements. There is therefore no limit to the scope of the structure" (Szymańska, 2016b, pp. 96–97).

When verifying the structure, the relationships between its elements are determined, i.e., the strength of relationships between variables and the overall fit of the model, i.e., the overall adjustment of the structure to the empirical data. During this testing, relationships between variables that were not predicted at the theoretical level are not calculated. If it turns out that the model is matched to the data, then it is concluded that there are no grounds to reject it as incorrect. The model is never stated to be correct. This would be tantamount to adopting the null hypothesis (Konarski, 2009; Szymańska, 2016b).

The strength of relationships between variables is checked in turn. If the relationships between all variables are low, then the matching of such a model raises reservations. A model that has low relationships between its variables must be fitted to the data. This is due to the simple fact that the calculated matrix does not differ from the saturated matrix, i.e., one in which all relationships between variables occur. This should be borne in mind when interpreting the results of structural models.

The use of cluster analysis to plot the profiles of the participants

In the next stage of the study, cluster analysis using the k-means method is used to plot the profiles of the subjects in terms of the features presented in the theoretical model (Figure 5). As shown by studies conducted using this method, in which the use of directives by mothers was investigated, it is a very valuable supplement for SEM models (Szymańska, 2018).

Szymańska described this method more closely in the journal *Studia Psychologiczne* (Szymańska, 2017c). Therefore, it will not be discussed here. Only some of its basic assumptions will be mentioned. Cluster analysis using the k-means method calculated by data mining algorithms uses the variance analysis method to simultaneously classify test subjects into clusters by multiple variables. The algorithms classify the people surveyed on the basis of their similarity to other people belonging to a given cluster and at the same time differentiating them from people belonging to other clusters. The cluster analysis method seeks to create the least variance within clusters and as large as possible a variance between them. Classification for clusters is done in the opposite way to the analysis of variance. While the analysis of variance checks the diversity of people within groups and between predetermined groups (comparison of intergroup and intragroup differences), cluster analysis creates clusters, or groups, (using the principle underlying the analysis of variance) and acts in reverse. First, the subjects are compared in terms of the variables of interest to the researcher and they are assigned to clusters in such a way that individuals within groups are as similar as possible while simultaneously differing as much as possible between clusters.

It should be noted that this classification is made on the basis of many variables at the same time and that the result of cluster analysis is presented in the form of charts resembling profiles. By using a normalized mean, cluster analysis compares results between variables using a scale of the same length, regardless of how different the scales of the original results were when the data were collected. Moreover, it shows how many clusters (profiles) have been selected and what percentage of the studied sample belongs to each profile. On data sets from large random groups, it allows the researcher to determine which profile is most characteristic of the population, and which is the least representative.

In research on parental mistakes, cluster analysis is used to plot the profiles of respondents in terms of how mothers respond in the situations of parental difficulties they experience and the upbringing mistakes they make in a stressful situation (Figure 4). This analysis is used to isolate clusters of mothers in the scope of variables also presented in the model in Figure 5. It is therefore used to describe the relationship between the level of parental mistakes perceived by the mother

and her parental mistakes as well as her system of needs, values, personal characteristics, locus of control and parental goals, as well as the temperamental characteristics of her children.

Checking the theoretical model's prediction with an artificial neural network

The artificial neural network will be used to verify the correctness of the theoretical model presented in Figure 4 and to determine to what extent, based on the variables used in the theoretical model, the level of parental mistakes made by mothers can be predicted and forecasted.

Artificial neural networks (ANNs) have been used in science for years to build predictive models (Tadeusiewicz, 2001, 2007). Their task is to determine the extent to which, based on the premises known to the researcher, it is possible to forecast whether or not a phenomenon occurs and its severity (Osowski, 1994; Rutkowski, 2006; Żurada, Barski, & Jędruch, 1992). They are also successfully used in modern psychology (Wang & Kosinski, 2018). Here, only information about neural networks relevant to the research on mothers' parental mistakes will be provided.

The operation of the ANN is modeled on the work of the human brain; therefore, they are included in the algorithms of artificial intelligence. Artificial neural networks are used in many scientific disciplines, such as economics, medicine and materials science (Wołowiec-Korecka, 2016). In these disciplines, they are used to model complex relationships. As Tadeusiewicz notes, "Neural networks can be used with high probability of success wherever there are problems associated with the creation of mathematical models that can map the complex relationships between certain input signals and selected output signals" (Duch, Korbicz, Rutkowski, & Tadeusiewicz, 2000). In order for a network to be able to solve a problem, the problem must be defined as a function with a set of input values (input variables) and output values (output variables).

The input variables given in the ANN networks are the statistical equivalent of the explanatory variables (predictors) and the output variables of the explained variables. The basic feature of an ANN is the ability to generalize acquired knowledge for new, previously unknown patterns, i.e., patterns of unrepresented networks, while learning (this is referred to as the ANN's ability to approximate the value of a function of many variables). The most valuable property of neural networks is their ability to process information in a parallel and non-sequential manner (Tadeusiewicz, 1993).

Artificial neural networks use the information they receive in the database. There, they find information about the phenomenon under study (input data) and

the explained variable (output data), which constitute a fragment of reality for the network. The network treats the database as a learning material. The ANN manipulates scales, i.e., data, until they are set in such a way that the solution it acquires will be similar to the solution it received in the data set.

In the learning process, patterns are divided into 3 separate sets: a) a learning set, which accounts for 70% of the sample observations, b) test set (15% of observations) and c) validation set (15% of observations).

The learning set is used to teach the neural network, while the testing set is used to test the predictions during the learning process. The validation set is not shown to the neural network during this process; it is used to check the correctness of network forecasting based on expected values contained in the pattern after the network has finished learning. In other words, it reveals the correctness of predicting the result of each mother in the set (her result in terms of parental mistakes) based on the input variables — the remaining variables in the model (Figure 4). Based on the accuracy of forecasting with the validation set, the degree of the theoretical model's usefulness for forecasting mothers' responses about parental mistakes made by them was determined.

The application of neural networks in psychological sciences, as Szymańska notes, can provide many interesting conclusions about the usefulness (or lack of utility) of many psychological theories. It allows those theories to be distinguished on the basis of which one can really predict — build predictive models — from weaker theories which, even if they explain something, basically do not offer much (Szymańska, 2018).

In the study on parental mistakes, the input variables are the variables described in the structural model (Figure 4), while the output variables (explained) are the parental mistakes committed by mothers.

In the research described herein, artificial neural networks are used to determine whether, based on the results of the subjects in the explanatory variables, it is possible to predict the occurrence of mothers' parental mistakes as it was presented in the theoretical model shown in Figure 4.

The method of measuring parental goals — Psychometric aspects

In order to examine parents' parental goals, a tool must be used that would allow information about their goals to be gathered without limiting parents to a pool from which they could choose. This is justified by the fact that parental goals may change over time and in the pool of predicted features, parents might not find the goals they set. Another argument is that the proposed pool may suggest potential

parental goals to the parents. Instead of pointing out their parenting goals, parents would indicate goals that are not necessarily theirs. Finally, browsing hundreds of potential goals would be tiring for the parents and they would be able to randomly choose goals from the list in order to easily complete the task.

These three arguments make it better to measure parental goals by asking parents to indicate the parental goals they perceive. However, this is not the only requirement in examining parental goals. It should be noted that some parents may have more parental goals than others. That is why it seems worth exploring the most important goals. It is worth asking parents to mention three or four parental goals, hoping that the ones they mention will be the most important goals for them. To ensure in the study that parents will list the most important parental goals for themselves, one can use a scale on which parents can indicate how important each goal is for them. Moreover, researching goals also requires that parents determine to what extent a child has a given feature developed. A very large difference between what parenting goals a parent sets and how much a child has developed a given feature is a strong indicator of the parent's experience of difficulties, as shown by previous research (Szymańska, 2011; Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017).

As noted by researchers Gurycka and Kuczyński, parents may not have only positive goals. These anti-goals, which we will continue to call undesirable or negative goals, as research shows, are just as important in predicting the experience of parenting difficulties as desirable goals. It seems to parents that the fact a child does not develop undesirable traits is as important as the fact that they develop desirable ones. Therefore, it is worth asking in the case of undesirable goals, as in the case of desirable goals, to what extent parents do not want a child to develop a given trait and how much the child has developed a given trait. Such a method of measurement ensures information can be collected on: a) the desired parental goals, a1) the child's level of development within these objectives, a2) the difference (discrepancy) between the extent to which the parent wants the child to develop a given trait and the extent to which the child has developed this trait, b) undesirable parental goals, b1) the child's level of development in terms of these undesirable traits, b2) the difference (discrepancy) between the extent to which the parent wants the child not to develop these traits and to what extent the child has developed these traits.

According to these principles, Szymańska's Discrepancy Scale was constructed, which is used to measure parental goals, the child's current level of development in certain traits and the discrepancy between how much the parent wants the features to develop and how much the child demonstrates them (Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017). This scale will be used in the studies described

herein. Its parameters, construction and method of application will be presented in the section "Explained and explanatory variables included in the hypotheses and techniques of operationalization" and the scale itself is included in Annex B.

Using text mining algorithms to analyze parental goals

This section is devoted to the issue of research on parental goals, analyzed from a methodological point of view. The issues of measuring parental goals, i.e., obtaining data on the goals chosen by parents, and the child's developmental level in terms of the characteristics taught will be discussed.

The experience gained in research on parental goals shows that one of the most difficult aspects of this research is the analysis of the data obtained. These difficulties are related to the fact that part of the material obtained in the study is of a completely qualitative nature. The parental goals mentioned by the parent are words that cannot be arbitrarily assigned numerical values and used in numerical analyses. One must use methods for analyzing verbal data. It is well-known how time-consuming these analyses are and in order to perform very advanced calculations on them the use of highly advanced mathematical solutions is required.

Nowadays, these obstacles can be bypassed using artificial intelligence algorithms. As Szymańska says: "The function of artificial intelligence algorithms is to solve problems in a similar manner as intelligent beings, e.g., human beings. These algorithms have the characteristics of having self-learning capabilities. They solve NP-difficult problems, i.e. the most difficult problems of the non-deterministic polynomial (NP) class of problems. Artificial intelligence algorithms arose as a result of the development of the field of artificial intelligence, which dealt with the creation of models of intelligent behavior. Its main purpose was to check whether it is possible to teach a computer how to think like a human being and make human-like decisions. It used knowledge from various areas: cybernetics, computer science, robotics, psychology, etc. (Nisbet et al., 2009)" (Szymańska, 2017b, pp.100–101).

Text mining (TM) is one of the methods of artificial intelligence that uses many algorithms for recognizing text. TM is used to analyze text and extract unstructured information in data sets. According to Szymańska, through the text mining procedure one can analyze words or entire word clusters. According to reports, the amount of data saved in text files is from 85% to 90% of all existing data in the world (Hotho, Nürnberger, & Paaß, 2005; Szymańska, 2017b).

We will not describe the functions and possibilities of text mining algorithms in this chapter. The author has described some of these functions in a separate article (Szymańska, 2017b). Extensive literature on these algorithms is also available in English (Elder et al., 2012; Nisbet et al., 2009). Algorithm applications for

analyzing parental goals have been published in Poland (Szymańska, 2017b). It is also worth mentioning that text mining algorithms were used in psycholinguistic research conducted by a team led by Professor Barbara Bokus (Bokus, Bartczak, Szymańska, Chronowska, & Ważyńska, 2017; Jaworowska, Szymańska, Bartczak, & Bokus, 2016; Tarwacka-Odolczyk, Tomaszewski, Szymańska, & Bokus, 2014; Ważyńska, Szymańska, Bartczak, & Bokus, 2015). This was one of the first applications of these algorithms in Polish psychology.

In this chapter, only the functions of text mining algorithms that will be used to analyze parental goals will be approximated. In the analysis of parental goals and their connections with other variables included in the theoretical model (Figure 5), other methods of data analysis will be needed, as text mining algorithms only analyze textual data. The methodological problem is how to combine textual data with numerical data in one analysis — the responses of mothers regarding parental mistakes and their perception of their parents' parental mistakes as well as their personality traits, value systems, locus of control and needs and the temperamental characteristics of their children. Text mining algorithms transform textual data into numerical data, but words do not accept normal distributions (this is rare). This limits the use of classical statistics and forces the use of nonparametric methods.

For this reason, it was decided to use other nonparametric methods derived precisely from data mining methods in the analysis of parental goals, namely, cluster analysis using the k-means method performed by algorithms.

As in the case of the text mining method, the functions of these algorithms will not be described in this chapter. Szymańska has also described them in a separate publication (Szymańska, 2017c). Only their potential for analyzing parental goals will be shown. It is also worth noting here that these algorithms were used by Szymańska not only for analyzing the upbringing process (Szymańska & Aranowska, 2019a) but also for psychotherapeutic research (Grzesiuk, et al., 2017).

There were several reasons for choosing the methods of data analysis mentioned above. First of all, as already mentioned, the distribution of words is rarely normal, which forces us to use nonparametric methods. Secondly, the complexity of the analysis requires that the mathematical solution be advanced enough to leave no doubt as to the estimation of the significance of the results (Brzeziński, J., Stachowski, 1984). In the end, the method must also be appealing to the recipient. The application of data mining methods was a natural solution for these problems. It enabled not only the analysis of textual data, but also an easy transition from textual to quantitative data, as well as the building of complex models and conducting of advanced analyses.

RESEARCH METHODS AND PROCEDURES

Aim of the study and detailed list of hypotheses

The study looked for answers to the following research questions:

P1: Is there a correlation between the discrepancy (i.e., the difference between the parental goals and the current level of the child's development in terms of the traits being taught) and the parent's experience of parental difficulties (stress)?

The following research hypothesis was put forward:

H1: There is a positive correlation between this discrepancy and the experience of parental difficulty (parental stress).

This hypothesis was explicitly presented by Gurycka in her works (Gurycka, 1990).

P2: Is the parental difficulty experienced by the parent associated with the cognitive distancing of the parent from the upbringing situation?

The following research hypothesis was put forward:

H2: The parent's experience of parental difficulties negatively correlates to the parent's ability to adopt cognitive distance.

The hypothesis was based on previously conducted and published studies (Szymańska & Dobrenko, 2017).

P3: Is the parental difficulty experienced associated with a parent seeking help from other people or institutions?

The following research hypothesis was put forward:

H3: The parental difficulties experienced correlate to seeking help from other people or institutions.

In the previously conducted and published studies, no relationship was found between these variables (Szymańska & Dobrenko, 2017).

P4: Is the parental difficulty experienced associated with the parent applying pressure on the child?

The following research hypothesis was put forward:

H4: The parental difficulties experienced are positively related to applying pressure to the child.

The hypothesis was based on previously conducted and published studies (Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017).

P5: Is the parental difficulty experienced associated with the withdrawal of the parent from the child's upbringing?

The following research hypothesis was put forward:

H5: The parental difficulties experienced positively correlate to the withdrawal of the parent from the child's upbringing.

The hypothesis was based on previously conducted and published studies (Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017).

P6: Is cognitive distancing associated with mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging and d) doing things for the child and idealizing the child?

The following research hypothesis was put forward:

H6: Cognitive distancing is negatively associated with the following mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulgence, and d) doing things for the child and idealizing the child.

The hypothesis has not been tested before.

P7: Is seeking help associated with mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging and d) doing things for the child and idealizing the child?

The following research hypothesis was put forward:

H7: Seeking help is associated with the following mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child.

The hypothesis has not been tested before.

P8: Is applying pressure associated with mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child?

The following research hypothesis was put forward:

H8: Applying pressure is associated with the following mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child.

The hypothesis has not been tested before.

P9: Is withdrawal associated with mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child?

H9: Withdrawal is associated with the following mistakes made by mothers: a) strictness and aggression, b) indifference and constraining, c) self-accentuation and indulging and d) doing things for the child and idealizing the child.

The hypothesis has not been tested before.

P10: Do mothers differ from each other because of the intensification of the relationship between experiencing difficulties, the ways of coping with stress and committing parental mistakes? Can we find similar clusters within a group

of mothers with a similar intensity of variables described in the structural model?

The following research hypothesis was put forward:

H10: Mothers differ from each other because of the intensification of the relationship between experiencing difficulties, the ways of coping with stress and committing parental mistakes. We can find similar clusters within a group of mothers with a similar intensity of variables described in the structural model.

The hypothesis has not been tested before.

P11: On the basis of variables described in the structural model, i.e., discrepancies, parental difficulties and reactions to stress, can the level of parental mistakes of mothers be predicted well?

The following research hypothesis was put forward:

H11: Variables of discrepancies, parental difficulties and reactions to stress allow accurate predictions of the levels of a) strictness and aggression, b) constraining and indifference, c) self-accentuation and indulging and d) doing things for the child and idealizing the child.

The hypothesis has not been tested before.

P12: Do women who have experienced more parental mistakes from their mothers also commit more of them?

The following research hypothesis was put forward:

H12: Women who have experienced more parental mistakes from their mothers also commit more of them.

The hypothesis has not been tested before.

P13: Do women who have experienced more parental mistakes from their fathers also commit more of them?

The following research hypothesis was put forward:

H13: Women who have experienced more parental mistakes from their fathers also commit more of them.

The hypothesis has not been tested before.

P14: Do women who have experienced more parental mistakes from their mothers and fathers also commit more of them?

The following research hypothesis was put forward:

H14: Women who have experienced more parental mistakes from both their mothers and fathers also commit more of them.

The hypothesis has not been tested before.

P15: Do women who in childhood experienced more parental mistakes from their fathers and mothers tend to react more strongly to a stressful situation, resulting in them making more parental mistakes?

The following research hypothesis was put forward:

H15: Women who in childhood experienced more parental mistakes from their fathers and mothers tend to react more strongly to a stressful situation, resulting in them making more parental mistakes.

The hypothesis has not been tested before.

P16: Do women who in their childhood experienced fewer parental mistakes on the part of their parents have better fulfilled needs and do they themselves commit fewer parental mistakes?

The following research hypothesis was put forward:

H16: Women who in their childhood experienced fewer parental mistakes on the part of their parents have better fulfilled needs and commit fewer parental mistakes.

The hypothesis has not been tested before.

P17: Are women who experienced more parental mistakes in childhood from their parents characterized by a different system of values than women who experienced fewer of these mistakes, and do they commit more parental mistakes themselves?

The following research hypothesis was put forward:

H17: Women who experienced more parental mistakes in childhood from their parents are characterized by a different system of values than women who experienced fewer of these mistakes and they commit more parental mistakes themselves.

The hypothesis has not been tested before.

P18: Do women who experienced more parental mistakes in childhood have fewer "plus" personality traits — Stability, Plasticity, Self-Restraint and Integration — and more "minus" traits — Disinhibition, Passiveness, Sensation-seeking and Disharmony — and do they commit more parental mistakes themselves?

The following research hypothesis was put forward:

H18: Women who experienced more parental mistakes in childhood have fewer "plus" personality traits — Stability, Plasticity, Self-Restraint and Integration — and more "minus" traits — Disinhibition, Passiveness, Sensation-seeking and Disharmony — and they commit more parental mistakes themselves.

The hypothesis has not been tested before.

P19: Do women who experienced more parental mistakes in childhood have an external locus of control and do they commit more parental mistakes?

The following research hypothesis was put forward:

H19: Women who experienced more parental mistakes in childhood have an external locus of control and commit more parental mistakes.

The hypothesis has not been tested before.

P20: Do women who experienced more parental mistakes in childhood shape other personality traits in their children and do they commit more parental mistakes than women who have experienced fewer of these mistakes?

The following research hypothesis was put forward:

H20: Women who experienced more parental mistakes in childhood shape other personality traits in their children and they commit more parental mistakes than women who have experienced fewer of these mistakes.

The hypothesis has not been tested before.

P21: Do women who have experienced fewer parental mistakes from their parents commit fewer parental mistakes and are their children characterized by an "easier" temperament?

The following research hypothesis was put forward:

H21: Women who experienced fewer parental mistakes from their parents commit fewer parental mistakes and their children are characterized by an "easier" temperament.

The hypothesis has not been tested before.

Research sample and procedure

The research was conducted via the Internet. The following questionnaires from the website of the University Online Research System (USBO http://landing.badanianaukowe.uksw.edu.pl/), were included in the study: a) parental goals in the family of origin (grandmother's and grandfather's parental goals), b) a questionnaire for examining the mothers' personality traits, c) a questionnaire for testing the mothers' system of values , d) a questionnaire for testing the needs of mothers, e) a questionnaire for examining mothers' perceptions concerning grandmothers' parental mistakes, f) a questionnaire for mothers' perception of grandfathers' parental mistakes, g) child's survey: the child's age, gender, kindergarten attendance, seniority in the family and number of siblings, h) a questionnaire for testing mothers' parental goals, i) a questionnaire for testing parental difficulties experienced by mothers (parental stress), j) a questionnaire for examining mothers' reactions to parental stress, k) a questionnaire for examining mothers' self-perception of their mistakes, l) a questionnaire for examining mothers' locus of control and m) a questionnaire to study the child's temperamental features.

The kindergartens were selected with the help of the k = 2 operator from the list of kindergartens developed by the Board of Education for each province in Poland. Those kindergartens were subsequently informed about the possibility to take part in the study. For this purpose, the management of kindergartens was contacted. The managers of each kindergarten sent parents an e-mail message or posted on the bulletin board a notice with information about the study.

Before starting the tests, the parents on the website of the University Online Research System read information about the study conditions, the duration and the method of completing the questionnaires. Just before the study began, the parents were asked to think about the child of theirs who was at preschool and to only answer about this child for the duration of the research. This procedure protected against a criss-cross of responses if the parent had more than one child. The respondents typically devoted 70 minutes to answering all research questions (the program controlled the time available for answering questions).

A total of 2,183 people took part in the survey; the final study included 546 people. Of this sample, 420 people were parents of preschool-aged children (3 to 6 years).

In the parents' target sample, 402 mothers and 18 fathers had children of preschool age. Despite the efforts, no representative sample of the father population could be examined. Therefore, the analyses were only conducted on the sample of mothers. The size of the sample of mothers and its random selection method mean that the results obtained may be generalized and are reliable.

The age of the mothers ranged from 21 to 50 years with the largest representation of women between 28 and 39 years old. The mode was 34 years and the median was 33 years. Of all of the respondents, 84.8% had a higher education, 14.7% had secondary education and 0.4% of the mothers had a basic or vocational education (Table 1).

Table 1
The level of education of mothers in the research sample

	Frequency	Percent	Accumulated percentage
Basic (graduated middle school)	1	0.2	0.2
Secondary (graduated high school)	59	14.7	14.9
Higher (college)	341	84.8	99.8
Vocational (graduated vocational school)	1	0.2	100.0
Total	402	100.0	

The study mainly included well-educated women. The Eurostat report reveals that in the Polish population, 46.5% of women between the ages of 30 and 34 years have a higher education. More educated people participated in the study than one would expect. The respondents came mainly from large cities (43.8%), from towns and small cities (37.1%) and from rural areas (19.2%) (Table 2).

Table 2
Place of residence of the respondents

	Frequency	Percent	Accumulated percentage
Town with 50,000 to 200,000 residents	78	19.4	19.4
City with less than 50,000 residents	71	17.7	37.1
City over 200,000 residents	176	43.8	80.8
Rural area	77	19.2	100.0
Total	402	100.0	

The sample included a comparable number of girls' and boys' mothers (Table 3).

Table 3
Distribution of children's gender frequency

	Frequency	Percent	Accumulated percentage
Female	203	50.5	50.5
Male	199	49.5	100.0
Total	402	100.0	

There was a comparable group of mothers of 3-, 4-, 5- and 6-year-old children in the sample (Table 4).

Table 4
Distribution of children's age frequency

Child's age (years)	Frequency	Percent	Accumulated percentage
3	113	28.1	28.1
4	97	24.1	52.2
5	84	20.9	73.1
6	108	26.9	100.0
Sum	402	100.0	

The distribution of the gender frequency of children in particular age groups is presented in Table 5.

Table 5
Distribution of gender frequency of children in particular age groups

Child's age (years)	Child's gender	Frequency	Percent	Accumulated percentage
	Female	51	45.1	45.1
3	Male	62	54.9	100.0
	Total	113	100.0	
	Female	54	55.7	55.7
4	Male	43	44.3	100.0
	Total	97	100.0	
	Female	46	54.8	54.8
5	Male	38	45.2	100.0
	Total	84	100.0	
	Female	52	48.1	48.1
6	Male	56	51.9	100.0
	Total	108	100.0	

Almost 83% of the children of mothers from the research sample were pupils in some type of kindergarten. The remaining 17.4% of children were taught by a parent, grandmother or governess at home. A small proportion of children were being educated in schools (Table 6).[1]

Table 6
Distribution of the education of the children in various types of institutions

	Frequency	Percent	Accumulated percentage
State	190	47.3	47.3
Private	106	26.4	73.6
Catholic	14	3.5	77.1
Montessori	10	2.5	79.6
Other kindergarten	12	3.0	82.6
Primary school	20	5.0	87.6
Catholic	1	0.2	87.8
Governess	6	1.5	89.3
Grandmother	5	1.2	90.5
Parent	38	9.5	100.0
Total	402	100.0	

Almost 36% of the children were only children and 48% had one sibling. The remaining 16% of children had more than one sibling (Table 7).

Table 7
Distribution of the frequency of children's siblings

	Frequency	Percent	Accumulated percentage
Only child	144	35.8	35.8
One sibling	193	48.0	83.8
Two siblings	52	12.9	96.8
Three siblings	8	2.0	98.8
Four siblings	2	0.5	99.3
Five siblings	2	0.5	99.8
Six siblings	1	0.2	100.0
Total	402	100.0	

[1] Parents of six-year-old children have the option to send their children to school. Children also attend pre-school classes.

Almost 82% of the children to whom mothers referred in their statements were the oldest, while 12.2% were the second in birth order within the family. The remaining 5.8% of children were third or lower in birth order (Table 8).[2]

Table 8
Distribution of the seniority of the child which the mother referred to in the study

	Frequency	Percent	Accumulated percentage
Firstborn	330	82.1	82.1
Second	49	12.2	94.3
Third	18	4.5	98.8
Fourth	3	0.7	99.5
Sixth	2	0.5	100.0
Total	402	100.0	

[2] Two children, according to the mothers, were sixth, meaning that those children had at least 5 siblings. This result is consistent with Table 7, which shows that there were 3 children who have more than 5 siblings.

Explained and explanatory variables included in the hypotheses and techniques of operationalization

The variables included in the structural model tested in this study (Figure 4) are explained variables, on the one hand, while they explain other variables, on the other hand. *Discrepancy* should be considered the only exogenous (explanatory) variable of the model. The only explained variables, however, are the mother's parental mistakes. The remaining variables in the structural model are both explained by some variables and explanatory of other variables (they are moderators and mediators). These variables include *Parental difficulties experienced, Cognitive distancing, Seeking help, Applying pressure and Withdrawal.*

The personality traits of mothers, the needs and values of mothers, the locus of mothers' control and the parental goals selected by mothers are moderators between the mothers' perception of their parents' parental mistakes and mistakes committed by mothers (Figure 5). At the same time, these variables explain the parental mistakes of mothers. The temperamental features of children are also variables explaining the parental mistakes of mothers. These variables are characterized below (Figure 5).

Mothers' perception of grandparents' parental mistakes are an assessment of unfavorable parenting behaviors that a mother's parents (grandmother and grandfather) displayed, as perceived by the mother. The variable measures the perception of grandparents' mistakes by the mothers — their experience of these mistakes. Parental mistakes of grandparents consist of such behaviors as: strictness, aggression, constraining the child's activity, indifference towards the child, self-accentuation of the parent, indulging the child, doing things for the child, idealizing the child and lack of consistency.

Mothers' parental mistakes are an assessment of the behaviors which are unfavorable for the child's development, as perceived by the mother herself. Mothers' parental mistakes consist of the same behaviors as grandparents' mistakes with the exclusion of lack of consistency (Antonina Gurycka's measurement tools for the self-perception of parents' mistakes does not include this mistake) (Gurycka, 1990).

Parental goals are psychological features that parents want to develop in a child in their upbringing (Brzezińska, 2002; Glenn, 2005; Gurycka, 1979; LeVine, 1974, 1980; Miller, 1966; Muszyński, 1972; Sośnicki, 1966). There may be positive and

negative parental goals, i.e., traits that parents strive for and those whose development parents try to prevent (Szymańska, 2012). Previous studies have shown that personality traits occupy an important place among the traits named by parents for parental goals (Szymańska & Aranowska, 2016).

Discrepancy is the difference between the parental goal (i.e., the psychological characteristics that parents want to shape in their children) and the current state of the child's development in terms of the traits being taught (Gurycka, 1990).

Parental stress and **Parental difficulties experienced** are internal states of a parent characterized by tension which are caused by a difficult situation encountered when raising a child (Szymańska & Dobrenko, 2017). Parental stress is also called the *experience of parental difficulties* (Szymańska, 2012; Szymańska & Aranowska, 2016). In Gurycka's original theory, this variable was named *experience of difficulties.*

The path of specific changes, in other words, is a reaction to stress which, according to Reykowski, may take one of four forms: a) cognitive distancing, b) seeking help, c) applying pressure or d) withdrawal (Reykowski, 1966). The first two reactions (cognitive distancing and seeking help) are adaptive behaviors. The remaining two (applying pressure and withdrawal) are non-adaptive behaviors.

a) **Reaction of cognitive distance** – it involves the ability to look at the situation from the side, evaluate it without emotion, with calmness, in order to find the best solution.

b) **The reaction of seeking help** is turning to other persons or institutions with a request for help in situations of difficulties, e.g., to the child's grandparents, to family friends or to a pedagogical and psychological counsellor, etc.

c) **The reaction of withdrawal** consists of adopting a defensive attitude by ceasing to engage. This reaction serves to protect the individual from the harmful effects of stress, while giving up his/her goal (Reykowski, 1966). Withdrawing parents distance themselves from their children and stop engaging in the children's affairs and upbringing process.

d) **The reaction of pressure** is about removing an obstacle, overcoming it. Parents using this reaction may try to force their child to comply with their plans, decisions, etc.

Needs, as a construct, refer to Maslow's theory, which distinguished five classes of needs: a) physiological, b) safety, c) belongingness and love, d) self-esteem and e) self-actualization (Maslow, 1964). Maslow assumed they are organized hierarchically, allowing the person to meet the needs of the next level in the hierarchy once (s)he has met the needs from the lower level. In this work, the level of need satisfaction is determined.

The concept of **values** in this work refers to values in Schwartz's understanding, which defines values as "a cognitive representation (usually a belief) of a motivational, desirable desire for an trans-situational goals" (Cieciuch, 2013b, p. 23). "He

defined basic values as trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or group." (Schwartz, 2012).

The modified circular value model developed by Schwartz et al. includes 19 defined values. These are values aimed at: a) Achievement, b) Hedonism, c) Stimulation, d) Self-Direction–Action, e) Self-Direction–Thought, f) Universalism–Tolerance, g) Universalism–Nature, h) Universalism–Concern, i) Benevolence–Caring, j) Benevolence–Dependability, k) Humility, l) Conformity–Interpersonal, m) Conformity–Rules, n) Tradition, o) Societal Security, p) Personal Security, q) Face, r) Power–Resources and s) Power–Dominance.

Personality traits, according to Cattell, constitute *the mental structure of the personality* (Strelau, 2001a, p.533). The study refers to the personality structure described in the Circumplex Personality Model by Strus, Cieciuch and Rowiński (Strus & Cieciuch, 2017; Strus et al., 2014a). In the model, the authors selected eight meta-traits of personality that constitute the Big Five combinations (Costa & McCrae, 1992).

DELTA-PLUS (Self-restraint) – a person with this characteristic is characterized by a strong tendency to adapt to social norms, high behavioral control, caution, a tendency towards conformism and conventionalism in functioning. (S)he is reliable in action, calm and orderly, but at the same time lethargic, unsociable and closed to new experiences.

ALPHA-PLUS (Stability) – a person with this characteristic is socially adapted, obligatory, honest, patient and persistent in achieving his/her goals. (S)he is also highly able to defer the gratification of needs, motivated and characterized by an appropriate tolerance for frustration.

GAMMA-PLUS (Integration) – this feature indicates personal maturity. A person possessing this trait is characterized by internal harmony, a high level of psychological well-being, optimism and a prosocial attitude towards other people — approaching them with confidence — they are cordial, stable, flexible, adaptive and open to new experiences.

BETA-PLUS (Plasticity) – this is a feature of people who are open to change and new experiences. People who have this characteristic show leadership abilities, are enthusiastic, full of initiative in social situations and strongly oriented towards personal development.

DELTA-MINUS (Sensation-seeking) – a person with this personality trait is characterized by a propensity towards risk, emotional excitability, impulsiveness and the search for exciting sensations. Such a person is hedonistic but at the same time unconventional in thinking. In relations with other people, (s)he is characterized by expansiveness and a tendency to dominate and compete.

ALPHA-MINUS (Disinhibition) – a person with this characteristic manifests antisocial tendencies. (S)he is aggressive and has an antagonistic attitude towards

people as well as social norms and obligations. Also, (s)he is sometimes quarrelsome, prone to anger and irritation.

GAMMA-MINUS (Disharmony) – a person with this characteristic has low moods, is depressed, lacks energy and has low self-esteem. (S)he has little psychological and physical well-being and, in interpersonal relationships, (s)he is distanced, distrustful and suspicious.

BETA-MINUS (Passiveness) – a person with this personality trait is characterized by passivity, apathy and a tendency towards stagnation. (S)he tolerates change badly and is attached to the familiar. In relationships with people, (s)he is subordinate, dependent, insecure and shy.

External and internal locus of control refers to Rotter's concept of location of control. According to her, "control is a learned mechanism, consistent with the principles of instrumental conditioning" (Kierowski, Lew-Starowicz, & Mellibruda, 2002, p. 723). The sense of internal control is thought to form as a result of a conviction about the relationship between someone's own behavior and reinforcement (e.g., the satisfaction of needs). The sense of external control is developed from a lack of conviction about such a relationship. In this work, the external and internal locus of the control of mothers is determined.

The temperamental features of the child "characterize the pace and general style in which a person performs any activities. They also apply to individual differences in the emotional sphere." (Strelau, 2001, p. 529). In this work, the understanding of temperamental traits is based on the stylistic concept of temperament according to Thomas and Chess (A. Thomas & Chess, 1977). Temperament is understood in their theory as a child's behavioral style. In the concept, nine categories of temperament are distinguished:

1. **Activity –** the aspect of the child's motor behavior, including periods of activity and inactivity during the day
2. **Rhythmicity** – the regularity or irregularity of biological functions such as sleep
3. **Approaching/Withdrawal** – connected with the initial response to a new stimulus; Approaching is a sign of a positive reaction, while withdrawal is a negative one.
4. **Ease of adaptation** – the ease with which the child's behavior can be changed in the desired direction
5. **Response threshold** – the stimulus force needed to create a noticeable reaction in the child
6. **Reaction strength –** the forcefulness of the child's reaction
7. **Quality of mood –** the proportion of positive to negative emotions
8. **Distraction** – the ease with which the child is distracted, distracting attention from the activities (s)he is currently doing

9. **Perseverance** – the ability to devote attention to the given activity for the longest possible time and the ability to continue an activity despite distracting stimuli (Strelau, 2001b, p. 695)

Psychometric parameters were tested for each scale before analysis, to check whether the same factors as in the population would be reproduced on a sample of mothers.

The description of each scale consists of the following parts:

1. General information about the scale and its construction

2. Values of reliability measures. In order to estimate the reliability of the tools, Cronbach's α was used, in accordance with classical theory. Because this coefficient is not only encumbered, but there are also reports in the literature that it is incorrect — in the sense that it does not actually measure reliability — the unbiased coefficient ρ2 was used, which according to the theory of generalizability is a modern measure of reliability (Aranowska, 2005). In addition, for each factor in the scale, the value of reliability according to Jöreskog's formula was given (Geldhof, Preacher, & Zyphur, 2014). As the last measure of reliability, Aranowska's γ coefficient was given, which is an improved Jöreskog reliability coefficient (Aranowska & Szymańska, 2017).

3. Accuracy. The confirmatory factor analysis procedure was used to describe the factorial relevance of the tools. This analysis was used to confirm the theoretical assumptions of the scales. Questions were assigned to dimensions (latent variables) in accordance with the guidelines provided by the authors of these scales. Therefore, the analysis confirmed, according to the methodology, the theoretical assumptions of the scales (Bartholomew et al., 2008; Hair et al., 2006).

The Discrepancy Scale and its psychometric properties

The scale measures the difference between the parental goal, i.e., the characteristics that the parent wants or does not want the child to develop, and the level of development of these characteristics in the child (Szymańska & Dobrenko, 2017). The scale consists of six test items. Three questions concern traits that parents try to make children develop (goals desired by the parent) and three deal with traits that parents try to avoid (parents' undesirable goals). These are open questions; the parent lists features at his/her own discretion, so the pool of traits is virtually unlimited. The parent can name any goal (s)he wants, because there is no pool of traits foreseen by the researcher.

This procedure was purposeful. It was about checking what real goals parents have. It was not limited in any way. Two additional questions were asked for each of the two goals mentioned by the parent. The first concerned how much the parent

wanted the child to develop the trait. The second is how the child has developed a given trait. Both parents answered questions on a scale from -7 to 7, where -7 meant "definitely not" and "definitely does not have." In contrast, 7 meant "definitely" and "definitely has." The scale is presented in Appendix B. This scale structure allowed the researcher both to analyze the parental goals and to test the child's level of development in the area of traits being taught, that is, the difference from those parental goals — also called *discrepancy* by Gurycka (hence the name of the scale).

On the basis of the results of the scale, six discrepancies are obtained: three discrepancies from the goals desired by the parent (traits that the parent wants to develop in the child) and three from the undesirable goals (traits that the parent does not want the child to develop). Each of these measures of discrepancy arises as a result of subtracting the value which determines at which level the child has developed a given trait from the value concerning the level at which the parent wants the child to develop that trait. In this way, six measures of discrepancy arise from the desired parental goals (rozb1, rozb2, rozb3) and three from the undesirable target (rozb4, rozb5, rozb6).

Confirmatory factor analysis

In order to check the theoretical assumptions of the scale, a confirmatory factor analysis was carried out. Each measure of discrepancy was assigned to the corresponding factor, i.e., the distance from the desired or undesirable goals. The factor structure of the scale is presented in Figure 7. Two measures of discrepancy proved to be strongly correlated ($\gamma = 0.790$; $p < 0.005$). Factor loadings (λ) were moderate and ranged from 0.5 to 0.68. Estimates of the confirmatory factor model parameters for the discrepancy construct are presented in Table 9. The confirmatory factor analysis confirmed the theoretical assumptions of the scale. The model fits the data well, as indicated by CFI statistics close to 1.0 and RMSEA statistics below 0.08 (see description in Figure 7).

Table 9
Estimates of the confirmatory factor analysis parameters for the discrepancy construct

Subscales	Parameters	Standardized	Non-standardized	SD
Discrepancy from positive goals	λ_{rozb1}	0.555	1.000	
	λ_{rozb2}	0.542	1.152	0.175
	λ_{rozb3}	0.528	1.034	0.159
Discrepancy from negative goals	λ_{rozb4}	0.675	1.000	
	λ_{rozb5}	0.536	0.730	0.101
	λ_{rozb6}	0.503	0.646	0.093

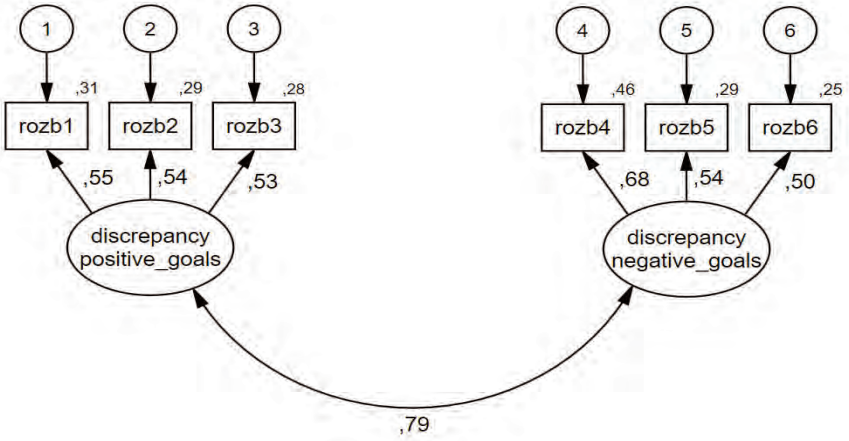


Figure 7. **Confirmative factor analysis results for the discrepancy construct: $\chi^2 = 12.248$; p = 0.140; CFI = 0.986; RMSEA= 0.036.**

Reliability

The reliability of the results for the entire Discrepancy scale and for each factor were calculated separately. Four measures of reliability were calculated: a) Cronbach's α, b) RO2 (intra-class correlation), c) Jöreskog's construct reliability (CR) and d) Aranowska's γ coefficient, constituting an amendment to Jöreskog's formula (Szymańska & Aranowska, 2016). The values of these measures are presented in Table 10. These measures are low for individual factors. For the entire discrepancy scale, the estimate of Cronbach's α is 0.679 and for Aranowska's γ it is 0.629. These are sufficient values for scientific research. However, the reliability estimated according to the CR estimator is good and amounts to 0.730. All measures of reliability are lower than those obtained in earlier studies (Szymańska & Aranowska, 2016).

Table 10

Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for subscales of the Discrepancy Scale

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Discrepancy from positive goals	0.551	0.290	0.552	0.375
Discrepancy from negative goals	0.598	0.331	0.597	0.415
Total discrepancy	0.679	0.260	0.730	0.629

The Scale of Parental Difficulties Experienced and its psychometric properties

The Scale of Parental Difficulties Experienced (PDE Scale) measures the level (severity) of the parent's difficulty in his/her relationship with his/her child. The scale is presented in Appendix C. It measures the difficulty understood as the internal state of the parent characterized by tension, which is caused by the child's upbringing process and results from the relationship with the child. Experiencing difficulties is the same as experiencing stress. According to Reykowski, the concept of stress is identical with the colloquial term for "difficulty" (Reykowski, 1966). Stress/difficulty is an inner experience that a person experiences in a difficult situation (Tomaszewski, 1975). In her work, Gurycka defined the term "experienced parental difficulty" by referring to the stress theory of Janusz Reykowski (Reykowski, 1966) and the term "difficult situation" proposed by Tadeusz Tomaszewski, who wrote about difficult situations in the following way: "If the internal equilibrium of the normal situation is disturbed so that the normal course of basic activity will be disturbed and the probability of completing the task at a normal level will become lower, we can describe it as a difficult situation" (Tomaszewski, 1975, p. 32). Because extensive information on this scale has been published in previous works, we will only mention here that the experience of difficulty is synonymous with stress experienced by the parent in the upbringing situation (Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017).

Confirmatory factor analysis

At the theoretical level, the PDE scale was assumed to be one-dimensional in nature. This one-dimensional structure was tested by confirmatory factor analysis. The scale structure is presented in Figure 8. The factor loadings (λ) of questions were high. Apart from one question, whose value was lower, all of the questions had values ranging between 0.79 and 0.89. Estimates of the confirmatory factor model parameters for the variable of experiencing parental difficulties are presented in Table 11. The model turned out to be near the limit of fitting, which is indicated by a value of 0.9 for the Comparative Fit Index (CFI).

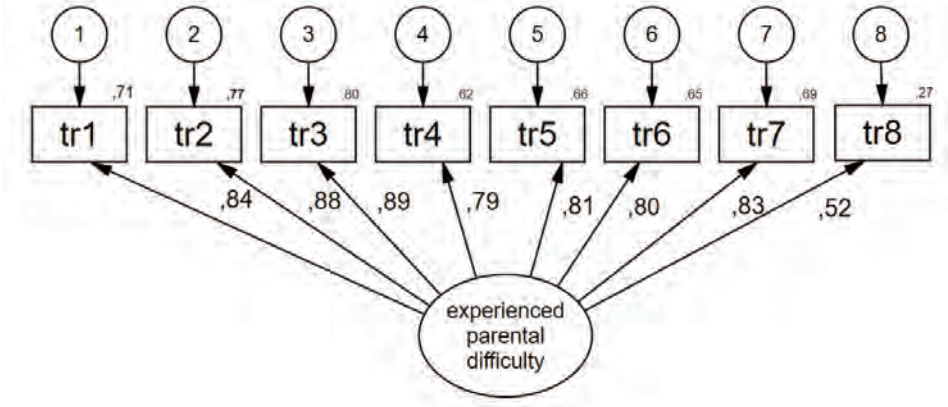


Figure 8. **Confirmative factor analysis results for the construct of parental difficulties experienced (parental stress): $\chi^2 = 360.139$; $p < 0.005$; CFI = 0.875; RMSEA= 0.206.**

Table 11

Estimates of the parameters of the confirmatory factor analysis model for the construct of parental difficulties experienced

Parameters	Standardized	Non-standardized	SD
λ_{tr1}	0.842	1.000	
λ_{tr2}	0.879	1.233	0.054
λ_{tr3}	0.894	1.176	0.050
λ_{tr4}	0.786	1.047	0.055
λ_{tr5}	0.811	1.110	0.055
λ_{tr6}	0.805	0.952	0.048
λ_{tr7}	0.833	1.009	0.048
λ_{tr8}	0.518	0.529	0.048

Reliability

For the PDE Scale in Table 12 four measures of reliability are shown: a) Cronbach's α, b) RO2 (intraclass correlation), c) Jöreskog's construct reliability (CR) and d) Aranowska's γ coefficient, constituting an amendment to Jöreskog's formula (Szymańska & Aranowska, 2016). According to the estimators Cronbach's α and Jöreskog's CR, the scale is very reliable. According to the RO2 and Aranowska's γ coefficients, the reliability is moderate, but still good. It is worth noting that the PDE Scale has good psychometric properties, according to the classical test theory and modern according to the theory of generalizability. Similar values were obtained in previously conducted studies (Szymańska & Aranowska, 2016).

Table 12
Cronbach's α-estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for the Scale of parental difficulties experienced

Scale	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Parental Difficulty Experienced	0.934	0.640	0.934	0.753

The Stress Response Scale and its psychometric properties

The Stress Response Scale measures four ways of coping with stress in a relationship with a child. The scale is presented in Appendix D. The basis for the scale is Reykowski's theory of stress response, which assumes the existence of four stress reactions: two adaptive and two non-adaptive ones. The adaptive reactions to stress are cognitive distancing and seeking help. The non-adaptive ones are applying pressure and withdrawing from the upbringing situation. Previous studies have shown that these four reactions to stress are not correlated and should be used separately in models (Szymańska & Aranowska, 2016). In other words, the values from these four subscales do not add up to the overall score.

Confirmatory factor analysis

At the theoretical level, the scale was assumed to have a four-factor structure, which is presented in Figure 9. The questions on the scale have been assigned to the corresponding factors. Subsequently, this structure was tested by means of confirmatory factor analysis. For the factors Distancing and Applying pressure, all factor loads were high. The questions belonging to the Withdrawal factor had moderate loadings. Seeking help had high loads and one low. Estimates of the confirmatory factor model parameters for the stress response construct are presented in Table 13. The model fits the data, as confirmed by its close unity of CFI values and the value of RMSEA being less than 0.08 (see the caption for Figure 9).

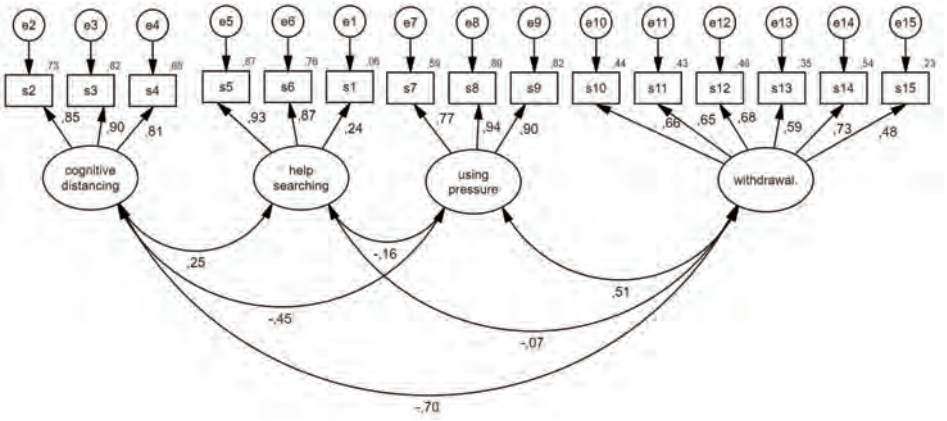


Figure 9. **The results of confirmatory factor analysis for the stress reaction construct: $\chi^2(84) = 264.280$; $p < 0.005$; CFI = 0.941; RMSEA= 0.073.**

Table 13
Estimates of the parameters for the stress response construct

Subscales	Parameters	Standardized	Non--standardized	SD
Cognitive distancing	λ_{s2}	0.852	1.000	
	λ_{s3}	0.904	1.045	0.047
	λ_{s4}	0.807	1.047	0.056
Seeking help	λ_{s1}	0.244	0.162	0.037
	λ_{s5}	0.933	1.000	
	λ_{s6}	0.874	0.942	0.085
Applying pressure	λ_{s7}	0.766	1.000	
	λ_{s8}	0.941	1.261	0.062
	λ_{s9}	0.904	1.288	0.066
Withdrawing	λ_{s10}	0.661	1.000	
	λ_{s11}	0.655	1.057	0.104
	λ_{s12}	0.681	1.095	0.103
	λ_{s13}	0.593	0.858	0.091
	λ_{s14}	0.734	1.115	0.089
	λ_{s15}	0.477	0.476	0.059

Reliability

The reliability for these four factors in the Stress Response Scale is presented in Table 14. As with the previous scales, four measures were calculated: a) Cronbach's α, b) RO2 (intraclass correlation), c) Jöreskog's CR (construct reliability) coefficient

and d) Aranowska's γ coefficient, constituting an amendment to Jöreskog's formula (Szymańska & Aranowska, 2016). The cognitive distancing and applying pressure subscales, according to all coefficients, have good and very good reliability (exceeding the values of 0.7, 0.8 and 0.9). The subscales both have good and very good reliability in view of the classical test theory and generalizability theory. The Seeking help and Withdrawing subscales have good reliability, but only according to the classical theory (exceeding a value of 0.7 for Cronbach's α coefficient and 0.8 for Jöreskog's CR). In view of the theory of generalizability, unfortunately, the scales have moderate reliability. According to Aranowska's γ coefficient, it is low. Similar results were obtained in earlier studies (Szymańska & Aranowska, 2016).

Table 14
Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for the subscales of the Stress Response Scale

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Cognitive distancing	0.886	0.721	0.890	0.708
Seeking help	0.716	0.456	0.759	0.593
Applying pressure	0.902	0.754	0.905	0.730
Withdrawing	0.804	0.405	0.801	0.562

Questionnaire of the Parent's Self-perception and its psychometric properties

The Questionnaire of the Parent's Self-perception is a scale developed by Gurycka to study mistakes in the eyes of a parent (Annex E). The parent answers questions that describe his/her parental mistakes. The questionnaire contains eight scales that measure eight mistakes described in the circle of parental mistakes, namely: strictness, aggression, constraining the child's activity, indifference, parent's self-accentuation, indulging the child, doing things for the child and idealizing the child. Szymańska and Torebko showed that these eight mistakes can be described using four meta-factors (Szymańska & Torebko, 2015).

Meta-factors can be distinguished by assigning the mistakes to the axes highlighted in the circle of mistakes by Gurycka. And so, the mistake of *strictness and aggression* is both cold and concentrated on the child and his/her tasks — they constitute one meta-factor. The mistake of *constraint and indifference* belongs to the mistakes of cold and focus on the parent and his/her tasks — they make up another meta-factor. The mistake of *self-accentuation by the parent and indulging*

the child is another meta-factor of warmth and focus on the parent and his/her tasks. Finally, the mistake of *doing things for the child and idealizing the child* is also a meta-factor because together they belong to the warm errors and focus on the child and his/her tasks.

Studies have shown that these meta-factors belong to both warm and cold mistakes (which correlate negatively), as well as mistakes focused on parents and children (also negatively correlated). Only the mistake of indulging breaks out of this structure — when it coincides with the mistake of a parent's self-accentuation and is included in the structure of mistakes focused on the tasks of the parent. In other words, it begins to correlate with the entire structure negatively (Szymańska & Torebko, 2015). This is probably due to the fact that the mistake of indulging does not have to be only a sign of the parent's concentration on his/her tasks. On the contrary, a parent can resign from his/her requirements of a child because (s)he recognizes that the situation is difficult, one where (s)he must give in to the child. A parent may not only see his/her own situation as difficult, but also the situation for the child, which is why (s)he gives in to the child. In other words, it is suspected that the mistake of indulging is a mistake which may belong to both the axes of focus on the child and focus on the parent.

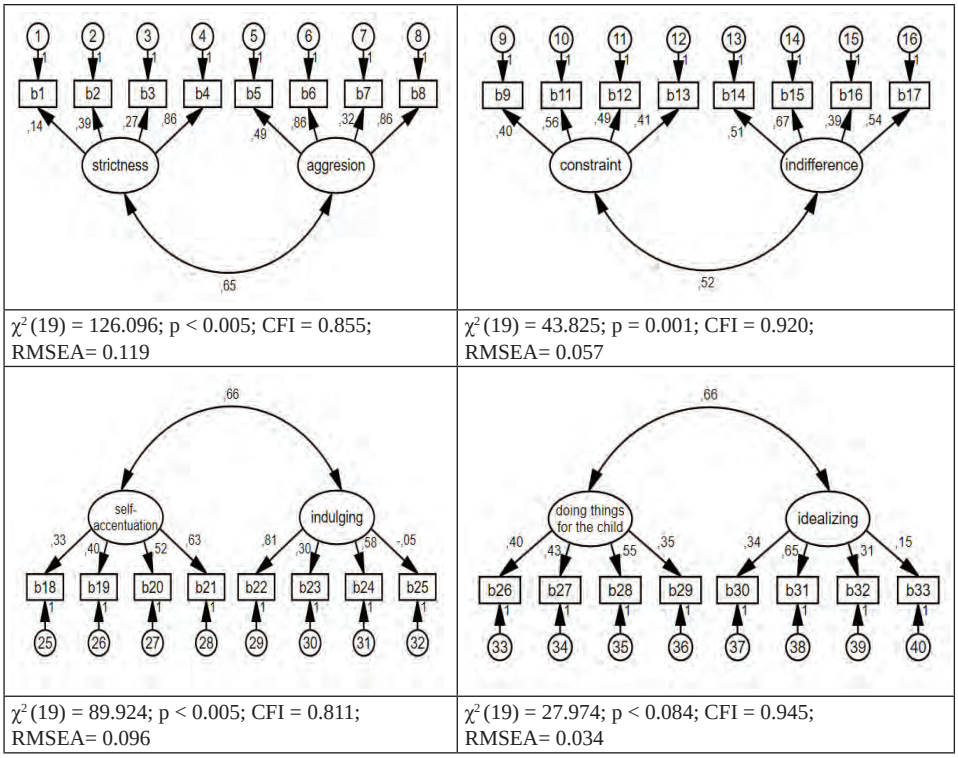
In this work, these four meta-factors of parental mistakes are used, i.e., strictness–aggression, constraint–indifference, self-accentuation–indulging and doing things for the child–idealizing the child. The eight mistakes are reduced to these meta-factors in order to simplify the structural model and to facilitate the interpretation of results.

Confirmatory factor analysis

The confirmatory factor analysis was carried out in two stages. The first step tested the correctness of the structure for correlated mistakes that belong to the same dimensions. At this stage, no meta-factors had yet been constructed. The results are presented in Figure 10.

The models for *constraint–indifference* and *doing things for the child–idealizing the child* were well-suited to the data, as confirmed by the CFI value close to unity and the RMSEA value of less than 0.08 (Bartholomew et al., 2008; Hair et al., 2006; Heck & Thomas, 2009 Heck et al., 2010). The variables of *constraint* and *indifference* as well as *doing things for the child* and *idealizing the child* were correlated at a moderate level.

Models for *strictness* and *aggression*, *self-accentuation* and *indulging* were close to matching. The mistake of *strictness* and *aggression* as well as *self-accentuation* and *indulging* also correlate to moderate levels (see the caption for Figure 10).



χ^2 (19) = 126.096; p < 0.005; CFI = 0.855; RMSEA= 0.119	χ^2 (19) = 43.825; p = 0.001; CFI = 0.920; RMSEA= 0.057
χ^2 (19) = 89.924; p < 0.005; CFI = 0.811; RMSEA= 0.096	χ^2 (19) = 27.974; p < 0.084; CFI = 0.945; RMSEA= 0.034

Figure 10. **Results of confirmatory factor analysis for variables of parental mistakes according to mothers' self-perception.**

In the second stage of the analysis, all four meta-factors were included in one structure. This time, variables belonging to meta-traits were assigned to structures from the hierarchical level creating real meta-factors. All meta-factors, i.e., *strictness–aggression*, *constraint–indifference*, *self-accentuation–indulging* and *doing things for the child–idealizing the* child, correlate. In Figure 11, showing the structure, the correlations are marked with a double-headed arrow. The model proved to fit the data, as indicated by RMSEA values of less than 0.08 (see the caption for Figure 11). Table 15 presents the estimates of the parameters of the confirmatory factor model for parental mistakes according to mothers' self-perception. The factor loading values range from low to high.

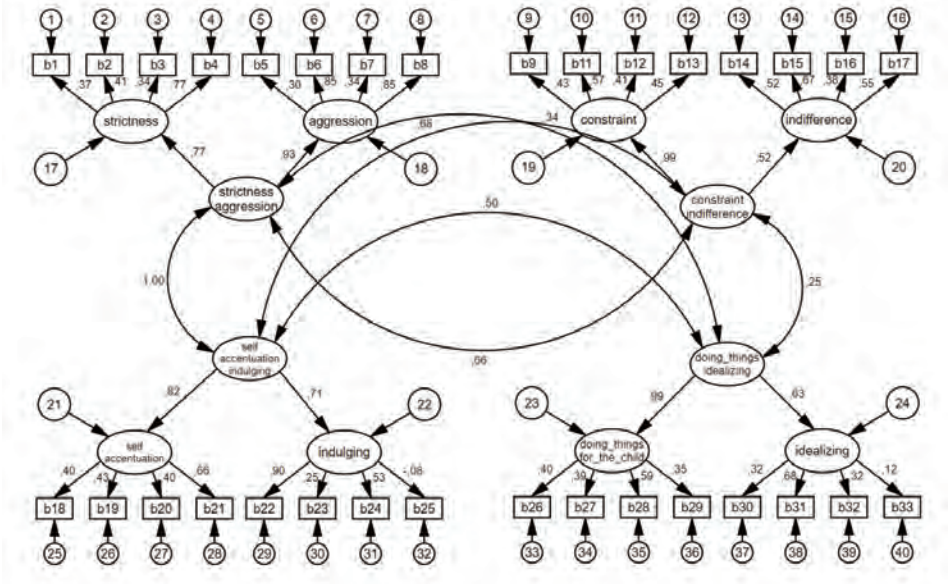


Figure 11. **The results of the confirmatory factor analysis for the construct of parental mistakes according to mothers' self-perception: χ^2 (451) = 1307.325; p < 0.005; CFI = 0.661; RMSEA= 0.069.**

Table 15

Estimates of the parameters of the confirmatory factor analysis for the construct of parental mistakes according to mothers' self-perception

Subscales	Parameters	Standardized	Non-standardized	SD
strictness	λ_{b1}	0.368	1.000	
	λ_{b2}	0.414	1.084	0.190
	λ_{b3}	0.338	0.695	0.140
	λ_{b4}	0.770	2.604	0.345
aggression	λ_{b5}	0.295	1.000	
	λ_{b6}	0.845	2.963	0.377
	λ_{b7}	0.345	0.553	0.105
	λ_{b8}	0.853	3.200	0.406
constraint	λ_{b9}	0.431	1.000	
	λ_{b11}	0.570	0.504	0.086
	λ_{b12}	0.410	0.577	0.114
	λ_{b13}	0.446	0.852	0.161
indifference	λ_{b14}	0.521	1.000	
	λ_{b15}	0.666	1.596	0.234
	λ_{b16}	0.375	1.623	0.311
	λ_{b17}	0.548	2.021	0.308

Subscales	Parameters	Standardized	Non-standardized	SD
self-accentuation	λ_{b18}	0.402	0.733	0.115
	λ_{b19}	0.433	0.660	0.097
	λ_{b20}	0.400	0.721	0.113
	λ_{b21}	0.665	1.000	
indulging	λ_{b22}	0.903	0.996	0.121
	λ_{b23}	0.254	0.359	0.081
	λ_{b24}	0.525	1.000	
doing things for the child	λ_{b25}	-0.076	-0.084	0.060
	λ_{b26}	0.403	0.836	0.200
	λ_{b27}	0.389	1.600	0.388
	λ_{b28}	0.593	1.911	0.413
idealizing the child	λ_{b29}	0.352	1.000	
	λ_{b30}	0.316	2.344	1.352
	λ_{b31}	0.675	4.955	2.801
	λ_{b32}	0.321	2.474	1.424
	λ_{b33}	0.122	1.000	

Reliability

The reliability for each mistake and for the four meta-factors is presented in Table 16. As with all scales, four reliability factors are given. Individual mistakes have rather low reliability. However, according to the CR reliability index by Jöreskog, the four meta-factors of parental mistakes — *strictness–aggression, constraint–indifference, self-accentuation–indulging and doing things for the child–idealizing the child* have good and very good reliability; their values range from 0.74 to 0.955. According to other coefficients, this reliability is low. However, due to the widespread use of Jöreskog's coefficient, from the creator of systems of structural equations, and its good values of reliability for meta-factors, we will recognize their fit and we will use them in further analyses.

Table 16
Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for the subscales of parental mistakes according to parental self-perception

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
strictness	0.478	0.186	0.545	0.370
aggression	0.730	0.403	0.699	0.518
strictness–aggression	**0.699**	**0.225**	**0.842**	**0.664**
constraint	0.463	0.177	0.526	0.333

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
indifference	0.561	0.242	0.613	0.409
constraint–indifference	**0.583**	**0.149**	**0.955**	**0.590**
self-accentuation	0.538	0.225	0.539	0.350
indulging	0.450	0.170	0.521	0.407
self-accentuation–indulging	**0.583**	**0.149**	**0.740**	**0.564**
doing things for the child	0.455	0.172	0.482	0.303
idealizing the child	0.381	0.134	0.385	0.272
doing things for the child–idealizing the child	**0.524**	**0.121**	**0.808**	**0.635**

Questionnaire of the Child's Perception and its psychometric properties

The Questionnaire of the Child's Perception is a scale developed by Gurycka to assess the parental mistakes of parents (or teachers) (Annex F i G). The child under study answers questions specifying the severity of the mistakes of parents and guardians. The Questionnaire has nine scales. In contrast to the Questionnaire of the Parent's Self-perception, apart from the eight mistakes described in the circle of parental mistakes, the Questionnaire of the Child's Perception also has a scale which measures the lack of consistency mistake.

In the current research, mothers were asked to answer questions regarding their parents' parental mistakes. The Questionnaire of the Child's Perception has two parallel versions, to assess the mistakes of fathers and of mothers. This study used both, a fact which allowed us to collect information on how mothers perceived the mistakes of their mothers and their fathers. In later sections of the work, we will talk about grandmothers' and grandfathers' parental mistakes to avoid misunderstandings about which mothers we are talking about. So, when we talk about grandmothers' parental mistakes, we will refer to how the mothers who were surveyed perceived the upbringing mistakes of their mothers. When we talk about the mistakes of grandfathers, we will refer to mothers' perceptions of their fathers' mistakes.

Confirmatory factor analysis for grandmothers' mistakes

In the case of the Questionnaire of the Child's Perception, the confirmatory factor analysis was also carried out in two stages. In the first step, the correctness of the correlated mistakes was tested, i.e., those which belong to the same dimensions in the circle of upbringing mistakes. At this stage, no meta-factors had yet been constructed. The results are presented in Figure 12. The models for *constraint–indifference*

and *doing things for the child–idealizing the child* fit the data well, as indicated by the near-unity of the CFI value. Mistakes were correlated at a moderate level.

The models for *strictness–aggression* and *self-accentuation–indulging* did not fit the data. Question bm13 was not included in the factor, as it negatively correlated with the whole structure. The *strictness–aggression* and *self-accentuation–indulging* also correlated at only a moderate level.

The model for the *lack of consistency* mistake was optimally matched to the data, with a CFI value = 1.

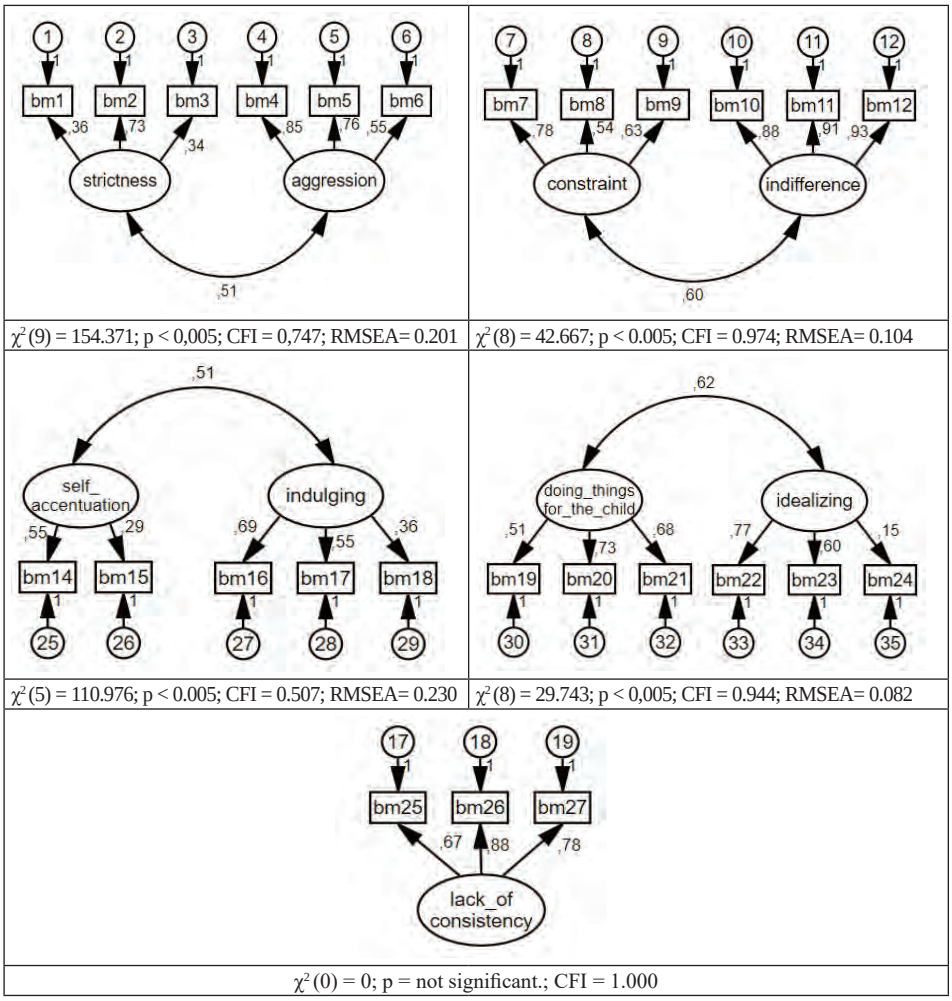


Figure 12. **The results of confirmatory factor analysis for variables of grandmothers' parental mistakes**

In the second stage, all parental mistakes were included in one structure. This time, the mistakes described in the mistake circle were merged into four meta-traits. The mistakes of *lack of consistency* occurred as a separate factor. This structure is shown in Figure 13. The model is a borderline match, as indicated by the RMSEA value of less than 0.1 (see the caption for Figure 13).

Table 17 presents estimates of the parameters of the confirmatory factor analysis model for the construct of grandmothers' parental mistake according to mothers' perceptions. Factor loadings ("standardized" in Table 17) assume different values: low, moderate but also high.

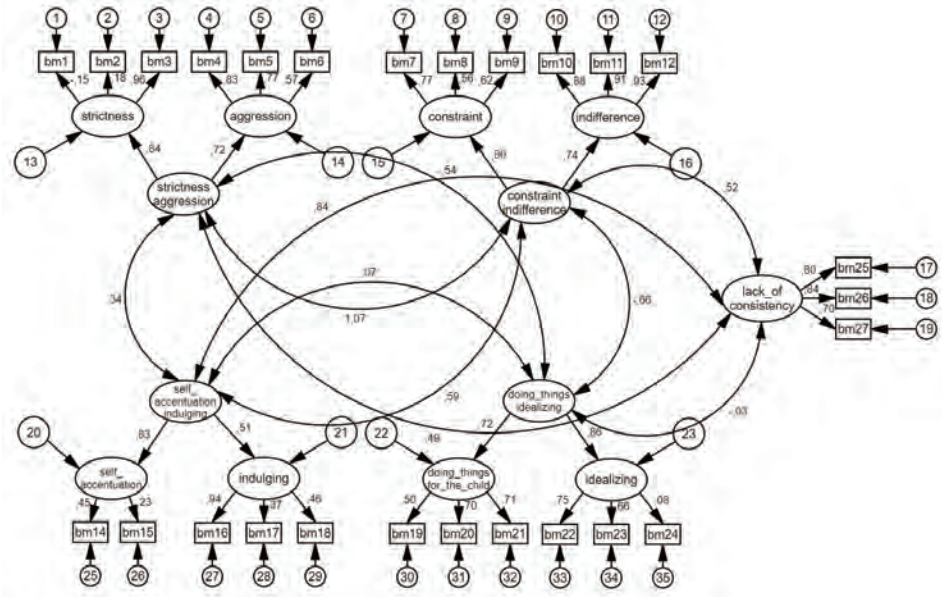


Figure 13. **The results of confirmatory factor analysis for grandmothers' parental mistakes according to mothers' perceptions: χ^2 (283) =1372.448; p < 0.005; CFI = 0.750; RMSEA= 0.098.**

Table 17
Estimates of the confirmatory factor model parameters for grandmothers' parental mistakes according to mothers' perceptions

Subscales	Parameters	Standardized	Non-standardized	SD
strictness	λ_{m1}	-0.153	-0.153	0.057
	λ_{m2}	0.184	0.180	0.058
aggression	λ_{m3}	0.962	1.000	
	λ_{m4}	0.832	1.000	
	λ_{m5}	0.766	0.808	0.058
	λ_{m6}	0.569	0.424	0.040
constraint	λ_{m7}	0.772	1.000	
	λ_{m8}	0.558	0.329	0.033
	λ_{m9}	0.618	0.856	0.079
indifference	λ_{m10}	0.883	1.000	
	λ_{m11}	0.910	0.888	0.033
	λ_{m12}	0.927	0.928	0.033
self-accentuation	λ_{m14}	0.447	1.77	0.389
	λ_{m15}	0.235	1	
indulging	λ_{m16}	0.939	2.096	0.319
	λ_{m17}	0.373	0.965	0.159
	λ_{m18}	0.457	1	
doing things for the child	λ_{m19}	0.504	0.658	0.083
	λ_{m20}	0.699	0.945	0.101
	λ_{m21}	0.712	1	
idealizing the child	λ_{m22}	0.748	1	
	λ_{m23}	0.655	1	
	λ_{m24}	0.085	0.123	0.085
lack of consistency	λ_{m25}	0.804	1.000	
	λ_{m26}	0.837	1.047	0.066
	λ_{m27}	0.702	0.952	0.069

Reliability

The reliability for all mistakes and for the meta-traits of mistakes is presented in Table 18. The individual mistakes, apart from the *lack of consistency* mistake, have poor reliability, though the meta-traits of the mistakes have quite good reliability. This confirms the correctness of reducing the mistakes into meta-factors. According to Jöreskog's CR index, the reliability for meta-traits exceeds the value of 0.7. Only the one for self-accentuation–indulging is lower, amounting to 0.631. However, this is sufficient reliability for scientific research to be conducted.

Table 18
Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for subscales of grandmothers' mistake according to mothers' perceptions

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
strictness	0.324	0.138	0.709	0.516
aggression	0.753	0.504	0.769	0.575
strictness–aggression	**0.678**	**0.260**	**0.758**	**0.581**
constraint	0.634	0.366	0.690	0.498
indifference	0.929	0.814	0.932	0.771
constraint–indifference	**0.836**	**0.460**	**0.745**	**0.568**
self-accentuation	0.271	0.157	0.304	0.233
indulging	0.474	0.231	0.550	0.385
self-accentuation–indulging	**0.450**	**0.140**	**0.631**	**0.481**
doing things for the child	0.673	0.407	0.679	0.487
idealizing the child	0.494	0.245	0.533	0.407
doing things for the child–idealizing the child	**0.651**	**0.237**	**0.771**	**0.594**
lack of consistency	**0.817**	**0.599**	**0.825**	**0.630**

Confirmatory factor analysis for grandfathers' mistakes

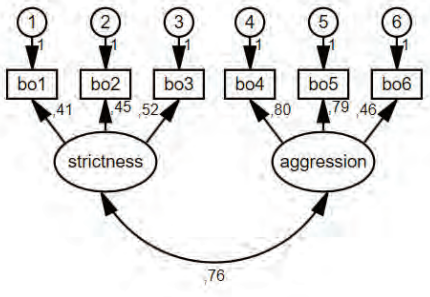
In the case of grandfathers' mistakes, confirmatory factor analysis was also carried out in two stages. Again, in the first step, the correctness of correlated mistakes which belong to the same dimensions was tested. Also, no meta-factors were constructed at the beginning. The results of the models are presented in Figure 14.

The mistakes of *constraint–indifference* and *doing things for the child–idealizing the child* were correlated at a moderate level. Both models fit the data, as indicated by the CFI and RMSEA statistics (see the caption for Figure 14).

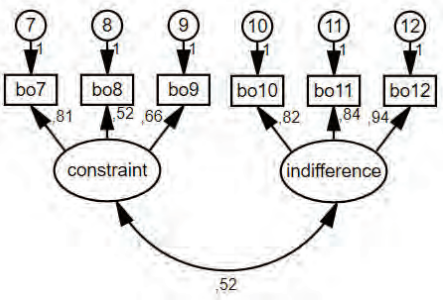
Also, the model for the *lack of consistency* mistake was well fitted to the data.

The *strictness–aggression* mistakes were correlated at the level of 0.76, which despite being high, unfortunately did not fit the data.

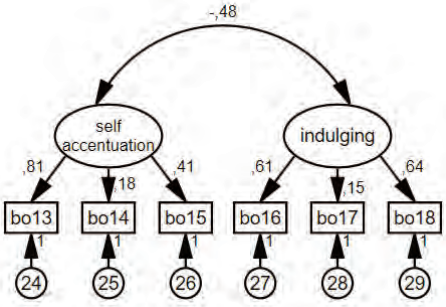
In the case of *self-accentuation–indulging* mistakes, the model did not fit the data; also, the mistakes were moderately negatively correlated. This means that they should not be used to create a common meta-trait. It is significant that only in the case of perceiving the mistakes of their fathers' did the women notice that their fathers' self-accentuation was not accompanied by his indulging to the daughter. In the case of mothers, this relationship was present, and it was also confirmed by previous studies (Szymańska & Torebko, 2015).



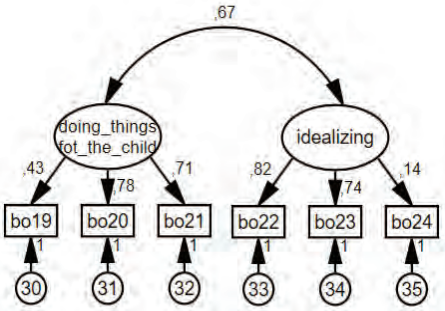
$\chi^2(10) = 227.682$; $p < 0.005$; CFI = 0.654; RMSEA= 0.233.



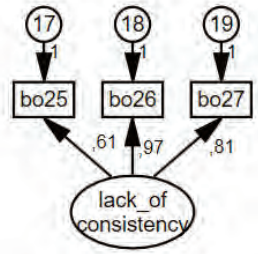
$\chi^2(8) = 31.864$; $p < 0.005$; CFI = 0.978; RMSEA= 0.086



$\chi^2(9) = 122,.173$; $p < 0.005$; CFI = 0.587; RMSEA= 0.177



$\chi^2(8) = 18.976$; $p < 0.005$; CFI = 0.979; RMSEA= 0.058



$\chi^2(0) = 0$; p = not significant; CFI = 1.000

Figure 14. **Confirmatory factor analysis results for grandfathers' mistakes**

In the second step, all of the meta-factors of mistakes, including the *lack of consistency* mistake, were included in one structure. It was tested whether the meta-factors of mistakes could be included in a hierarchical structure. It turned out that *self-accentuation* and *indulging the child* do not create one factor. The mistake

of indulging "breaks" the structure. In other words, it correlates negatively with the mistake of *self-accentuation*. What's more, the entire model does not fit the data (see the caption for Figure 15).

Table 19 presents estimates of the confirmatory factor analysis parameters for the construct of grandfathers' parental mistakes according to mothers' perceptions.

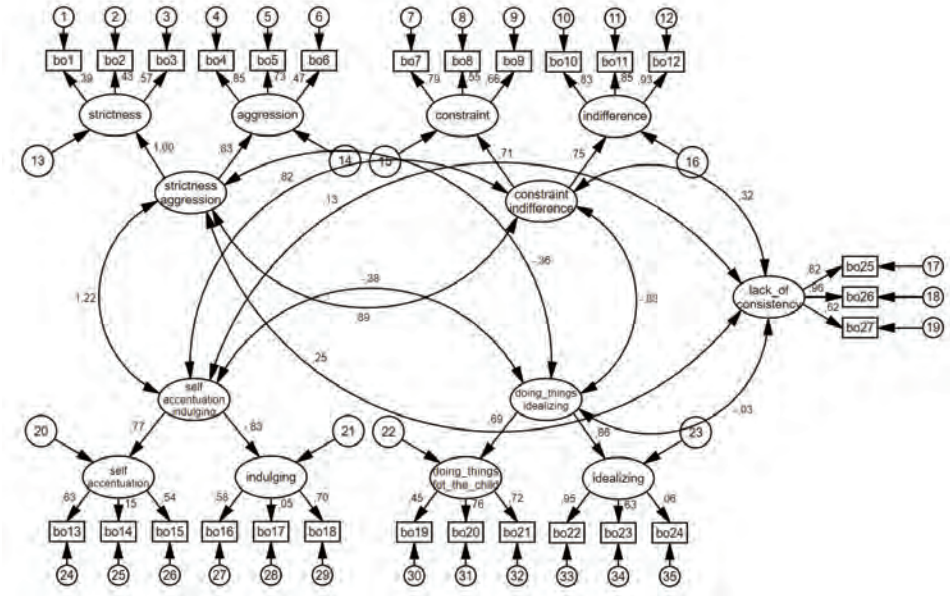


Figure 15. **Confirmatory factor analysis results for the grandfather's parental mistakes structure in the mother's perception: χ^2 (309) =1772.043; p < 0.005; CFI = 0.696; RMSEA= 0.109.**

Table 19

Estimates of confirmatory factor analysis parameters for the construct of grandfathers' parental mistakes according to mothers' perceptions

Subscales	Parameters	Standardized	Non-standardized	SD
	λ_{bo1}	0.390	1.000	
strictness	λ_{bo2}	0.433	1.000	
	λ_{bo3}	0.572	1.000	
	λ_{bo4}	0.847	1.000	
aggression	λ_{bo5}	0.733	0.794	0.054
	λ_{bo6}	0.474	0.305	0.033
	λ_{bo7}	0.788	1.000	
constraint	λ_{bo8}	0.550	0.307	0.032
	λ_{bo9}	0.657	0.885	0.081

Subscales	Parameters	Standardized	Non-standardized	SD
	λ_{bo10}	0.831	1.000	
indifference	λ_{bo11}	0.846	1.036	0.051
	λ_{bo12}	0.926	1.071	0.047
	λ_{bo13}	0.631	1.095	0.139
self-accentuation	λ_{bo14}	0.154	0.232	0.09
	λ_{bo15}	0.543	1.000	
	λ_{bo16}	0.581	1.000	
indulging	λ_{bo17}	-0.047	-0.077	0.092
	λ_{bo18}	0.697	1.000	
	λ_{bo19}	0.451	0.687	0.091
doing things for the child	λ_{bo20}	0.761	0.996	0.095
	λ_{bo21}	0.719	1.000	
	λ_{bo22}	0.951	15.544	12.802
idealizing the child	λ_{bo23}	0.634	9.9	8.153
	λ_{bo24}	0.063	1.000	
	λ_{bo25}	0.822	1.000	
lack of consistency	λ_{bo26}	0.964	1.155	0.066
	λ_{bo27}	0.617	0.846	0.064

Reliability

The reliability for all mistakes and for the mistakes' meta-factors is presented in Table 20. Again, individual mistakes were of low reliability, while the meta-factors had good and very good reliability, ranging between 0.695 and 0.915. Unfortunately, for the meta-trait *self-accentuation* and *indulging the child* the values of reliability were practically null due to the negative correlation of the subscales. In further analyses fathers' mistakes of *self-accentuation* and *indulging the child* should not be combined into a meta-trait.

Table 20

Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for subscales of grandfathers' parental mistakes according to mothers' perception

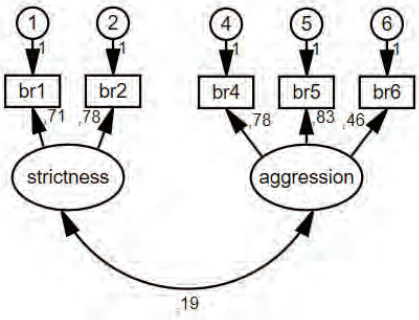
Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
strictness	0.509	0.257	0.447	0.294
aggression	0.713	0.453	0.734	0.545
strictness–aggression	**0.681**	**0.262**	**0.915**	**0.752**
constraint	0.653	0.386	0.707	0.516
indifference	0.897	0.745	0.902	0.725

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
constraint–indifference	**0.818**	**0.428**	**0.695**	**0.524**
self-accentuation	0.444	0.211	0.478	0.369
indulging	0.473	0.230	0.477	0.356
self-accentuation–indulging	**0.330**	**0.076**	**0**	**0**
doing things for the child	0.652	0.384	0.684	0.499
idealizing the child	0.539	0.280	0.621	0.483
doing things for the child–idealizing the child	**0.686**	**0.267**	**0.754**	**0.579**
lack of consistency	**0.829**	**0.618**	**0.847**	**0.660**

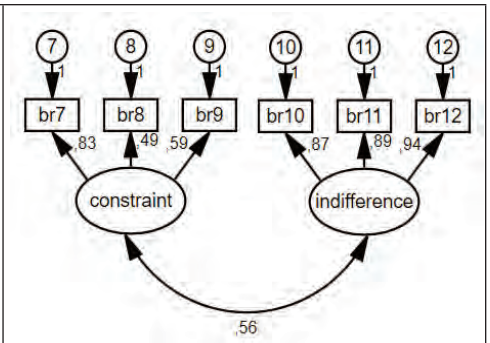
Confirmatory factor analysis for grandfathers' and grandmothers' parental mistakes

The results of grandmothers' and grandfathers' mistakes for each item on the scale have been summed up. This was done to determine the effect of the total mistakes committed by grandmothers and grandfathers. The construction of the Questionnaire of the Child's Perception scale allowed this, because the questions were identical for both versions of the father's and mother's mistake assessment (compare Appendices F and G).

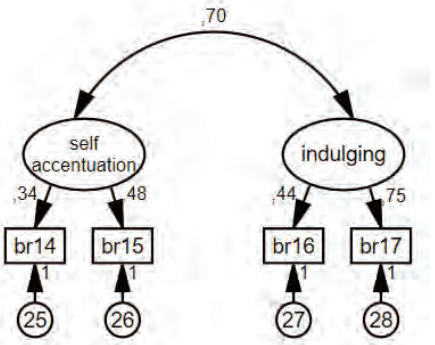
In the first stage, modeling was again performed for mistakes that belong to the same dimensions. Once again, no meta-factors were constructed at this stage. The results of the models are presented in Figure 16. It turned out, based on the CFI values, that the models should be considered as well-fitted. Mistakes were correlated with each other at moderate and high levels. Only the mistakes of *strictness* and *aggression* had a low level of correlation.



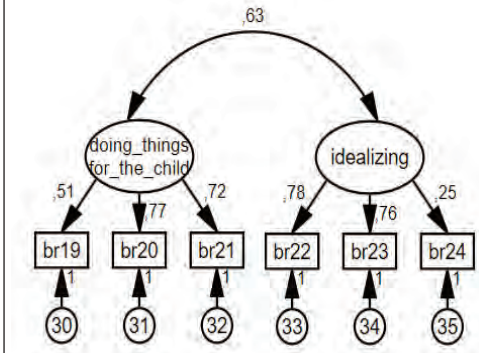
$\chi^2(5) = 12.726$; $p < 0.005$; CFI = 0.983; RMSEA= 0.062.



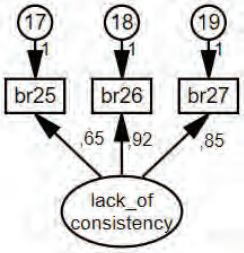
$\chi^2(8) = 47.923$; $p < 0.005$; CFI = 0.968; RMSEA= 0.112



$\chi^2(1) = 11.635$; $p < 0.005$; CFI = 0.894; RMSEA= 0.163



$\chi^2(8) = 24.985$; $p = 0.002$; CFI = 0.968; RMSEA= 0.073



$\chi^2(0) = 0$; p = not significant; CFI = 1.000.

Figure 16. **The results of confirmatory factor analysis for the variables of grandfathers' and grandmothers' parental mistakes**

A confirmatory factor analysis was performed again; this time meta-factors were constructed, and they were included in the whole structure. The model turned out to be a borderline fit (close to the unity of the RMSEA value) (Figure 17). Table 21 presents the estimates of the confirmatory factor model parameters for the construct of grandmothers' and grandfathers' parental mistakes according to mothers' perceptions.

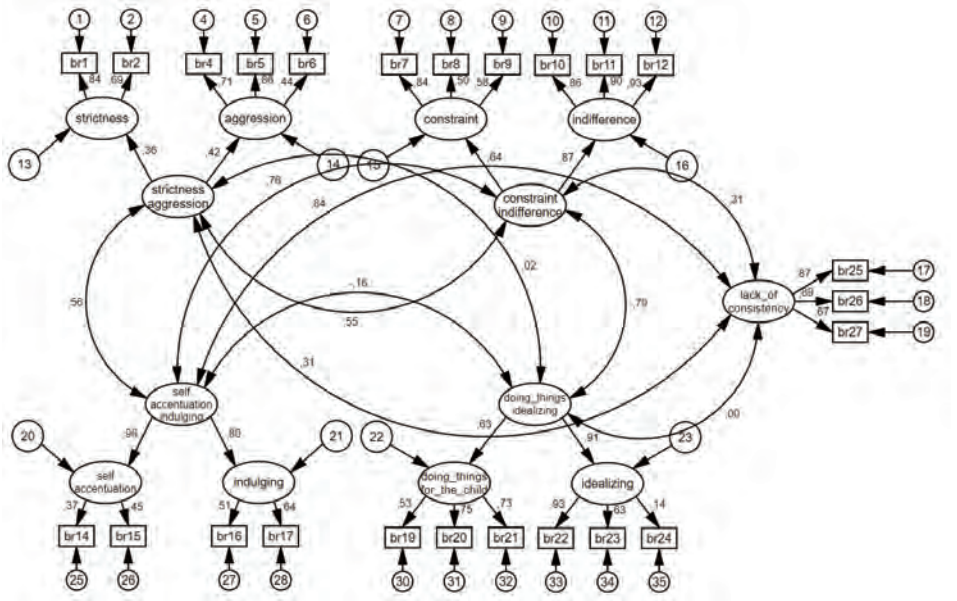


Figure 17. **The results of confirmatory factor analysis for the constructs of grandfathers' and grandmothers' mistakes according to the mother's perception: χ^2 (235) =1123.758; p < 0.005; CFI = 0.784; RMSEA= 0.097.**

Table 21

Estimates of the confirmatory factor analysis parameters for grandmothers' and grandfathers' parental mistakes according to the perceptions of mothers

Subscales	Parameters	Standardized	Non-standardized	SD
strictness	λ_{br1}	0.839	1.000	
	λ_{br2}	0.690	0.738	0.188
aggression	λ_{br4}	0.708	1.000	
	λ_{br5}	0.860	1.144	0.129
	λ_{br6}	0.443	0.387	0.050
constraint	λ_{br7}	0.841	1.000	
	λ_{br8}	0.499	0.291	0.036
	λ_{br9}	0.575	0.709	0.079

Subscales	Parameters	Standardized	Non-standardized	SD
indifference	λ_{br10}	0.864	1.000	
	λ_{br11}	0.896	0.996	0.040
	λ_{br12}	0.931	1.017	0.039
self-accentuation	λ_{br14}	0.367	0.779	0.14
	λ_{br15}	0.446	1.000	
indulging	λ_{br16}	0.514	0.686	0.094
	λ_{br17}	0.644	1.000	
doing things for the child	λ_{br19}	0.526	0.754	0.087
	λ_{br20}	0.747	1.017	0.096
	λ_{br21}	0.734	1.000	
idealizing the child	λ_{br22}	0.935	6.641	2.449
	λ_{br23}	0.632	4.276	1.582
	λ_{br24}	0.143	1.000	
lack of consistency	λ_{br25}	0.869	1.000	
	λ_{br26}	0.890	1.034	0.053
	λ_{br27}	0.670	0.855	0.059

Reliability

The reliability for all mistakes and for the mistakes' meta-traits is presented in Table 22. The reliability for meta-factors was good and very good. Only the meta-traits of strictness and aggression had very low reliability. The mistakes of strictness and aggression treated separately (i.e., not combined into meta-traits) had a good reliability above 0.7 (according to Jöreskog's CR index). Cumulative mistakes committed by grandmothers and grandfathers will not be used as a meta-trait of aggression and strictness.

Table 22

Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for subscales of grandmothers' and grandfathers' mistakes according to mothers' perceptions

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
strictness	0.706	0.546	0.714	0.541
aggression	0.722	0.464	0.721	0.535
strictness-aggression	**0.620**	**0.246**	**0.264**	**0.190**
constraint	0.628	0.360	0.683	0.491
indifference	0.923	0.801	0.925	0.759
constraint-indifference	**0.831**	**0.450**	**0.732**	**0.561**

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
self-accentuation	0.281	0.164	0.289	0.211
indulging	0.493	0.327	0.532	0.404
self-accentuation-indulging	**0.504**	**0.203**	**0.876**	**0.702**
doing things for the child	0.699	0.436	0.713	0.519
idealizing the child	0.590	0.325	0.627	0.494
doing things for the child – idelaization	**0.711**	**0.291**	**0.754**	**0.582**
lack of consistency	**0.841**	**0.637**	**0.855**	**0.666**

When summing up the results of parameters concerning parental mistakes, it turned out that combining parental mistakes into meta-factors only makes sense in the case of mothers' parental mistakes. To the structural model verifying the theoretical model, therefore, four meta-factors of mothers' parental mistakes will be included. This is a beneficial solution that will simplify the model. The simplicity of the model is the main modeling directive, which not only facilitates interpretation of results, but also makes more mathematical sense. Models which are too complex with too many degrees of freedom require huge samples for verification. Then, the correct estimation of the fit of the model becomes doubtful.

The Inventory of Satisfying Needs and its psychometric properties

The Inventory of Satisfying Needs consists of 50 questions assigned at the theoretical level to five scales representing the satisfaction of five needs, described in detail in the "Explained and explanatory variables included in the hypotheses and techniques of operationalization" section (Lester, 2013). Each scale had 10 questions.

Confirmatory factor analysis

By means of confirmatory factor analysis, the correctness of the structure predicted at the theoretical level was tested. The model proved to fit the data well (see the caption for Figure 18). Estimates of the confirmatory factor analysis parameters for five needs are presented in Table 23. It can be noticed that factor loading (λ) values are moderate and low (*standardized* in Table 23).

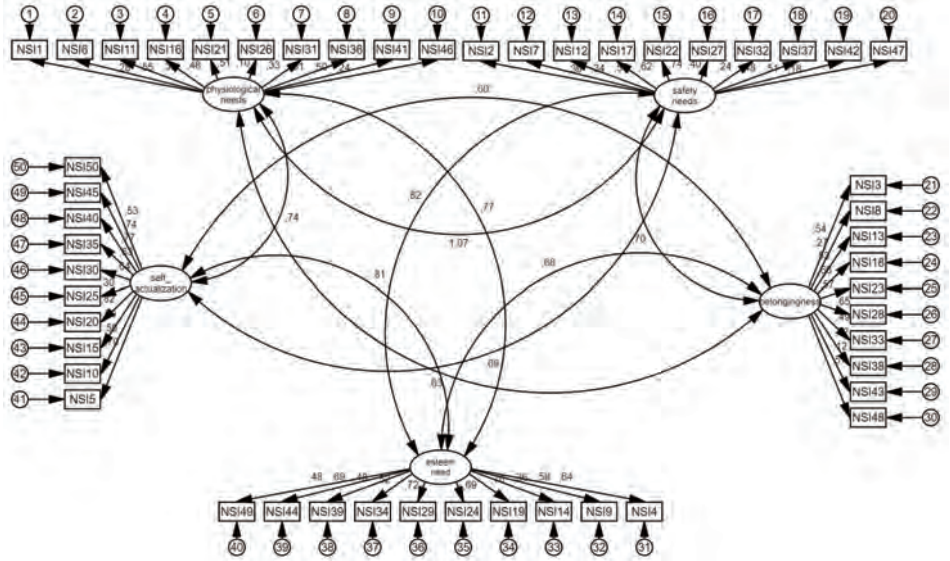


Figure 18. **Confirmatory factor analysis results for the five needs described in Maslow's pyramid, according to the Need Satisfaction Inventory (NSI) by David Lester, as adapted by Jarosław Jastrzębski: χ^2 (1,165) = 3703.237; p < 0.005; CFI = 0.658; RMSEA= 0.074.**

Table 23

Estimates of confirmatory factor analysis for the five needs described in Maslow's pyramid, according to the Need Satisfaction Inventory by David Lester, as adapted by Jarosław Jastrzębski

Subscales	Parameters	Standardized	Non-standardized	SD
Physiological needs	λ_{NSI1}	0.283	1.000	
	λ_{NSI6}	0.553	1.891	0.362
	λ_{NSI11}	0.385	1.246	0.267
	λ_{NSI16}	0.477	1.670	0.332
	λ_{NSI21}	0.514	1.261	0.246
	λ_{NSI26}	0.101	0.390	0.209
	λ_{NSI31}	0.327	1.067	0.245
	λ_{NSI36}	0.311	0.923	0.217
	λ_{NSI41}	0.502	1.607	0.315
	λ_{NSI46}	0.243	0.899	0.242

Subscales	Parameters	Standardized	Non-standardized	SD
Need of safety	λ_{NSI2}	0.386	1.000	
	λ_{NSI7}	0.344	1.154	0.219
	λ_{NSI12}	0.573	1.907	0.279
	λ_{NSI17}	0.619	2.106	0.299
	λ_{NSI22}	0.744	1.741	0.233
	λ_{NSI27}	0.402	1.471	0.255
	λ_{NSI32}	0.245	0.653	0.158
	λ_{NSI37}	0.476	1.098	0.174
	λ_{NSI42}	0.510	1.552	0.238
	λ_{NSI47}	0.181	0.498	0.155
Need of esteem	λ_{NSI4}	0.642	1.000	
	λ_{NSI9}	0.581	0.640	0.063
	λ_{NSI14}	0.357	0.578	0.088
	λ_{NSI19}	0.700	0.821	0.069
	λ_{NSI24}	0.687	0.873	0.074
	λ_{NSI29}	0.717	1.135	0.093
	λ_{NSI34}	0.522	0.632	0.068
	λ_{NSI39}	0.478	0.767	0.089
	λ_{NSI44}	0.692	0.797	0.067
	λ_{NSI49}	0.483	0.767	0.088
Need of belongingness and love	λ_{NSI3}	0.537	1.000	
	λ_{NSI8}	0.265	0.429	0.094
	λ_{NSI13}	0.528	1.075	0.135
	λ_{NSI18}	0.659	1.298	0.142
	λ_{NSI23}	0.573	1.130	0.135
	λ_{NSI28}	0.648	1.230	0.136
	λ_{NSI33}	0.490	0.878	0.116
	λ_{NSI38}	0.323	0.616	0.114
	λ_{NSI43}	0.118	0.284	0.134
	λ_{NSI48}	0.568	1.183	0.142
Need of self-actualization	λ_{NSI5}	0.703	1.000	
	λ_{NSI10}	0.581	0.577	0.053
	λ_{NSI15}	0.586	0.935	0.084
	λ_{NSI20}	0.816	1.190	0.078
	λ_{NSI25}	0.296	0.334	0.059
	λ_{NSI30}	0.642	0.907	0.075
	λ_{NSI35}	0.631	0.713	0.060
	λ_{NSI40}	0.766	1.085	0.076
	λ_{NSI45}	0.738	0.959	0.069
	λ_{NSI50}	0.528	0.781	0.078

Reliability

The reliability of the questionnaire scales is presented in Table 24. According to the Jöreskog's CR estimator, the scales have good reliability, which is sufficient for scientific research. According to the Cronbach's α estimator, only the scale of physiological needs has low reliability. According to the intraclass correlation RO2 and Aranowska's γ coefficient, all scales have low reliability. In summary, in terms of the classic test theory, the questionnaire has good reliability and, according to the theory of generalizability, weak reliability.

Table 24
Cronbach's α estimator, intraclass correlation coefficient and construct reliability according to Jöreskog's formula and Aranowska's γ for the scales of the Need Satisfaction Inventory (NSI) of David Lester, as adapted by Jarosław Jastrzębski

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Physiological needs	0.592	0.127	0.617	0.348
Need of safety	0.710	0.197	0.722	0.450
Need of esteem	0.833	0.333	0.842	0.584
Need of belongingness and love	0.741	0.222	0.747	0.477
Need of self-actualization	0.867	0.394	0.871	0.632

Schwartz's PVQ-RR-f questionnaire and its psychometric properties

This questionnaire consists of 57 items assigned to 19 scales and representing values. Each value is measured by only three test items. The values are described in the "Explained and explanatory variables included in the hypotheses and techniques of operationalization" section.

Confirmatory factor analysis

The items assigned to the corresponding factors and to the entire structure were verified. Because each value will be used separately in the research, no meta-factors were created, but the entire structure was tested by means of confirmatory factor analysis (Figure 19). The structure turned out to fit the data well, as indicated by a RMSEA test value lower than 0.08 (See description in Figure 19).

Table 25 provides estimates of the parameters of the confirmatory factor analysis model. Factor loadings (λ) turned out to be high and average.

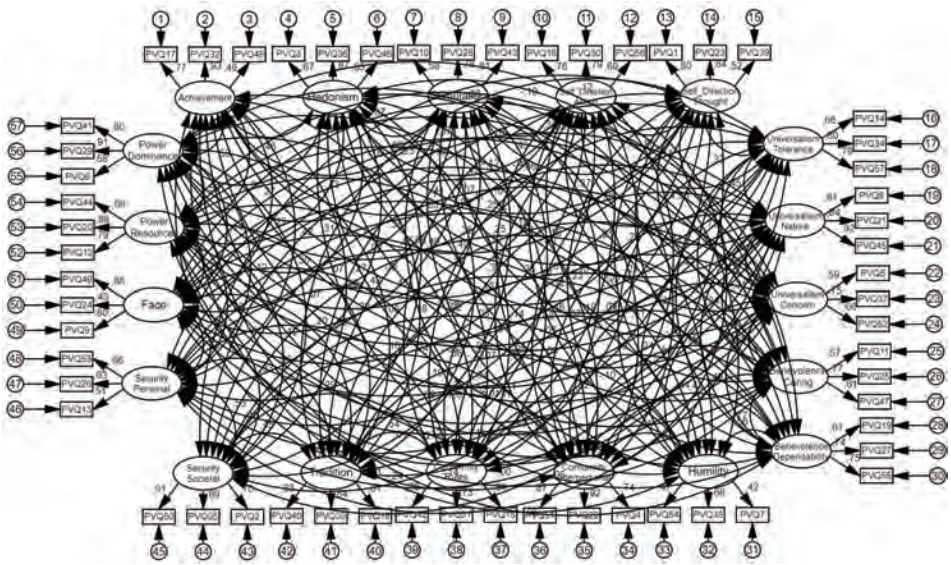


Figure 19. **The results of confirmatory factor analysis for 19 values in the study by Schwartz et al.: χ^2 (1,368) =3004.852; p < 0.005; CFI = 0.857; RMSEA= 0.055.**

Table 25

Estimates of the confirmatory factor analysis parameters for the 19 values according to Schwartz et al.

Subscales	Parameters	Standardized	Non-standardized	SD
Achievement	λ_{PVQ17}	0.773	1.000	
	λ_{PVQ32}	0.926	1.195	0.069
	λ_{PVQ48}	0.480	0.503	0.053
Hedonism	λ_{PVQ3}	0.674	1.000	
	λ_{PVQ36}	0.867	1.405	0.108
	λ_{PVQ46}	0.648	1.335	0.120
Stimulation	λ_{PVQ10}	0.583	1.000	
	λ_{PVQ28}	0.777	1.394	0.128
	λ_{PVQ43}	0.810	1.357	0.122
Self-Direction–Action	λ_{PVQ16}	0.756	1.000	
	λ_{PVQ30}	0.789	1.189	0.079
	λ_{PVQ56}	0.685	0.705	0.054
Self-Direction–Thought	λ_{PVQ1}	0.802	1.000	
	λ_{PVQ23}	0.842	0.941	0.054
	λ_{PVQ39}	0.522	0.507	0.050

Subscales	Parameters	Standardized	Non-standardized	SD
Universalism–Tolerance	λ_{PVQ14}	0.659	1.000	
	λ_{PVQ34}	0.803	1.091	0.086
	λ_{PVQ57}	0.795	1.145	0.090
Universalism–Nature	λ_{PVQ8}	0.811	1.000	
	λ_{PVQ21}	0.840	1.175	0.061
	λ_{PVQ45}	0.920	1.251	0.060
Universalism–Concern	λ_{PVQ5}	0.586	1.000	
	λ_{PVQ37}	0.751	1.319	0.124
	λ_{PVQ52}	0.656	1.159	0.118
Benevolence–Caring	λ_{PVQ11}	0.572	1.000	
	λ_{PVQ25}	0.766	1.824	0.181
	λ_{PVQ47}	0.610	2.151	0.240
Benevolence–Dependability	λ_{PVQ19}	0.611	1.000	
	λ_{PVQ27}	0.738	1.241	0.113
	λ_{PVQ55}	0.751	1.421	0.128
Humility	λ_{PVQ7}	0.416	1.000	
	λ_{PVQ38}	0.677	1.368	0.190
	λ_{PVQ54}	0.473	0.923	0.149
Conformity–Interpersonal	λ_{PVQ4}	0.738	1.000	
	λ_{PVQ22}	0.919	1.323	0.074
	λ_{PVQ51}	0.871	1.296	0.075
Conformity–Rules	λ_{PVQ15}	0.836	1.000	
	λ_{PVQ31}	0.732	0.867	0.058
	λ_{PVQ42}	0.778	0.946	0.059
Tradition	λ_{PVQ18}	0.812	1.000	
	λ_{PVQ33}	0.841	1.113	0.062
	λ_{PVQ40}	0.831	0.913	0.051
Societal Security	λ_{PVQ2}	0.702	1.000	
	λ_{PVQ35}	0.892	1.515	0.093
	λ_{PVQ50}	0.908	1.537	0.093
Personal Security	λ_{PVQ13}	0.513	1.000	
	λ_{PVQ26}	0.626	0.890	0.105
	λ_{PVQ53}	0.655	1.547	0.178
Face	λ_{PVQ9}	0.804	1.000	
	λ_{PVQ24}	0.433	0.555	0.067
	λ_{PVQ49}	0.879	1.137	0.078
Power–Resources	λ_{PVQ12}	0.787	1.000	
	λ_{PVQ20}	0.882	1.054	0.060
	λ_{PVQ44}	0.692	0.739	0.053
Power–Dominance	λ_{PVQ6}	0.579	1.000	
	λ_{PVQ29}	0.913	1.637	0.137
	λ_{PVQ41}	0.800	1.469	0.126

Reliability

Measures of reliability for the questionnaire are presented in Table 26. According to Jöreskog's CR index, all of the subscales apart from *Universalism Tolerance* have a good reliability, sufficient for scientific research. According to the estimate of Cronbach's α, only the scale of *Humility* has low reliability. However, it is worth paying attention to the measures of reliability according to the RO2 generalizability coefficient and Aranowska's γ coefficient. As already mentioned, they are resistant to the number of items and they increase with the quality of the item. In other words, when the scale has many poorly correlated positions, the values of these coefficients do not increase as in the case of the Cronbach's α index and Jöreskog's CR. For multi-position scales which have poorly correlated positions, the coefficients remain poorly reliable. In the case of the PVQ-RR-f questionnaire, the value of intraclass correlation the RO2 coefficient is moderate and is even high for two scales: *Universalism–Nature* and *Conformity–Personal*. Only for *Benevolence–Caring*, *Humility* and *Personal Security* was the reliability according to RO2 low. The values of Aranowska's γ coefficient are on a similar level as the values of intraclass correlation.

In conclusion, the reliability of the questionnaire does not raise any objections. It is good according to the classic test theory, but also good in view of the theory of generalizability. So far, only Szymańska's scales have been shown to have similarly high values in terms of both psychometric theories.

Table 26
Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for 19 values according to Schwartz et al.

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Achievement	0.760	0.513	0.783	0.595
Hedonism	0.746	0.495	0.777	0.581
Stimulation	0.762	0.516	0.771	0.575
Self-Direction–Action	0.777	0.538	0.788	0.560
Self-Direction–Thought	0.750	0.500	0.773	0.581
Universalism–Tolerance	0.789	0.555	0.570	0.601
Universalism–Nature	0.891	0.732	0.893	0.713
Universalism–Concern	0.693	0.429	0.705	0.509
Benevolence–Caring	0.630	0.392	0.689	0.495
Benevolence–Dependability	0.741	0.693	0.744	0.546
Humility	0.525	0.268	0.533	0.369
Conformity–Interpersonal	0.879	0.708	0.882	0.699

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Conformity–Rules	0.825	0.611	0.826	0.631
Tradition	0.864	0.679	0.867	0.679
Societal Security	0.870	0.691	0.876	0.692
Personal Security	0.604	0.337	0.627	0.439
Face	0.728	0.472	0.763	0.576
Power–Resources	0.821	0.604	0.832	0.639
Power–Dominance	0.808	0.584	0.815	0.624

Personality Questionnaire CPM-Q-SF and its psychometric properties

This personality questionnaire consists of 72 items belonging to eight scales. Each scale measures one of the personality traits. These are described in the "Explained and explanatory variables included in the hypotheses and techniques of operationalization" section. Each scale has nine test items. By means of confirmatory factor analysis, the fit of the items to the corresponding scales was tested. Because each scale is going to be used separately, their fit to the meta-factors was not tested (Strus & Cieciuch, 2017; Strus et al., 2014a). The analysis only served to ensure that the use of eight personality scales is justified on the tested sample and to determine their reliability level.

Confirmatory factor analysis

The results of the confirmatory factor analysis revealed that the model fits the data well (see the description of Figure 20). This is indicated by the values of the RMSEA statistics, which are lower than 0.08. The parameters of the confirmatory factor analysis model for the eight meta-traits of personality are presented in Table 27. The values of factor loadings (λ) are low and moderate.

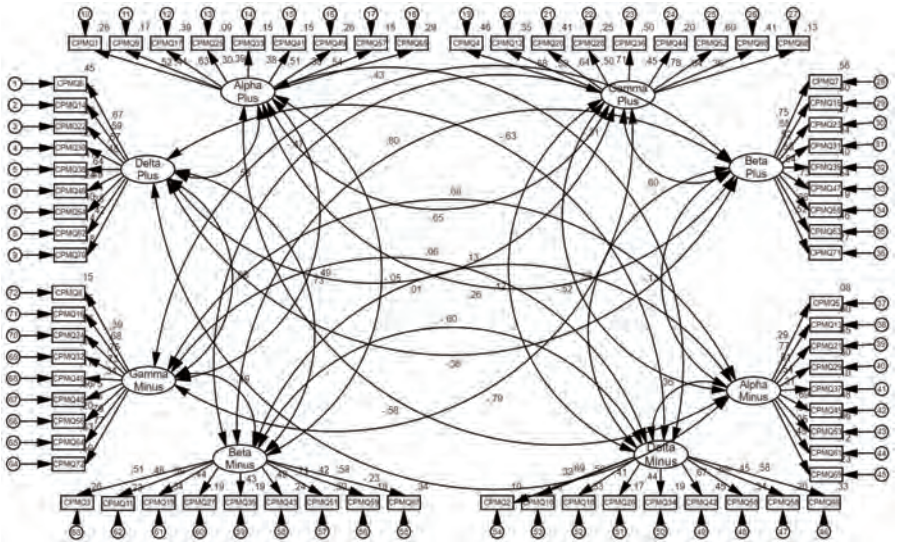


Figure 20. **The results of confirmatory factor analysis for the eight meta-traits of personality described in the Circumplex of Personality Model by Strus, Cieciuch and Rowiński: χ^2 (2,456) =6241.89; p < 0.005; CFI = 0.678; RMSEA= 0.062.**

Table 27

Estimates of confirmatory factor analysis parameters for the eight meta-traits of personality described in the Circumplex of Personality Model by Strus, Cieciuch and Rowiński: (31)

Subscales	Parameters	Standardized	Non-standardized	SD
Alpha Plus (Stability)	λ_{CPMQ9}	0.407	0.561	0.086
	λ_{CPMQ17}	0.626	0.706	0.081
	λ_{CPMQ25}	0.297	0.387	0.077
	λ_{CPMQ33}	0.392	0.722	0.114
	λ_{CPMQ41}	0.383	0.652	0.105
	λ_{CPMQ49}	0.507	0.855	0.111
	λ_{CPMQ57}	0.382	0.524	0.084
	λ_{CPMQ65}	0.538	0.719	0.090
Delta Plus (Self-restraint)	λ_{CPMQ1}	0.525	1.000	
	λ_{CPMQ70}	0.423	1.000	
	λ_{CPMQ62}	0.376	0.979	0.172
	λ_{CPMQ54}	0.635	1.697	0.225
	λ_{CPMQ46}	0.486	1.253	0.189
	λ_{CPMQ38}	0.644	1.674	0.221
	λ_{CPMQ30}	0.484	1.337	0.202
	λ_{CPMQ22}	0.571	1.320	0.183
	λ_{CPMQ14}	0.590	1.474	0.202
	λ_{CPMQ6}	0.672	1.627	0.211

Subscales	Parameters	Standardized	Non-standardized	SD
Gamma Plus (Integration)	λ_{CPMQ4}	0.681	1.000	
	λ_{CPMQ12}	0.593	0.868	0.080
	λ_{CPMQ20}	0.637	0.656	0.057
	λ_{CPMQ28}	0.502	0.590	0.064
	λ_{CPMQ36}	0.706	0.911	0.072
	λ_{CPMQ44}	0.451	0.454	0.054
	λ_{CPMQ52}	0.775	1.024	0.074
	λ_{CPMQ60}	0.637	0.755	0.065
	λ_{CPMQ68}	0.355	0.375	0.056
Beta Plus (Plasticity)	λ_{CPMQ7}	0.747	1.000	
	λ_{CPMQ15}	0.547	0.794	0.075
	λ_{CPMQ23}	0.522	0.574	0.057
	λ_{CPMQ31}	0.579	0.862	0.077
	λ_{CPMQ39}	0.635	0.834	0.068
	λ_{CPMQ47}	0.733	1.065	0.074
	λ_{CPMQ55}	0.437	0.574	0.069
	λ_{CPMQ63}	0.677	0.799	0.061
	λ_{CPMQ71}	0.519	0.793	0.079
Beta Minus (Passiveness)	λ_{CPMQ67}	0.583	1.000	
	λ_{CPMQ59}	0.423	0.560	0.076
	λ_{CPMQ51}	0.709	1.114	0.102
	λ_{CPMQ43}	0.489	0.762	0.092
	λ_{CPMQ35}	0.432	0.684	0.091
	λ_{CPMQ27}	0.437	0.596	0.079
	λ_{CPMQ19}	0.587	0.993	0.104
	λ_{CPMQ11}	0.480	0.664	0.081
	λ_{CPMQ3}	0.506	0.629	0.074
Gamma Minus (Disharmony)	λ_{CPMQ72}	0.770	1.000	
	λ_{CPMQ64}	0.794	1.034	0.062
	λ_{CPMQ56}	0.452	0.560	0.063
	λ_{CPMQ48}	0.746	0.943	0.061
	λ_{CPMQ40}	0.338	0.397	0.060
	λ_{CPMQ32}	0.728	0.772	0.051
	λ_{CPMQ24}	0.750	0.970	0.062
	λ_{CPMQ16}	0.677	0.928	0.067
	λ_{CPMQ8}	0.387	0.411	0.054

Subscales	Parameters	Standardized	Non-standardized	SD
Delta Minus (Sensation-seeking)	λ_{CPMQ66}	0.579	1.000	
	λ_{CPMQ58}	0.450	0.976	0.130
	λ_{CPMQ50}	0.586	1.450	0.158
	λ_{CPMQ42}	0.670	1.488	0.148
	λ_{CPMQ34}	0.439	1.171	0.160
	λ_{CPMQ26}	0.408	1.025	0.149
	λ_{CPMQ18}	0.578	1.405	0.155
	λ_{CPMQ10}	0.690	1.578	0.154
	λ_{CPMQ2}	0.317	0.756	0.137
Alpha Minus (Disinhibition)	λ_{CPMQ5}	0.289	1.000	
	λ_{CPMQ13}	0.773	3.475	0.628
	λ_{CPMQ21}	0.807	3.623	0.651
	λ_{CPMQ29}	0.544	2.724	0.527
	λ_{CPMQ37}	0.309	0.914	0.219
	λ_{CPMQ45}	0.691	2.663	0.490
	λ_{CPMQ53}	0.813	3.581	0.643
	λ_{CPMQ61}	0.352	1.169	0.263
	λ_{CPMQ69}	0.476	1.472	0.295

Reliability

The reliability of the questionnaire's scales is presented in Table 28. It can be seen that four measures of reliability take on divergent values. According to Cronbach's α and Jöreskog's CR, the scales have good reliability. However, according to intraclass correlation (RO2 coefficient) and Aranowska's γ, the reliability is low. This is due to the fact that factor loadings of scales are moderate. The questions do not load strongly to scales. There are quite a lot of them (nine items belong to each scale). It is known that the value of Cronbach's α coefficient increases along with the number of even weakly correlated items. Unfortunately, Jöreskog's CR ratio is very similar in this respect, which is compared with Cronbach's α in the literature on the subject (Geldhof et al., 2014). On the other hand, the intraclass correlation (RO2) and Aranowska's γ are coefficients which are resistant to the number of test items. In other words, their values do not increase with the number of items, but their quality.

Table 28
Cronbach's α estimator, intraclass correlation coefficient, construct reliability according to Jöreskog's formula and Aranowska's γ for the CPM-Q-SF Personality Question subscale

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
Alpha Plus (Stability)	0.682	0.193	0.699	0.418
Delta Plus (Self-restraint)	0.789	0.294	0.792	0.522
Gamma Plus (Integration)	0.831	0.354	0.786	0.516
Beta Plus (Plasticity)	0.833	0.356	0.768	0.491
Beta Minus (Passiveness)	0.763	0.264	0.836	0.582
Gamma Minus (Disharmony)	0.852	0.390	0.860	0.625
Delta Minus (Sensation-seeking)	0.759	0.259	0.777	0.507
Alpha Minus (Disinhibition)	0.814	0.327	0.815	0.572

In conclusion, according to the classical test theory, the questionnaire has a good reliability, but weak reliability in terms of the theory of generalizability (Aranowska, 2005). So far, only very few psychological scales have been found to meet the strict conditions set for tests by the generalizability theory. In further analyses, the personality questionnaire will be used in the form proposed by the authors, i.e., eight personality scales will be used.

R. Drwal's DELTA Questionnaire and its psychometric properties

The DELTA Questionnaire by Radosław Drwal is used to assess the *external and internal loci of control* and *the need for social approval*. The questionnaire consists of 24 questions: 14 of them measure the external and internal locus of control, while the remaining 10 questions belong to the scale of the Lie, which measures the need for social approval (Drwal, 1995).

The scale is in the YES / NO answer format. To calculate the internal locus of control, the response format is reversed. From the mathematical point of view, the scale of the external and internal loci of control are their mirror image and they are perfectly negatively correlated (r = [-1]). In calculating the psychometric properties of the questionnaire, therefore, only one dimension was used, namely, the external locus of control, which correlated with the scale of the lie.

Confirmatory factor analysis

Questions were assigned to the factor of *external locus of control* (14 questions) and the *social approval* factor. Both factors were correlated (the curve with a double arrow in Figure 21) and then the whole structure was tested by means of confirmatory factor analysis. The model proved to be well-fitted to the data, as indicated by the value of the RMSEA coefficient, which was less than 0.08 (see description in Figure 21).

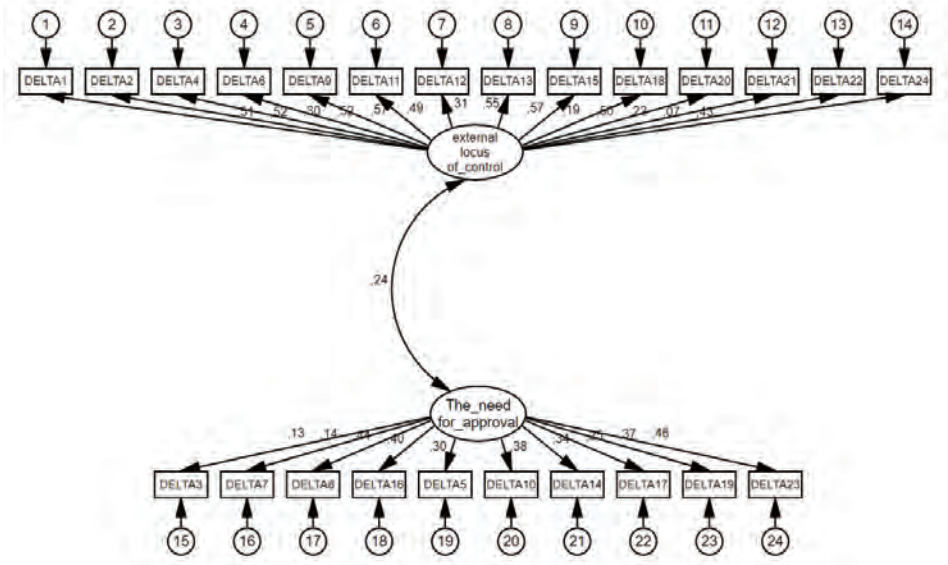


Figure 21. **The results of confirmatory factor analysis for the *external locus of control* and the *need for approval* according to the DELTA scale by Radosław Ł. Drwal: χ^2 (251) =602.948; p < 0.005; CFI = 0.689; RMSEA= 0.059.**

The factors *external locus of control* and *social approval* were correlated at a low level (γ = 0. 240). Table 29 presents estimates of the confirmatory factor analysis parameters for *external locus of control* and *social approval*. The factor loadings (λ) are moderate and low.

Table 29
Estimates of the confirmatory factor analysis parameters for the external locus of control *and the* need for approval *according to the DELTA scale by Radosław Ł. Drwal*

Subscales	Parameters	Standardized	Non-standardized	SD
External locus of control	λ_{DELTA1}	0.506	1.000	
	λ_{DELTA2}	0.522	1.458	0.199
	λ_{DELTA4}	0.305	0.754	0.153
	λ_{DELTA6}	0.516	1.416	0.194
	λ_{DELTA9}	0.571	1.320	0.171
	$\lambda_{DELTA11}$	0.493	1.186	0.168
	$\lambda_{DELTA12}$	0.309	0.865	0.173
	$\lambda_{DELTA13}$	0.553	1.612	0.212
	$\lambda_{DELTA15}$	0.567	0.968	0.126
	$\lambda_{DELTA18}$	0.185	0.534	0.168
	$\lambda_{DELTA20}$	0.500	1.034	0.145
	$\lambda_{DELTA21}$	0.223	0.620	0.165
	$\lambda_{DELTA22}$	0.074	0.217	0.165
	$\lambda_{DELTA24}$	0.427	1.098	0.171
The need for approval	$\lambda_{DELTA23}$	0.459	1.000	
	$\lambda_{DELTA19}$	0.371	0.856	0.192
	$\lambda_{DELTA17}$	0.255	0.661	0.192
	$\lambda_{DELTA14}$	0.335	0.816	0.195
	$\lambda_{DELTA10}$	0.380	0.624	0.138
	λ_{DELTA5}	0.305	0.768	0.195
	$\lambda_{DELTA16}$	0.397	0.727	0.157
	λ_{DELTA8}	0.436	0.390	0.080
	λ_{DELTA7}	0.141	0.405	0.196
	λ_{DELTA3}	0.127	0.365	0.194

Reliability

Four indicators of reliability were calculated for both factors. Their values are presented in Table 30. The *external locus of control* factor has good reliability in terms of Cronbach's α ratio (0.730) and Jöreskog's CR (0.745), and weak reliability according to intraclass correlation (0.162) and Aranowska's γ coefficient (0.446). On the other hand, the *need for social approval* factor has low reliability according to all coefficients.

In summary, the *external locus of control* factor has good reliability in the sense of the classical test theory and has no reliability according to the generalizability theory. The factor of the *need for social approval* is not at all reliable. The results obtained with this indicator will be interpreted very carefully.

Table 30
Cronbach's α estimator, intraclass correlation coefficient and construct reliability according to Jöreskog's formula and Aranowska's γ for subscales of DELTA scale by Radosław Ł. Drwal

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
External locus of control	0.730	0.162	0.745	0.446
The need for approval	0.502	0.092	0.537	0.278

The Revised Dimensions of Temperament Survey (DOTS-R) by Windle and Lerner and its psychometric properties

The DOTS-R questionnaire consists of 54 questions, which at the theoretical level belong to 10 scales describing temperamental traits, according to Thomas and Chess's theory (Śliwińska, M., Zawadzki, B., Strelau, 1995; Strelau, 2001b; A. Thomas & Chess, 1977; Windle, 1989). They are described in the "Explained and explanatory variables included in the hypotheses and techniques of operationalization" section.

Confirmatory factor analysis

The questions were assigned to the corresponding factors and then the whole structure was correlated to all factors with the use of confirmatory factor analysis. The results of the analysis are presented in Figure 22. The model proved to fit the data well, as indicated by the value of the RMSEA test of less than 0.08 (see description of Figure 22). Table 31 presents estimates of the confirmatory factor analysis parameters. Factor loadings (*standardized* in Table 31) are moderate and high (only sporadically low).

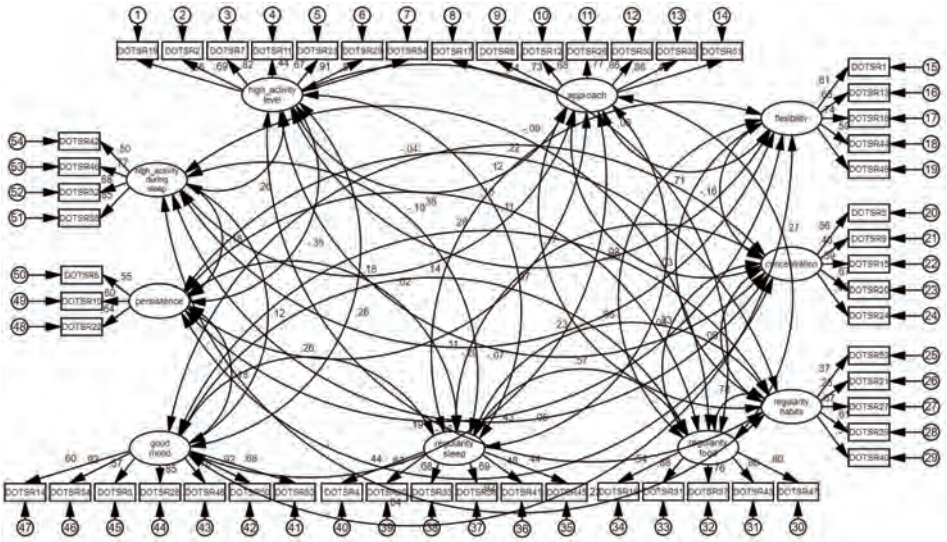


Figure 22. **The results of confirmatory factor analysis for the 10 temperamental traits described in Thomas and Chess's theory, according to the Revised Dimensions of Temperament Survey (DOT-S-R) by Windle and Lerner, as adapted by Śliwińska, Zawadzki and Strelau: χ^2 (1,332)=2838.531; p < 0.005; CFI = 0.852; RMSEA= 0.053.**

Table 31

Estimates of confirmatory factor analysis parameters for the 10 temperamental traits described in Thomas and Chess's theory, according to the Revised Dimensions of Temperament Survey (DOTS-R) by Windle and Lerner, as adaptated by Śliwińska, Zawadzki and Strelau

Subscales	Parameters	Standardized	Non-standardized	SD
High general activity	$\lambda_{DOTSR19}$	0.558	1.000	
	λ_{DOTSR2}	0.695	1.942	0.183
	λ_{DOTSR7}	0.816	2.012	0.172
	$\lambda_{DOTSR11}$	0.444	1.173	0.153
	$\lambda_{DOTSR23}$	0.667	1.642	0.159
	$\lambda_{DOTSR29}$	0.909	2.428	0.197
	$\lambda_{DOTSR54}$	0.872	2.331	0.193
Approximation	$\lambda_{DOTSR17}$	0.536	1.000	
	λ_{DOTSR8}	0.726	1.380	0.133
	$\lambda_{DOTSR12}$	0.675	1.133	0.114
	$\lambda_{DOTSR26}$	0.774	1.544	0.143
	$\lambda_{DOTSR30}$	0.859	1.604	0.142
	$\lambda_{DOTSR35}$	0.862	1.576	0.139
	$\lambda_{DOTSR51}$	0.429	0.571	0.078

Subscales	Parameters	Standardized	Non-standardized	SD
Good mood	$\lambda_{DOTSR50}$	0.917	1.000	
	$\lambda_{DOTSR48}$	0.779	0.910	0.043
	$\lambda_{DOTSR28}$	0.853	0.927	0.037
	λ_{DOTSR3}	0.566	0.620	0.049
	$\lambda_{DOTSR34}$	0.918	1.058	0.035
	$\lambda_{DOTSR14}$	0.601	0.504	0.036
	$\lambda_{DOTSR52}$	0.678	0.653	0.040
Regular sleep	$\lambda_{DOTSR45}$	0.438	1.000	
	$\lambda_{DOTSR41}$	0.477	1.088	0.168
	$\lambda_{DOTSR36}$	0.690	1.420	0.185
	$\lambda_{DOTSR33}$	0.676	1.243	0.163
	$\lambda_{DOTSR25}$	0.626	1.258	0.170
	λ_{DOTSR4}	0.438	0.952	0.155
Flexibility	λ_{DOTSR1}	0.611	1.000	
	$\lambda_{DOTSR13}$	0.625	1.228	0.123
	$\lambda_{DOTSR18}$	0.745	1.529	0.136
	$\lambda_{DOTSR44}$	0.586	1.224	0.129
	$\lambda_{DOTSR49}$	0.742	1.507	0.134
Concentration	λ_{DOTSR5}	0.565	1.000	
	λ_{DOTSR9}	0.396	0.701	0.110
	$\lambda_{DOTSR15}$	0.590	1.059	0.124
	$\lambda_{DOTSR20}$	0.672	1.184	0.128
	$\lambda_{DOTSR24}$	0.446	0.796	0.114
Regular habits	$\lambda_{DOTSR53}$	0.371	1.000	
	$\lambda_{DOTSR21}$	0.247	0.686	0.173
	$\lambda_{DOTSR27}$	0.674	1.492	0.223
	$\lambda_{DOTSR39}$	0.609	1.104	0.170
	$\lambda_{DOTSR40}$	0.507	1.190	0.196
Regularity of food	$\lambda_{DOTSR47}$	0.799	1.000	
	$\lambda_{DOTSR43}$	0.797	0.931	0.054
	$\lambda_{DOTSR37}$	0.763	0.875	0.053
	$\lambda_{DOTSR31}$	0.876	1.102	0.057
	$\lambda_{DOTSR16}$	0.537	0.771	0.071
Activity during sleep	$\lambda_{DOTSR32}$	0.850	1.000	
	$\lambda_{DOTSR38}$	0.883	0.950	0.048
	$\lambda_{DOTSR42}$	0.774	0.739	0.042
	$\lambda_{DOTSR46}$	0.496	0.452	0.045
Perseverance	λ_{DOTSR6}	0.637	1.000	
	$\lambda_{DOTSR10}$	0.597	1.175	0.123
	$\lambda_{DOTSR22}$	0.551	1.062	0.119

Reliability

Four measures of reliability were calculated for each factor. The results are presented in Table 32. According to Cronbach's α coefficient, all factors except *Regular habits* have good or sufficient reliability. According to Jöreskog's CR index, all factors have good or sufficient reliability. According to intraclass correlation, six factors have moderate reliability, namely: *High general activity, Approximation, Good mood, Flexibility, Regularity of food and Activity during sleep*. The remaining four scales have weak reliability: *Regular sleep, Concentration, Regular habits and Perseverance*. According to Aranowska's γ, only the factors *High activity level, Approximation, Good mood, Regularity of food* and *Activity during sleep* are acceptably reliable for testing.

In conclusion, the questionnaire has a good reliability in view of the classical test theory. According to the theory of generalizability, six factors have satisfactory reliability and four unsatisfactory.

Table 32
Cronbach's α estimator, intraclass correlation coefficient and construct reliability according to Jöreskog's formula and Aranowska's γ for the Revised Dimensions of Temperament Survey (DOTS-R) by Windle and Lerner, as adapted by Śliwińska, Zawadzki and Strelau

Subscales	Cronbach's α estimator	Intraclass correlation	Reliability of construct (CR)	Aranowska's γ
High general activity	0.877	0.504	0.881	0.670
Approximation	0.867	0.482	0.872	0.655
Good mood	0.905	0.577	0.909	0.711
Regular sleep	0.727	0.307	0.736	0.490
Flexibility	0.796	0.439	0.797	0.570
Concentration	0.649	0.270	0.669	0.440
Regular habits	0.582	0.218	0.609	0.399
Regularity of food	0.861	0.554	0.872	0.668
Activity during sleep	0.839	0.565	0.845	0.646
Perseverance	0.603	0.336	0.622	0.434

RESULTS

This part of the work will describe the results that were used to check the correctness of the hypotheses. The first chapter of this part, entitled *The relationship between stress response and parental mistakes*, describes the results of structural equations that tested the correctness of the theoretical model presented in Figure 4. The model was accompanied by cluster analyses by means of which the mothers were classified into clusters according to their similarities in the variables presented in the structural model. Finally, using the artificial neural network (ANN), the prediction accuracy for each pair of parental mistakes was tested based on the path in the structural model to which these mistakes were assigned. In this chapter, hypotheses H1, H2, H3, H4, H5, H6, H7, H8, H9, H10 and H11 were tested.

The second chapter of this part, entitled *The relationship between parental mistakes experienced by women in childhood and their own parental mistakes*, presents the results describing the connections of women's experience of their parents' parental mistakes and the level of parental mistakes they commit. In this part, the level of mistakes women experienced from their mothers and fathers (and the cumulative mistakes of their parents) was tested in relation to the mistakes made by them towards their own children. The results were obtained by means of cluster analysis and they answered hypotheses H12, H13 and H14.

The third chapter of this part, entitled *The relationship between women's experience of parental mistakes in childhood and their stress response and the level of parental mistakes they make*, presents the results of models tested using structural equations separately in a group of women who experienced a higher level of their parents' mistakes as a child and those who experienced a lower level of parental mistakes. Additionally, to check whether groups of women differed in the intensity of the results in the field of variables analyzed in the model, cluster analyses were calculated in both groups. This chapter tested the correctness of hypothesis H15.

The fourth and final chapter of this part of the work is entitled *The relationship between parental mistakes experienced by women and their personality traits, parental goals, loci of control, value systems, needs, the temperamental traits of their children and the level of parental mistakes they commit*. It presents the results revealing the connections between parental mistakes experienced in childhood, the variables mentioned in the title and mistakes committed by mothers. In this chapter, hypotheses H16, H17, H18, H19, H20 and H21 were tested.

The relationship between stress response and parental mistakes

Measurement model for the theoretical model presenting the correlations of discrepancy, parental difficulties experienced, stress response and mothers' parental mistakes

Before testing the theoretical model using the system of structural equations, it was necessary to check again whether the latent variables in the model are correctly operationalized and whether the entire model fits the data. If it turned out that it was not, then testing the theoretical structure with the use of a system of structural equations would not make sense because it would be known that the structural model would also not fit the data (Bartholomew et al., 2008; Hair et al., 2006; Szymańska, 2016 b).

The measurement model was well-fitted to the data as indicated by both the RMSEA value (0.055) and the value of $\chi 2/df$, which was lower than the limit of 2.5. The measurement model was the structure to which the variables described in the chapter *Research methods and procedures* belonged. These variables were a) *discrepancy* (see "discrepancy" in Figure 23), b) *parental difficulties experienced* (see "difficulty" in Figure 23), c) reactions of coping with stress through *cognitive distancing* (see "distance" in Figure 23), d) coping with stress by *applying pressure* (see "pressure" in Figure 23), e) dealing with stress by *withdrawing* (see "withdrawing" in Figure 23), f) dealing with stress through *seeking help* (see "help seeking" in Figure 23), the parental mistakes of *strictness* and *aggression* (see "strictness/aggression" in Figure 23), the parental mistakes of *indifference* and *constraining the child's activity* (see "indifference/constraint" in Figure 23), the parental mistakes of *self-accentuation* and *indulging* (see "self-accentuation/indulging" in Figure 23) and *doing things for the child* and *idealizing the child* (see "doing things/idealizing" in Figure 23).

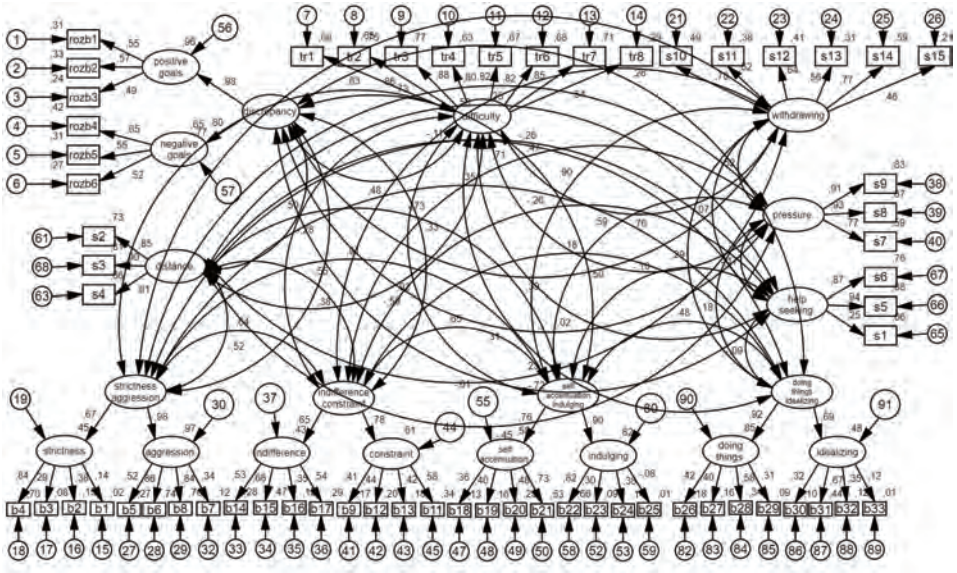


Figure 23. **Diagram of the measurement model tested by means of confirmatory factor analysis. Standardized results.**

Table 33

The values of fit statistics of the measurement model as tested by confirmatory factor analysis

$\chi 2$	*df*	$\chi 2/df$	CFI	RMSEA
3,832.155*	1,716	2.233	0.794	0.055

* $p < 0.0005$

Characteristics of the listed variables:

Discrepancy – a variable operationalized by the Discrepancy Scale. The factor loadings of observed variables are as follows: $\lambda_{rozb1} = 0.55$; $\lambda_{rozb2} = 0.57$; $\lambda_{rozb3} = 0.49$; $\lambda_{rozb4} = 0.65$; $\lambda_{rozb5} = 0.55$; and $\lambda_{rozb6} = 0.52$ (statistically significant p-value for each lambda). The variable *discrepancy* consists of two factors. The first factor includes questions about *positive goals*. The loading of this factor is $\lambda_{positive} = 0.98$. The second factor includes questions concerning *negative goals*. The loading of this factor is $\lambda_{negative} = 0.80$. The reliability of the discrepancy variable, according to the CR coefficient, is 0.888, and according to Aranowska's γ coefficient it is 0.717.

Parental difficulties experienced – this is the variable operationalized by items of the Parental Difficulties Experienced scale. The factor loadings of the observed

variables are $\lambda_{tr1} = 0.826$; $\lambda_{tr2} = 0.865$; $\lambda_{tr3} = 0.879$; $\lambda_{tr4} = 0.797$; $\lambda_{tr5} = 0.821$; $\lambda_{tr6} = 0.823$; $\lambda_{tr7} = 0.845$; and $\lambda_{tr8} = 0.541$ (statistically significant p-value for each lambda). The reliability of the variable *parental difficulties experienced* is 0.936 according to the CR, and 0.756 according to Aranowska's γ coefficient.

Cognitive distancing – a variable that is treated by the subscale of Cognitive distancing of the The Stress Response Scale. The factor loadings of the observed variables are $\lambda_{s2} = 0.85$, $\lambda_{s3} = 0.90$; and $\lambda_{s4} = 0.81$ (statistically significant p-value for each lambda). The reliability of the variable according to the CR coefficient is 0.890, and according to Aranowska's γ coefficient it is 0.708.

Applying pressure – a variable operationalized by the Applying Stress subscale of the Stress Response Scale. The factor loadings of observed variables are $\lambda_{s7} = 0.77$; $\lambda_{s8} = 0.93$; and $\lambda_{s9} = 0.91$ (statistically significant p-value for each lambda). The reliability of the variable according to the CR coefficient is 0.905, and according to Aranowska's γ coefficient it is 0.730.

Withdrawal – a variable operationalized by the subscale of the Stress Response Scale. The factor loadings of the observed variables are $\lambda_{s10} = 0.70$; $\lambda_{s11} = 0.62$; $\lambda_{s12} = 0.64$; $\lambda_{s13} = 0.56$; $\lambda_{s14} = 0.77$; and $\lambda_{s15} = 0.46$ (statistically significant p-value for each lambda). The reliability according to the CR coefficient is 0.790, and according to Aranowska's γ coefficient it is 0.566.

Searching for help – a variable that is operationalized by the Seeking Help subscale of the Stress Response Scale. The factor loadings of the observed variables are $\lambda_{s1} = 0.25$; $\lambda_{s5} = 0.94$; and $\lambda_{s6} = 0.87$ (statistically significant p-value for each lambda). The reliability of the variable according to the CR coefficient is 0.766, and according to Aranowska's γ coefficient it is 0.599.

Strictness –aggression – a variable operationalized by the dimensions of strictness and aggression of Gurycka's Questionnaire of the Parent's Self-perception. The factor loadings of strictness are $\lambda_{b1} = 0.14$; $\lambda_{b2} = 0.38$; $\lambda_{b3} = 0.29$; and $\lambda_{b4} = 0.84$. The meta-factor loading of strictness is $\lambda_{strictness} = 0.67$. The factor loadings of aggression are $\lambda_{b5} = 0.52$; $\lambda_{b6} = 0.86$; $\lambda_{b7} = 0.84$; and $\lambda_{b8} = 0.34$. The aggressive meta-factor loading is $\lambda_{aggression} = 0.98$. The reliability of the variable *strictness/aggression* according to the CR coefficient is 0.821, and according to Aranowska's γ it is 0.647.

Constraint–indifference – this is a variable operationalized by the dimensions of indifference and constraint of Gurycka's Questionnaire of the Parent's Self-perception. The factor loadings of constraint are $\lambda_{b9} = 0.41$; $\lambda_{b11} = 0.58$; $\lambda_{b12} = 0.44$; and $\lambda_{b13} = 0.42$. The meta-factor loading of constraint is $\lambda_{constraint} = 0.78$. The factor loadings of indifference are $\lambda_{b14} = 0.53$; $\lambda_{b15} = 0.68$; $\lambda_{b16} = 0.35$; and $\lambda_{b17} = 0.54$. The meta-factor loading of indifference is $\lambda_{indifference} = 0.65$. The reliability of the constraint–indifference variable, according to the CR coefficient, is 0.678, and according to the γ coefficient it is 0.511.

Self-accentuation–indulging – a variable that is operationalized by the dimensions of doing things for the child–indulging the child from Gurycka's Questionnaire of the Parent's Self-perception. The self-accentuation factor loadings are $\lambda_{b18} = 0.36$; $\lambda_{b19} = 0.40$; $\lambda_{b20} = 0.48$; and $\lambda_{b21} = 0.73$. The meta-factor loading of self-accentuation is $\lambda_{\text{self-accentuation}} = 0.76$. The factor loadings of indulging are $\lambda_{b2} = 0.82$; $\lambda_{b23} = 0.30$; $\lambda_{b24} = 0.38$; and $\lambda_{b25} = (-0.08)$ (not statistically significant). The meta-factor loading of indulging is $\lambda_{\text{indulging}} = 0.90$. The reliability of the *self-accentuation–indulging* variable is 0.818 according to the coefficient CR, and according to Aranowska's γ coefficient it is 0.639.

Doing things for the child– idealizing the child – a variable operationalized by the dimensions of doing things for the child–idealizing the child from the Questionnaire of Self-perception of the Parent by Gurycka. The factor loadings of doing things for the child are $\lambda_{b26} = 0.42$; $\lambda_{b27} = 0.40$; $\lambda_{b28} = 0.58$; and $\lambda_{b29} = 0.31$. The meta-factor loading of doing things for the child is $\lambda_{\text{doing things for the child}} = 0.92$. The factor loadings of idealizing the child are $\lambda_{b30} = 0.32$; $\lambda_{b31} = 0.67$; $\lambda_{b32} = 0.35$; and $\lambda_{b33} = 0.12$ (not statistically significant). The meta-factor loading of idealizing the child is $\lambda_{\text{idealizing the child}} = 0.69$. The reliability of the *doing things for the child–idealizing the child* variable according to the CR coefficient is 0.793, and according to Aranowska's γ it is 0.616.

Verifying Hypotheses H1, H2, H3, H4, H5, H6, H7, H8 and H9: Calculations of estimators in the one-level structural equation model (SEM)

This section presents the verification of the theoretical model, which was tested using the system of structural equations (see Figure 4). In the measurement model (Figure 23), correlations between latent variables were removed from the model and paths were introduced in accordance with the structure planned at the theoretical level (Figure 4). In this way, a structural model was created, which was subsequently tested using a system of structural equations.

The method of modeling using the system of structural equations is used to check whether the structural model predicted at the theoretical level fits the data well, i.e., whether it accurately reflects the phenomenon it describes (Aranowska, 1996; Bartholomew et al., 2008; Gajda, 1992; Hair et al., 2006; Heck & Thomas, 2009; Heck et al., 2010; Konarski, 2009; Szymańska, 2016a, 2016b). The graph of the structural model tested by the system of structural equations is presented in Figure 24. Table 34 presents the statistics of fitting the structural model to the data. Moreover, in Annex I, Figure C1 presents a graph of the structural model with pure relationships between variables after eliminating the influence of other variables.

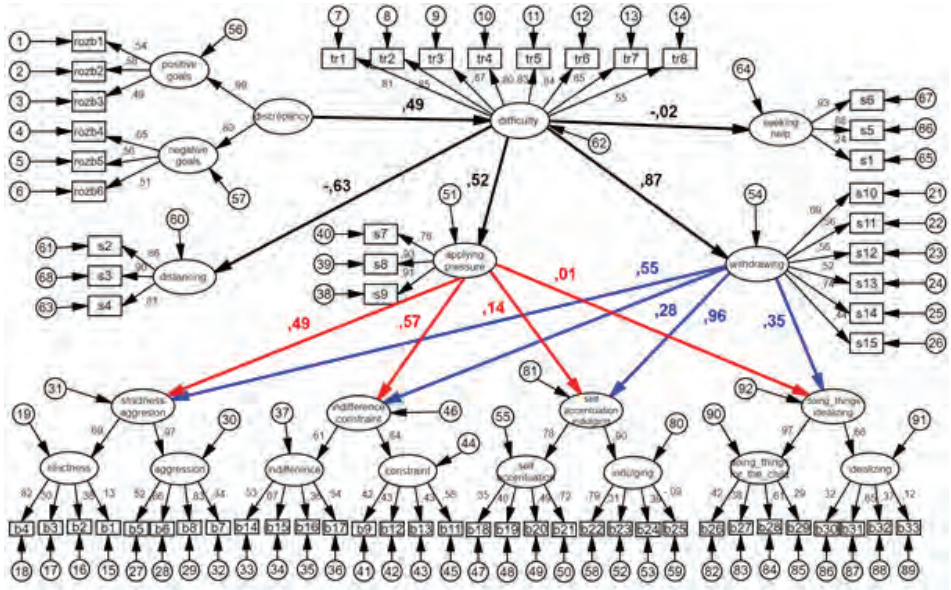


Figure 24. **Diagram presenting the structural model tested by a system of structural equations. Standardized results. Relationships between latent variables are in bold.**

Table 34
Statistics presenting the fit of the structural model

	Fit Indices	Values	Recommended value to reject H0	p-value
	χ^2	4,067.143	not statistically significant	$p < 0.001$
	df	1,748		
	N	402		
	χ^2/df	2.327		
	$\chi^2_{independent}$	12,111.672		$p< 0.001$
	$df_{independent}$	1,830		
Measures of absolute matching	Hoelther	183		$p = 0.05$
Measures of type I relative matching	NFI	0.664		
	RFI	0.648		
Measures of type II relative matching	IFI	0.776	>0.900	

	Fit Indices	Values	Recommended value to reject H0	p-value
Measures of type III relative matching	CFI	0.774	>0.900	
	PNFI	0.634		
Measures taking into account the complexity of the model	PCFI	0.740		
	PRATIO	0.955		
Measures of error approximation	RMSEA	0.058	< 0.06 < 0.08	p< 0.1 only for this statistic

The model fit the data well, as indicated by the RMSEA value of 0.058 (less than the critical value of 0.08) and the value χ^2/df being less than the critical value of 2.5.

The first hypothesis postulated that the discrepancy of the parental goal from the level of the child's development in terms of the feature being developed in the parental goal is related to the mother's experience of parental difficulties. The results obtained confirmed the validity of the hypothesis. The relationship between the variables was $\gamma = 0.49$ ($p < 0.005$). The discrepancy explains 24% of the variability of the mother's experience of parental difficulties (0.492 = 0.24). The non-standardized ratio was 0.90, which means that when the discrepancy increases by one unit, the mother's experience of educational difficulties increases by 0.90 units.

The second hypothesis postulated that there was a negative relationship between the mother experiencing parental difficulties (parental stress) and the possibility that she will take cognitive distance. The results obtained confirmed the validity of this hypothesis. The relationship between the variables was $\beta = -0.63$ ($p < 0.005$). Experiencing difficulties explains 40% of the variability of cognitive distancing. The non-standardized relationship was -0.601. This means that when the mother's experience of difficulty increases by one unit of measurement, cognitive distancing decreases by 0.601 units.

The third hypothesis postulated that there is a connection between the mother experiencing parental difficulties and her seeking help from other people and institutions. The results obtained did not support the hypothesis. The relationship between the variables was $\beta = -0.020$ (non-significant). The relationship is statistically irrelevant. As in the previous studies, no relationship was found between these variables.

The fourth hypothesis postulated that mothers' experience of parental difficulties is related to the pressure they apply to the child. The results obtained confirmed the validity of this hypothesis. The relationship between the variables was $\beta = 0.52$

($p < 0.005$). The mother's experience of parental difficulties explains 27% of the variability of their use of pressure on the child. The non-standardized relationship was 0.770, which means that when the experience of parental difficulties increases by one unit of measurement, the pressure on the child increases by 0.770 units.

The fifth hypothesis postulated that the difficulties experienced by mothers are associated with their withdrawal from the child's upbringing process. The results obtained confirmed the validity of this hypothesis. The relationship between the variables was $\beta = 0.87$ ($p < 0.005$). Experiencing parental difficulties explains 76% of the variability of mothers' withdrawal from the child's upbringing process. The non-standardized relationship was 0.786. When the experience of parental difficulties increases by one unit of measurement, the withdrawal of mothers from the child's upbringing process increases by 0.786 units.

The sixth hypothesis postulated that cognitive distancing of mothers is related to their committing of parental mistakes: a) strictness and aggression, b) indifference and constraint, c) self-accentuation and indulging and d) doing things for the child and idealizing the child. The results did not confirm the validity of this hypothesis. No relationship was found between mothers' distancing themselves and mothers' making mistakes.

The seventh hypothesis postulated that mothers' seeking help from other people and institutions is associated with their parental mistakes: a) strictness and aggression, b) indifference and constraint, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child. The results did not confirm the validity of this hypothesis. No relationship was found between mothers' seeking help from other people and institutions and committing parental mistakes.

The eighth hypothesis postulated that the use of pressure by mothers is positively associated with making mistakes: a) strictness and aggression, b) indifference and constraint, c) self-accentuation and indulging, and d) doing things for the child and idealizing the child. The results obtained confirmed the validity of this hypothesis. The use of pressure was positively associated with committing various mistakes: a) strictness and aggression $\beta = 0.49$ ($p = 0.026$), b) indifference and constraint $\beta = 0.57$ ($p < 0.005$), c) self-accentuation and indulging $\beta = 0.14$ ($p < 0.005$) and d) doing things for the child and idealizing the child $\beta = 0.01$ (non-significant). Pure relationships between these variables are presented in Appendix I, Figure C1: a) strictness and aggression $\beta = 0.90$ ($p < 0.05$), b) indifference and constraint $\beta = 0.73$ ($p < 0.05$), c) self-accentuation and indulging $\beta = 0.76$ ($p < 0.05$) and d) doing things for the child and idealizing the child $\beta = 0.24$ ($p < 0.05$). Applying pressure is therefore positively associated with all types of mistakes, although the least associated with doing things for the child and idealizing the child. Applying pressure explains a) 24% of the variability of making mistakes of strictness and aggression, b) 32.49% of the variability of constraining the

child's activity and indifference, c) 1.96% of the variability of a mother's self-accentuation and indulging the child and d) only 0.01% of the variability of doing things for the child and idealizing the child. Non-standardized relationships were as follows: a) 0.02 for applying pressure and mistakes of strictness and aggression, b) 0.08 for applying pressure and mistakes of indifference and constraining the child's activity, c) 0.05 for applying pressure and mistakes of self-accentuation and indulging the child and d) 0.00 for applying pressure and mistakes of doing things for the child and idealizing the child.

The ninth hypothesis postulated that the mother's withdrawal from the child's upbringing process is related to committing mistakes: a) strictness and aggression, b) indifference and constraint, c) self-accentuation and indulging and d) doing things for the child and idealizing the child. The results obtained confirmed the validity of this hypothesis. Pairs of mistakes were positively associated with the withdrawal of the parent from the upbringing process: a) strictness and aggression $\beta = 0.55$ ($p < 0.027$), b) indifference and constraint $\beta = 0.28$ ($p < 0.001$), c) self-accentuation and indulging $\beta = 0.96$ ($p < 0.005$) and d) doing things for the child and idealizing the child $\beta = 0.35$ ($p < 0.005$). Pure relationships between these variables are(Appendix I, Figure C1): a) strictness and aggression $\beta = 0.73$ ($p < 0.05$), b) indifference and constraint $\beta = 0.63$ ($p < 0.05$), c) self-accentuation and indulging $\beta = 1.03$ ($p < 0.05$) and d) doing things for the child and idealizing the child $\beta = 0.36$ ($p < 0.05$) The withdrawal of the parent is positively associated with all of the pairs of mistakes. The mother's withdrawal explains a) 30.25% of the use of strictness and aggression towards the child, b) 7.84% of the mistakes of indifference and constraint of the child's activity, c) 92.16% of self-accentuation and indulging the child and d) only 12.25% of doing things for the child and idealizing the child. Non-standardized relationships were as follows: a) 0.04 for strictness and aggression, b) 0.06 for indifference and constraint, c) 0.53 for self-accentuation and indulging and d) 0.09 for doing things for the child and idealizing the child.

In summary, the results of the structural equations system partially confirmed the correctness of the structure assumed at the theoretical level. The application of pressure and the withdrawal of mothers from their children's upbringing process is associated with their experience of parental difficulties, the determining factor of which is the inability to achieve parental goals (discrepancy). Experiencing difficulties is negatively related to the mothers' cognitive distance and is not associated with seeking help from other people and institutions. In this respect, the results obtained in previous studies have been completely confirmed.

The two non-adaptive reactions to stress, that is, the use of pressure and the withdrawal of mothers from the upbringing process, are associated with their parental mistakes. The use of pressure is associated with committing three pairs of mistakes — aggression and strictness, constraining the child's activity and indifference,

self-accentuation and indulging the child — and associated with the mistakes of doing things for the child and idealizing the child. Withdrawal is associated with all pairs of parental mistakes.

There was no relationship between the two adaptive reactions to stress, i.e., cognitive distancing and seeking help with any of the upbringing mistakes.

In summary, the response to stress and stress itself are significant predictors of parental mistakes. This is the main conclusion to be drawn from the results. In a situation where the mother reacts by applying pressure or withdrawing from the child's upbringing process and thereby adopts one of the two non-adaptive reactions to stress, all types of parental mistakes can occur, with doing things for the child and idealizing the child being the least probable.

Verifying Hypothesis H10: Checking the similarity of mothers due to the intensification of the relationships disclosed in the structural model

The cluster analysis carried out by data mining algorithms served to answer Question 10 of the research being carried out, namely, whether mothers differ in terms of the severity of difficulties experienced, the ways they cope with stress and the parental mistakes they commit. The application of this particular cluster analysis, as reported by Szymańska, presents the results of the respondents in a manner reminiscent of profiles (Szymańska, 2017c). This makes it an easy method to interpret the results.

Figure 25 shows the results of cluster analysis for the variables described in the structural model. Cluster analysis (k-means clustering method) revealed that in the set of surveyed mothers there are three clusters distinguished by the intensity of the level of variables described in the structural model.

The first (the most numerous) group included 176 mothers (Table 35). Mothers belonging to this cluster were characterized by the lowest results in discrepancy, the lowest level of parental difficulties experienced, the lowest level of applying pressure and withdrawal from the relationship with the child and the lowest level in committing all types of parental mistakes (Table 35, Cluster 1). This group of mothers was also characterized by the highest level of cognitive distancing and seeking help.

The second (the rarest) cluster included 85 people (Table 35, Cluster 2). Mothers belonging to this cluster were characterized by the highest level of discrepancy, parental difficulties experienced, pressure and withdrawal and the highest level of parental mistakes. This group of mothers had the lowest results in cognitive distancing and average results in seeking help, when compared to the other groups.

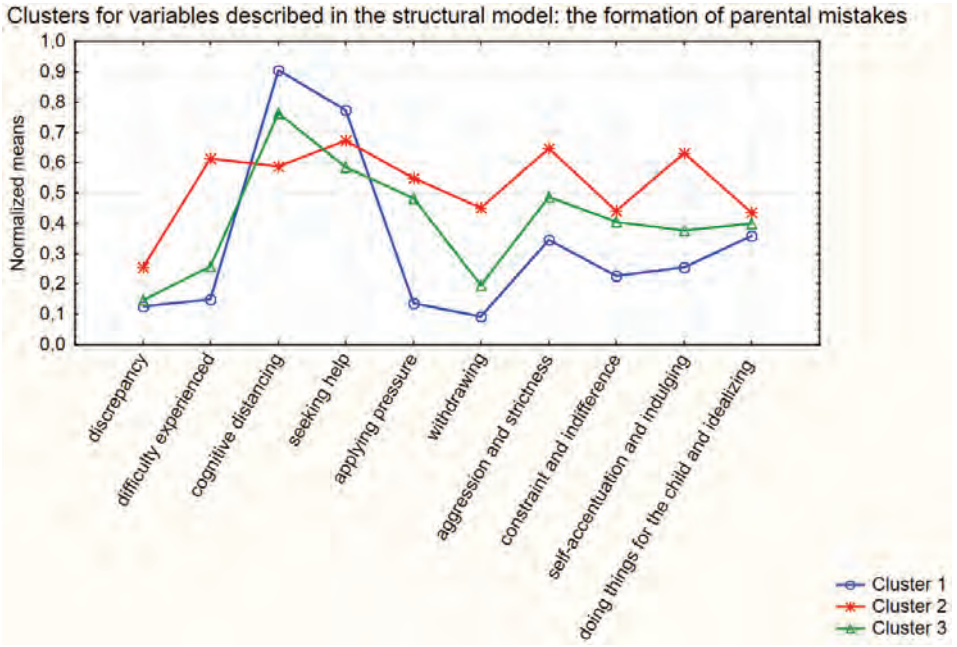


Figure 25. **Clusters for variables described in the structural model: the formation of parental mistakes**

The third cluster included 141 people (Table 35, Cluster 3). Mothers belonging to this cluster were characterized by average results in discrepancy, parental difficulties experienced, cognitive distancing, applying pressure, withdrawal and intensification of parental mistakes. This group of mothers had the lowest results in seeking help from other people and institutions.

Table 35

The means of clusters, the number and percentage of women belonging to each cluster

	Cluster 1	Cluster 2	Cluster 3
discrepancy	121.380682	247.588235	141.808511
difficulty experienced	18.8636364	52.2117647	26.6241135
cognitive distancing	27.3465909	18.4705882	23.3475177
seeking help	23.4147727	20.4823529	17.9929078
applying pressure	4.08522727	16.4470588	14.4822695
withdrawing	4.89772727	23.5294118	10.212766
aggression and strictness	20.7840909	32.8588235	26.4539007
constraint and indifference	12.4261364	17.5529412	16.6950355

	Cluster 1	Cluster 2	Cluster 3
self-accentuation and indulging	18.6931818	33.0470588	23.3049645
doing things for the child and idealizing the child	24.9431818	28.0235294	26.5673759
number of cases	176	85	141
percent (%)	43.7810945	21.1442786	35.0746269

The results presented in Figure 25 are normalized means calculated according to the first formula,

$$(1) \quad z = \frac{Xi - min(X)}{max(X) - min(X)},$$

where

Xi is the mean of a given group (given cluster) in the variable,

Min(X) is the minimum result that the examined person could receive for a given variable and

Max(X) is the maximum result that the examined person could receive for a given variable.

In other words, the normalized mean arises as a result of subtracting from the group's mean the lowest result that a person could get in a variable and then dividing it by the range of results in the scale (variable). The minimum value that the normalized mean takes is zero; the maximum is one. It is very useful for showing clusters (profiles). It allows the researcher not only to compare clusters according to the level of variables, but also to determine the scores on the scale obtained by people belonging to different clusters.

In terms of discrepancy, the mothers in all clusters had low results. However, a slight increase in the results on this scale was related to experiencing parental difficulties (Figure 25, Cluster 2). In terms of experiencing parental difficulties, the results of mothers in clusters ranged from low to moderate. Moderate and high scores were obtained by mothers in all groups in terms of cognitive distancing and seeking help. In terms of applying pressure and withdrawal, mothers achieved low and moderate results. In terms of parental mistakes, the mothers' scores ranged from low to high.

It is significant that mothers who experience the most difficulties and most often made parental mistakes had only slightly higher results in the discrepancy. This shows that even a slight discrepancy can trigger the experience of considerable parental difficulties.

Cluster analysis revealed yet another important result. The withdrawal of mothers from their children's upbringing process increases with some intensification of experiencing parental difficulties. At lower levels of parental difficulties, withdrawal remains at a relatively stable level (quite low). It begins to increase when the difficulty experienced reaches a certain elevated level. The opposite is true with

pressure, which increases quite quickly when experiencing even lower parental difficulties. At lower levels of experiencing difficulties, parents cope with the use of pressure and do not withdraw (Figure 25, Cluster 2). Only when the level of parental difficulties increases is it accompanied by the withdrawal of mothers from their children's upbringing process (Figure 25, Cluster 1). A similar result was also observed in previous studies (Szymańska, 2017c).

Differences between groups of mothers in distinguished clusters in terms of variables are statistically significant. The magnitude of the effects are small for mistakes of doing things for the child and idealizing the child, average for discrepancy and seeking help. For other variables, the effects are large (Table 36).

The results confirmed the correctness of Hypothesis 10 — Mothers differ in the intensity of difficulties experienced, in coping with stress and in committing parental mistakes.

Table 36
ANOVA results for clusters of variables presented in the base model: the formation of parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	interpretation of η2
discrepancy	952109.6	2	8350052	399	22.747	< 0.005	0.102	medium
difficulty experienced	64623.0	2	37616	399	342.734	< 0.005	0.632	large
cognitive distancing	4628.2	2	7209	399	128.079	< 0.005	0.391	large
seeking help	2319.5	2	16815	399	27.519	< 0.005	0.121	medium
applying pressure	12475.0	2	11786	399	211.163	< 0.005	0.514	large
withdrawing	19949.2	2	20023	399	198.765	< 0.005	0.499	large
aggression and strictness	8633.3	2	10495	399	164.109	< 0.005	0.451	large
constraint and indifference	2125.0	2	7170	399	59.128	< 0.005	0.229	large
self-accentuation and indulging	11809.8	2	12255	399	192.25	< 0.005	0.491	large
doing things for the child and idealizing the child	579.2	2	15828	399	7.300	< 0.005	0.035	small

Verifying Hypothesis H11: Results of artificial neural network analysis

Artificial neural networks (ANN) were used to predict the level of parental mistakes of mothers based on the variables presented in the structural model. They served to answer Hypothesis 11 of the research, which stated that on the basis of the variables of discrepancy, parental difficulties experienced and stress responses, it is possible to adequately predict levels of parental mistakes made by mothers. The prediction of each pair of mistakes was made on the basis of variables that formed a path in the structural model. For example, for mistakes of aggression and strictness, they were a) discrepancy, b) parental difficulties experienced, c) applying pressure and d) mother's withdrawal from the child's upbringing situation.

Artificial Neural Network for predicting aggression and strictness

200 neural networks were built to predict the mistakes of aggression and strictness. From them, the best-trained network was selected, which is presented in Figure 26. The network had four neurons in the input layer that represented 4 variables in the structural model — a) discrepancy, b) experienced parental difficulties, c) use of pressure and d) mothers' withdrawal from the parental situation — eight neurons in the hidden layer and one neuron in the output layer representing the mistakes of aggression and strictness.

The network prediction for the training set was 0.713, 0.689 for the test set and 0.728 for the validation set (Table 37). The neural network needed eight neurons to predict on the level of 0.728 the mothers' results in the parental mistakes of aggression and strictness. The value of 0.728 means that between the mother's real response and the result foreseen by the ANN, the correlation is high (equal to 0.728). It must be said that this is a good prediction. When the correlation between two parallel versions of the psychometric test is at a similar level and higher, it is stated that the tests test the same feature (Anastasi & Urbina, 1999; Hornowska, 2003). In the case of results obtained by the ANN, the prediction was not made on the basis of the second test which examines the same feature but based on a set of completely different variables — and yet the correlation is high.

In many other disciplines, such a prediction would probably be considered quite average and perhaps even weak, e.g., in materials science (Basheer & Hajmeer, 2000, Jerzy Jędrzejewski, 1995, Wołowiec-Korecka, 2016). However, the nature of the discipline must be taken into consideration. The materials consist of the

same elements regardless of the weather, time of day, etc. Possible fluctuations (measurement errors) are much smaller and their occurrence is more predictable. In the case of people, their behavior is much more varied and difficult to predict, because human behavior is subject to much greater fluctuations than the behavior of materials. To sum up, based on the results obtained by the ANN, it should be stated that the prediction for the parental mistake of aggression and strictness based on variables forming the path in the structural model is good.

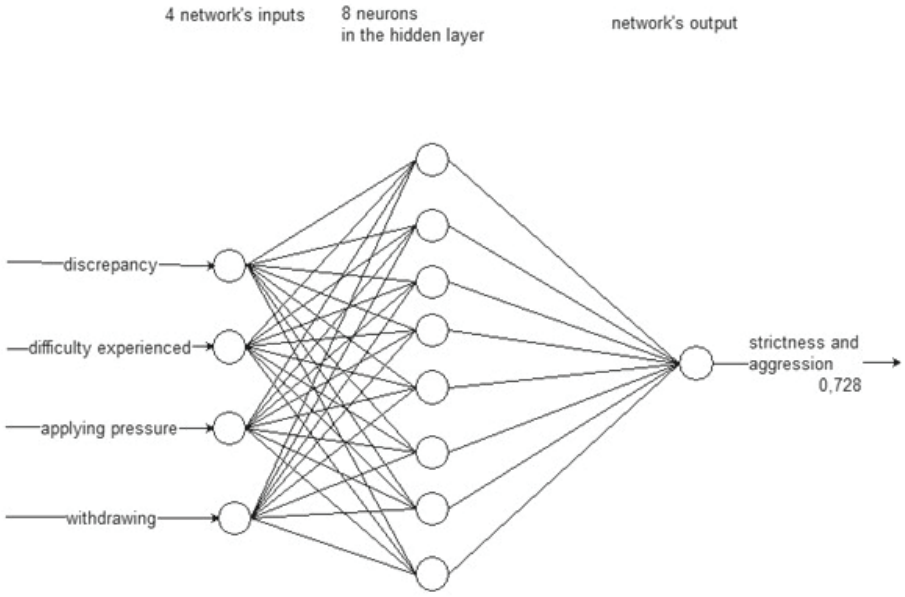


Figure 26. **Artificial neural network for the prediction of aggression and strictness**

Table 37
Summary of the best network for mistakes of aggression and strictness

Net's name	The quality of learning	Testing Quality	Validation quality	Learning error	Testing error	Validation error	The learning algorithm	Error function
MLP 4-8-1	0.713	0.689	0.728	11.886	13.629	9.495	BFGS	SOS

Artificial Neural Network for predicting constraint and indifference

Two hundred neural networks were also built for predicting the mistakes of constraint and indifference. Among them, the best-trained network was selected, which is presented in Figure 27. The network had four neurons in the entrance layer, representing four variables — a) discrepancy, b) parental difficulties experienced, c) applying pressure and d) withdrawal of mothers from the parenting situation — 21 neurons in the hidden layer and one neuron in the output layer, representing the mistakes of indifference and constraint of the child's activity.

The artificial neural network prediction for the training set was 0.458, 0.388 for the test set and 0.522 for the validation set (Table 38). The ANN needed as many as 21 neurons to predict at this moderate level mothers' results in making the mistakes of constraining the child's activity and indifference.

The prediction for the network is moderate. The correlation between the real responses given by mothers and the level the ANN predicted this result in the validation set (i.e., a set the AAN collected no information from during the learning and which only served to verify the correctness of its solution) amounted to 0.522. This is a moderate correlation, so it seems that the prediction of the network should also be interpreted as moderate.

This lower prediction than the one for the mistakes of aggression and strictness is understandable in light of the results obtained using the system of structural equations. It is clearly visible in the graph of the model representing the results of structural equations presented in Appendix I Figure C1, which shows pure relationships between variables after eliminating the effects of other variables, that for the mistakes of strictness and aggression the use of pressure were related at the level of 0.90 and withdrawal at the level of 0.73, while the mistakes of indifference and constraint were related with these variables at the levels of 0.73 and 0.63, respectively. These are lower correlations, hence the lower prediction.

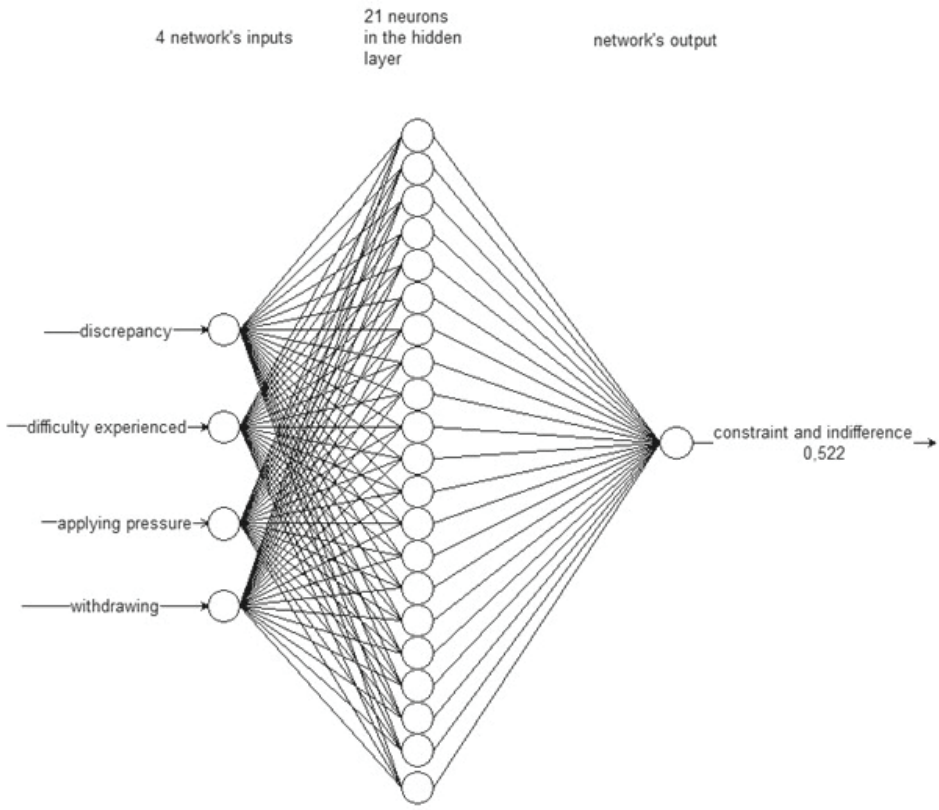


Figure 27. **Artificial neural network for the prediction of constraint and indifference**

Table 38
Summary of the best ANN for the mistakes of constraint and indifference

Net's name	The quality of learning	Testing Quality	Validation quality	Learning error	Testing error	Validation error	The learning algorithm	Error function
RBF 4-21-1	0.458	0.388	0.522	9.2928	9.6115	8.1136	RBFT	SOS

Artificial neural network for predicting parental self-accentuation and indulging the child

In order to predict the mistakes of self-accentuation and indulging the child, 200 neural networks were built, from which the best-trained network was selected; this ANN is presented in Figure 28. As in the case of other networks, it had four neurons in the input layer representing variables in the structural model — a) discrepancy, b) parental difficulties experienced, c) applying pressure and d) withdrawing from the parenting situation — 10 neurons in the hidden layer and one neuron in the output layer, which represented self-accentuation and indulging the child.

The network prediction for the training set was 0.649, 0.732 for the test set and 0.762 for the validation set (Table 39). This time, the neural network needed 10 neurons to predict at a good level of 0.762 the mothers' results in making the mistakes of self-accentuation and indulging the child. The network's prediction for self-accentuation and indulging was good. The correlation between the true score of mothers and the one predicted by the ANN was at a high level (0.762).

This result is not surprising considering the correlation between the use of pressure and self-accentuation and indulging the child, which amounted to 0.76, and withdrawal and self-accentuation and indulging the child, which amounted to 1.03 (Appendix I, Figure C1). The variables of pressure and withdrawal are strongly and very strongly associated with self-accentuation and indulging the child; this is the reason for such a good prediction of the artificial neural network.

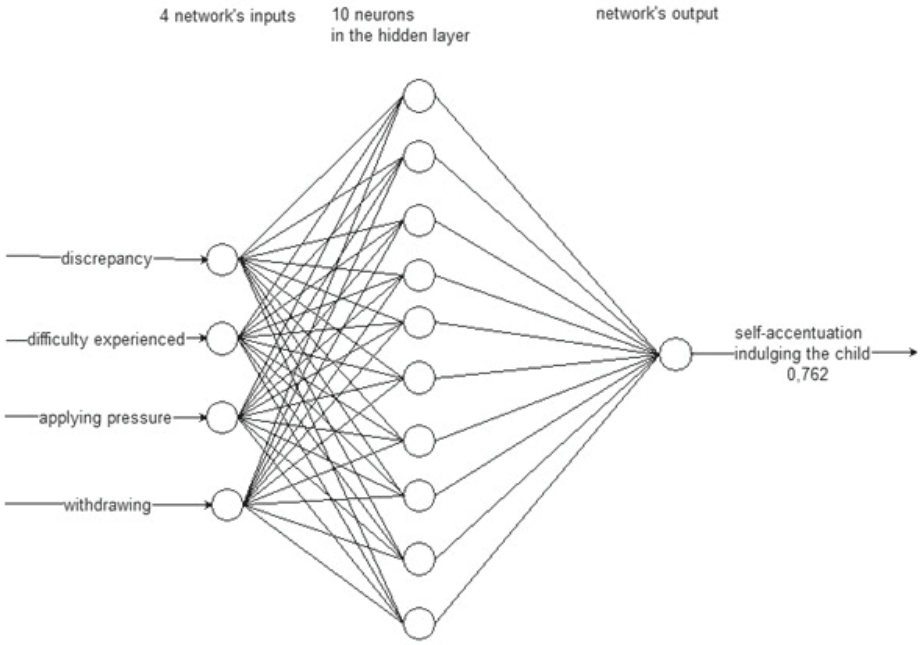


Figure 28. Artificial neural network for the prediction of self-accentuation and indulging the child

Table 39
Summary of the best network for self-accentuation and indulging mistakes

Net's name	The quality of learning	Testing Quality	Validation quality	Learning error	Testing error	Validation error	The learning algorithm	Error function
MLP 4-10-1	0.649	0.732	0.762	17.746	15.26	11.217	BFGS	SOS

Artificial Neural Network for predicting doing things for the child and idealizing the child

Two hundred neural networks were built to predict the mistakes of doing things for the child and idealizing the child. Among them, the best trained network selected; it is presented in Figure 29. It had four neurons in the entrance layer, representing the variables of a) discrepancy, b) parental difficulties experienced, c) applying pressure and d) withdrawing from the parenting situation, 24 neurons in the hidden layer and one neuron in the output layer that represented mistakes of doing

things for the child and idealizing the child. The network prediction for the training set was 0.276, 0.205 for the test set and 0.247 for the validation set (Table 40).

The ANN needed as many as 24 neurons to predict the results of mothers in committing the mistakes of doing things for the child and idealizing the child on a weak level (0.247). This poor prediction value is not surprising in the light of the results of the structural equation model (Appendix I, Figure C1). It turns out that both applied pressure and mothers' withdrawal from the upbringing process are related at the low levels of 0.24 and 0.36 with doing things for the child and idealizing the child, respectively. What's more, these weak correlations are also shown in the cluster analysis. It can be seen that the differences between the level of doing things for the child and idealizing the child were small (Figure 25, Table 36). The variables presented in the structural model are not good predictors of the mistakes of doing things for the child and idealizing the child.

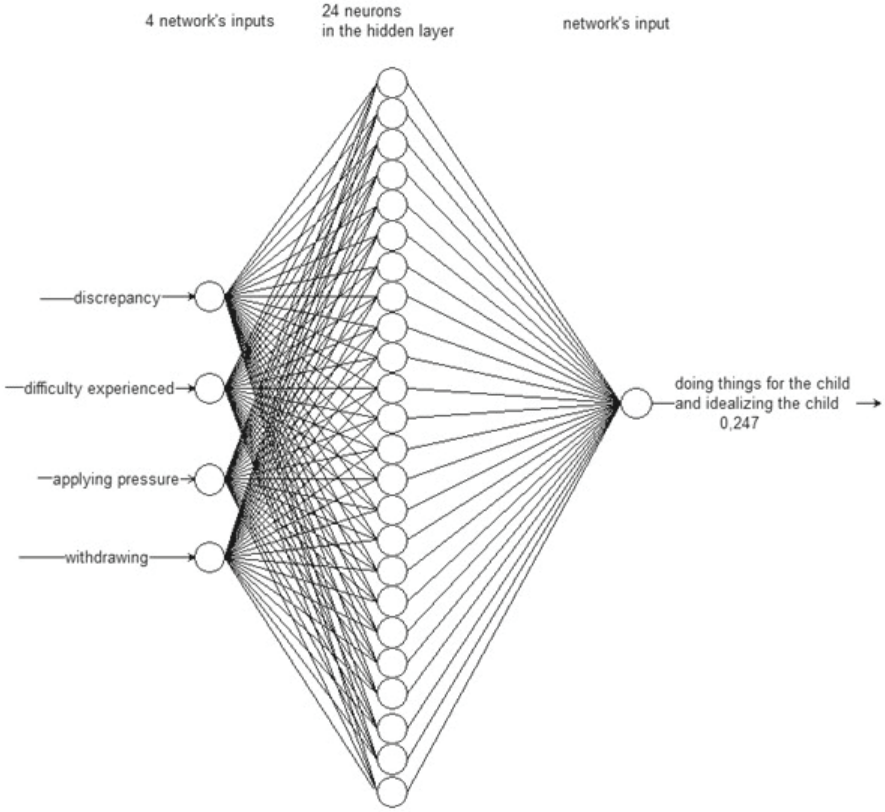


Figure 29. **Artificial neural network for the prediction of doing things for the child and idealizing the child**

Table 40
Summary of the best network for the mistake of doing things for the child and idealizing the child

Net's name	The quality of learning	Testing Quality	Validation quality	Learning error	Testing error	Validation error	The learning algorithm	Error function
RBF 4-24-1	0.276	0.205	0.247	19.597	20.048	15.551	RBFT	SOS

The correctness of Hypothesis 11 has been partially confirmed. In conclusion, the results of the ANN should be stated that they reveal a good prediction for two pairs of mistakes, namely, the mistake of strictness and aggression and that of self-accentuation of the parent and indulging the child.

On the basis of the information on discrepancy, parental difficulties experienced by mothers, the use of pressure and the withdrawal of mothers from the child's upbringing process, it is possible to predict at a high level the results of mothers in the scope of these parental mistakes. It is possible to predict on the basis of these variables the constraint of the child's activity and the mother's indifference towards the child at a moderate level. At a low level, we can form a prediction for doing things for the child and idealizing the child based on these variables. This means that the mistake of doing things for the child and idealizing the child is poorly correlated with the overall structure of experiencing difficulties in a parenting situation and the stress response. There is a need to search for other predictors of this type of parental mistakes in the future.

The relationship between parental mistakes experienced by women in childhood and their own parental mistakes

Verifying Hypothesis H12: Checking the similarity of grandmothers and mothers according to the intensity of parental mistakes

In order to verify Hypothesis 12, which states that women whose mothers (grandmothers) committed more parental mistakes will also commit more of them, a series of clustering analyses was performed using data mining algorithms. The analyses were carried out in three stages: a) in the first step, the clusters of the parental mistakes of mothers (grandmothers) were distinguished separately, b) next, the clusters of parental mistakes of women (mothers) were distinguished and c) finally, in the third step the clusters of the mistakes of grandmothers and their daughters (mothers) were distinguished.

Clusters of grandmothers' parental mistakes

The analysis revealed the existence of three clusters that for the pairs of grandmothers' parental mistakes and the mistake of a *lack of consistency* were statistically significantly different. The magnitude of the effects between clusters were moderate for mistakes of doing things for the child and idealizing the child ($\eta 2 = 0.091$) and high for the remaining mistakes ($\eta 2 > 0.302$) (Tables 41 and 42). The clusters are shown in Figure 30.

The first (most frequent) cluster consisted of 164 women (mothers). Of all groups (distinguished clusters), these women's mothers (grandmothers) committed the fewest mistakes of *strictness and aggression, constraint and indifference, self-accentuation and indulging* and *lack of consistency* — this mistake was at a similar level to that of the mothers in the third cluster. In all these variables, the results of this group of mothers were low, i.e., the normalized mean assumed values from 0 to 0.4. In terms of the mistake of *doing things for the child and idealizing the child,* this group of mothers had the highest scores out of all groups; they were moderate and the normalized mean ranged from 0.4 to 0.6 (Figure 30, Cluster 1).

The second cluster consisted of 122 women (mothers) who, more than any other group, committed the mistakes of *self-accentuation and indulging*, *constraint and indifference* and *lack of consistency*, and had a similar level of the mistakes of *strictness and aggression* and *constraint and indifference* as mothers in the third cluster (Figure 30, Cluster 2). On the dimensions of *constraint and indifference, self-accentuation and indulging and lack of consistency*, the results of this group of mothers were close to high (the normalized mean achieved values of 0.6 and above) (see Figure 30, Cluster 2). On the dimensions of *strictness and aggression* as well as *doing things for the child and idealizing the child*, the results were moderate. This group of mothers assessed the mistakes of their mothers (grandmothers) to be the highest.

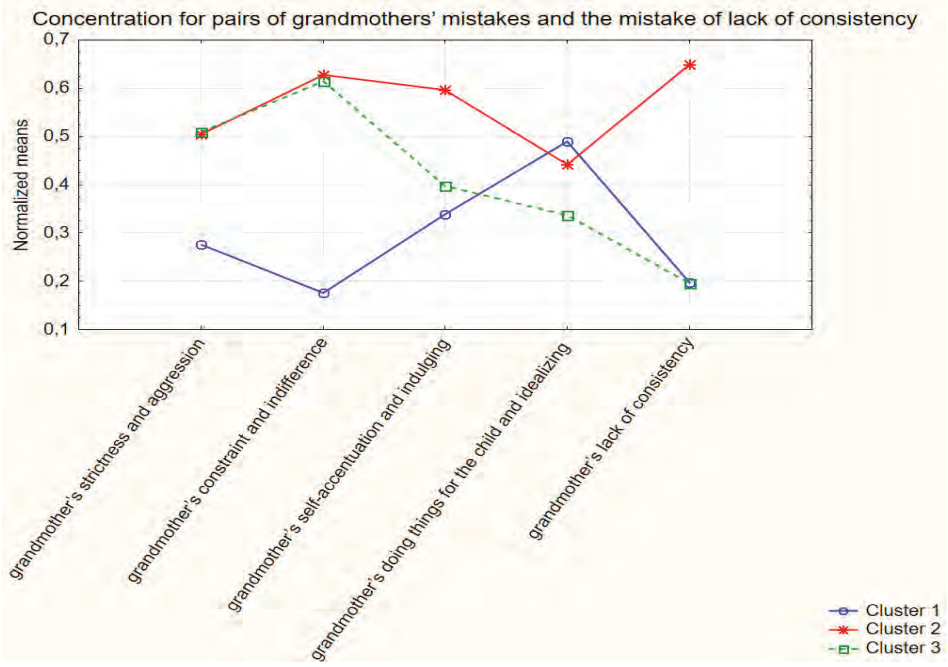


Figure 30. **Concentration for pairs of grandmothers' mistakes and the mistake of lack of consistency**

The third group consisted of 116 women — this was the least numerous cluster. The women belonging to this cluster perceived the mistakes of their mothers in terms of *strictness and aggression* as well as *constraint and indifference* at a similar level as the women in the second cluster (the results in the dimension of *strictness and aggression* were moderate and elevated in the dimension of *indifference and constraint*).

In *self-accentuation and indulging*, this group had average results compared to other clusters' results (they were also moderate in this dimension, i.e., the normalized mean was 0.4). In *doing things for the child and idealizing the child*, this group had the lowest results (they were also low in this dimension, as the normalized mean was 0.34). In perceiving the mistake of the *lack of consistency* of their mothers, the women in this group had the lowest scores (similar to women belonging to the first cluster). These results were also low in the *lack of consistency* (the normalized mean is 0.2).

Table 41
Means, numbers and percentages of cases belonging to clusters of grandmothers' parental mistakes and the mistake of lack of consistency, by cluster

	Cluster 1	Cluster 2	Cluster3
grandmother's strictness and aggression	16.1158537	23.647541	23.8275862
grandmother's constraint and indifference	11	26.3688525	25.8965517
grandmother's self-accentuation and indulging	16.8292683	24.3114754	18.5517241
grandmother's doing things for the child and idealizing the child	23.6036585	21.8852459	18.137931
grandmother's lack of consistency	6.54878049	14.6721311	6.52586207
Number of cases	164	122	116
Percent (%)	40.7960199	30.3482587	28.8557214

Table 42
ANOVA results of pairs of parental mistakes made by grandmothers as well as the mistake of a lack of consistency

	Between SS	df	Within SS	df	F	p-value	η2	inter-pretation η2
grandmother's strictness and aggression	5638.835	2	13063.195	399	86.115	<0.005	0.302	large
grandmother's constraint and indifference	22265.28	2	10325.160	399	430.204	<0.005	0.683	large
grandmother's self-accentuation and indulging	4094.643	2	9056.073	399	90.203	<0.005	0.311	large
grandmother's doing things for the child and idealizing the child	2055.066	2	20451.424	399	20.047	<0.005	0.091	medium
grandmother's lack of consistency	5620.560	2	3280.417	399	341.817	<0.005	0.631	large

Summarizing the results of cluster analysis, it should be noted that three groups have been distinguished:

1) Women who generally assessed the parental mistakes of their mothers as low. These women claimed that their mothers quite often committed mistakes of *doing things for the child and idealizing the child* (at a moderate level). They constituted about 41% of the tested sample.

2) Women who assessed the mistakes of their mothers at a moderate or elevated level, especially the mistakes of *constraint and indifference*, *doing things for the child*, *indulging the child and a lack of consistency*. They constituted about 30% of the tested sample.
3) Women who, at moderate and elevated levels, perceived the mistakes of *strictness and aggression* as well as *constraint and indifference* of their mothers. At a moderate level, the mistake of *self-accentuation and indulging* and at a low level the mistakes of *doing things for the child and idealizing the child* and a *lack of consistency* were reported. They constituted about 29% of the tested sample.

Cluster analysis results are also provided for the women's perception of the parental mistakes of their mothers when the results were given separately for each mistake (and not grouped into meta-factors as in the previous analysis). This principle of double presentation of the results will carry through to the very end of the work, because it will reveal the extent to which convergence and differences occur in the applied mistake recognition (i.e., when they are grouped into meta-factors or not). This is important because it may turn out that there are women in the set who have noticed that one mistake in the pair of mistakes occurred and the other did not. Due to this possibility, the procedure of providing results for pairs of mistakes (where they are reliable) and mistakes treated separately are used. However, it should be remembered that in most cases only the mistakes recognized in the meta-factors have had sufficient reliability. Therefore, the results for mistakes treated separately, although they will be given and interpreted, should be treated with caution. As additional results, supporting analysis and interpretation will be given in Annex H.

In the case of the women's assessment of their mothers' parental mistakes treated separately and not as meta-traits, the cluster analysis distinguished two clusters. They are presented in Annex H, in Figure B1 and in Tables A9 and A10. The differences between clusters in the scope of all parental mistakes (except for indulging) turned out to be statistically significant and the magnitude of effects for the mistakes of *aggression, constraint, indifference, self-accentuation and lack of consistency* is high; the magnitude of effects for the mistake *of strictness* is average, while that of the mistake of *doing things for the child and idealizing the child* is small and ultimately very small for the mistake *of indulging* (non-significant result) (Table A10).

In the first cluster, which included 198 mothers (less numerous), the algorithms included women who rated the parental mistakes *of strictness, aggression, constraint, indifference, self-accentuation and a lack of consistency* of their mothers (grandmothers) lower than the women belonging to the second cluster, thought they rated the mistakes of *doing things for the child and idealizing the child* higher (Table A9, Figure B1). In terms of the mistake *of indulging*, there were no statistically significant differences between clusters. The level of mistakes *of aggression,*

constraint, indifference, self-accentuation, indulging and a lack of consistency was low (the normalized mean was in the range from 0 to 0.4). On the other hand, the level of the mistakes of *strictness, doing things for the child and idealizing the child* assumed average values (the normalized average was in the range from 0.4 to 0.6).

In the second cluster, the algorithm classified the majority of the sample of women (204 people). This group had higher scores in all mistakes except the mistakes of *doing things for the child and idealizing the child and indulging* (non-significant results). Regarding the mistakes of the grandmothers, the results were elevated in terms of the mistakes of *constraint and indifference* and they were moderate in *strictness, aggression, self-accentuation, indulging, idealizing the child and lack of consistency*. The results ranged from 0.4 to 0.6. For *doing things for the child*, these results were low (normalized mean = 0.32).

Clusters of mothers' parental mistakes

The cluster analysis revealed the existence of four clusters of mothers in terms of the pairs of parental mistakes committed by them. The results of the analysis are shown in Figure 31.

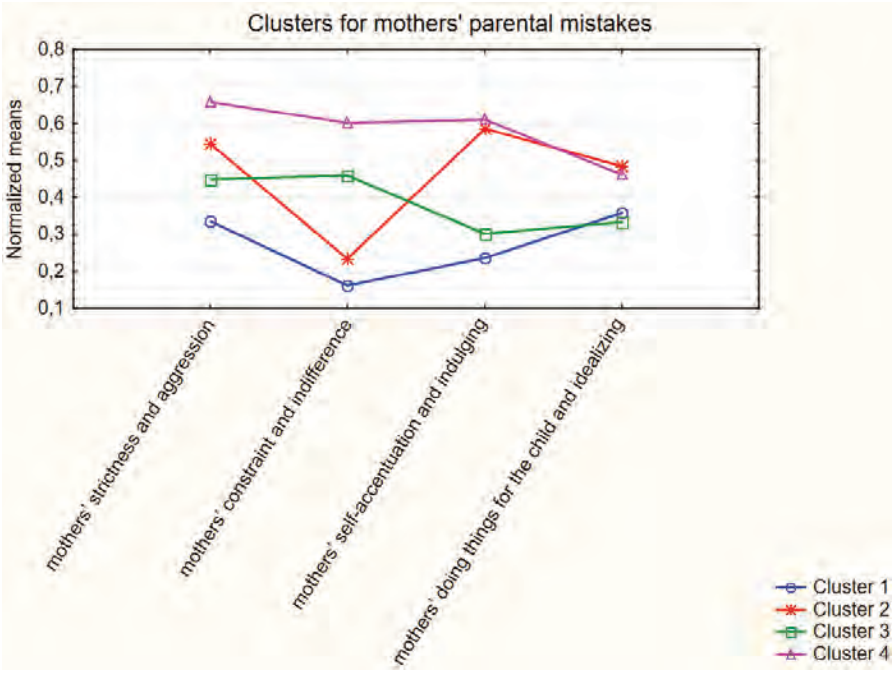


Figure 31. **Clusters for mothers' parental mistakes**

To the first (most numerous) cluster, the algorithms classified 139 women, which is 35% of the sample (Table 43). Women belonging to this group perceived the mistakes of *strictness and aggression, constraint and indifference, self-accentuation and indulging* on the lowest level . They also achieved very low results in these mistakes (the normalized means were in the range of 0 to 0.4). In the scope of *mistakes of doing things for the child and idealizing the child*, the results were only slightly higher than those of the mothers belonging to the third cluster. However, they were still low (normalized average <0.4).

In the second cluster, the algorithms included 77 women, which constituted about 19% of the study sample. It included mothers who achieved moderate results in *strictness and aggression, self-accentuation and indulging, doing things for the child and idealizing the child*. This group of mothers had the highest results in *doing things for the child and idealizing the child*. Mothers belonging to this group had low results in *constraint of the child's activity and indifference*.

The algorithms classified as part of the third cluster 138 women who had moderate results in *strictness and aggression* and *constraint and indifference*, as well as a low frequency of *self-accentuation and indulging* and *doing things for the child and idealizing the child* (see the results of the normalized mean in Figure 31).

The fourth cluster created by the algorithms consisted of 58 women, which constitutes 14% of the tested sample. The mothers belonging to this cluster admitted that at an elevated level they applied *strictness and aggression, constraint and indifference, self-accentuation and indulging* and to a moderate degree *doing things for the child and idealizing the child.*

There were statistically significant differences between clusters in the scope of all pairs of parental mistakes. The magnitude of the effects were average for the mistake of *doing things for the child and idealizing the child*, and large for all other mistakes (Table 44).

Table 43

Means, numbers of cases and percentages of pairs of mothers' parental mistakes by cluster

	Cluster 1	**Cluster 2**	**Cluster3**	**Cluster 4**
mothers' strictness and aggression	20.3741007	28.8311688	24.953125	33.362069
mothers' constraint and indifference	10.8705036	12.6233766	18.0234375	21.4310345
mothers' self-accentuation and indulging	17.9208633	31.2987013	20.453125	32.1724138
mothers' doing things for the child and idealizing the child	24.9568345	29.8441558	23.96875	29.0172414
Number of cases	139	77	128	58
Percent (%)	34.5771144	19.1542289	31.840796	14.4278607

Table 44
ANOVA results for clusters of pairs of mothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	inter-pretation η2
mothers' strictness and aggression	8117.843	3	11010.467	398	97.813	<0.005	0.424	large
mothers' constraint and indifference	6374.076	3	2920.900	398	289.509	<0.005	0.686	large
mothers' self-accentuation and indulging	14550.683	3	9514.253	398	202.894	<0.005	0.605	large
mothers' doing things for the child and idealizing the child	2334.435	3	14072.72	398	22.007	<0.005	0.142	medium

Cluster analysis for parental mistakes without grouping them into meta-traits revealed the existence of two clusters. The results of the analysis are presented in the appendix in Figure B2 and in Tables A11 and A12.

The algorithms classified 258 women into the first cluster, which is 64% of the sample (Table A11). The mothers belonging to this cluster had lower scores in terms of all parental mistakes than mothers belonging to the second cluster. The group of these mothers had low results in terms of the mistake of *aggression, constraint, indifference, self-accentuation, indulging and doing things for the child* (the normalized mean was in the range from 0 to 0.4). The results of mothers in terms of *strictness and idealizing the child* mistakes were moderate (the normalized mean was in the range from 0.4 to 0.6).

The second cluster consisted of 144 women grouped by the algorithms, which is 36% of the study sample. It included mothers who had elevated results in *idealizing the child* (normalized mean = 0.6), moderate in *strictness, aggression, self-accentuation and indulging* and low results in *constraint, indifference and doing things for the child* (the normalized mean was in the range from 0.4 to 0.6).

Differences between both clusters in terms of the intensity of the use of parental mistakes were statistically significant. The effects were high for the parental mistakes of *self-accentuation* and *indulging, aggression*, mean for *strictness, constraint and doing things for the child mistake,* and low for *indifference and idealizing the child* (Table A12).

Clusters of grandmothers' and mothers' parental mistakes

Cluster analysis for pairs of parental mistakes of grandmothers and mothers revealed the existence of two clusters. The results of clustering analysis are presented

in Figure 32. 205 women were included in the first cluster, the mothers (grandmothers) who committed the fewest mistakes of *strictness and aggression, constraint and indifference, self-accentuation, indulging and lack of consistency*. They had low results in all mistakes (the normalized mean was in the range from 0 to 0.4) apart from the mistake of *doing things for the child and idealizing the child*, where the results were moderate (normalized mean = 0.47) and the highest result in both profiles.

The algorithms included in the second cluster 197 women whose mothers (grandmothers) committed the most mistakes of *strictness and aggression, constraint and indifference, self-accentuation and indulging and lack of consistency*. These results in the mistakes of *constraint and indifference* were elevated (the normalized mean was 0.65), while in the remaining mistakes they were moderate (normalized mean was in the range of 0.4–0.6). The mistakes of doing things for the child and idealizing the child were lower than those of mothers in the first cluster, but they were still within the range of average results (the normalized mean was 0.4).

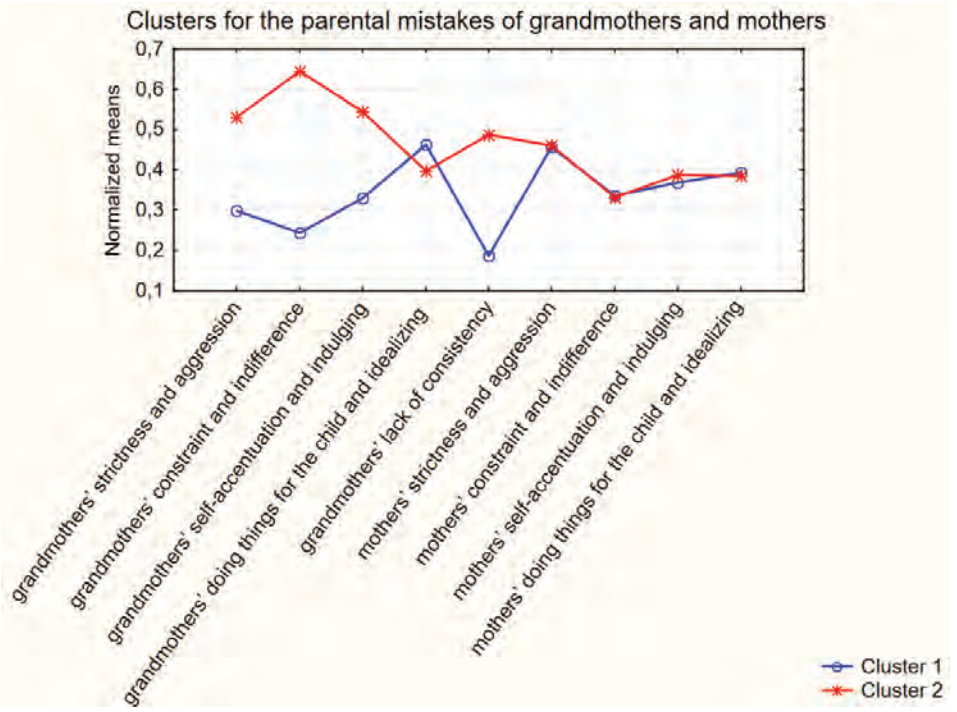


Figure 32. **Clusters for the parental mistakes of grandmothers and mothers**

The differences between the two clusters regarding all grandmothers' parental mistakes are statistically significant and the magnitude of the effects is large for all mistakes (except for *doing things for the child and idealizing the child*) (Table 46). On the other hand, in terms of their daughters' committing parental mistakes, i.e., the women surveyed, the results were not statistically significant (of course, the magnitude of the effects was null) (Table 46). The algorithms did not find even one group of women who differed from the others in terms of their own parental mistakes depending on the level of mistakes of their mothers.

Table 45
The mean of clusters, the number of cases belonging to clusters and the percentage of cases belonging to clusters in the cluster analysis for pairs of mistakes of mothers and grandmothers

	Cluster 1	**Cluster 2**
grandmothers' strictness and aggression	16.8926829	24.5126904
grandmothers' constraint and indifference	13.2634146	26.9340102
grandmothers' self-accentuation and indulging	16.5512195	22.7664975
grandmothers' doing things for the child and idealizing the child	22.6341463	20.3299492
grandmothers' lack of consistency	6.35121951	11.7715736
mothers' strictness and aggression	25.2292683	25.4263959
mothers' constraint and indifference	15.0731707	14.9390863
mothers' self-accentuation and indulging	22.9804878	23.7258883
mothers' doing things for the child and idealizing the child	26.3365854	25.9847716
Number of cases	205	197
Percent (%)	50.9950249	49.0049751

Table 46
ANOVA results for clusters in cluster analysis for grandmothers' and mothers' parental mistakes

	Between SS	**df**	**Within SS**	**df**	**F**	**p-value**	**η2**	**inter-pretation η2**
grandmothers' strictness and aggression	5833.17	1	12868.86	400	181.3113	<0.005	0.312	large
grandmothers' constraint and indifference	18774.52	1	13815.92	400	543.5621	<0.005	0.576	large
grandmothers' self-accentuation and indulging	3880.75	1	9269.97	400	167.4545	<0.005	0.295	large
grandmothers' doing things for the child and idealizing the child	533.38	1	21973.11	400	9.7096	<0.005	0.024	small
grandmothers' lack of consistency	2951.54	1	5949.43	400	198.4421	<0.005	0.332	large

	Between SS	df	Within SS	df	F	p-value	η2	inter-pretation η2
mothers' strictness and aggression	3.90	1	19124.41	400	0.0817	0.775	0.0002	very small
mothers' constraint and indifference	1.81	1	9293.17	400	0.0777	0.780	0.0002	very small
mothers' self-accentuation and indulging	55.82	1	24009.12	400	0.9299	0.335	0.002	very small
mothers' doing things for the child and idealizing the child	12.43	1	16394.73	400	0.3034	0.582	0.0008	very small

A similar analysis was made using the parental mistakes of grandmothers and mothers without grouping them into meta-traits. This time, the conclusions are the same. The algorithms found groups of women who differed in perceiving the mistakes of their mothers, but apart from the mistake of *indulging* they did not differ in the scope of their parental mistakes. The results are presented in Appendix H, in Figure B3 and in Tables A13 and A14.

To sum up, it is not possible to indicate differences in mothers' parental mistakes based on the parental mistakes of grandmothers. This result undermines the correctness of Hypothesis 12. No confirmation was found for the statement that the level of mothers' parental mistakes differs depending on the level of the parental mistakes of grandmothers.

Verifying Hypothesis H13: Checking the similarity of grandfathers and mothers according to parental mistakes committed

In order to verify Hypothesis H13, which stated that mothers whose fathers committed more parental mistakes themselves also commit more of them, the cluster analysis was reused.

Clusters of grandfathers' parental mistakes

In the first step, clusters were selected according to the parental mistakes of fathers (grandfathers) in the perception of their daughters (mothers). For the mistakes of *self-accentuation and indulging*, grandfathers were not reduced to meta-factors, because, as the analysis of reliability showed, the meta-factor had poor reliability (Table 22). Other mistakes were grouped into meta-factors, however. The cluster

analysis revealed the existence of three clusters of women whose fathers committed various mistakes from their point of view. The results of the analysis are presented in Figure 33.

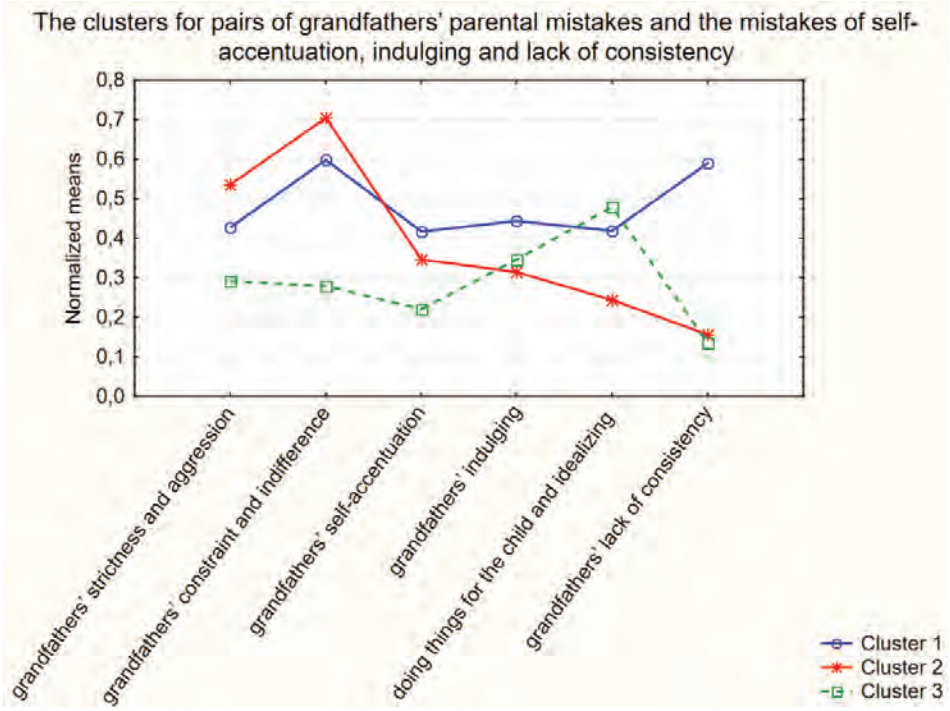


Figure 33. **The clusters for pairs of grandfathers' parental mistakes and the mistakes of *self-accentuation, indulging and lack of consistency.***

The first cluster the algorithms returned included 118 women, which constitutes 29% of the sample (Table 47). The women belonging to this cluster were characterized by an average level — in comparison with the other clusters — of reporting *strictness and aggression*, *constraint and indifference, doing things for the child and idealizing the child* mistakes committed by their fathers, as well as the highest level of *self-accentuation, indulging and lack of consistency*. The results were elevated in the mistakes of *constraint and indifference and lack of consistency* (normalized mean = 0.6), while they were average in other mistakes.

Table 47
Means, numbers of cases and percentages of cases belonging to clusters of grandfathers' parental mistakes and self-accentuation, indulging and lack of consistency

	Cluster 1	**Cluster 2**	**Cluster3**
grandfathers' strictness and aggression	20.779661	24.8148148	15.8322148
grandfathers' constraint and indifference	25.3135593	28.9555556	14.5100671
grandfathers' self-accentuation	10.1016949	8.88888889	6.77181208
grandfathers' indulging	10.9745763	8.68148148	9.2147651
doing things for the child and idealizing the child	19	13.5407407	20.8657718
grandfathers' lack of consistency	13.6271186	5.82962963	5.43624161
Number of cases	118	135	149
Percent (%)	29.3532338	33.5820896	37.0646766

In the second cluster, the algorithms included 135 women, i.e., 34% of the study sample. The women belonging to this cluster assessed their fathers' mistakes of *strictness and aggression* as well as *constraint and indifference* on the highest level, among the most of all groups. In terms of *strictness and aggression,* the results were moderate (the normalized mean was in the range of 0.4 to 0.6). In terms of *constraint and indifference*, the results were high (normalized mean = 0.7). In all other mistakes, the women's responses regarding their perceptions of their fathers' mistakes were low (the normalized mean was in the range of 0 to 0.4).

In the third cluster algorithms included 149 women, which constitutes 37% of the study sample. The results in this group of women in terms of perceiving the parental mistakes of their fathers were low for the particular mistakes of *strictness and aggression*, *constraint and indifference*, *self-accentuation and indulging* and *lack of consistency* (the normalized mean was in the range from 0 to 0.4). For the mistakes of *doing things for the child and idealizing the child*, the results were moderate (the normalized mean was in the range of 0.4 to 0.6); they were also the highest among all groups.

Between all clusters, for all mistakes, the results were statistically significant. The size of the effects was average for the mistakes of *indulging* and large for all other mistakes (Table 48).

Table 48
ANOVA results for clusters of pairs of grandfathers' parental mistakes and self-accentuation, indulging and lack of consistency

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
grandfathers' strictness and aggression	5753.13	2	15749.45	399	72.8756	< 0.005	0.268	large
grandfathers' constraint and indifference	16071.71	2	12550.37	399	255.47	< 0.005	0.562	large
grandfathers' self-accentuation	767.51	2	3928.35	399	38.9776	< 0.005	0.163	large
grandfathers' indulging	358.05	2	3971.35	399	17.9865	< 0.005	0.08	medium
doing things for the child and idealizing the child	4018.08	2	17208.84	399	46.5811	< 0.005	0.189	large
grandfathers' lack of consistency	5351.38	2	3021.32	399	353.35	< 0.005	0.639	large

A similar analysis was made for parental mistakes not grouped into meta-traits but analyzed separately. The cluster analysis concerning the women's perception of their fathers' parental mistakes revealed the existence of three clusters. The results of the analysis are presented in Appendix H in Figure B4, in Table A15 and A16.

In the first cluster the algorithms included 152 women, which constitutes 38% of the tested sample. The women belonging to this cluster assessed their fathers' mistakes in terms of *aggression and constraint*, *indifference and self-accentuation* and *lack of consistency* to be at the lowest level of all groups. These mistakes indeed took on low values (the normalized mean was in the range from 0 to 0.4). The women in this group, at the best level from all clusters, assessed the mistakes of *doing things for the child and idealizing the child* (the results were in the range of moderate results, from 0.4 to 0.6). These mothers assessed the *strictness* of their fathers to be average and their fathers' *indulging* to be low. In the case of the last two mistakes, the results were average compared to other clusters. This cluster is similar to the third cluster revealed in the previous analysis (see Figure 33).

In the second cluster the algorithm included 119 women, which constitutes 30% of the study sample. The women belonging to this cluster assessed the *mistake of indulging* to their fathers more than all other groups: the result was moderate (normalized mean = 0.43), while they assessed their fathers' *indifference mistake* at a high level (normalized mean = 0.8). In the other mistakes, these women assessed their father's mistakes to be at a low level. In the previous analysis, in which mistakes were analyzed as meta-factors, there was no similar profile.

The third cluster consisted of 131 women according to the algorithms, comprising 32% of the study sample. It included women who rated their fathers' *indifference* at a high level (normalized mean = 0.8), *aggression and constraint* at an elevated level

(normalized mean> 0.6), *self-accentuation and idealizing the child* at a moderate level and *indulging*, *doing things for the child* and *lack of consistency* at a low level.

There were statistically significant differences between the clusters in all mistakes. The sizes of the effects were average for the mistakes of *self-accentuation* and *indulging*, while for the remaining mistakes the effect sizes were large.

At this point, it is worth noting the significant differences in the assessment of mothers' and fathers' parental mistakes by women. First of all, this difference concerns the mistake of *indifference*. The analyses of individual mistakes presented in Figures B3 and B4 revealed that women assessed the mistake of *indifference* of their mothers to be at a very low level, while more than 60% of the women assessed the *indifference* of their fathers to be at a high level. Even the group of women with the lowest estimate of their fathers' *indifference* mistake (normalized mean = 0.3) has a higher normalized mean than the group of women who judged their mothers' *indifference* (normalized mean = 0.23).

In light of these results, mothers appear to be the people who commit parental mistakes, but certainly not indifference; fathers seem to be the ones who can be indifferent.

Clusters of parental mistakes of grandfathers and mothers

Finally, to assess the accuracy of Hypothesis 13, cluster analysis was carried out for the parental mistakes of grandfathers and mothers. Cluster analysis revealed the existence of two clusters. The results are presented in Figure 34. There were statistically significant differences between the two clusters in the scope of all parental mistakes (except for grandfathers' *indulging*) (Table 50) and the magnitude of the effects for grandfathers' cold mistakes and *lack of consistency* were large, while for the mistakes of *self-accentuation* and *doing things for the child* and *idealizing* they were average. For mothers' mistakes, the differences between clusters were average for *strictness and aggression*, and low for other mistakes.

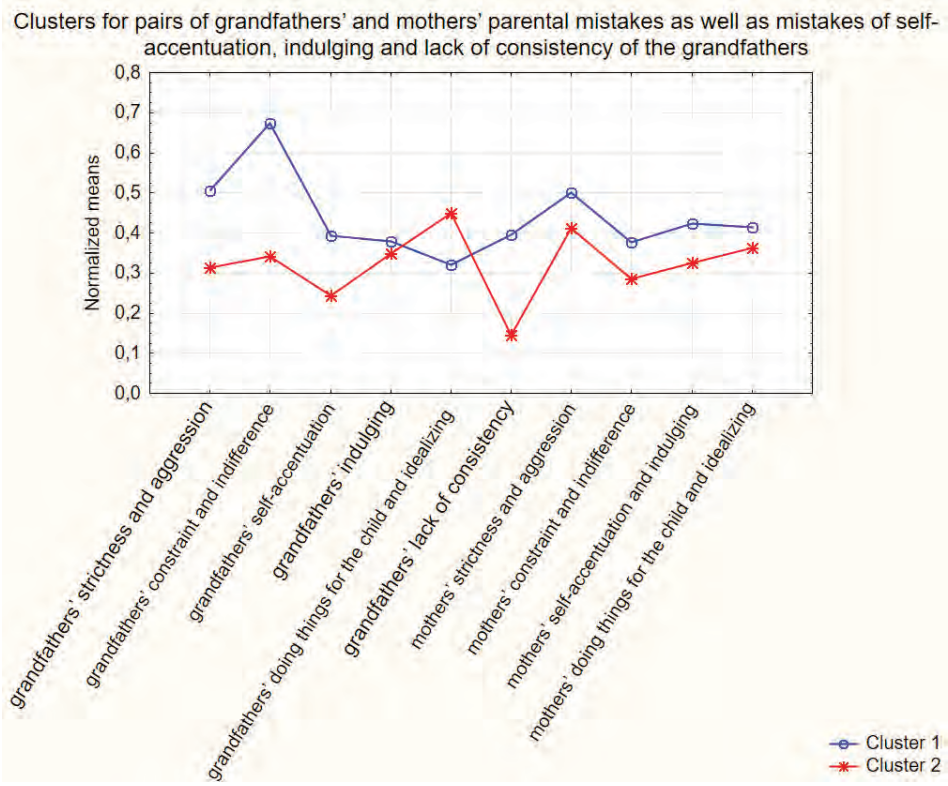


Figure 34. **Clusters for pairs of grandfathers' and mothers' parental mistakes as well as mistakes of *self-accentuation*, *indulging* and *lack of consistency* of the grandfathers**

The algorithms assigned 210 women to the first cluster, constituting 52% of the whole study sample (Table 49). The fathers of women belonging to this cluster made the most mistakes (except the mistake of *doing things for the child and idealizing the child*). The women assessed their fathers' mistakes of *constraint and indifference* to be quite high (normalized mean = 0.68), while *strictness and aggression* (normalized mean = 0.5) and *self-accentuation and lack of consistency* were at a moderate level (normalized mean 0.4). In this group, the fathers' scores were low only in the mistakes of *indulging, doing things for the child and idealizing the child*. The parental mistakes of women were also the highest from both groups in terms of all mistakes. In the variables, these were average results (the normalized mean ranged from 0.4 to 0.6).

The algorithms assigned 192 women to the second cluster, which constituted 48% of the study sample. The women belonging to this cluster experienced from their fathers the most parental mistakes of *doing things for the child and idealizing*

the child from all of the groups. These were average results in the variables of mistakes (normalized mean = 0.45). Regarding the mistakes of *strictness and aggression*, *constraint and indifference* as well as *self-accentuation*, these women experienced fewer mistakes than the women from the first cluster. The results for these variables were also low (the normalized mean was in the range of 0 to 0.4). There were no differences between the two clusters in terms of the mistake of *indulging*.

The results of women in all pairs of parental mistakes were lower than those in the first group. Also, the results in variables of mistakes were low (the normalized mean was in the range of 0 to 0.4).

These results confirm the validity of Hypothesis H13. The women who experienced more parental mistakes from their fathers also committed more mistakes, and when women experienced fewer parental mistakes on the part of their fathers, they committed fewer mistakes themselves.

A similar analysis was made for the mistakes of grandfathers and mothers, but without grouping them into the meta-factors, simply analyzing each mistake separately. The results are presented in Appendix H, in Figure B5 and in Tables A17 and A18. The results of this analysis are completely confirmed by the conclusions already presented. They confirmed that when a woman experienced fewer parental mistakes from her father, she also committed fewer mistakes as a mother. However, when she experienced more of them in childhood, she also committed more of them as a mother. These results were important for all mistakes from the women, except for the mistakes of *strictness*, *constraining the child's activity* and *idealizing the child* (Table A18).

Table 49

Means of clusters, numbers and percentages of cases in the cluster analysis for pairs of parental mistakes of grandfathers and mothers, as well as grandfathers' mistakes of self-accentuation, indulging *and* lack of consistency, by cluster

	Cluster 1	**Cluster 2**
grandfathers' strictness and aggression	23.7142857	16.5677083
grandfathers' constraint and indifference	27.9333333	16.625
grandfathers' self-accentuation	9.68571429	7.11979167
grandfathers' indulging	9.80952381	9.27083333
grandfathers' doing things for the child and idealizing the child	15.9571429	19.9375
grandfathers' lack of consistency	10.1095238	5.63541667
mothers' strictness and aggression	27.047619	23.4427083
mothers' constraint and indifference	16.0428571	13.875
mothers' self-accentuation and indulging	25.1380952	21.3854167
mothers' doing things for the child and idealizing the child	27.1238095	25.1145833
Number of cases	210	192
Percent (%)	52.238806	47.761194

Table 50
ANOVA results for clusters of cumulative pairs of grandfathers' and mothers' parental mistakes as well as mistakes of self-accentuation, indulging *and* lack of consistency *of grandfathers. ANOVA results for clusters of cumulative pairs of grandmothers' and grandfathers' mistakes and strictness. aggression and lack of consistency*

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
grandfathers' strictness and aggression	5122.60	1	16379.98	400	125.094	< 0.005	0.238	large
grandfathers' constraint and indifference	12826.01	1	15796.07	400	324.790	< 0.005	0.448	large
grandfathers' self-accentuation	660.36	1	4035.50	400	65.4552	< 0.005	0.141	medium
grandfathers' indulging	29.11	1	4300.30	400	2.7073	< 0.005	0.007	very small
grandfathers' doing things for the child and idealizing the child	1589.05	1	19637.86	400	32.3671	< 0.005	0.075	medium
grandfathers' lack of consistency	2007.74	1	6364.96	400	126.174	< 0.005	0.240	large
mothers' strictness and aggression	1303.42	1	17824.89	400	29.2494	< 0.005	0.07	medium
mothers' constraint and indifference	471.36	1	8823.61	400	21.3683	< 0.005	0.05	small
mothers' self-accentuation and indulging	1412.46	1	22652.47	400	24.941	< 0.005	0.058	small
mothers' doing things for the child and idealizing the child	404.90	1	16002.26	400	10.121	< 0.005	0.025	small

Verifying Hypothesis H14: Checking the similarity of the cumulative mistakes of grandmothers and grandfathers to mothers' parental mistakes

In order to check the validity of Hypothesis H14, which stated that women who experienced more parental mistakes from their parents also commit more of them, the number of clusters for the cumulative mistakes of grandmothers and grandfathers was tested.

Clusters of the cumulative parental mistakes of grandfathers and grandmothers

Cluster analysis revealed the existence of three clusters (Figure 35). The mistakes of *strictness* and *aggression* were treated separately and not as a meta-factor, because as a meta-factor they did not have adequate reliability (see Table 22). In the first

cluster, the algorithms included 143 people, which comprises 35.5% of the sample (Table 51). This group included women who experienced the fewest parental mistakes. At a low level, they experienced the mistakes of *aggression, constraint and indifference, doing things for the child and indulging and lack of consistency* (the normalized mean was in the range of 0 to 0.4). At a moderate level, they experienced the mistakes of *strictness*, *doing things for the child and idealizing the child* (the normalized mean was in the range of 0.4 to 0.6).

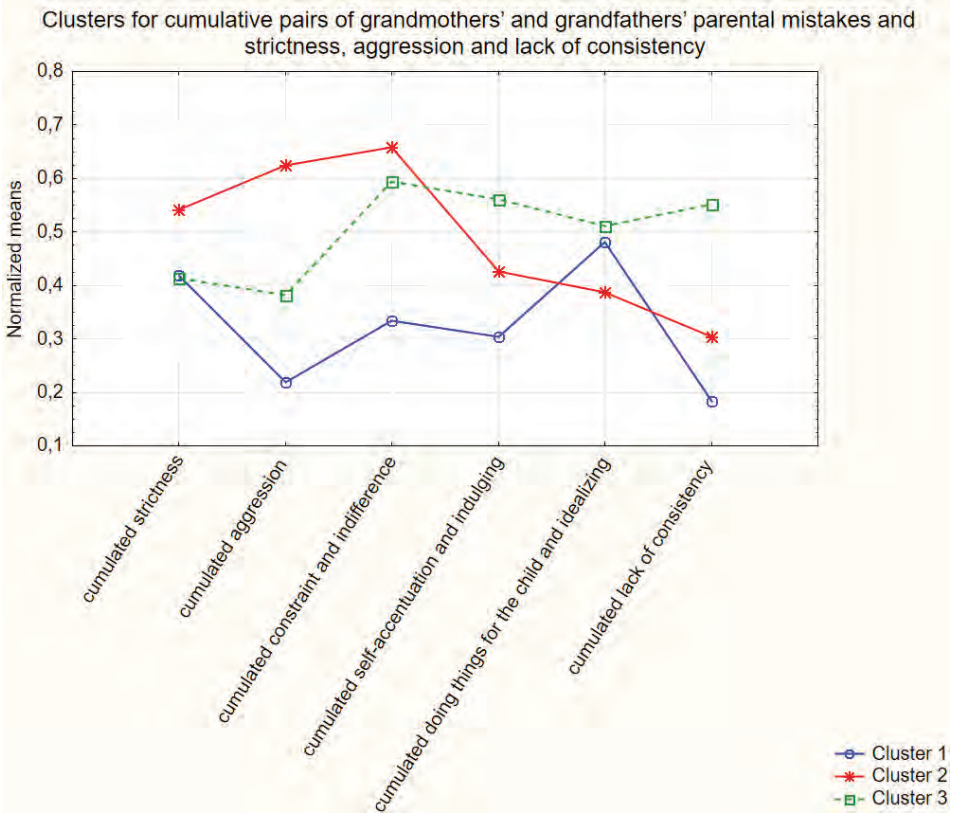


Figure 35*. Clusters for cumulative pairs of grandmothers' and grandfathers' parental mistakes and *strictness*, *aggression* and *lack of consistency

The algorithms assigned 134 women to the second cluster, which is 35.5% of the whole study sample. This cluster included women who had experienced the most cold parental mistakes from their parents. At an elevated level, they experienced

aggression, constraint and indifference (normalized mean >0.6). At a moderate level, they experienced *strictness, self-accentuation and indulging* (the normalized mean was between 0.4 and 0.6). At a low level, they experienced *doing things for the child, idealizing the child and lack of consistency* (normalized mean <0.4).

The algorithms assigned 116 women to the third cluster, which constitutes 29% of the study sample. The women belonging to this cluster experienced warm mistakes — *self-accentuation and indulging, doing things for the child and idealizing the child* and the mistake of *lack of consistency* — more than any other group (the results in these variables were moderate and the normalized mean was in the range of 0.4 to 0.6). At an elevated level, the women experienced the mistakes of *constraint* and *indifference* (normalized mean = 0.6), but this was a lower result than the parents of women belonging to the second cluster. These women experienced the mistakes of *aggression and strictness* at low and moderate levels, respectively. The differences between clusters were statistically significant and the magnitude of effects for *aggression, constraint and indifference, self-accentuation and indulging, and lack of consistency* were large. For *strictness*, *doing things for the child* and *idealizing the child*, they were average (Table 52).

Table 51

Means of clusters, numbers and percentages of cases belonging to clusters of cumulative pairs grandmothers' and grandfathers' mistakes, as well as strictness*, aggression and inconsistency*

	Cluster 1	**Cluster 2**	**Cluster3**
cumulated strictness	22.8601399	26.8741259	22.6551724
cumulated aggression	10.7622378	23.3496503	15.8189655
cumulated constraint and indifference	30.6993007	50.7832168	46.8189655
cumulated self-accentuation and indulging	30.993007	37.8741259	45.4396552
cumulated doing things for the child and idealizing the child	40.8111888	35.2517483	42.6465517
cumulated lack of consistency	12.041958	16.048951	24.2155172
Number of cases	143	143	116
Percent (%)	35.5721393	35.5721393	28.8557214

Table 52
ANOVA results for clusters of cumulative pairs of grandmothers' and grandfathers' mistakes and strictness. aggression and lack of consistency

	Between SS	df	Within SS	df	F	p-value	η2	Inter-pretation η2
cumulated strictness	1555.801	2	12607.144	399	24.619	< 0.005	0.110	medium
cumulated aggression	11454.947	2	8813.631	399	259.287	< 0.005	0.565	large
cumulated constraint and indif-ference	31888.942	2	41723.547	399	152.476	< 0.005	0.433	large
cumulated self-accentuation and indulging	13382.379	2	23483.304	399	113.688	< 0.005	0.363	large
cumulated doing things for the child and idealizing the child	3967.627	2	53355.347	399	14.835	< 0.005	0.07	medium
cumulated lack of consistency	9683.823	2	11460.017	399	168.579	< 0.005	0.458	large

The same analysis was performed without grouping the mistakes into meta-factors, but analyzing them for each mistake separately. The results are presented in Appendix H, in Figure B6 and in Tables A19 and A20. The analysis revealed that considering each mistake separately, two clusters can be distinguished concerning the intensity of the experience of parental mistakes by women in childhood.

The algorithms assigned 213 women to the first cluster; compared to the women in the second cluster, these women had experienced more of the mistakes of *strictness, aggression, constraint, indifference, self-accentuation, indulging and lack of consistency*, and less of *doing things for the child* and *idealizing the child*. The results in terms of *indifference* were high (normalized average = 0.7), in *doing things for the child* they were low (normalized mean = 0.3) and in the remaining mistakes they were moderate (the normalized mean was in the range of 0.4 to 0.6).

The algorithms assigned 189 women to the second cluster who experienced more of the mistakes of *doing things for the child* and *idealizing the child* than the women in the first cluster. They experienced fewer of the remaining mistakes. The results were low concerning the mistakes of *aggression, constraint, indifference, self-accentuation and indulging, doing things for the child and lack of consistency* (normalized mean <0.4), and moderate for *strictness and idealizing the child* (the normalized mean was between 0 and 0.4).

The differences between clusters were statistically significant and the magnitude of effects for the mistakes of *aggression, constraint, indifference* and *self-accentuation* were large; they were average for the mistakes of *lack of consistency*, and for *strictness, indulging, doing things for the child and idealizing the child* they were low (Table A20).

Clusters of the cumulative parental mistakes of grandfathers and grandmothers and mothers' mistakes

To verify the correctness of Hypothesis H14, clustering analysis was performed for women's experience of the cumulative mistakes of their parents and the mistakes of women committed by them against their children. The results of the analysis are presented in Figure 36.

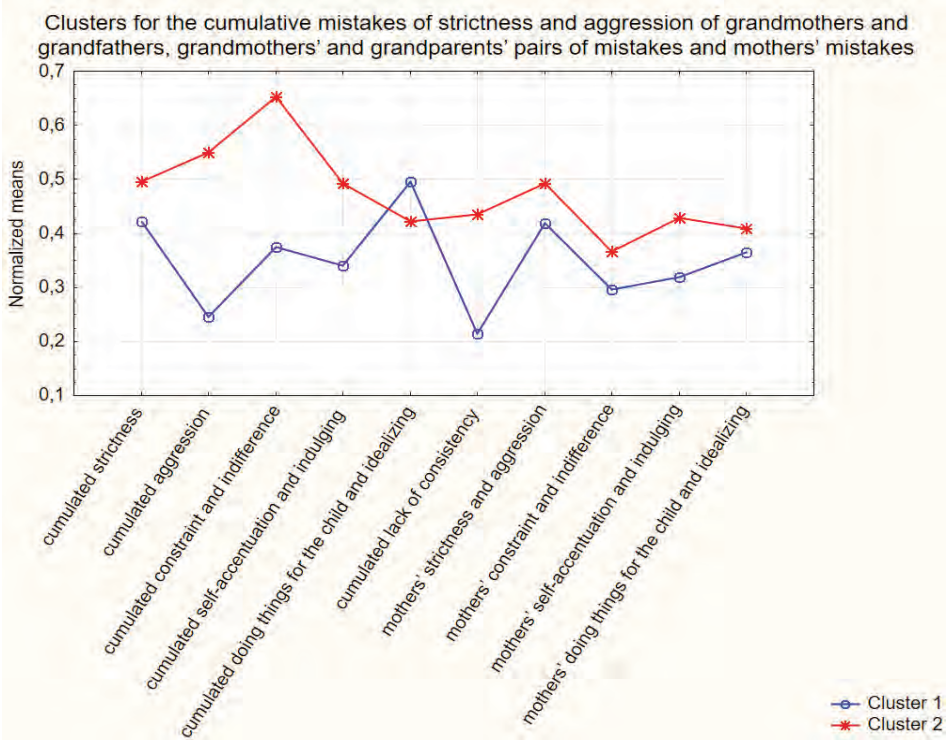


Figure 36. **Clusters for the cumulative mistakes of *strictness* and *aggression* of grandmothers and grandfathers, grandmothers' and grandfathers' pairs of mistakes and mothers' mistakes**

The analysis revealed the existence of two clusters. The algorithms assigned 186 women to the first cluster (46% of the sample tested) (Table 53). The women belonging to this cluster experienced (apart from the mistake of *doing things for the child* and *idealizing the child*) fewer parental mistakes in childhood than the women in the second cluster; they also committed fewer mistakes of their own. Only the mistakes of *strictness, doing things for the child and idealizing the child* were

experienced by these women in childhood at a moderate level. They also committed *strictness and aggression* mistakes at a moderate level. In the remaining pairs of parental mistakes, they had low results.

The algorithms assigned 216 women to the second cluster, which makes up 54% of the study sample. These women, apart from the mistake of *doing things for the child and idealizing the child*, experienced the most parental mistakes. The results in their experience of the mistakes of *constraint and indifference* were at an elevated level (normalized mean >0.6). The remaining mistakes were experienced at a moderate level. These women also committed more parental mistakes than the women in the first cluster. The results in *strictness and aggression, self-accentuation and indulging,* as well as *doing things for the child and idealizing the child* were moderate (normalized mean >0.4). Only in *constraint and indifference* did this group of women have low results (normalized mean <0.4).

The differences between clusters were statistically significant and the magnitude of the effects for the parental mistakes of *aggression, constraint and indifference, self-accentuation and indulging* were small. For women's parental mistakes, the magnitude of effects for the mistakes of *self-accentuation and indulging* were average, while they were small for the remaining mistakes (Table 54).

These results confirmed the validity of Hypothesis H14. Indeed, when a woman experienced more parental mistakes as a child, she also committed more of them when she became a mother. This may mean that there is some susceptibility of passing down parental mistakes (mistake transfer). They are not necessarily the same mistakes, but the general rule is that the more women experienced parental mistakes in the family of origin, the more they themselves make parental mistakes when becoming mothers. Likewise, the fewer parental mistakes they experienced as children, the fewer they committed as mothers.

The analysis was repeated. This time, each mistake was treated separately and not grouped into meta-factors. The results are shown in Appendix H, in Figure B7 and in Tables A21 and A22. They confirmed the conclusion of the analysis described. The more women had experienced parental mistakes as children, the more parental mistakes they committed themselves. The results were not significant in the case of the mistakes of *strictness* and *doing things for the child*. The magnitude of the effects turned out to be large for the mothers' parental mistakes of *aggression, constraint, indifference, self-accentuation* and *lack of consistency* they were small for the mistakes of *strictness, indulging, doing things for the child* and *idealizing the child*.

Table 53
Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulated strictness *and* aggression *mistakes of grandmothers and grandfathers, pairs of mistakes of grandmothers and grandfathers and mothers' mistakes*

	Cluster 1	**Cluster 2**
cumulated strictness	22.9193548	25.3564815
cumulated aggression	11.6344086	21.0601852
cumulated constraint and indifference	33.2688172	50.4398148
cumulated self-accentuation and indulging	33.0483871	41.537037
cumulated doing things for the child and idealizing the child	41.7258065	37.3287037
cumulated lack of consistency	13.0591398	20.3564815
mothers' strictness and aggression	23.7365591	26.6944444
mothers' constraint and indifference	14.0967742	15.7916667
mothers' self-accentuation and indulging	21.1182796	25.2638889
mothers' doing things for the child and idealizing the child	25.2365591	26.962963
Number of cases	186	216
Percent (%)	46.2686567	53.7313433

Table 54
ANOVA results of accumulated strictness *and* aggression *of grandmothers and grandfathers, pairs of mistakes of grandmothers and grandfathers and mothers' mistakes*

	Between SS	**df**	**Within SS**	**df**	**F**	**p-value**	**η2**	**inter-pretation η2**
cumulated strictness	593.60	1	13569.34	400	17.4984	0.000035	0.042	small
cumulated aggression	8879.22	1	11389.36	400	311.8428	0.000000	0.438	large
cumulated constraint and indif-ference	29466.71	1	44145.78	400	266.9946	0.000000	0.400	large
cumulated self-accentuation and indulging	7201.42	1	29664.27	400	97.1056	0.000000	0.195	large
cumulated doing things for the child and idealizing the child	1932.30	1	55390.68	400	13.9540	0.000215	0.034	small
cumulated lack of consistency	5321.94	1	15821.90	400	134.5462	0.000000	0.252	large
mothers' strictness and aggres-sion	874.39	1	18253.92	400	19.1605	0.000015	0.046	small
mothers' constraint and indif-ference	287.09	1	9007.88	400	12.7486	0.000400	0.031	small
mothers' self-accentuation and indulging	1717.58	1	22347.36	400	30.7434	0.000000	0.071	medium
mothers' doing things for the child and idealizing the child	297.87	1	16109.30	400	7.3962	0.006821	0.018	small

The relationship between women's experience of parental mistakes in childhood and their stress response and the level of parental mistakes they make

In order to verify Hypothesis H15, which states that women who experienced more parental mistakes as children will tend to react more strongly to stress and as a result will commit more parental mistakes, the following analyses have been carried out:

1) The structural model revealing the relationship between stress response and committing parental mistakes was tested using structural equation models, once for the group of women whose parents committed more parental mistakes and separately for the group of women whose parents committed fewer parental mistakes.
2) Cluster analysis for variables described in the model was performed again in both groups.

The results of cluster analysis were used for the cumulative parental mistakes of parents treated separately. Therefore, the results presented in Annex H, Figure B6, Tables A19 and A20 were used in the analysis. The use of this cluster analysis, shown in Figure 35, carried out on pairs of parental mistakes, resulted from the fact that the analysis performed on separate mistakes revealed the existence of two profiles. In other words, it divided the set into two groups of women based on the different levels of parental mistakes they experienced in childhood. The analysis results for pairs of mistakes showed the existence of three profiles, so the subgroups were too small to be structured on them. Two arguments supported the adoption of this procedure:

1) The analysis of reliability for separate parental mistakes revealed that apart from the mistake of *self-accentuation* and *indulging*, all other mistakes were sufficiently reliable (Table 22).
2) The analysis made on parental mistakes grouped into meta-factors, when the number of clusters was limited to two, produced a very similar result to the analysis obtained for mistakes treated separately.

Verifying Hypothesis H15: The results of calculations of estimators in the one-level structural equations model

The first model was tested for a group of 213 women who experienced more parental mistakes from their parents (Figure B6, focus 1). The graphical representation of this model is presented in Figure 37. Moreover, in Annex I, Figure C2 presents a graph of the structural model with pure relationships between variables after eliminating the influence of other variables. The second model was tested for a group of 189 women who experienced fewer parental mistakes committed by their parents. This model is presented in Figure 38. In Annex I, Figure C3 presents a graph of the structural model with pure relationships between variables after eliminating the influence of other variables.

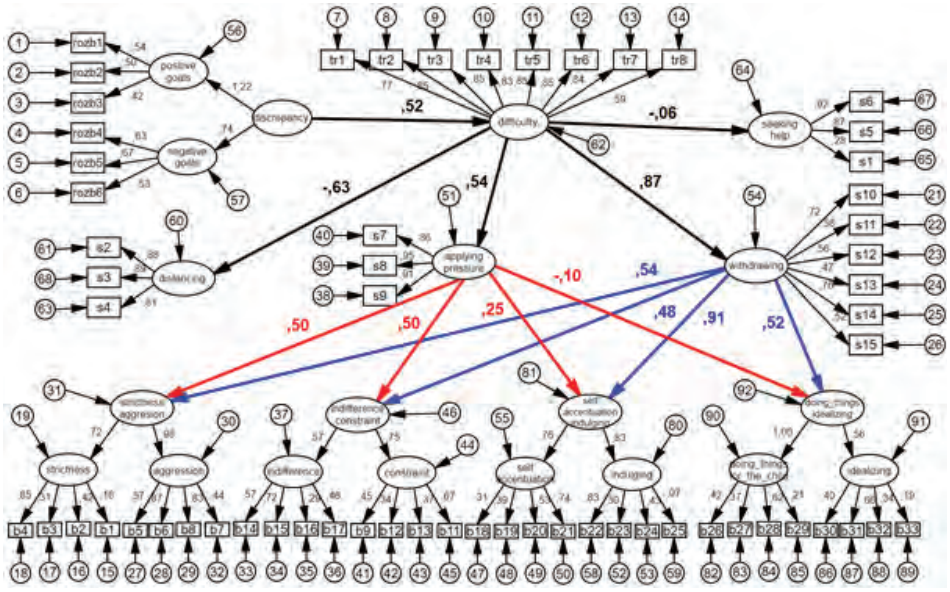


Figure 37. **The graph for the theoretical model tested using the system of structural equations in the group of mothers whose parents committed more parental mistakes. Standardized results. The relationships between latent variables have been bolded.**

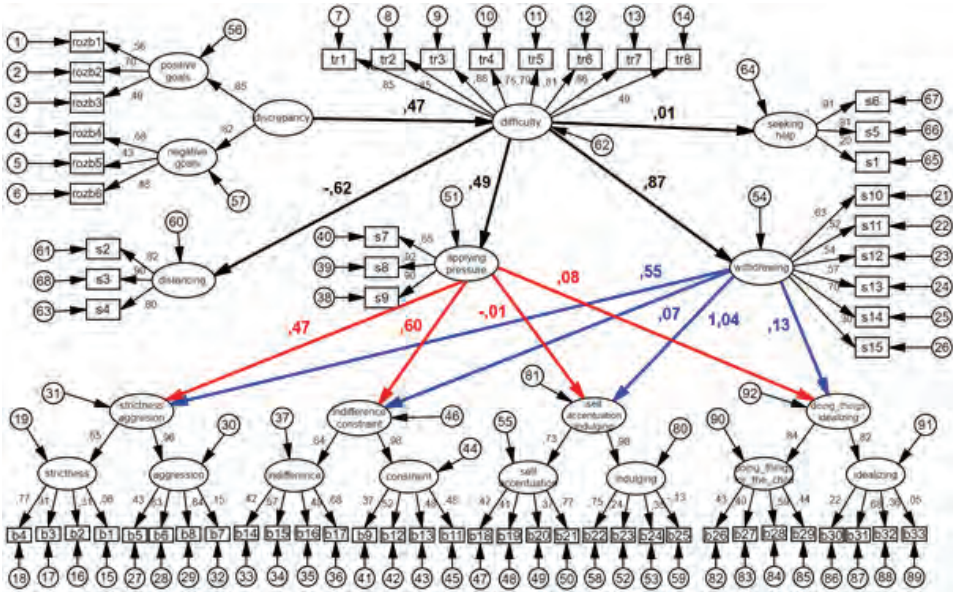


Figure 38. **The diagram for the theoretical model tested using a structural equation model in the group of mothers whose parents committed fewer parental mistakes. Standardized results. The relationships between latent variables have been bolded.**

For the model tested on the group of mothers who experienced more parental mistakes, a very similar solution was obtained as on the entire sample, with the difference that the relationships in the model were even stronger (Figure 37, Annex I, Figure C2). In turn, for the model tested on the sample of women who experienced fewer mistakes, the model falls apart. Most of the relationships between applying pressure and parental withdrawal with parental mistakes is not statistically significant. The stress reaction, namely the use of *pressure* and *withdrawal*, are not associated with the mistakes of *aggression and strictness* or of *doing things for the child and idealizing the child* in this model (Annex I, Figure C3). The variables representing these mistakes fall out of the model. Both models are well-fitted to the data. The models after adjustment are presented in Tables 55 and 56.

Table 55
Structural model's matching statistics in the group of mothers whose parents committed more parental mistakes

	Fit Indices	Values	Recommended value to reject H0	p-value
	χ^2	3397.916	not significant	$p < 0.001$
	df	1748		
	N	213		
	χ^2/df	1.944		
	$\chi^2_{independent}$	7950.974		$p < 0.001$
	$df_{independent}$	1830		
Measures of absolute match	Hoelther	116		$p = 0.05$
Measures of type I relative matching	NFI	0.573		
	RFI	0.553		
Measures of type II relative matching	IFI	0.734	>0.900	
Measures of type III relative matching	CFI	0.730	> 0.900	
Measures taking into account the complexity of the model	PNFI	0.547		
	PCFI	0.698		
	PRATIO	0.955		
Measures of error approximation	RMSEA	0.067	< 0.06 RMSEA < 0.08	$p < 0.1$ only for this statistic

Table 56
Structural model's matching statistics in the group of mothers whose parents committed fewer parental mistakes

	Fit Indices	Values	Recommended value to reject H0	p-value
	χ^2	2968.251	not significant	$p < 0.001$
	df	1748		
	N	189		
	χ^2/df	1.698		
	$\chi^2_{independent}$	6441.336		$p < 0.001$
	$df_{independent}$	1830		
Measures of absolute match	Hoelther	117		$p = 0.05$
Measures of type I relative matching	NFI	0.539		
	RFI	0.518		
Measures of type II relative matching	IFI	0.740	>0.900	
Measures of type III relative matching	CFI	0.735	>0.900	
Measures taking into account the complexity of the model	PNFI	0.515		
	PCFI	0.702		
	PRATIO	0.955		
Measures of error approximation	RMSEA	0.061	< 0.06 RMSEA < 0.08	$p < 0.1$ only for this statistic

We will compare how the relationships in both models change in relation to the model calculated on the entire sample.

In the group of women who experienced more parental mistakes, the relationship between the *discrepancy* and the *parental difficulty experienced* increased from the level of $\gamma = 0.49$ to the level of $\gamma = 0.52$ ($p < 0.005$) and does not explain 24.01% of the variability of the results of the *parental difficulties experienced*, but 27.04%. In the model for women who experienced fewer parental mistakes, the relationship fell to the level of $\gamma = 0.47$ ($p < 0.005$) and explains 22.1% of the variability of *parental difficulties experienced*.

In the group of women who experienced more parental mistakes in childhood, the relationship of the *parental difficulties experienced* with the adoption of *cognitive distance* did not change and remained at the same level of $\beta = -0.63$ ($p < 0.005$). In the sample of women who experienced fewer parental mistakes, this relationship slightly decreased to the level of $\beta = -0.62$ ($p < 0.005$) and explains not 40% of the cognitive distancing results, but 38%.

In the group of women who experienced more parental mistakes in childhood, the relationship between the *parental difficulties experienced* and the *search for help* fell from the level of $\beta = -0.02$ to the level of $\beta = -0.06$ and is still statistically insignificant. However, in the group of women who have experienced fewer parental mistakes, this relationship rose to the level of $\beta = 0.01$, which is also statistically insignificant.

In the group of women who experienced more parental mistakes, the relationship of *parental difficulties experienced* with the application of *pressure* remains at the similar level of $\beta = 0.54$ and explains 29.16% of the variability of the use of pressure. However, in the group of women who experienced fewer parental mistakes, the relationship decreases to the level of $\beta = 0.49$ and explains 24.01% of the variability of the use of pressure.

In the group of women who have experienced more parental mistakes, the relationship of *parental difficulties experienced* with *withdrawal* is on to the level of $\beta = 0.87$. In the group of women who experienced fewer parental mistakes, the relationship is also on the level of $\beta = 0.87$ and explains 76% of the withdrawal variability.

In the group of women who experienced more parental mistakes, the relationship between the *use of pressure* and committing the mistake of *strictness and aggression* slightly raised from the level of $\beta = 0.49$ to the level of $\beta = 0.50$, which explains not 24.01% but 25% of the variability of *strictness* and *aggression* pure relationship is $\beta = 0.89$ (Annex I, Figure C2). In the group of women who experienced fewer parental mistakes, the relationship was not significant.

In the group of women who have experienced more parental mistakes, the relationship of *applying pressure* with *constraint and indifference* decreased from the level

of β = 0.57 to the level of β = 0.50 and explains not 32.49% of the variation of *constraint and indifference*, but 25% pure relationship is β = 0.79 (Annex I, Figure C2). However, in the group of women who have experienced fewer parental mistakes, the relationship raised to the level of β = 0.60 and it explains 36% of the variation of *constraint and indifference* pure relationship is β = 0.65 (Annex I, Figure C3).

In the group of women who have experienced more parental mistakes, the relationship between applying pressure and the mother's *self-accentuation and indulging the child* increased from β = 0.14 to β = 0.25 and explains not 1.96% of the variability of *self-accentuation and indulging*, but 6.25% pure relationship is β = 0.84 (Annex I, Figure C2). However, in the group of women who have experienced fewer parental mistakes, the relationship was not significant pure relationship is β = 0.65 and it is significant p <0.05 (Annex I, Figure C3).

In the group of women who have experienced more parental mistakes, the relationship between *applying pressure* and *doing things for the child and idealizing the child* was not significant. However pure relationship turned out to be significant and is β = 0.27, p < 0.05 (Annex I, Figure C2). In the group of women who experienced fewer parental mistakes, such a relationship was also not significant.

In the group of women who have experienced more parental mistakes, the relationship between *withdrawal* from the upbringing situation and *strictness and aggression* decreases from the level of β = 0.55 to the level of β = 0.54 and explains not 30.25% but 29.16% of the variability of *strictness and aggression* pure relationship is β = 0.77 (Annex I, Figure C2). In the group of women who experienced fewer parental mistakes, such a relationship was not significant.

In the group of women who have experienced more parental mistakes, the relationship between *withdrawal* from the upbringing situation and *constraint and indifference* to the child's activity increased from β = 0.28 to β = 0.48 and explains not 7.84% of the variability of *constraint and indifference*, but 23.04% pure relationship is β = 0.78 (Annex I, Figure C2). In the group of women who experienced fewer parental mistakes, the relationship was not significant. However pure relationship turned out to be significant and is β = 0.41, p < 0.05 (Annex I, Figure C3).

In the group of women who have experienced more parental mistakes, the relationship between *withdrawal* from the upbringing situation and *self-accentuation and indulging the child* is on the level of β = 0.91 pure relationship is β = 1.04 (Annex I, Figure C2). Similar relationship of β = 1.04 remains in the group of women who have experienced fewer parental mistakes pure relationship is β = 1.03 (Annex I, Figure C3).

In the group of women who have experienced more parental mistakes, the relationship between *withdrawal* from the upbringing situation and *doing things for the child and idealizing the child* increased from the level of β = 0.35 to β = 0.52 and

explains not 12.25% but 27.04% of the variability of *doing things for the child and idealizing the child* pure relationship is β = 0.46 (Annex I, Figure C2). However, in the group of women who experienced fewer parental mistakes, such a relationship was not significant.

Thus, it can be seen that in the sample of women who experienced more parental mistakes, the relationships in the model are still strengthening, while in the sample of women who have experienced fewer mistakes, the relationships between variables decrease.

As shown by the structural models, in the group of women who experienced more parental mistakes committed by their parents when they were children, the mistakes they made were more strongly associated with the stress response than in the group of women who experienced fewer of these mistakes. The results confirmed the validity of Hypothesis H15.

Cluster analysis results

The cluster analysis for the group of women who experienced more parental mistakes is presented in Figure 39. The cluster analysis for the group of women who experienced fewer parental mistakes is presented in Figure 40.

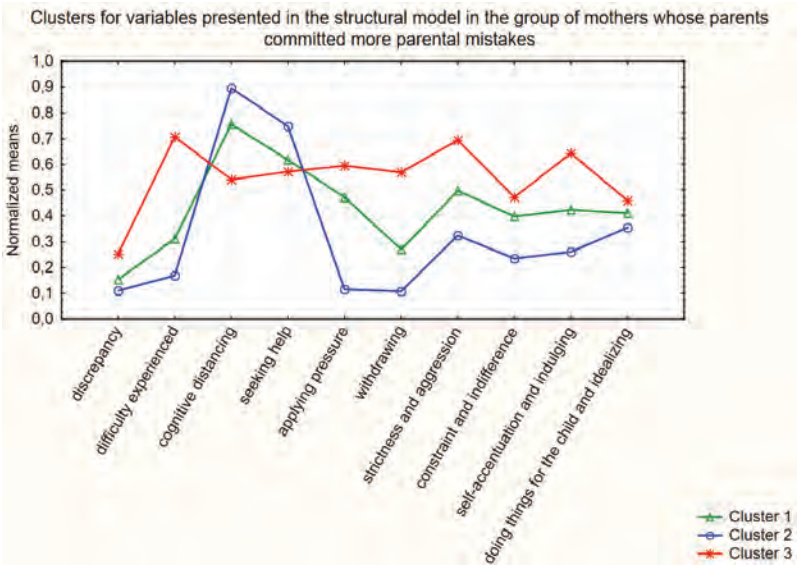


Figure 39. **Clusters for variables described in the structural model in the group of mothers whose parents committed more parental mistakes**

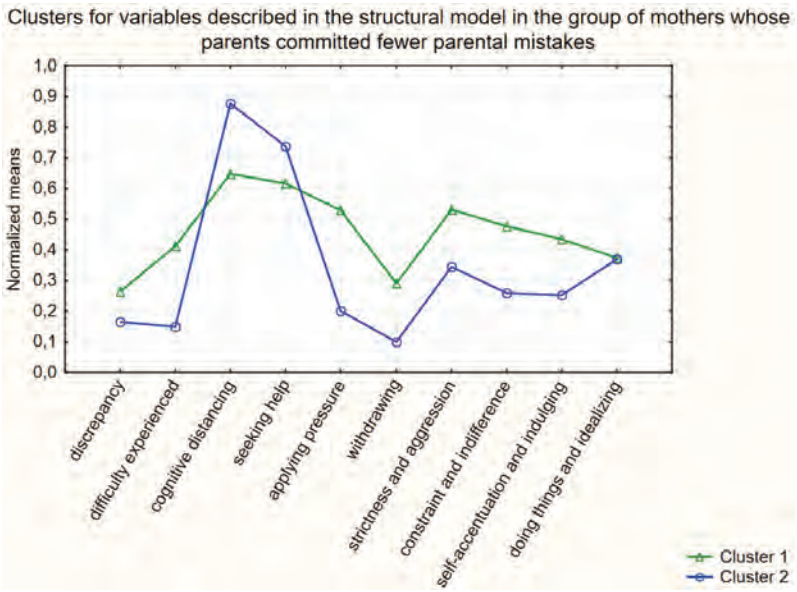


Figure 40. **Clusters for variables described in the structural model in the group of mothers whose parents committed fewer parental mistakes**

It can be seen that in both groups there are two, almost identical clusters. The second (blue) cluster is characterized by a low level of *discrepancy, parental difficulties experienced, the use of pressure* and *withdrawal* and a low level of parental mistakes. These groups were also characterized by a high level of adaptive stress reactions, i.e., *cognitive distancing* and *seeking help*. The algorithms assigned to this cluster a) 85 people in the group of women who experienced more parental mistakes (39.9% of the group) and b) 114 people in the group that experienced fewer parental mistakes (60.3% of the group) (Tables 57 and 58). This result shows that the probability that a woman will adopt an adaptive style of reaction in a stressful situation and that she will commit fewer parental mistakes is higher if her parents committed fewer mistakes.

Table 57
Means of clusters, numbers and percentages of cases in the group of mothers whose parents committed more parental mistakes, by cluster

	Cluster 1	Cluster 2	Cluster3
discrepancy	148.113924	107.011765	244.326531
difficulty experienced	28.6202532	19.0588235	54.6122449
cognitive distancing	23.1898734	27.1058824	17.122449
seeking help	19.6708861	23.2	18.4285714
applying pressure	14.1518987	3.41176471	17.8571429
withdrawing	11.9240506	4.71764706	25.0816327
aggression and strictness	26.9367089	19.9294118	34.7755102
constraint and indifference	16.5316456	12.6352941	18.3265306
self-accentuation and indulging	25.1392405	18.8705882	33.4285714
doing things for the child and idealizing the child	27.0632911	24.8	28.877551
Number of cases	79	85	49
Percent (%)	37.0892019	39.9061033	23.0046948

Table 58
Means of clusters, numbers and percentages of cases in the group of mothers whose parents committed less parental mistakes, by cluster

	Cluster 1	Cluster 2
discrepancy	202.573333	126.675439
difficulty experienced	37.5866667	18.7368421
cognitive distancing	21.5333333	27.0614035
seeking help	18.8933333	22.3947368
applying pressure	15.84	6.03508772
withdrawing	15.1333333	5.21929825
aggression and strictness	28.5866667	22.0263158
constraint and indifference	17.48	12.6666667
self-accentuation and indulging	26.0933333	19.2982456
doing things for the child and idealizing the child	25.8266667	25.6140351
Number of cases	75	114
Percent (%)	39.6825397	60.3174603

The first cluster (green) in both groups is also very similar. It includes women who experienced *discrepancy* and *difficulties* at a higher level and who *apply pressure* to the child (the result is moderate). Although they still use adaptive stress responses at an elevated or high level (*distancing* and *seeking help*) and have low results in *withdrawing* from the upbringing situation, they make more parental mistakes than the women in the second (blue) cluster. This does not only apply to the mistakes of *doing things for the child* and *idealizing the child*. Among the group of women who experienced more parental mistakes in childhood, the algorithms classified 37% of the sample to this cluster. Among the group of women

who experienced fewer parental mistakes, 39.7% of the study sample were included. These are similar numbers.

The third cluster (red) occurs only in the group of women who have experienced more parental mistakes in childhood. This cluster is characterized by the highest results in *discrepancy, parental difficulties experienced* (the level of parental difficulties was high, the normalized mean was 0.7), the *use of pressure, withdrawal* from the parental situation and committing parental mistakes. The level of committing the mistakes of *strictness and aggression* was high, while the level of *self-accentuation and indulging* was elevated. Other parental mistakes were committed at a moderate level. This group of women had barely moderate results in the adaptive reactions to stress (*distancing and seeking help*) and moderate levels for *applying pressure* and *withdrawing*. The algorithms assigned 23% of the group of women who experienced a higher level of parental mistakes in childhood to this cluster. This means that there is also a greater chance that if a woman experiences a higher level of parental mistakes as a girl, she will also make parental mistakes at a moderate or high level and will adopt a non-adaptive style of reaction in stressful situations.

The magnitude of the effects between clusters in the group of women who have experienced more parental mistakes are average in terms of *discrepancy, seeking help, doing things for the child and idealizing the child*, and large for all other variables (Table 59).

The magnitude of the effects between clusters in the group of women who experienced fewer parental mistakes are moderate in the areas of *discrepancy* and *seeking help*, statistically insignificant for *doing things for the child and idealizing the child* and large for all other variables (Table 60).

The results of the cluster analysis also confirm the accuracy of Hypothesis H15.

Table 59
ANOVA results for clusters of variables presented in the structural model in the group of mothers whose parents committed more parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	inter-pretation η2
discrepancy	590188	2	4439995	210	13.957	<0.005	0.117	medium
difficulty experienced	39877.119	2	20414.946	210	205.099	<0.005	0.661	large
cognitive distancing	3101.418	2	4275.464	210	76.1669	<0.005	0.420	large
seeking help	865.867	2	9507.043	210	9.563	<0.005	0.083	medium
applying pressure	7966.333	2	6306.765	210	132.629	<0.005	0.558	large
withdrawing	12892.356	2	10454.441	210	129.485	<0.005	0.552	large
aggression and strictness	6974.533	2	5452.790	210	134.302	<0.005	0.561	large
constraint and indifference	1170.516	2	3672.140	210	33.469	<0.005	0.242	large
self-accentuation and indulging	6631.781	2	7139.044	210	97.539	<0.005	0.482	large
doing things for the child and idealizing the child	546.422	2	7749.548	210	7.403	<0.005	0.066	medium

Table 60
ANOVA results for clusters of variables presented in the structural model in the group of mothers whose parents committed fewer parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	inter-pretation η2
discrepancy	260593.614	1	4010513.34	187	12.1508151	<0.005	0.061	medium
difficulty experienced	16073.8139	1	23784.2919	187	126.377662	<0.005	0.403	large
cognitive distancing	1382.45628	1	2849.23684	187	90.7328308	<0.005	0.327	large
seeking help	554.6112	1	8202.38351	187	12.6441655	<0.005	0.063	medium
applying pressure	4349.02331	1	5575.93965	187	145.85297	<0.005	0.438	large
withdrawing	4446.36605	1	11324.1842	187	73.4243135	<0.005	0.282	large
aggression and strict-ness	1946.96635	1	4581.10772	187	79.4748193	<0.005	0.298	large
constraint and indif-ference	1048.08423	1	3338.05333	187	58.7143859	<0.005	0.239	large
self-accentuation and indulging	2088.78839	1	7554.20632	187	51.7067463	<0.005	0.217	large
doing things for the child and idealizing the child	2.04531328	1	8031.76421	187	0.0476201211	0.827	0.0002	very small

The connection of parental mistakes experienced by women and their personality traits, parental goals for their children, loci of control, values system, needs, temperamental traits of their children and the level of parental mistakes they commit

Verifying Hypothesis H16: The connection of the cumulative mistakes of grandmothers and grandfathers, the satisfaction of mothers‘ needs and mothers’ parental mistakes

In order to verify Hypothesis 16, which states that women who experienced fewer parental mistakes have better fulfilled needs and make fewer mistakes themselves, a cluster analysis was performed for the perception of their parents' cumulative parental mistakes, the extent to which their needs are met and their own parental mistakes. The analyses were carried out in two stages. First, the results were estimated for combined pairs of parental mistakes (meta-factors), and then for the mistakes treated separately. The cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 41.

The algorithms assigned 192 people to the first cluster (Table 61). They were characterized by perceiving a lower level of parental mistakes than those in the second cluster. They experienced a low level of the following mistakes: *aggression, self-accentuation and submission and lack of consistency*. At a moderate level, they reported the mistakes of *strictness, constraint and indifference* as well as *doing things for the child* and *idealizing the child*. This group of women had their needs met at a moderate and high level. At a high level, they reported fulfillment in the needs of *belonging*, *self-esteem* and *self-actualization*, while the *need for security* and *physiological needs* were at a moderate level. This group of women committed the mistakes of *constraint and indifference, self-accentuation, indulging the child, doing things for the child and idealizing the child* at a low level, while at moderate level they reported the mistakes of *strictness and aggression.*

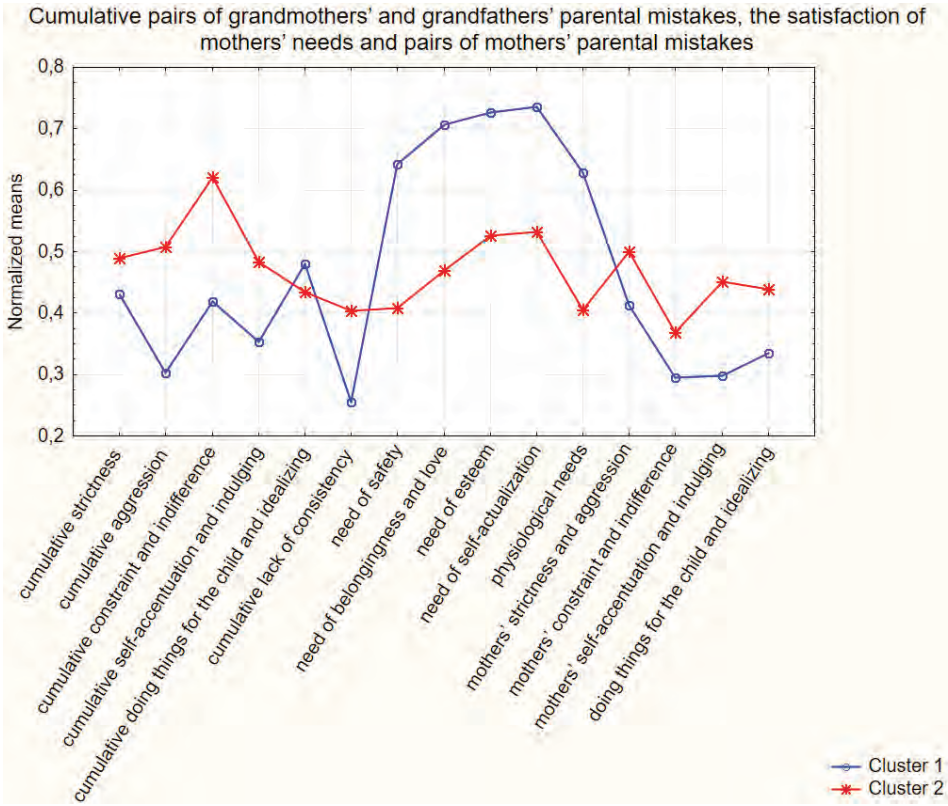


Figure 41. **Cumulative pairs of grandmothers' and grandfathers' parental mistakes, the satisfaction of mothers' needs and pairs of mothers' parental mistakes**

The algorithms assigned 210 women to the second cluster (Table 61). These women experienced a higher level of parental mistakes than the women in the first cluster. At a moderate level, they experienced the parental mistakes of *strictness and aggression* as well as *self-accentuation and indulging the child* and *a lack of consistency*. They experienced the mistake of *constraint and parental indifference* at an elevated level (> 0.6). The women belonging to this cluster had much lower needs. At a moderate level, they reported the fulfillment of the needs of *safety, belonging, self-esteem, self-actualization and physiological needs*. The women belonging to this group also committed more parental mistakes. At a moderate level, they committed the mistakes of *strictness and aggression, self-accentuation and indulging,* as well as *doing things for the child and idealizing the child*. Only the mistake of *constraint and indifference* were committed at a low level. It should be noted that only in terms

of the mistake of *doing things for the child and idealizing the child* did the women in the first cluster have higher results than the women in the second cluster.

Table 61
Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulative pairs of the parental mistakes of grandmothers and grandfathers, the level of satisfaction of mothers' needs and pairs of mothers' parental mistakes

	Cluster 1	**Cluster 2**
cumulative strictness	23.2447917	25.1285714
cumulative aggression	13.3645833	19.747619
cumulative constraint and indifference	35.9479167	48.4809524
cumulative self-accentuation and indulging	33.8125	41.0809524
cumulative doing things for the child and idealizing the child	40.8125	38.0380952
cumulative lack of consistency	14.40625	19.3333333
need of safety	38.53125	27.8047619
need of belonging and love	45.21875	34.0333333
need of self-esteem	43.8645833	32.0619048
need of self-actualization	45.4479167	34.3142857
physiological needs	37.0416667	27.4095238
mothers' strictness and aggression	23.4895833	27.0047619
mothers' constraint and indifference	14.0729167	15.8619048
mothers' self-accentuation and indulging	20.3125	26.1190476
mothers' doing things for the child and idealizing the child	24.0572917	28.0904762
Number of cases	192	210
Percent (%)	47.761194	52.238806

The magnitude of the effect between clusters for perceiving the parental mistakes of grandparents by mothers was high in terms of *aggression, constraint and indifference, self-accentuation and indulging*, while it was low for *doing things for the child and idealizing the child* (women belonging to the first cluster had a higher mean in this mistake) and *strictness* and average for the *lack of consistency* mistake (Table 62).

Table 62
ANOVA results for clusters in the analysis of cumulative pairs of parental mistakes of grandmothers and grandfathers, the level of satisfaction of mothers' needs and pairs of mothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	355.92	1	13807.02	400	10.3113	0.001429	0.025	small
cumulative aggression	4086.48	1	16182.10	400	101.0123	0.000000	0.202	large
cumulative constraint and indifference	15754.59	1	57857.90	400	108.9192	0.000000	0.214	large
cumulative self-accentuation and indulging	5298.81	1	31566.87	400	67.1439	0.000000	0.144	large
cumulative doing things for the child and idealizing the child	772.03	1	56550.95	400	5.4608	0.019941	0.013	small
cumulative lack of consistency	2434.86	1	18708.98	400	52.0576	0.000000	0.115	medium
need of safety	11540.10	1	20712.81	400	222.8592	0.000000	0.358	large
need of belonging and love	12548.70	1	26219.58	400	191.4402	0.000000	0.324	large
need of esteem	13971.91	1	26386.67	400	211.8024	0.000000	0.346	large
need of self-actualization	12432.78	1	32094.74	400	154.9510	0.000000	0.279	large
physiological needs	9305.51	1	20088.45	400	185.2908	0.000000	0.317	large
mothers' strictness and aggression	1239.34	1	17888.97	400	27.7117	0.000000	0.065	medium
mothers' constraint and indifference	321.00	1	8973.97	400	14.3082	0.000179	0.035	small
mothers' self-accentuation and indulging	3381.66	1	20683.27	400	65.3990	0.000000	0.141	large
mothers' doing things for the child and idealizing the child	1631.51	1	14775.65	400	44.1676	0.000000	0.099	medium

The size of the effect in meeting needs was large for all needs. The women belonging to the first cluster had much more fulfilled needs than the women belonging to the second cluster. The sizes of the differences were large.

The differences between the two groups of women were high in terms of mothers' *self-accentuation* and *indulging* mistakes, small in terms of *constraining and indifference* and average in terms of *strictness and aggression* and *doing things for the child and idealizing the child*. The group of women in the second cluster had higher scores in all mistakes.

The results of the cluster analysis confirmed the accuracy of Hypothesis H16. The fewer parental mistakes a woman experienced from her parents in childhood, the more her own needs were met and the fewer parental mistakes she made as a mother. The more parental mistakes a woman experienced in childhood, the less her needs were satisfied and the more parental mistakes she committed as

a mother. The same analysis was carried out for parental mistakes and the needs of mothers treated separately and not combined into meta-factors. This analysis also confirmed the accuracy of the conclusions presented above. The results of the analysis are presented in Appendix H Figure B8 and Tables A23 and A24.

Verifying Hypothesis H17: The connection of cumulative parental mistakes of grandmothers and grandfathers, the values of mothers and mothers' parental mistakes

Cluster analysis was performed in order to verify the correctness of Hypothesis H17, which states that women who experienced more parental mistakes as children are characterized by a different system of values and commit more parental mistakes than women who experienced fewer of these mistakes. The analysis included the perception of parental mistakes of the women's parents, the women's values and their parental mistakes. The analyses were carried out in two stages. First, the results were estimated for combined pairs of parental mistakes (meta-traits) and then for the mistakes treated separately. The cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 42.

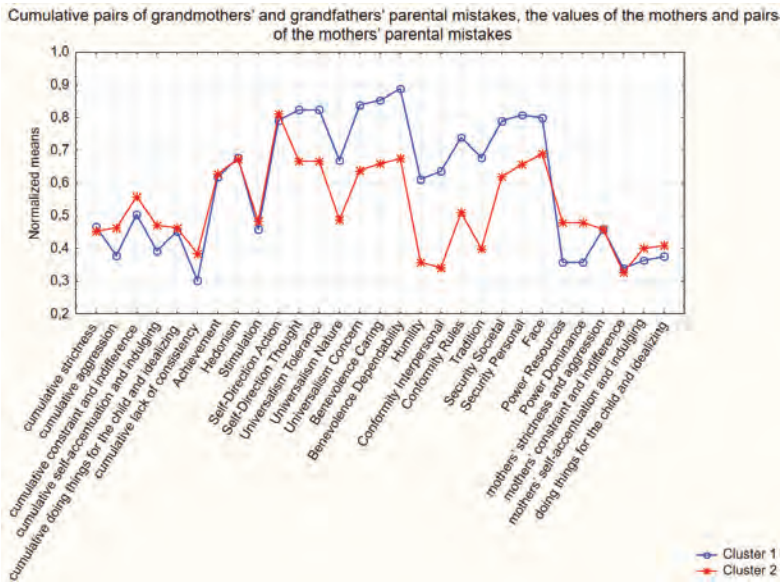


Figure 42. **Cumulative pairs of grandmothers' and grandfathers' parental mistakes, the values of the mothers and pairs of the mothers' parental mistakes**

The cluster analysis revealed the existence of two groups of mothers differing in terms of severity: the perception of the parental mistakes of their parents, their values and the parental mistakes they commit.

The algorithms assigned 251 women to the first cluster (Table 63) who were characterized by low scores in the perception of the mistakes of a*ggression, self-accentuation and indulging* and *lack of consistency* from their parents and moderate scores in terms of *strictness, constraint and indifference* and *doing things for the child and idealizing the child*. This group of mothers had high results in terms of *Self-Direction in action, Self-Direction in thinking, Universalism–Tolerance, Universalism–Thought, Benevolence–Caring, Benevolence–Dependability, Conformity–Rules, Tradition* (elevated result, the normalized mean was close to 0.7), *Social security, Personal security* and *Face*. This group of mothers had low scores in such values as *Power over resources* and *Power over people* as well as moderate results in such values as *Achievements, Hedonism, Stimulation, Universalism–Nature, Humility* and *Conformity–Interpersonal*.

Table 63

Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulative pairs of mistakes of grandmothers and grandparents, mothers' value system and pairs of parental mistakes

	Cluster 1	**Cluster 2**
cumulative strictness	24.4206349	23.9066667
cumulative aggression	15.7261905	18.3333333
cumulative constraint and indifference	41.2222222	44.6333333
cumulative self-accentuation and indulging	35.984127	40.34
cumulative doing things for the child and idealizing the child	39.1111111	39.7866667
cumulative lack of consistency	15.9642857	18.6866667
Achievement	12.6468254	12.8066667
Hedonism	13.4761905	13.4333333
Stimulation	9.88492063	10.24
Self-Direction–Action	15.5079365	15.7533333
Self-Direction–Thought	15.3650794	13.02
Universalism–Tolerance	15.3650794	13.02
Universalism–Nature	13.0436508	10.3266667
Universalism–Concern	15.5753968	12.5866667
Benevolence–Caring	16.531746	14.5866667
Benevolence–Dependability	16.6626984	14.1
Humility	12.5555556	9.00666667
Conformity–Interpersonal	12.531746	8.12
Conformity–Rules	14.0992063	10.66
Tradition	13.1626984	8.98
Societal Security	15.0436508	12.68
Personal Security	15.3015873	13.2066667

	Cluster 1	Cluster 2
Face	15.0039683	13.36
Power–Resources	8.3531746	10.1733333
Power–Dominance	8.3531746	10.1733333
mothers' strictness and aggression	25.3373016	25.3066667
mothers' constraint and indifference	15.1031746	14.8466667
mothers' self-accentuation and indulging	22.8015873	24.26
mothers' doing things for the child and idealizing the child	25.6944444	26.9533333
Number of cases	252	150
Percent (%)	62.6865672	37.3134328

The algorithms assigned 150 women to the second cluster who were characterized by low scores in perceiving their parents' mistakes of *lack of consistency* and moderate in perceiving the remaining parental mistakes, that is, *strictness, aggression, constraint and indifference, self-accentuation and indulging, doing things for the child and idealizing the child*. This group had high scores in such values as *Self-Direction–Action and Face* and moderate results in the values of *Achievements, Hedonism, Stimulation, Self-Direction in thinking, Universalism–Tolerance, Universalism–Nature, Universalism–Concern, Benevolence–Caring, Benevolence–Dependability, Conformity–Rules, Tradition, Societal Security, Personal Security, Power–Resources* and *Power–Dominance* and low scores in such values as *Humility* and *Conformity–Interpersonal*.

Between the two groups of mothers, there were no significant differences in perceptions of the mistakes of *strictness, doing things for the child and idealizing the child* from their parents or in terms of *Achievements, Hedonism, Stimulation* and *Self-Direction–Action* or in the scope of their own parental mistakes. In terms of other variables concerning the perception of their parents' parental mistakes, the differences between the two clusters were small. In the case of values, they ranged from medium to large (Table 64).

This group of mothers, who perceived the mistakes of their parents at a lower level, was characterized by much higher scores in the following values: *Self-Direction–Thought, Universalism–Tolerance, Universalism–Concern, Benevolence–Caring, Benevolence–Dependability, Humility, Conformity–Interpersonal, Conformity–Rules, Tradition* and *Personal Security*. This group of mothers also placed less importance on such values as *Power Resources* and *Power Dominance*.

In summary, the results of cluster analysis partially confirmed Hypothesis H17. The women who experienced fewer parental mistakes in childhood were characterized by a different system of values than the women who experienced more parental mistakes from their parents. The women who had experienced fewer parental mistakes had higher scores in almost all values. Only the values

of Power–Resources and Power–Dominance had lower scores. There were no differences between the groups of women in the intensification of their own parental mistakes.

Table 64
ANOVA results for clusters in the analysis of cumulative pairs of grandmothers' and grandfathers' mistakes, the values of mothers and pairs of mothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	24.839	1	14138.11	400	0.7028	0.402358	0.002	very small
cumulative aggression	639.139	1	19629.44	400	13.0241	0.000347	0.032	small
cumulative constraint and indifference	1094.101	1	72518.39	400	6.0349	0.014450	0.015	small
cumulative self-accentuation and indulging	1784.088	1	35081.60	400	20.3421	0.000009	0.048	small
cumulative doing things for the child and idealizing the child	42.913	1	57280.06	400	0.2997	0.584394	0.0007	very small
cumulative lack of consistency	696.889	1	20446.95	400	13.6331	0.000253	0.033	small
Achievement	2.402	1	3846.96	400	0.2498	0.617493	0.0006	very small
Hedonism	0.173	1	3207.69	400	0.0215	0.883400	0.0005	very small
Stimulation	11.855	1	5119.02	400	0.9264	0.336387	0.002	very small
Self-Direction–Action	5.662	1	2454.86	400	0.9227	0.337360	0.002	very small
Self-Direction–Thought	517.108	1	2923.35	400	70.7554	0.000000	0.150	large
Universalism–Tolerance	517.108	1	2923.35	400	70.7554	0.000000	0.150	large
Universalism–Nature	694.129	1	4987.51	400	55.6693	0.000000	0.122	medium
Universalism–Concern	839.922	1	2379.94	400	141.1669	0.000000	0.261	large
Benevolence–Caring	355.746	1	1353.12	400	105.1633	0.000000	0.208	large
Benevolence–Dependability	617.534	1	1511.83	400	163.3872	0.000000	0.290	large
Humility	1184.270	1	2811.22	400	168.5064	0.000000	0.296	large
Conformity–Interpersonal	1830.150	1	5012.59	400	146.0444	0.000000	0.267	large
Conformity–Rules	1112.198	1	2430.18	400	183.0644	0.000000	0.314	large
Tradition	1645.049	1	4937.27	400	133.2760	0.000000	0.250	large
Societal Security	525.330	1	4075.16	400	51.5641	0.000000	0.114	medium
Personal Security	412.668	1	2389.67	400	69.0752	0.000000	0.147	large
Face	254.128	1	3025.56	400	33.5975	0.000000	0.084	medium
Power–Resources	311.519	1	4949.06	400	25.1780	0.000001	0.059	small
Power–Dominance	311.519	1	4949.06	400	25.1780	0.000001	0.059	small
mothers' strictness and aggression	0.088	1	19128.22	400	0.0018	0.965757	0.0005	very small
mothers' constraint and indifference	6.187	1	9288.79	400	0.2664	0.606028	0.0007	very small
mothers' self-accentuation and indulging	199.998	1	23864.94	400	3.3522	0.067860	0.008	very small
mothers' doing things for the child and idealizing the child	149.019	1	16258.15	400	3.6663	0.056236	0.009	very small

Once again, the analysis was carried out for each parental mistake separately, without grouping into meta-factors the perception of parental mistakes or women's own mistakes. The results of the analysis are presented in Figure B9 and in Table A25 and A26 in Annex H. The conclusions from this analysis are very similar to those from the first analysis. The fewer parental mistakes a woman experienced in childhood, the higher system of values she had, in terms of the same values as described in the first analysis. The second analysis also confirmed that only the values of *Power–Resources* and *Power–Dominance* had lower values. Again, no differences were found between the groups in terms of *Achievements, Hedonism, Stimulation and Self-Direction–Action*. The group of mothers who had a higher value system and perceived their parents' parental mistakes at a lower level also had slightly higher scores in terms of their own mistakes of *strictness*, and lower values in terms of *aggression* and *indulging the child*. It should also be added that this group of mothers perceived strictness of their own parents to be a little higher (this effect was not revealed by the first analysis).

Verifying Hypothesis H18: The connection of cumulative mistakes of grandmothers and grandfathers, mothers' personality traits and mothers' parental mistakes

Another analysis was carried out to verify Hypothesis H18, which states that women who experienced more parental mistakes (whose parents committed more mistakes) will be characterized by a lower level of positive personality traits — *Stability, Plasticity, Self-Restraint and Integration* — and a higher level of the negative traits of *Disinhibition, Passivity, Sensation-Seeking* and *Disharmony*. These women will also commit more parental mistakes.

Cluster analyses were performed for the cumulative parental mistakes of women's parents, women's personality traits and their parental mistakes. The analyses were again carried out in two stages. In the first, the results were estimated for mistakes combined into pairs (meta-factors) and then for the mistakes treated separately. Cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 43.

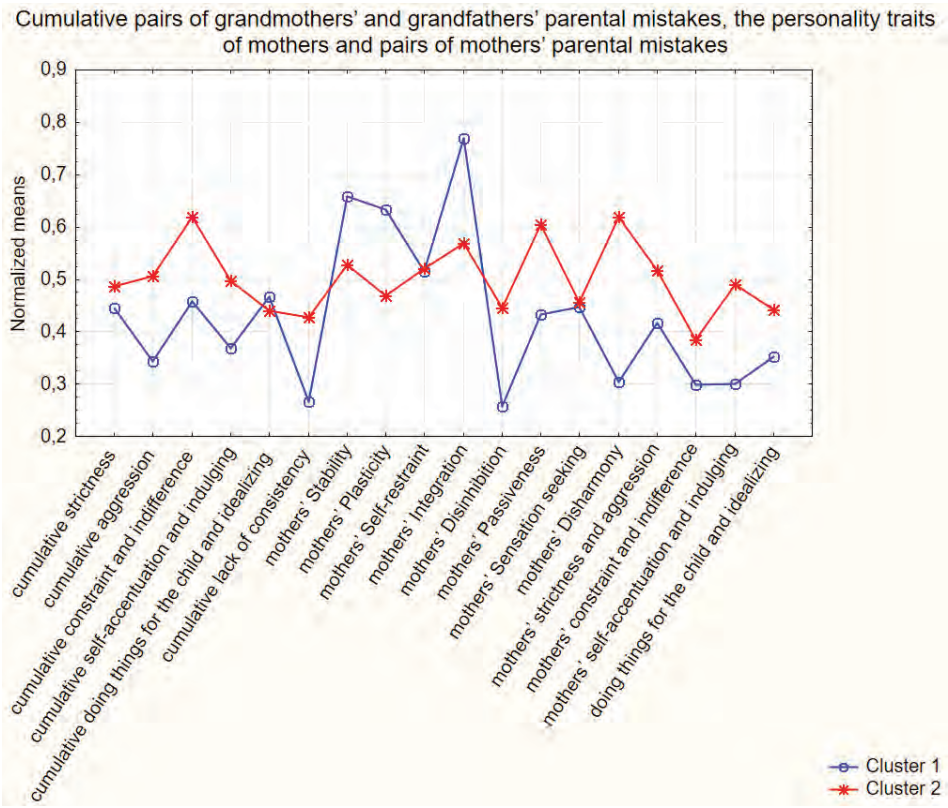


***Figure 43*. Cumulative pairs of grandmothers' and grandfathers' parental mistakes, the personality traits of mothers and pairs of mothers' parental mistakes.**

The algorithms assigned 238 women to the first cluster, which comprises 59.2% of the study sample (Table 65). The women belonging to this group were characterized by lower results in experiencing parental mistakes from their parents (with the exception of the mistake of *doing things for the child and idealizing the child*). These women experienced parental mistakes at a low level. This finding concerned the mistakes of *aggression, self-accentuation and indulging* and *lack of consistency*. At a moderate level, they experienced the mistakes of *strictness, constraint and indifference* as well as *doing things for the child and idealizing the child*.

Table 65
Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulative pairs of mistakes of grandmothers and grandfathers, the personality traits of mothers and pairs of parental mistakes of mothers

	Cluster 1	Cluster 2
cumulative strictness	23.6764706	25.0304878
cumulative aggression	14.6302521	19.7012195
cumulative constraint and indifference	38.4327731	48.3902439
cumulative self-accentuation and indulging	34.6596639	41.8902439
cumulative doing things for the child and idealizing the child	40.0546218	38.3597561
cumulative lack of consistency	14.8109244	20.1280488
mothers' Stability	36.1176471	32.7317073
mothers' Plasticity	33.9915966	29.0365854
mothers' Self-restraint	28.4747899	28.6829268
mothers' Integration	38.0714286	32.0792683
mothers' Disinhibition	17.7773109	24.1463415
mothers' Passiveness	21.1176471	25.9512195
mothers' Sensation-seeking	22.9663866	23.2012195
mothers' Disharmony	19.0294118	29.402439
mothers' strictness and aggression	23.697479	27.6890244
mothers' constraint and indifference	14.1806723	16.2073171
mothers' self-accentuation and indulging	20.394958	27.6280488
mothers' doing things for the child and idealizing the child	24.7352941	28.2378049
Number of cases	238	164
Percent (%)	59.2039801	40.7960199

This group of women had the highest scores in the plus-personality meta-traits. The highest score was achieved in the Gamma Plus meta-trait (*Integration*; the normalized mean of this group was high, at 0.76). These women also had elevated results in the Alpha Plus meta-trait (*Stability*; the normalized mean was 0.66) and Beta Plus (*Plasticity*; the normalized mean was 0.63). The lowest result was in the Delta Plus meta-trait (*Self-Restraint*; this mistake was at moderate level, with a normalized mean of 0.51).

When it comes to the minus-personality meta-traits, the women achieved low and moderate results. The results were low in a meta-trait Alpha Minus (*Disinhibition*) and Gamma Minus (*Disharmony*), while they were moderate for the meta-traits Beta Minus (*Passiveness*) and Delta Minus (*Sensation Seeking*). The women belonging to this cluster committed parental mistakes at a low or moderate level. At a low level, they committed the mistakes of *constraint and indifference, self-accentuation and indulging, doing things for the child and idealizing the child*. At a moderate level, they committed the mistake of *strictness and aggression* (the normalized mean was above 0.4).

The algorithms assigned 164 women to the second cluster, which constitutes 40.8% of the study sample. The women belonging to this group most strongly experienced their parents' mistakes. They experienced *constraint and indifference* at an elevated level (the normalized mean was 0.62). At a moderate level, they experienced the mistakes of *strictness, aggression, self-accentuation and indulging* and *lack of consistency* (the normalized mean was between 0.4 and 0.6). Regarding the experience of *doing things for the child and idealizing the child* mistakes, the results of these women did not differ statistically from those of the women in the first cluster; they were at a moderate level (above 0.4).

The women belonging to this group achieved higher scores in the minus-personality meta-traits. They had elevated scores in Gamma Minus (*Disharmony*; the normalized mean was equal to 0.62) and Beta Minus (*Passiveness*; the normalized mean was equal to 0.61). The women had moderate results in the Alpha Minus meta-trait (*Disinhibition*; the normalized mean was 0.45) and Delta Minus (*Sensation-Seeking*; the normalized mean was 0.45).

When it comes to plus-type personality traits, the results of these women were moderate. In Gamma Plus (*Integration*) these results were moderate (0.56). In the Alpha Plus (*Stability*) and Delta Plus (*Self-Restraint*), the results were also moderate (> 0.5). In the Beta Plus trait (*Plasticity*), the results were also moderate (the normalized average was 0.4).

Between the two clusters, there were no statistically significant differences in terms of *doing things for the child and idealizing the child*, and the meta-traits of the Delta Plus (*Self-Restraint*) and Delta Minus (*Sensation seeking*) personality (Table 66). The mothers from the first cluster experienced fewer mistakes of their parents in childhood, they had low scores in the minus-personality meta-traits and they had developed positive personality traits — in particular, the Gamma Plus meta-trait — and thus they had an "integrated" personality. These women also committed fewer parental mistakes themselves as mothers.

Table 66
ANOVA results for clusters in the analysis of cumulative pairs of grandmothers' and grandfathers' mistakes, the parental traits of mothers and pairs of mothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	178.01	1	13984.94	400	5.0915	0.024583	0.013	small
cumulative aggression	2496.76	1	17771.82	400	56.1959	0.000000	0.123	medium
cumulative constraint and indifference	9627.04	1	63985.45	400	60.1827	0.000000	0.131	medium
cumulative self-accentuation and indulging	5076.23	1	31789.46	400	63.8731	0.000000	0.138	medium
cumulative doing things for the child and idealizing the child	278.91	1	57044.06	400	1.9558	0.162743	0.005	very small
cumulative lack of consistency	2745.04	1	18398.80	400	59.6786	0.000000	0.130	medium
mothers' Stability	1113.15	1	6428.90	400	69.2590	0.000000	0.148	large
mothers' Plasticity	2383.88	1	13317.76	400	71.6000	0.000000	0.152	large
mothers' Self-restraint	4.21	1	13218.86	400	0.1273	0.721458	0.0003	very small
mothers' Integration	3486.27	1	7751.76	400	179.8960	0.000000	0.310	large
mothers' Disinhibition	3938.60	1	11019.69	400	142.9658	0.000000	0.263	large
mothers' Passiveness	2268.46	1	10670.32	400	85.0382	0.000000	0.175	large
mothers' Sensation-seeking	5.35	1	13024.09	400	0.1644	0.685312	0.0004	very small
mothers' Disharmony	10447.34	1	10718.23	400	389.8904	0.000000	0.494	large
mothers' strictness and aggression	1546.95	1	17581.36	400	35.1953	0.000000	0.081	medium
mothers' constraint and indifference	398.80	1	8896.18	400	17.9311	0.000028	0.043	medium
mothers' self-accentuation and indulging	5079.75	1	18985.18	400	107.0256	0.000000	0.211	large
mothers' doing things for the child and idealizing the child	1191.12	1	15216.05	400	31.3121	0.000000	0.073	medium

Women belonging to the second cluster experienced more parental mistakes in childhood, had developed the meta-traits of Gamma Minus (*Disharmony*) and Beta Minus (*Passivity*) personalities at an elevated level and had developed positive meta-traits of personality definitively less than the women belonging to the first cluster. The women in this cluster also committed more parental mistakes.

The magnitude of the effects between clusters for experiencing parental mistakes was small for the mistake of *strictness* and very small for the mistakes of *doing things for the child and idealizing the child*. The mistakes of *aggression, constraint and indifference, self-accentuation and indulging* were average. Differences between

clusters were very small for the personality traits *Self-Restraint* (Delta Plus) and *Sensation-Seeking* (Delta Minus) and large for all other personality traits, i.e., *Stability* (Alpha Plus), *Plasticity* (Beta Plus), *Integration* (Gamma Plus), *Disinhibition* (Alpha Minus), *Passivity* (Beta Minus) and *Disharmony* (Gamma Minus). The groups of mothers were very different due to the intensification of personality traits. The magnitude of the effects between clusters in terms of parental mistakes committed by women were average for the mistakes of *aggression and strictness, constraint and indifference* and *idealizing the child and doing things for the child*; they were high for the mistakes of *self-accentuation and indulging*.

The cluster analysis fully confirmed the correctness of Hypothesis H18. The fewer parental mistakes experienced by a woman in childhood, the more mature personality traits she had developed and fewer parental mistakes she herself made.

The same analysis was performed for parental mistakes and personality traits when the mistakes were treated separately and not combined into meta-factors. The results of the analysis are presented in Appendix H Figure B10 and Tables A27 and A28. Cluster analysis confirmed the conclusions from the first analysis presented so far.

Verifying Hypothesis H19: The connection of cumulative parental mistakes of grandmothers and grandfathers, external locus of control and mothers' need for social approval and mothers' parental mistakes

In order to verify the correctness of Hypothesis H19, which states that women who experienced more parental mistakes as children have an external locus of control and commit more parental mistakes, clustering analysis was performed for the perception of cumulative mistakes of women's parents, women's locus of control and their need for social approval as well as their parental mistakes. The analyses were carried out in two stages. First, the results were estimated for combined pairs of parental mistakes (meta-factors) and then for mistakes treated separately. Cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 44.

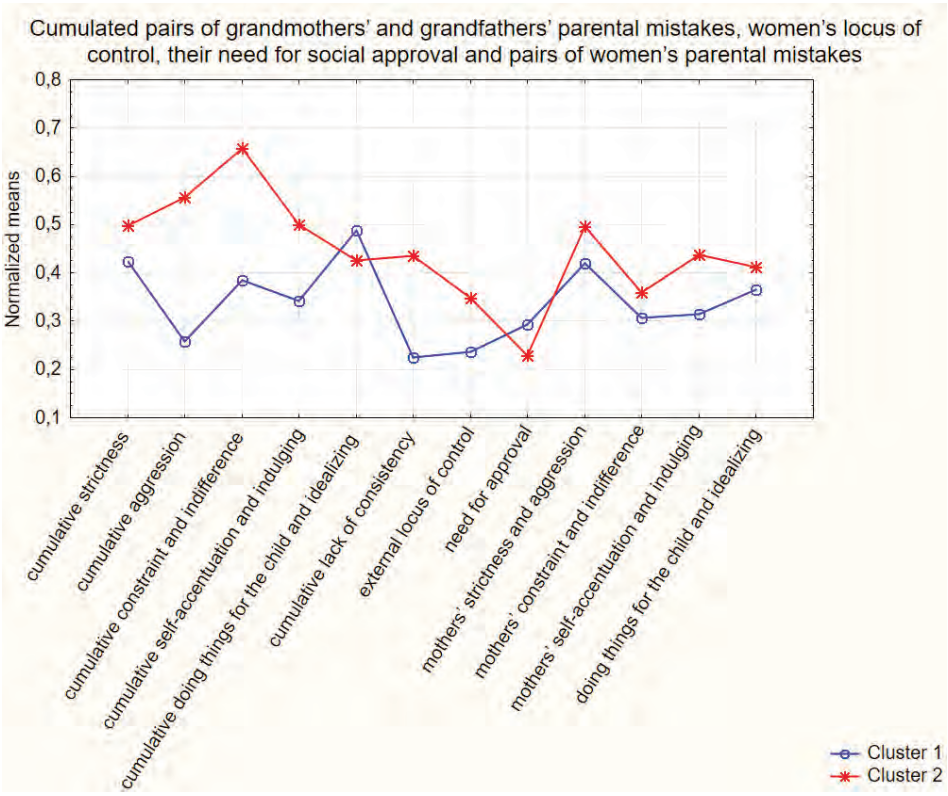


***Figure 44*. Cumulated pairs of grandmothers' and grandfathers' parental mistakes, women's locus of control, their need for social approval and pairs of women's parental mistakes**

The algorithms assigned 197 women to the first cluster (Table 67) whose results in terms of experiencing the parental mistakes of *aggression, self-accentuation and indulging, and lack of consistency* were low. These women experienced the mistakes of *strictness, constraint and indifference* and *doing things for the child and idealizing the child* at a moderate level. The mistake of *doing things for the child and idealizing the child* was experienced at the highest level by the women in the first cluster. The women in this cluster had lower results for *external locus of control* than the women in the second cluster. The result was low on the scale of *external locus of control* as well. They also had a low level of the need for social approval and they made the mistakes of *constraint and indifference, self-accentuation and indulging* as well as *doing things for the child and idealizing the child* at a low level. Only the mistake of *strictness and aggression* was committed at a moderate level.

Table 67
Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulative pairs of grandparents' parental mistakes, women's locus of control and need for social approval and pairs of women's parental mistakes

	Cluster 1	**Cluster 2**
cumulative strictness	22.9695431	25.4390244
cumulative aggression	11.9847716	21.2292683
cumulative constraint and indifference	33.8984772	50.7560976
cumulative self-accentuation and indulging	33.0964467	41.9463415
cumulative doing things for the child and idealizing the child	41.284264	37.5170732
cumulative lack of consistency	13.4365482	20.3853659
external locus of control	3.30456853	4.85853659
need for approval	2.63959391	2.06829268
mothers' strictness and aggression	23.7817259	26.8097561
mothers' constraint and indifference	14.3604061	15.6292683
mothers' self-accentuation and indulging	20.9593909	25.6390244
mothers' doing things for the child and idealizing the child	25.2284264	27.0634146
Number of cases	197	205
Percent (%)	49.0049751	50.9950249

The algorithms assigned 205 women to the second cluster, who at an elevated level experienced the mistakes of *constraint and indifference* of their parents, and at a moderate level *strictness, aggression, self-accentuation and indulging, doing things for the child and idealizing the child and lack of consistency*. These women had low results in the *external locus of control*, but significantly higher than the women belonging to the first cluster (the effect size is medium) (Table 68). These women also had low results in the need for social approval, which was also significantly lower than the women in the first cluster (the effect size was low). The women belonging to this cluster committed the mistakes of *strictness and aggression, self-accentuation and indulging* and *doing things for the child and idealizing the child* at a moderate level. Only the mistakes of *constraint and indifference* were committed at a low level.

Table 68
ANOVA results for clusters in the analysis of cumulative pairs of grandmothers' and grandfathers' parental mistakes, mothers' locus of control and need for social approval and pairs of parental mistakes

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	612.64	1	13550.31	400	18.0849	0.000026	0.043	small
cumulative aggression	8585.40	1	11683.18	400	293.9406	0.000000	0.424	large
cumulative constraint and indifference	28548.72	1	45063.77	400	253.4072	0.000000	0.388	large
cumulative self-accentuation and indulging	7868.11	1	28997.58	400	108.5347	0.000000	0.213	large
cumulative doing things for the child and idealizing the child	1425.70	1	55897.27	400	10.2023	0.001514	0.025	small
cumulative lack of consistency	4850.83	1	16293.01	400	119.0898	0.000000	0.229	large
external locus of control	242.59	1	3086.62	400	31.4380	0.000000	0.073	medium
need for approval	32.79	1	1130.46	400	11.6020	0.000726	0.028	small
mothers' strictness and aggression	921.12	1	18207.19	400	20.2363	0.000009	0.048	small
mothers' constraint and indifference	161.74	1	9133.24	400	7.0837	0.008092	0.017	small
mothers' self-accentuation and indulging	2199.97	1	21864.96	400	40.2466	0.000000	0.091	medium
mothers' doing things for the child and idealizing the child	338.27	1	16068.90	400	8.4204	0.003915	0.021	small

The results of the analysis confirmed the validity of Hypothesis H19. The more parental mistakes a woman experienced in childhood, the higher her external locus of control is and the more parental mistakes she commits. The fewer parental mistakes a woman experienced in childhood, the lower her external locus of control and the fewer parental mistakes she herself commits.

The same analysis was carried out, but this time without grouping parental mistakes into meta-factors. The results are presented in Figure B11 and in Tables A29 and A30. The conclusions from this analysis coincide with the first analysis. The more parental mistakes the woman experienced in childhood, the higher her results in *external locus of control* and the more parental mistakes she commits herself. When a woman experienced fewer parental mistakes in her childhood, she had lower scores in *external locus of control* and she herself commits fewer parental mistakes

Verifying Hypothesis H20: The connection of cumulative parental mistakes committed by grandmothers and grandfathers, the personality traits mothers form in their children and mothers' parental mistakes

In order to verify the correctness of Hypothesis H20, which states that women who experienced more parental mistakes in childhood will form other personality traits in their children and commit more parental mistakes than women who experienced fewer parental mistakes, cluster analysis was performed for the perception of cumulative parental mistakes of the women's parents, their parental goals and the parental mistakes they commit. The analyses were carried out in two stages. First, the results were estimated for combined pairs of parental mistakes (meta-factors) and then for the mistakes treated separately. Cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 45.

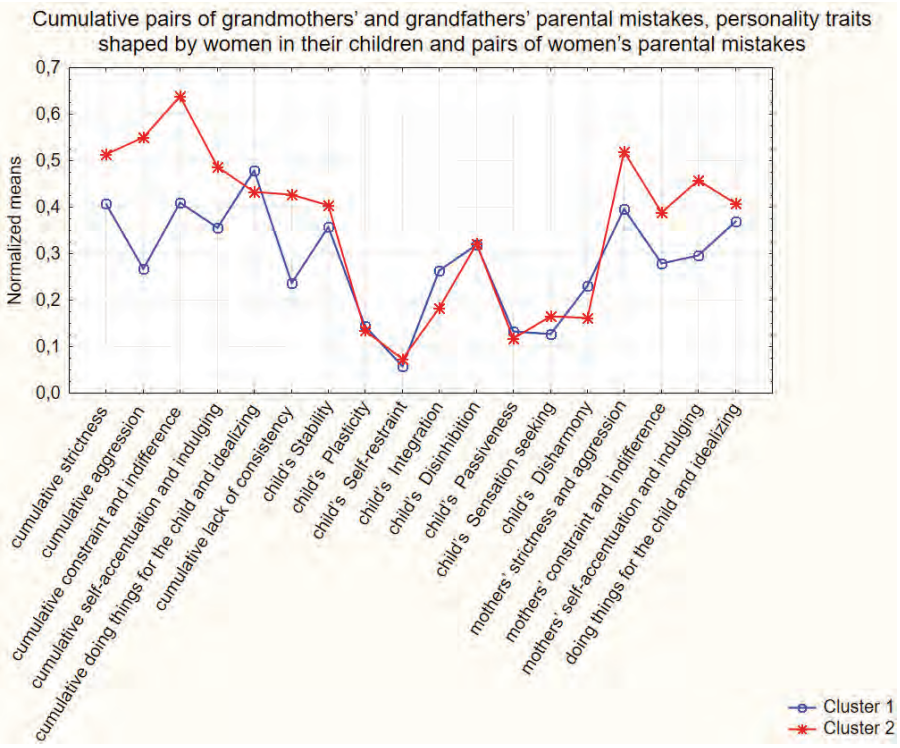


***Figure 45*. Cumulative pairs of grandmothers' and grandfathers' parental mistakes, personality traits shaped by women in their children and pairs of women's parental mistakes**

The algorithms assigned 200 women to the first cluster (Table 69) who had experienced fewer parental mistakes in childhood than the women in the second cluster. These women experienced a low level of *aggression, self-accentuation and indulging and lack of consistency* mistakes in childhood. At a moderate level, they experienced the mistakes of *strictness, constraint and indifference*, *doing things for the child and idealizing the child*. This group of women developed Gamma Plus (*Integration*) personality traits in their children at a higher level than the group of women in the second cluster, they made sure at a higher level that their children did not develop Gamma Minus (*Disharmony*) traits and at a lower level than the group of women in the second cluster made sure that their children did not develop Delta Minus (*Sensation-Seeking*) traits. The women belonging to this cluster committed the mistakes of *constraint and indifference, self-accentuation and indulging* and *doing things for the child and idealizing the child* at a low level, while the mistakes of *strictness and aggression* were committed at a moderate level.

Table 69

Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of the transfer of parental mistakes and the personality traits mothers form in their children

	Cluster 1	**Cluster 2**
cumulative strictness	22.485	25.9554455
cumulative aggression	12.275	21.0792079
cumulative constraint and indifference	35.355	49.5643564
cumulative self-accentuation and indulging	33.935	41.2475248
cumulative doing things for the child and idealizing the child	40.71	38.029703
cumulative lack of consistency	13.835	20.0940594
child's Stability	1.43	1.61881188
child's Plasticity	0.575	0.53960396
child's Self-restraint	0.175	0.222772277
child's Integration	0.79	0.54950495
child's Disinhibition	1.275	1.28712871
child's Passiveness	0.535	0.47029703
child's Sensation-seeking	0.505	0.663366337
child's Disharmony	0.69	0.485148515
mothers' strictness and aggression	22.88	27.7475248
mothers' constraint and indifference	13.675	16.3267327
mothers' self-accentuation and indulging	20.295	26.3663366
mothers' doing things for the child and idealizing the child	25.44	26.8811881
Number of cases	200	202
Percent (%)	49.7512438	50.2487562

The women belonging to the second cluster were characterized by experiencing a higher level of parental mistakes in childhood in terms of all mistakes apart from the mistake of *doing things for the child and idealizing the child*. They experienced the mistakes of *constraint and indifference* at an elevated level and all other mistakes at a moderate level. These women developed the Gamma Plus (*Integration*) personality traits in their children at a lower level and made sure that their children did not develop Gamma Minus (*Disharmony*) personality traits. They said that they do not want their children to develop Delta Minus traits (*Sensation-seeking*) more often than the women in the first cluster. This group of women committed more parental mistakes than the women in the first cluster. All mistakes were made at a moderate level.

In conclusion, the results confirmed the validity of Hypothesis H20. The women who in childhood experienced fewer parental mistakes more often listed personality traits characteristic of Gamma Plus, i.e., features in the range of *Integration*. They cared more that their children did not develop Gamma Minus — i.e., *Disharmony* — than women belonging to the second cluster, who cared that their children do not develop Delta Minus features, i.e., Sensation-seeking. These women also made fewer parental mistakes. The size of the effects between the two clusters in the area of parental mistakes made by mothers and the experience of parental mistakes in childhood are medium and large, respectively, though small in terms of parental goals (Table 70).

Table 70
ANOVA results for clusters in the analysis of the transfer of parental mistakes and personality traits developed by mothers in children

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	1210.39	1	12952.55	400	37.3792	0.000000	0.085	medium
cumulative aggression	7789.97	1	12478.61	400	249.7064	0.000000	0.384	large
cumulative constraint and indifference	20291.03	1	53321.46	400	152.2166	0.000000	0.276	large
cumulative self-accentuation and indulging	5373.91	1	31491.78	400	68.2579	0.000000	0.146	large
cumulative doing things for the child and idealizing the child	721.97	1	56601.00	400	5.1022	0.024433	0.013	small
cumulative lack of consistency	3937.07	1	17206.77	400	91.5238	0.000000	0.186	large
child's Stability	3.58	1	376.67	400	3.8046	0.051808	0.009	very small
child's Plasticity	0.13	1	225.06	400	0.2238	0.636429	0.0006	very small
child's Self-restraint	0.23	1	99.85	400	0.9188	0.338371	0.002	very small

	Between SS	df	Within SS	df	F	p-value	η2	Inter-pretation η2
child's Integration	5.81	1	213.18	400	10.9061	0.001045	0.027	small
child's Disinhibition	0.01	1	315.22	400	0.0188	0.891126	0.0003	very small
child's Passiveness	0.42	1	190.08	400	0.8854	0.347298	0.001	very small
child's Sensation-seeking	2.52	1	235.10	400	4.2883	0.039017	0.011	small
child's Disharmony	4.22	1	165.24	400	10.2092	0.001508	0.025	small
mothers' strictness and aggression	2381.07	1	16747.24	400	56.8707	0.000000	0.124	medium
mothers' constraint and indifference	706.67	1	8588.31	400	32.9130	0.000000	0.076	medium
mothers' self-accentuation and indulging	3704.45	1	20360.49	400	72.7773	0.000000	0.182	large
mothers' doing things for the child and idealizing the child	208.74	1	16198.43	400	5.1545	0.023718	0.013	medium

The analysis was again carried out this time without grouping parental mistakes into meta-factors. The results of this analysis are presented in Appendix H Figure B12 and Tables A31 and A32. The only difference that was revealed in the scope of setting *parental goals* was the concern from the group of mothers who had experienced a lower level of parental mistakes as children that their children did not develop the *Disinhibition* traits, i.e., the features of Alpha Minus. No significant differences were revealed for other parental goals. The two groups of women differed significantly in the scope of experiencing parental mistakes in childhood and committing parental mistakes. The effects for experiencing parental mistakes were large and small, while the effect for committing mistakes by women was small.

Verifying Hypothesis H21: The connection of cumulative parental mistakes of grandmothers and grandfathers, women's parental mistakes and the temperamental characteristics of women's children

In order to check the correctness of Hypothesis H21, which states that women who experienced fewer parental mistakes in childhood commit fewer parental mistakes and their children are characterized by an "easier" temperament, a cluster analysis was performed for the perception of the cumulative parental mistakes of women's parents, women's parental mistakes and the temperament of their children. The analyses were carried out in two stages. First, the results were estimated for combined pairs of parental mistakes (meta-factors) and then for the mistakes treated

separately. The cluster analysis revealed the existence of two clusters of women in the data set. The results of the analysis are presented in Figure 46.

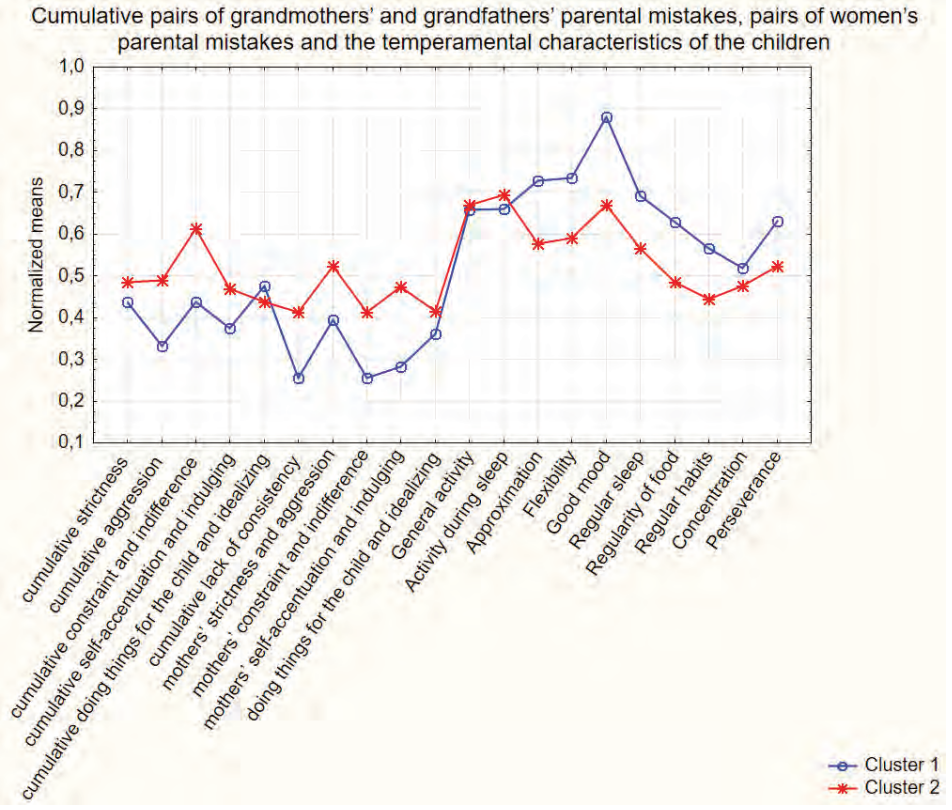


***Figure 46*. Cumulative pairs of grandmothers' and grandfathers' parental mistakes, pairs of women's parental mistakes and the temperamental characteristics of the children**

The algorithms assigned 203 women to the first cluster, which represents 50.5% of the sample (Table 71).

Table 71
Means of clusters, numbers and percentages of cases belonging to clusters in the analysis of cumulated pairs of parental mistakes of grandmothers and grandparents, pairs of women's parental mistakes and temperamental traits of women's children

	Cluster 1	Cluster 2
cumulative strictness	23.4334975	25.040201
cumulative aggression	14.2610837	19.1859296
cumulative constraint and indifference	37.0788177	48.0201005
cumulative self-accentuation and indulging	34.9655172	40.3065327
cumulative doing things for the child and idealizing the child	40.4827586	38.2211055
cumulative lack of consistency	14.3940887	19.6180905
mothers' strictness and aggression	22.7536946	27.9497487
mothers' constraint and indifference	13.1477833	16.9045226
mothers' self-accentuation and indulging	19.7487685	27.0150754
mothers' doing things for the child and idealizing the child	25.1182266	27.2311558
General activity	20.8325123	21.0351759
Activity during sleep	11.9310345	12.3266332
Approximation	22.2906404	19.1105528
Flexibility	16.2857143	14.2763819
Good mood	26.1083744	22.7236181
Regular sleep	18.4679803	16.1758794
Regularity of food	14.4236453	12.2914573
Regular habits	13.9211823	12.2211055
Concentration	12.7881773	12.1256281
Perseverance	8.67980296	7.69849246
Number of cases	203	199
Percent (%)	50.4975124	49.5024876

The women belonging to this cluster had experienced fewer parental mistakes in childhood (apart from the mistake of *doing things for the child and idealizing the child*); they also committed fewer parental mistakes than the women in the second cluster (Table 72). The women in this cluster experienced a low level of the mistakes of *aggression, self-accentuation and indulging* and *lack of consistency* from their parents. At a moderate level, they experienced the mistakes of *strictness, constraint and indifference* as well as *doing things for the child and idealizing the child*. These women committed a low level of the mistakes of *constraint and indifference, self-accentuation and indulging* as well as *doing things for the child and idealizing the child*. They committed the mistake of *strictness* at a moderate level. Their children were characterized by higher scores in terms of temperamental traits such as *Approximation, Flexibility, Good mood, Regular sleep, Regular food, Regular habits, Concentration and Perseverance.* In terms of *General activity and Activity during sleep*, there were no differences between the two clusters.

The algorithms assigned 199 women to the second cluster (49.5% of the sample tested). The women in this cluster had experienced more parental mistakes in childhood. All mistakes were experienced at a moderate level. They also committed parental mistakes themselves at a moderate level. These results are higher than those for the women in the first cluster. In addition to the temperamental traits of *General activity* and *Activity during sleep*, their children were characterized by a lower profile (lower results) in terms of temperamental traits. The children of these women had a moderate level of the following characteristics: *Approximation, Flexibility, Regularity during sleep, Regularity of eating, Regularity of habits, Concentration* and *Perseverance*. Their children had an elevated level for *Good mood* and *General activity* and a high level for *Activity during sleep*. The differences between the two clusters in the children's temperamental traits were large only for *Good mood* and small only for *Concentration*; for the remaining traits, the differences were medium. As previously mentioned, the two clusters did not differ in terms of *General Activity* and *Sleep Activity*.

The results of analyses confirmed the validity of Hypothesis H21. Mothers who experienced fewer parental mistakes in childhood also committed fewer parental mistakes and they had children with different temperamental traits. Moreover, the temperamental traits can be considered to be characteristic of an "easy temperament."

Table 72
ANOVA results for clusters in the analysis of the transfer of parental mistakes and temperamental characteristics of women's children

	Between SS	df	Within SS	df	F	p-value	η2	Interpretation η2
cumulative strictness	259.41	1	13903.53	400	7.4633	0.006576	0.018	small
cumulative aggression	2437.30	1	17831.28	400	54.6746	0.000000	0.120	medium
cumulative constraint and indifference	12029.83	1	61582.66	400	78.1378	0.000000	0.195	large
cumulative self-accentuation and indulging	2866.62	1	33999.06	400	33.7259	0.000000	0.078	medium
cumulative doing things for the child and idealizing the child	514.01	1	56808.96	400	3.6192	0.057833	0.009	very small
cumulative lack of consistency	2742.39	1	18401.45	400	59.6125	0.000000	0.130	medium
mothers' strictness and aggression	2713.13	1	16415.18	400	66.1127	0.000000	0.142	large
mothers' constraint and indifference	1418.23	1	7876.75	400	72.0208	0.000000	0.018	small

	Between SS	df	Within SS	df	F	p-value	η2	Inter-pretation η2
mothers' self-accentuation and indulging	5305.80	1	18759.14	400	113.1351	0.000000	0.220	large
mothers' doing things for the child and idealizing the child	448.63	1	15958.53	400	11.2450	0.000875	0.027	small
General activity	4.13	1	8311.06	400	0.1986	0.656058	0.0005	very small
Activity during sleep	15.73	1	3108.80	400	2.0235	0.155663	0.005	very small
Approximation	1016.25	1	7053.42	400	57.6317	0.000000	0.126	medium
Flexibility	405.72	1	3241.23	400	50.0699	0.000000	0.111	medium
Good mood	1151.27	1	4159.41	400	110.7148	0.000000	0.217	large
Regular sleep	527.95	1	3433.39	400	61.5075	0.000000	0.133	medium
Regularity of food	456.85	1	4410.66	400	41.4315	0.000000	0.094	medium
Regular habits	290.44	1	2291.01	400	50.7099	0.000000	0.113	medium
Concentration	44.11	1	2367.75	400	7.4522	0.006616	0.018	small
Perseverance	96.77	1	1234.10	400	31.3651	0.000000	0.073	medium

The analysis was again carried out, but this time without grouping the parental mistakes into meta-factors. The results of the analysis are presented in Appendix H Figure B13 and Tables A33 and A34. The results confirm the validity of the conclusions described above.

Summary of the results

The study showed that there is a relationship between stress response and committing parental mistakes. There is a moderate positive correlation between *discrepancy* and *parental difficulties experienced*. Hypothesis H1 was once again confirmed. The current study is the third one; previous studies have revealed that this correlation is strong (Szymańska, 2011; Szymańska & Dobrenko, 2017).

A mother's experience of parental difficulties turned out to be negatively related to the mother's cognitive distance. The correctness of the second research hypothesis (Hypothesis H2) was confirmed. In the previous studies, the relationship between *experiencing parental difficulties* and *cognitive distance* was mediated by the *negative representation of the child* in the mind of the parent. The relationship between *parental difficulty experienced* and this *representation* was very high ($\beta = 0.93$), while the relationship between the *representation of the child* and *cognitive distance* was strongly negative ($\beta = -0.71$) (Szymańska & Dobrenko, 2017). The conclusions from the current analyses confirm the conclusions from previous studies. *Experiencing parental difficulties* is negatively related to the possibility of *taking cognitive distance*.

The study did not confirm the correctness of Hypothesis H3. As in the previous study, no relationship was found between mothers *experiencing parental difficulties* and *seeking help* from other people or institutions (Szymańska & Dobrenko, 2017).

The correctness of Hypothesis H4 was confirmed. *Experiencing parental difficulties* is positively correlated to *applying pressure* to the child. The relationship turned out to be moderate — $\beta = 0.52$. In the previous studies, this relationship was mediated by the *representation of the child* in the parent's mind and the relationship between *parental difficulty experienced* and this *representation* was very high ($\beta = 0.93$), while the correlation between the *representation of the child* and *applying pressure* was moderate ($\beta = 0.57$) (Szymańska & Dobrenko, 2017). The current study confirms the conclusions from previous analyses. *Experiencing parental difficulties* is moderately correlated with *applying pressure* to the child.

The study also confirmed the correctness of Hypothesis H5. The *parental difficulties experienced* are positively correlated with *withdrawal* from the child's upbringing process. The correlation turned out to be high ($\beta = 0.87$). In earlier studies, this relationship was mediated by the *representation of the child* in the mind of the

parent. The relationship between *parental difficulty experienced* and the *representation* was very high (β = 0.93), while the correlation between the *representation of the child* and *withdrawal* from the relationship was also high (β = 0.80) (Szymańska & Dobrenko, 2017). The current study confirms the conclusions from previous analyses. *Experiencing parental difficulties* is strongly associated with a mother's *withdrawal* from the upbringing situation.

The study did not confirm the correctness of Hypothesis H6. No relationship between mothers' *cognitive distance* and mothers' parental mistakes was revealed.

The study also did not confirm the correctness of Hypothesis H7. There was no relationship between mothers' *seeking help* and committing parental mistakes.

The study confirmed the correctness of Hypothesis H8. *Applying pressure* is associated with parental mistakes. It is associated with *strictness and aggression* (β = 0.49), with *self-accentuation* (β = 0.14), *constraint of activity* and *indifference* (β = 0.57).

The correctness of Hypothesis H9 was also confirmed. The *withdrawal* of mothers from the upbringing process is correlated with *strictness and aggression* (β = 0.55), *constraint and indifference* (β = 0.28), and *self-accentuation and indulging* (β = 0.96). *Withdrawal* is weakly correlated to *doing things for the child and idealizing the child* (β = 0.35).

To sum up, confirmation was found for a model presenting the relationship between a mother's *experience of parental difficulties* as a result of the inability to achieve *parental goals* and their response to stress and committing parental mistakes. In other words, when a mother is unable to achieve *parental goals* and she *experiences difficulties*, the chance increases that she will react by *applying pressure* or *withdrawing* from the upbringing process and making parental mistakes, especially the mistakes of *strictness and aggression*, *constraint and indifference and self-accentuation and indulging*. There is less chance that a mother will commit the mistakes of *doing things for the child and idealizing the child* as a result of stress reactions. These two mistakes were weakly related to the structure of *experiencing parental difficulties* described above.

The study revealed the correctness of Hypothesis H10. In the study sample, three clusters of mothers were found which differed in terms of the severity of the variables *discrepancy, difficulty experienced, stress response and parental mistakes*. The algorithms classified to the most numerous clusters those women who experienced the lowest *discrepancy* in achieving their *parental goals*, experienced the fewest *parental difficulties*, were characterized by an *adaptive responses to stress* and made the fewest parental mistakes. The algorithms assigned to the next largest cluster women with a relatively low level of *discrepancy from parental goals*, a low level of *parental difficulties experienced*, a highly adaptive stress responses

(i.e., *cognitive distancing* and *seeking help*) and a moderate level of *applying pressure*. These women made parental mistakes at a moderate level. To the third, least numerous cluster — constituting 21% of the sample — the algorithms assigned 85 women who experienced more *discrepancy* than those in the previous two clusters, experienced *parental difficulties* at a moderate level, had the lowest results in *cognitive distancing*, had the highest level of *applying pressure* and *withdrawal* and made the most parental mistakes.

The study partially confirmed the correctness of Hypothesis H11. Variable *discrepancies, parental difficulties experienced* and stress responses allow for suitable prediction of the level of *aggression and strictness*. For these mistakes, the correlation between the mothers' real score and the score predicted by the artificial neural network was 0.728, which is a strong correlation. *Constraint and indifference* towards the child can be predicted at a moderate level. The correlation between the mother's true result and the one predicted by the ANN was 0.522, which is a moderate correlation. Also, one can predict the mistake of *self-accentuation and indulging* at a good level. The correlation between the real result and the one predicted by the ANN network was 0.762, representing a high correlation. Only the mistake of *doing things for the child and idealizing the child* cannot be predicted on the basis of *discrepancy, parental difficulty experienced* and the mother's response to stress. The quality of predictions on the validation data set was very poor, amounting to 0.247.

To sum up, on the basis of knowledge about the *parental difficulties experienced* by mothers and their responses to difficulties, it is possible to predict at a good level the *aggression and strictness* and *self-accentuation and indulging* used by the mother; at a moderate level it is possible to predict *constraint and indifference* towards the child, but *doing things for the child and idealizing the child* cannot be predicted.

The study did not confirm the correctness of Hypothesis H12. It was not found that women who experienced more parental mistakes by their mothers made more of them themselves. Although cluster analysis revealed the existence of two groups of women who differed due to the intensity of their mothers' parental mistakes they experienced in childhood, these two groups did not differ statistically significantly in terms of their own parental mistakes.

The study partially confirmed the correctness of Hypothesis H13. The results revealed that women who experienced more parental mistakes on the part of their fathers as children, also made more of them as mothers. This effect was not just about the mistakes of *doing things for the child and idealizing the child*. Women who experienced more *doing things for the child and idealizing the child* from their fathers made fewer parental mistakes.

Hypothesis H14 has also been partly confirmed. Women who experienced more parental mistakes from their fathers and mothers (and thus cumulative mistakes)

also committed more parental mistakes. This effect was again not just about the mistake of *doing things for the child and idealizing the child*. Women who committed fewer parental mistakes experienced more of the mistakes of *doing things for the child and idealizing the child* as children from their parents.

The study confirmed the correctness of Hypothesis H15. Women who in childhood experienced more parental mistakes from their fathers and mothers tended to react more strongly to stressful situations, as a result of which they committed more parental mistakes. It has been shown that women who experienced fewer parental mistakes from their parents committed fewer parental mistakes than women who experienced more parental mistakes as children. It has also been shown that there is a greater chance that women who experienced more parental mistakes from their parents also commit parental mistakes at a moderate and high level.

The study confirmed the correctness of Hypothesis H16. Women who in childhood experienced fewer parental mistakes from their parents have their needs better met as adult women and they make fewer parental mistakes themselves. In this regard, the differences between the two groups — the group that experienced a higher level of parental mistakes, has lower needs met and makes more parental mistakes themselves and the group of women who experienced fewer parental mistakes (apart from the mistake of *doing things for the child* and *idealizing the child*), has needs which are better met and makes fewer parental mistakes — are large and medium.

The correctness of Hypothesis H17 has also been partially confirmed. Women who, as children, experienced fewer parental mistakes in terms of *aggression, constraint and indifference* and *self-accentuation and indulging* are characterized by a higher system of values than women who experienced less of these mistakes. Women who experienced these mistakes more had a higher value system in only two values, which concerned power over resources and power over people. In other values, they had lower results. This hypothesis was only partially confirmed because no statistically significant differences were found between the two clusters of women in the scope of the parental mistakes they commit.

The study confirmed the correctness of Hypothesis H18. Women who experienced fewer parental mistakes in childhood are characterized by a higher level of plus-type personality traits, i.e., *Stability, Plasticity and Integration*, and a lower level of minus-type traits, i.e., *Disinhibition, Passivity and Disharmony*. A very important result is that these women had developed Gamma Plus personality traits at a high level, and therefore had an "integrated" personality. These women also made fewer parental mistakes themselves. Differences between the two clusters were not found only in the case of personality traits like Delta Plus and Delta Minus, i.e., *Self-restraint and Sensation-Seeking*. The women who experienced more

parental mistakes from their parents had developed more minus-type personality traits and also committed more parental mistakes themselves.

The study confirmed the correctness of Hypothesis H19. Women who experienced more parental mistakes as children had developed an *external locus of control* at a higher level and also made more parental mistakes themselves. The effects of the differences between the two groups in terms of the *external locus of control* were average.

The study also confirmed the correctness of Hypothesis H20. Women who experienced fewer parental mistakes in childhood and committed fewer of these parental mistakes cared less that their children developed personality traits of the Gamma Plus type, i.e., traits associated with an "integrated" personality, and that they did not develop Gamma Minus traits, i.e., those traits associated with *disharmony*, as well as Delta Minus traits, i.e., *sensation-seeking*. It should be noted, however, that this analysis made for each mistake separately found different results, namely, that women who experienced fewer parental mistakes and also committed fewer of them took care that their children did not develop Alpha Minus traits, and therefore features of a *Disinhibited* personality. Regarding other features, i.e., parental goals, no statistically significant differences were found.

The study confirmed the correctness of Hypothesis H21. Women who experienced fewer parental mistakes from their parents also made fewer parental mistakes themselves and had children with a temperament type that we could call "easier." These children had higher scores in *Approach, Temperamental Flexibility, Good Mood, Sleep Regularity, Eating Regularity and Regularity of Habits* as well as in *Concentration and Perseverance*. There were no differences between clusters only in terms of *General Activity and Activity during sleep*. In terms of most temperamental traits, the size of differences was average; only for *Good mood* were they large and for *Concentration* they were small.

DISCUSSION OF RESULTS AND CONCLUSIONS

General methodological reflection

This study has answered many questions and hypotheses. Most of the hypotheses which were put forward turned out to be correct or partly correct. The study itself was very large and extensive. The results are very interesting as well as seeming to be very simple and obvious. It must be said unequivocally that they were obtained thanks to the specific methodology used in the study, which was a combination of structural equation systems and artificial intelligence algorithms.

Systems of structural equations tested the correctness of the model determining the relationship between *discrepancy, mother's parental difficulties, stress responses and parental mistakes*. Thanks to this method, it was possible to check how strongly these variables correlate with each other and to test whether the structure assumed at the theoretical level matches the data (Figure 4).

The use of artificial neural networks made it possible to check to what extent, based on paths calculated by systems of structural equations (Figure 24), it is possible to predict the behavior of mothers in terms of committing four pairs of parental mistakes: *strictness and aggression, constraint and indifference, self-accentuation and indulging and doing things for the child and idealizing the child*. The output of the neural networks was the most important element in the current work. It was supposed to show if it is possible on the basis of the variables described in the model to predict the results of mothers and whether this prediction is satisfactory. According to the author, it is not enough to stop at building models and verifying theories using structural equation systems. One needs to check whether anything can be predicted based on these models representing theories. It is known that every model that has close to zero relationships will be fitted to the data (Konarski, 2009). As shown by Aranowska and Szymańska, unfortunately, even models that have strong relationships between the variables can only be said to have moderate predictability. This happens when the variables are poorly operationalized and have poor reliability (Aranowska & Szymańska, 2017; Szymańska, 2018).

At least for two pairs of mistakes — *strictness and aggression* and *self-accentuation and indulging* — the prediction made by artificial neural networks was good (the correlation of the behavior reported by the subject with that predicted by the

ANN was high [> 0.7]). For the mistakes of *constraint* and *indifference*, the prediction was moderate (0.522) and it was very low for *doing things for the child* and *idealizing the child* (0.247). The model presenting the relationship between *parental difficulty experienced* and *stress response* and parental mistakes committed is useful for forecasting mothers' results in terms of *strictness and aggression* as well as *doing things for the child* and *indulging*, and has rather average utility in predicting *constraint and indifference* and none for predicting *doing things for the child and idealizing the child*.

A very important finding was also obtained thanks to the use of fracture analysis calculated by data mining algorithms that were used to conduct cluster analysis. It was thanks to this method that it was possible to answer a significant number of hypotheses posed in the study which dealt with the coexistence of: a) parental mistakes experienced by mothers (the perception of the parental mistakes of their parents), b) her own parental mistakes and c) groups of variables such as meeting the needs of mothers, the mothers' systems of values, the personality traits of mothers, the mothers' locus of control, the parental goals chosen by mothers and the temperamental characteristics of children. Using the cluster analysis method allowed the researchers to test the correctness of very complex hypotheses, which concerned not one, two or three variables, but entire groups of variables in one analysis. What's more, thanks to the proposed method of the presenting results, i.e., charting the normalized means in a way which resembles a profile, the interpretation of these results is very simple and clear. In the end, it also answered the questions of what percentage of people experience parental difficulties, make parental mistakes and how severe the mistakes are, etc.

The use of a group of algorithms that belong to the *text mining* method, i.e., methods of speech recognition and text recognition, allowed for the analysis of the relationship between parental mistakes and parental goals. The algorithms performed the most difficult part of the work, namely, transforming the verbal data regarding the parental goals mentioned by the mothers into numerical data. They counted the words and turned them into numerical variables. These were variables that reflected the frequency of mothers reporting a given parental goal. First of all, it would be time-consuming for a human to make this analysis, and it would be qualitatively questionable because of the number of mistakes (s)he could make. This is due to the low computational power of the human mind (Elder et al., 2012). Algorithms of artificial intelligence are used in psychology more and more often, not only to solve various issues — as was the case in this work — but also to create measuring tools and to check their accuracy (Hoi Yin Bonnie Yim, Yee Ling Boo, & Marjory Ebbeck, 2014; Koczkodaj et al., 2017; E. Rzechowska, 2004, 2011a, 2011b; Ewa Rzechowska, 2011; Ewa Rzechowska & Szymańska, 2017).

To sum up, it is the analyses used — a combination of structural equation systems and artificial intelligence algorithms — that have made it possible to perform such complex analyses. Preparation for this research was primarily methodological in nature. It would not be possible without using them. They shaped the way of thinking about these studies, including the structural approach to the theory. Therefore, the title emphasizes their importance to the entire work. Work on new methods of data analysis was also a response to Gurycka's call, which indicated that research on parental mistakes and educational psychology do not constitute so much a theoretical problem as methodological problems (Gurycka, 1979, 1990). New methods of analysis must be tested that would allow such complex issues to be explored.

Of course, the methodology needs to be developed further. We are still unable to carry out many different analyses. For example, we are not able to study the upbringing process on a regular basis due to the insufficient sensitivity of measuring tools and the difficulty of testing the child's experience — not to mention the simulation of the upbringing process.

Conclusions from the analysis of the model of forming parental mistakes

The study showed that parental mistakes are related to mothers' stress response. The stronger this reaction is, the more parental mistakes the mother makes. The results of the artificial neural networks revealed that on the basis of knowledge about the difficulties experienced by mothers and the application of *pressure or withdrawal* from the upbringing process, one can predict at a good level their mistakes of *strictness and aggression* and *self-accentuation and indulging*, while at moderate level the mistakes of *constraint and indifference towards the child* can be predicted. Only the mistakes of *idealizing the child* and *indulging* cannot be predicted on the basis of stress responses. Other models will need to be built in the future to explain the origin of these two mistakes.

Current research has shown that an increased stress response affects approximately 21% of the mothers tested. This group of women experiences increased parental difficulties, uses an adaptive response to stress, which is *cognitive distancing*, at a lower level than other mother groups. At the highest level of all groups of mothers defined by the cluster analysis, the women in this cluster apply *pressure and withdraw* from the upbringing process and make the most parental mistakes, especially *aggression and strictness* and *self-accentuation and indulging*. In contrast, 43% of women experience few parental difficulties, use adaptive stress responses and do not use or rarely use non-adaptive stress responses, as well as making few parental mistakes. Thirty-five percent of women experience few parental difficulties and use adaptive stress responses and the non-adaptive response of applying pressure at an average level. This group of mothers does not withdraw from the upbringing process and they make parental mistakes at a moderate level.

This result is consistent with previously obtained results, which showed that a strong reaction to stress is associated with the withdrawal of parents from the upbringing process. In contrast, parents who experience a lower level of parental difficulties use adaptive rather than non-adaptive stress responses. If they use non-adaptive stress responses, they apply pressure rather than withdraw. Previous studies have shown that a strong response to stress affects about 12% of the surveyed population (Szymańska, 2017c).

It seems that for a parent to use withdrawal as a method of coping with parental difficulties, the level of parental difficulties must reach a certain higher threshold. In the case of previous studies, the group of people who withdrew had high scores in experiencing difficulties (normalized mean was 0.78). In the current study, the group of people who used withdrawal experienced an increased level of parental difficulties (normalized mean was 0.6). Therefore, when parenting difficulties approach a high level, then the parent withdraws. However, at a lower level of experiencing parental difficulties, withdrawal does not occur. Parents apply pressure rather than withdrawing from the upbringing process. Parents' withdrawal seems to be a reaction associated with a high level of parenting difficulties rather than a moderate or low one. At low and moderate levels, the parent applies pressure, trying to remedy the situation by fighting it, even by force.

Only in the group of women who experienced more parental mistakes in childhood was a cluster revealed that indicated that a woman who experiences high levels of parental difficulties (normalized mean was 0.7) uses adaptive stress responses such as *cognitive distancing* or *seeking help* at a lower level than the women in other clusters. However, at a higher level than women in other clusters, they use *pressure and withdrawal*, and at high and moderate levels they make parental mistakes. This especially applies to the mistakes of *strictness and aggression*. A similar cluster was not found in the group of women who experienced fewer parental mistakes.

This result clearly showed that the group of women who experienced parental mistakes as children also make parental mistakes themselves. Therefore, the conclusion is that when girls are exposed to parental mistakes, they have a much greater chance of committing parental mistakes as mothers than girls who experience fewer parental mistakes (Figure 39, 40).

In the tested structural model (Figure 4), the variable of the representation of the child in the parent's mind was omitted as a mediator between a mother's parental difficulty and her method for responding to stress, as well as being a direct cause of parental mistakes (Szymańska & Aranowska, 2016; Szymańska & Dobrenko, 2017). It should be mentioned that Gurycka indicated such a representation for each parental mistake. They were described in the theoretical part of this work. In the tested model these variables were omitted, which mainly served to simplify the model. The results showed that disregarding this representation also allows for a good level of predicting parental mistakes of *strictness and aggression* as well as *self-accentuation and indulging*.

Previous studies have shown that the representation indicated by Gurycka which contributes to the *constraint of the child's activity* is highly associated with the *constraint of the child's activity*, at a higher level than *applying pressure* (Szymańska & Aranowska, 2016). The current research has not confirmed the high

predictability of *constraint and indifference* based on *discrepancy*, *parental difficulties experienced*, and stress responses. The prediction was moderate. We can therefore predict, without taking into account this representation at a good level, *strictness and aggression* and *self-accentuation and indulging* and only at a moderate level predict *constraint and indifference*.

Perhaps this is also the answer to the question of how to predict *doing things for the child* and *idealizing the child*. In future research, the model concerning *doing things for the child* and *idealizing the child* should take into account the representation of the child in the mind of the parent, indicated by Gurycka. Perhaps then the predictability will be higher. Summing up the results of the modeling, it can be stated that for a good prediction of two pairs of mistakes — *strictness and aggression* and *self-accentuation and indulging* — omitting the representation of the child in the mind of the parent allows for good prediction.

Conclusions from the analysis of the characteristics of mothers and the transfer of parental mistakes

The analyses revealing the relationship between parental mistakes experienced by a woman in childhood, her parental mistakes and other characteristics, such as needs met, system of values, personality traits, locus of control, parental goals chosen and her children's temperamental features, revealed many interesting relationships.

First of all, it was shown that when a woman as a child experienced more parental mistakes, she also made more herself. This effect applied to all mistakes except for the mistake of *doing things for the child and idealizing the child*. Those women who experienced more *doing things for the child and idealizing the child* made fewer parental mistakes themselves. Subsequent analyses only confirmed this conclusion. This makes one wonder if *doing things for the child and idealizing the child* are parental mistakes or whether they are measured correctly? Above all, however, the analyses must be repeated before final conclusions are made.

The effect regarding the number of mistakes experienced in childhood and the mistakes made by mothers also does not apply to the mistakes committed by the women's mothers, but only their fathers. This is another very important finding. The theory does not assume such an effect. It is difficult to explain why mothers' mistakes would not translate into their daughters' parental mistakes. This is an effect that should be checked in other trials in the future. However, if it turns out that this result is repeated and confirmed in other tests, it will be very important for the study of upbringing relationships, especially in the father–daughter dyad. Since current analysis was not conducted on the male population, in the future it will also be necessary to consider controlling for such an effect in a group of men.

Studies have confirmed the hypothesis that women who have experienced fewer parental mistakes in childhood not only make fewer mistakes themselves, but also have their needs met on a high and elevated level. However, women who have experienced more parental mistakes have their needs met at a moderate level, and they themselves also make more parental mistakes. It should also be noted that women who had better-met needs experienced more mistakes of *doing things for the child and idealizing the child* from their parents. This result confirms doubts as to whether doing things for the child and idealizing the child are parental mistakes.

The study showed that women who experienced more parental mistakes had lower results in values than women who experienced fewer of these mistakes. The only difference was in the values of power over resources and power over people. The women who experienced more parental mistakes valued *power over resources and people* more. This is a very interesting result, which can mean that having power makes a person simply feel safer. The power guarantees some security and control over the situation. Perhaps the need for control is especially appreciated by these women. However, no differences were found in mothers with different value systems in terms of their parental mistakes. This is a very interesting result. This is probably the only case among all analyses when we find differences in the level of parental mistakes experienced by women in childhood and in the characteristics that interest us (in this case the value system) but we do not find differences in the parental mistakes made by them as mothers.

Probably one of the most important and interesting analyses concerned the parental mistakes experienced in childhood, the parental mistakes committed by them and the personality traits of mothers. The analysis is therefore interesting that it is associated with the hypothesis that psychology has been making for decades, namely, that parental mistakes are a factor which determines personality development. The analysis presented in this work is rare in psychology because it shows the relationship not only between the mistakes experienced by mothers in childhood and the personality traits of mothers, but also the parental mistakes they make. So it reveals the relationship between these three groups of variables in one analysis. The current study has confirmed the hypothesis of many psychologists. Indeed, the positive personality traits that we would say are characterized by a mature personality are associated with experiencing fewer parental mistakes in childhood and making fewer parental mistakes. The result for the Gamma Plus personality traits, i.e., *Integration* meta-features, is of particular importance. Women who have experienced fewer parental mistakes as children and who make fewer parental mistakes themselves have a high level of this trait. In addition to highly integrated personality, they also have a high level of *Stability* (Alpha Plus) and *Plasticity* (Beta Plus) as well as a moderate level of *Self-restraint* (Delta Plus). Moreover, they developed at a low level the characteristics of *Disinhibition* (Alpha Minus) and *Disharmony* (Gamma Minus). When it comes to *Sensation-seeking* (Delta Minus) and *Passivity* (Beta Minus), this group of women is characterized by an average result. The situation is completely different in the group of women who have experienced more parental mistakes and who also make more of them themselves, especially the mistakes of *strictness and aggression* and *self-accentuation and indulging*. Significantly, this group of women has all the personality traits developed at an average level, but at a higher level the meta-traits of *Passivity* (Beta Minus) and *Disharmony* (Gamma Minus).

The analyses also confirmed the correctness of the hypothesis regarding the correlation between the experience of parental mistakes in childhood and an external locus of control and committing more parental mistakes towards their own children. People who experienced more parental mistakes (aside from the mistake of *doing things for the child and idealizing the child*) had a higher external locus of control than those who experienced fewer mistakes. Therefore, the hypothesis formulated several decades ago that an external locus of control is associated with negative childhood experiences is confirmed by this study (Poznaniak, 1998; Rotter, 1966). It has also been confirmed that people who have an external locus of control make more parental mistakes themselves. It should be noted, however, that although the level of external locus of control is statistically significantly different between the two clusters and the size of the effect is moderate, both groups are characterized by low external locus of control. However, the effect has been captured in research and although it is not large, one can notice this difference both in parental mistakes experienced by mothers, their locus of control and their parental mistakes.

The relationship between the parental mistakes experienced in childhood, the parental mistakes made by mothers and their choice of parental goals, i.e., the personal traits mothers shape in their children and the features that mothers do not want to shape in their children, revealed differences in one meta-trait. Mothers who at an elevated level experienced *constraint and indifference* from their parents and themselves applied the most *strictness and aggression* towards their children paid less attention to ensuring that their children develop integrated personality traits and cared less that their children did not develop personality traits of disintegration. However, they were more careful than mothers who made fewer parental mistakes that their children did not develop features related to sensation-seeking, i.e., the Delta Minus meta-trait. Mothers who experienced fewer parental mistakes in childhood made sure that children developed the characteristics of an integrated Gamma Plus personality and did not develop Gamma Minus traits.

In this dimension, Gurycka's hypothesis that people who have developed personality traits "towards people" make fewer parental mistakes and, apparently, try to make their children develop an attitude "towards people" is also confirmed. The Gamma Plus integrated personality trait is characterized by warmth and friendly relations with other people. It can be said that this attitude is "towards people."

Finally, the last analysis concerned parental mistakes experienced, parental mistakes committed and the temperamental features of the child. The findings also confirmed the validity of the last hypothesis of this study. Mothers who made fewer parental mistakes indicated that their children had temperamental traits which we could define as easier. It was the group of mothers whose children were characterized by a high level of features such as *Approach, Flexibility, Good mood*

and *Regularity of sleep* as well as a moderate level of *Regularity of eating, Regularity of habits*, *Concentration* and *Persistence*. What is significant, however, is not only that these mothers made fewer parental mistakes but also that they themselves experienced fewer parental mistakes in childhood. The relationship between the child's temperamental traits and the mother's potential parental mistakes is quite obvious. It has long been shown that a child's temperament is associated with parental stress as well as parenting style and the attitude of the parent towards the child (Casalin et al., 2014; Kiel & Buss, 2012; Kim & Kochanska, 2012; Laukkanen & Ojansuu, 2014; CL Lee & Bates, 1985; Puura et al., 2013). The current study has shown something more; it has revealed that mothers whose children have an easier temperament not only make fewer parental mistakes, but also experienced fewer parental mistakes as children. This raises a serious question about the inheritance of temperamental traits. Perhaps the group of mothers who made fewer parental mistakes also experienced fewer of them because they also had an easier temperament as children?

Of course, the women who experienced more parental mistakes and also made more of them themselves indicated that their children have a lower results in temperament. The results of these children in terms of *Approach, Flexibility, Good Mood, Sleep Regularity, Eating Regularity, Regularity Habits, Concentration and Perseverance* were moderate. In terms of temperamental traits, a large effect between two groups of mothers occurred in the field of *Good mood* of children. Only in terms of *General Activity* and *Activity during sleep* were there no differences between the two clusters.

The future of research on parental mistakes: Building expert systems

The artificial neural networks used in the study tested the model's goodness of fit in the sense of determining the possibility of predicting parental mistakes on the basis of the variables described in the model. The results obtained using the artificial neural networks showed that prediction of three pairs of mistakes, namely, *strictness and aggression*, *constraint and indifference* and *self-accentuation and indulging* are good and moderate. Only for the mistakes of *doing things for the child and idealizing the child* on the basis of the variables described in the structural model can a reasonable prediction of the results not be made. If, based on the variables known to us, we can predict the behavior of mothers in terms of their parental mistakes, it means that we can generate rules that would allow us to forecast whether the mother will or will not make a mistake. This opens the way to the very desirable — according to the author's method of diagnosis — *expert systems*.

Expert systems are interactive databases whose basic task is to simulate human expertise and help in making decisions on very complex issues (Luger, Stubblefield, 1989; Michalik, 2006). "Expert systems can be defined as problem-solving programs that resemble the behavior of an expert or specialist in a generally-defined narrow field" (Michalik, 2006). Such an expert system could be an adviser supporting the decision over whether or not a parental mistake occurred and helping to predict future occurrences of parental mistakes. Knowledge about this subject is very much needed for parents and is much sought after by them. We know this based on the importance that Polish Google AdWords (a company dealing in advertising products on the Internet) assigns to the term "parental mistake." To place an add with this word on the first page of search results, one has to pay over 14.60 PLN per click.[1] For comparison, the search terms "temperament" or "personality" costs 2–5 PLN.

However, before building expert systems, scientists should focus on further research on parental mistakes. First, the same analysis should be done as for the population of mothers, this time on the population of fathers. Answers to the following questions should be sought: Will we get similar relationships in the

[1] This is the current price for 2018, the time of publication of this book.

population of fathers between a) the parental mistakes they experienced when they were children, b) their parental mistakes, c) their personality traits, d) system of values, e) level of satisfied needs, f) the parental goals they choose, g) their locus of control and h) the temperamental characteristics of their children? Will it be revealed, as with the population of mothers, that when a father experiences more parental mistakes from his parents, he also makes more of them as a parent? Will we achieve, as with mothers, the effect associated with the role of a grandmother or grandfather for the relationship of parental mistakes committed by the father? Ultimately, is the experience of parental mistakes in childhood associated with a stronger experience of stress response, as a result of which the father makes more parental mistakes, as was found among mothers? These questions should be answered before building the expert system. Otherwise, the diagnoses obtained by the expert system can only apply to women.

It is also important to modernize scales for measuring parental mistakes. The research carried out here on Gurycka's original scales had a deep meaning. Not only did they determine the reliability of these tools, but they also showed how the measured variables representing mental constructs correlate with Gurycka's original scales. In the future, these tests will need to compare the results obtained with modern tools measuring parental mistakes. It is necessary to first build these tools. Gurycka's scales have average reliability in terms of classical test theory and virtually none in terms of the theory of generalizability. This last complaint, however, concerns almost all psychological tests, with a few exceptions. However, the first complaint of many famous psychological tests, commonly used even in individual diagnosis, is that many commonly used tests have a reliability of <0.6. Moreover, it is known that from time to time the measuring scales should be modernized to reflect the current social situation. The construction of these scales for testing parental mistakes will be a challenge, but it is worth noting that Gurycka's scales are very short — a fact which is their great advantage. Only 87 questions can diagnose the perception of parental mistakes. Building a similar tool will be a daunting challenge even for experienced researchers. Modern scales for measuring parental mistakes should be reliable not only according to classical test theory, but also according to the theory of generalizability (Aranowska, 2005).

One of the most difficult studies still remaining to be done is the study of the child's experience, on the basis of which it will be possible to conclude whether a parental mistake was made or not. The study described herein was a retrospective study. Ultimately, however, a study should be performed on the child's current experience in the situation of parental mistakes. The purpose of this research is to try to capture the child's experience of a parental mistake and how it can affect the development of the child's personality traits.

In summary, the results obtained in the study show that based on the knowledge of the experience of parental mistakes one can predict the level of a mother's parental mistakes. If it turns out that future research confirms the results obtained here, the possibility of building expert systems becomes real. To build such systems, it is necessary to generate rules on the basis of which it will be possible to predict the results of people in the field of their parental mistakes.

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Streszczenie

Celem badań opisanych w książce było sprawdzenie czy zachodzą relacje między błędami wychowawczymi jakie kobiety wychowujące dzieci w wieku przedszkolnym doświadczyły w swoich rodzinach pochodzenia (ze strony swojej matki i swojego ojca) a błędami wychowawczymi, które same popełniają. Sprawdzano jak doświadczenie błędów wychowawczych w rodzinach pochodzenia oraz popełniane przez matki błędy wychowawcze związane są z takimi cechami matek jak: osobowość, system wartości, zaspokajanie potrzeb, umiejscowienie kontroli, cele wychowawcze matek oraz cechy dziecka, którymi są ich cechy temperamentalne.

W badaniu sprawdzano również czy doświadczanie trudności wychowawczych przez matki (stres rodzicielski) jest związane z niemożnością zrealizowania przez nie celów wychowawczych oraz czy determinuje popełnianie przez nie błędów wychowawczych. Określano czy kobiety, które w dzieciństwie doświadczyły więcej błędów wychowawczych silniej doświadczają trudności wychowawczych, w wyniku których popełniają więcej błędów wychowawczych.

W końcu jednym z najważniejszych celów badań było sprawdzenie czy na podstawie wiedzy dotyczącej celów wychowawczych, doświadczania trudności wychowawczych i sposobów radzenia sobie z tymi trudnościami (ze stresem) można przewidzieć poziom popełnianych przez matki błędów wychowawczych?

Badanie przeprowadzono na 402 osobowej próbie matek dzieci w wieku od trzech do sześciu lat a więc dzieci w wieku przedszkolnym. W próbie była równoliczna grupa matek dziewcząt jak i chłopców. W badanej próbie najliczniejsza grupa matek znajdowała się między 28 a 39 rokiem życia. Zdecydowana większość matek należących do próby miała wyższe wykształcenie.

W celu obliczenia wyników i udzielenia odpowiedzi na stawiane w pracy pytania wykorzystano metodę układu równań strukturalnych, której celem było sprawdzenie poprawności modelu strukturalnego, prezentującego relacje między niemożnością zrealizowania przez matki celów wychowawczych, doświadczanymi przez matki trudnościami wychowawczymi, reakcją na stres, jaką jest: stosowanie presji, wycofanie się z sytuacji wychowawczej, poszukiwanie pomocy lub przyjmowanie dystansu poznawczego a popełnianymi błędami wychowawczymi.

Aby udzielić odpowiedzi na pytania dotyczące relacji pomiędzy doświadczonymi przez matki w dzieciństwie błędami wychowawczymi, popełnianymi przez nie błędami wychowawczymi a ich cechami osobowości, zaspokojeniem potrzeb, ich systemem wartości, umiejscowieniem kontroli, obieranymi przez matki celami wychowawczyni i cechami temperamentalnymi dzieci zastosowano analizę skupień, którą obliczały algorytmy data mining. Metodę text mining wykorzystano do przekształcenia danych jakościowych jakimi były słowa opisujące cele wychowawcze matek na dane liczbowe. Służyła ona zatem do przygotowania bazy danych do analiz.

Uzyskane wyniki ujawniły poprawność modelu strukturalnego, który zakładał, że niemożność zrealizowania przez matki celów wychowawczych jest związana z doświadczaniem przez nie trudności (stresu) a w dalszej kolejności ze stosowaniem przez nie nieadaptacyjnych reakcji na stres, jakimi są: stosowanie presji oraz wycofywanie się z sytuacji wychowawczej. W konsekwencji stosowania nieadaptacyjnych reakcji na stres matka popełnia błędy wychowawcze. W badaniu ujawniono, że w grupie matek, które doświadczyły w dzieciństwie więcej błędów wychowawczych omówiona powyżej struktura jest silnie związana ze sobą. W grupie matek, które doświadczyły mniej błędów wychowawczych relacje między zmiennymi są niższe a niektóre w ogóle nie występują (struktura się rozpada). Na podstawie wiedzy o możliwości zrealizowania przez matki celów wychowawczych, doświadczanych przez matki trudności wychowawczych, reakcji na stres, można na dobrym poziomie przewidzieć błędy agresji i rygoryzmu oraz eksponowanie siebie przez matki i uleganie dziecku. Dla pozostałych błędów wychowawczych predykcja jest umiarkowana lub słaba.

Wyniki ujawniły także, że matki, które doświadczyły mniej błędów wychowawczych w dzieciństwie, same również popełniały mniej błędów wychowawczych i miały silniej rozwinięte cechy osobowości typu plus a szczególnie przejawiały cechy osobowości zintegrowanej, miały lepiej zaspokojone potrzeby, charakteryzowały się niższym zewnętrznym umiejscowieniem kontroli, charakteryzował je wyższy system wartości a szczególnie wartości związanych z życzliwością niezawodnością i troskliwością o innych, matki te również u swoich dzieci rozwijały cechy zintegrowanej osobowości i starały się nie dopuścić do tego aby dzieci rozwijały cechy osobowości zdysharmonizowanej. Wykazano, że dzieci tych matek charakteryzowały się łatwiejszym typem temperamentu.

Matki, które doświadczyły w dzieciństwie więcej błędów wychowawczych same również popełniały więcej błędów wychowawczych, na podobnym poziomie miały rozwinięte cechy osobowości plus jak i minus, szczególnie ceniły takie wartości jak władzę nad zasobami i władzę nad ludźmi, w większości wartości miały wyniki niższe niż matki które doświadczyły mniej błędów wychowawczych, miały niżej zaspokojone potrzeby a ich dzieci cechował zdecydowanie trudniejszy typ temperamentu.

Podsumowując, uzyskane badania pokazały, że można wnioskować o tym, że pewne błędy wychowawcze lub tendencja do przejawiania błędów wychowawczych jest dziedziczona. Może to wynikać z faktu, że matka w sposób świadomy lub nie naśladuje zachowania swoich rodziców i poprzez modelowanie uczy się jak być rodzicem. Co więcej, uzyskane wyniki dotyczące reakcji stresowej z popełnionymi błędami wychowawczymi ujawniły, że grupa matek, która doświadczyła więcej błędów wychowawczych jest bardziej podatna na doświadczanie trudności wychowawczych, przeżywanie stresu. Matki te mniej umiejętnie radzą sobie z doświadczeniami trudności jakie napotykają w procesie wychowawczym swoich dzieci a w konsekwencji popełniają więcej błędów wychowawczych.

Summary

The aim of the research described in the book was to check whether there are relationships between the parental mistakes that women who are bringing up preschool children experienced in their families of origin (on the part of their mother and their father) and any parental mistakes that they themselves make. It investigated how the experience of parental mistakes in families of origin and parental mistakes made by mothers are related to traits of the mothers, such as: personality, value system, satisfying needs, locus of control, mother's parental goals and child's temperamental features.

The study also examined whether mothers' experiencing of parental difficulties (parental stress) is related to their inability to achieve their parental goals and whether these difficulties determine their parental mistakes. It explored whether women who experienced more child-rearing mistakes in childhood more strongly experience difficulties in raising their own children, as a result of which they make more child-rearing mistakes.

Ultimately, one of the most important research goals was to check whether one can predict the level of parental mistakes made by mothers, given information about parental goals, parental difficulties experienced and ways of dealing with these difficulties (stress).

The study was conducted on a sample of 402 mothers with children aged three to six years, i.e., preschoolers. There was an equal representation of mothers of girls and boys in the sample. In the study sample, the largest group of mothers was between 28 and 39 years old. The vast majority of mothers in the sample had a university degree.

In order to calculate the results and answer the questions posed in the work, the method of structural equation modelling was used, which aimed to check the correctness of the structural model, presenting the relationship between mothers making parental mistakes, the inability of mothers to achieve their parental goals, experiencing of parental difficulties and their stress response, namely, applying pressure, withdrawing from the upbringing situation, seeking help or taking cognitive distance.

In order to answer the questions about the relationship between parental mistakes experienced by mothers in childhood, their parental mistakes, their personality traits, needs, system of values, locus of control and parental goals and the temperamental characteristics of their children, cluster analysis was used, which calculate data mining algorithms. The text mining method was used to transform qualitative data — such as words describing mothers' parental goals — into numerical data. It was therefore used to prepare the database for analysis.

The results of this analysis confirmed the correctness of the structural model, which assumed that the inability of mothers to achieve parental goals is related to their experiencing parental difficulties (stress) as well as their use of non-adaptive stress responses, such as applying pressure or withdrawing from the upbringing situation. As a consequence of using non-adaptive reactions to stress, the mother makes parental mistakes. The study revealed that among the mothers who experienced more parental mistakes in childhood, the structure discussed above is strongly interrelated. Among the mothers who experienced fewer parental mistakes, the correlations between variables are weaker and some do not occur at all (the structure breaks down). Given information about whether mothers can achieve their parental goals, whether mothers experience parental difficulties and the nature of their stress response, it is possible to predict the parental mistakes of aggression and strictness as well as mothers' self-accentuation and indulging the child. For other parental mistakes, the prediction is moderate or weak.

The results also revealed that mothers who experienced fewer parental mistakes in childhood also made fewer parental mistakes themselves, had more developed "Plus" personality traits — particularly integrated personality traits — had needs which were better met, had less of an external locus of control and demonstrated certain values more strongly — especially values associated with kindness, reliability and caring for others; these mothers also developed in their children the features of an integrated personality and tried to prevent their children from developing disharmonized personality traits. It was shown that the children of these mothers were characterized by an easier temperamental type.

The mothers who experienced more parental mistakes in childhood also committed more parental mistakes, had similar "Plus" and "Minus" personality traits at a similar level — especially such values as power over resources and power over people, but mostly had lower values — had lower needs and their children had a much more difficult temperamental type than mothers who experienced fewer parental mistakes.

Summing up, the research results allow us to conclude that certain parental mistakes or a tendency to manifest parental mistakes is inherited. This may be

due to the fact that the mother, whether consciously or not, imitates the behavior of her parents, and by modeling she learns how to be a parent. What's more, the findings regarding the stress response with parental mistakes revealed that the group of mothers who experienced more parental mistakes is more prone to experiencing parental difficulties and stress. These mothers are less able to deal with the difficulties they encounter in the upbringing process of their children and, as a consequence, they make more parental mistakes.

ANNEX:
APPLIED RESEARCH TOOLS

Appendix A

Ladies and Gentlemen,

I invite you to take part in a study, the aim of which is to better understand the factors contributing to the emergence of difficult situations in child-rearing. The study has been designed to ensure your anonymity. It takes place via the Internet. We want your responses to be as honest as possible, because it affects the test results. Tests are available on the website www.badanianaukowe.uksw.edu.pl.

You will find all of the necessary instructions there. I would like to thank you in advance for deciding to take part in the study.

Appendix B

Elements of the Discrepancy Scale (Szymańska)

INSTRUCTIONS
Please list three traits that are especially important to you as a parent and which you make an effort to make sure your child develops.

Trait one:…….. (enter trait name here)
Mark how important this trait is to you as a parent and the extent to which you want your child to be like this.
-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7
(-7) definitely not like this (7) definitely like this
Mark the extent to which (write your child's name here) has developed the trait in question.
-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7
(-7) definitely has not (7) definitely has

Trait second:…….. (enter trait name here)
Mark how important this trait is to you as a parent and the extent to which you want your child to be like this?
-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7
(-7) definitely not like this (7) definitely like this
Mark the extent to which (write your child's name here) has developed the trait in question.
-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7
(-7) definitely has not (7) definitely has

Trait third:…….. (enter trait name here)
Mark how important this trait is to you as a parent and the extent to which you want your child to be like this?
-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7
(-7) definitely not like this (7) definitely like this

Mark the extent to which (write your child's name here) has developed the trait in question.

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely has not (7) definitely has

Please list three traits which you make an effort to make sure your child does not develop.

Trait one:…….. (enter trait name here)

Mark how important this trait is to you as a parent and the extent to which you want your child to be like this?

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely not like this (7) definitely like this

Mark the extent to which (write your child's name here) has developed the trait in question.

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely has not (7) definitely has

Trait second:…….. (enter trait name here)

Mark how important this trait is to you as a parent and the extent to which you want your child to be like this?

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely not like this (7) definitely like this

Mark the extent to which (write your child's name here) has developed the trait in question.

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely has not (7) definitely has

Trait third:…….. (enter trait name here)

Mark how important this trait is to you as a parent and the extent to which you want your child to be like this?

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely not like this (7) definitely like this

Mark the extent to which (write your child's name here) has developed the trait in question.

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

(-7) definitely has not (7) definitely has

Appendix C

Elements of the Scale of Experiencing Parenting Difficulty (Parental Stress) (Szymańska)

Please answer the following statements:

tr 1 I have many parenting difficulties with my child.

0 1 2 3 4 5 6 7 8 9 10
(0) Never (1) Extremely rare (7) Continuously (always)

tr 2 I have the impression that raising my child is a constant struggle.
tr 3 I experience parenting difficulties associated with my child.
tr 4 I am constantly upset due to conflict with my child.
tr 5 I often feel powerless in situations with my child.
tr 6 I am constantly angry because of my child's behavior.
tr 7 I cannot cope with my child.
tr 8 I experience a lot of anxiety in situations with my child.

Appendix D

The Stress Scale (Szymańska)
Please answer the following statements:
S1 I seek solutions in difficult situations concerning my child and myself.

0 1 2 3 4 5 6 7 8 9 10
(0) Never (1) Extremely rare (7) Continuously (always)

S2 I can deal with raising my child (even if it is difficult for me).
S3 When something goes wrong in my relationship with my child, I know that in the end I will find a solution.
S4 I am not discouraged by difficulties in bringing up my child; I can view them from a distance.
S5 I look for professional help when I have difficulties in raising my child.
S6 I seek various consultations as I do not know how to bring up my child.
S7 I can deal with difficulties associated with my child by applying pressure.
S8 I use coercion when there are problems with my child.
S9 When I'm having difficulty with my child I force my child to surrender.
S10 I'm tired of raising my child.
S11 I retreat when it is difficult and I cannot get along with my child.
S12 I avoid contact with my child when I lose the strength to cope with my child.
S13 I do not try (I give up) when difficulties arise in my relationship with my child.
S14 The difficulties I experience in my relationship with my child make contact with my child very difficult.
S15 I do not confront my child.

Appendix E

Questionnaire of the Parent's Self-perception (Gurycka)

Select the circle at the appropriate place along the scale:

b1 When you make the requirements for ....., what level of detail (accuracy) do you think is appropriate?

Very specific requirements	1	2	3	4	5	6	7	Very general requirements

b2 When you check (inspect) whether ..... has fulfilled your requirements, what level of detail (accuracy) do you think is appropriate?

Very detailed inspection	1	2	3	4	5	6	7	Very general inspection

b3 When evaluating the task performance of ..... do you form more positive or negative ratings?

More positive ratings	1	2	3	4	5	6	7	More negative ratings

b4 How strongly do you emphasize your requirements and announce a penalty to ..... to be obedient?

Very strongly	1	2	3	4	5	6	7	Very weakly

b5 Do you sometimes feel that ..... is somehow a threat and that this fact keeps you from fulfilling your needs and intentions?

Very often	1	2	3	4	5	6	7	Never

b6 Are you forced to show your strength or advantage to…….?

Never 1 2 3 4 5 6 7 Often

b7 If ..... upsets you, then the most effective response is (mark all solutions which are right in your opinion; alternatively, next to letter "j" enter a different, better solution):

a) complain
b) be ironic
c) smack
d) insult
e) disregarded
f) pull his/her ear
g) tap on his/her head
h) push
i) berate
j) .....

b8 Are there many things in the course of raising ..... that require "a strong hand" to make him/her fear punishment and disobedience?

Many 1 2 3 4 5 6 7 None

b9 Does ..... perform a lot of redundant activities, which you think are unnecessary?

A lot of such activities 1 2 3 4 5 6 7 No such activities at all

b10 If you think that ..... performs redundant activities, list some of them:
……
……
……
…… ……

b11 How do you behave when ..... performs actions you find redundant (mark your behavior in such situations; you can mark a few letters or next to the letter "h" name a behavior which is not mentioned here)?

a) you prohibit or punish
b) you interrupt this activity
c) you criticize or give another task
d) you explain that it does not make sense; you turn child's attention in a different direction

e) you show him/her how to do it better
f) you encourage your child to continue
g) you do not disturb, but try to understand
h). . . . . .

b12 Do you leave ..... a lot of time for him/her to take with such activities or to take initiative himself/herself?

A lot of time	1 2 3 4 5 6 7	Very little time

b13 Which is more beneficial for .....'s development when he/she cannot be reconciled with:
a) when (s)he carries out a task that you instruct him/her to do
b) when (s)he carries out a task that (s)he undertakes on his/her own initiative

Definitely my instructions	1 2 3 4 5 6 7	Definitely the child's own ideas

b14 Do you prefer to maintain distance or be in close touch with ..... ?

Distance	1 2 3 4 5 6 7	Closeness

Note: Did you remember to enter your child's name in the blank spaces?

b15 Do you share in ……..'s successes and problems?

Always	1 2 3 4 5 6 7	Never

b16 Should ..... cope with his/her own affairs alone, or is (s)he entitled to expect your help?

Should always manage alone	1 2 3 4 5 6 7	Has the right to expect my help

b17 Are you guided by what .... expects of you in different life situations?

Always	1 2 3 4 5 6 7	Never

b18 As an adult, do you have more rights than ..... in your interaction with him/her because you are the parent?

Definitely yes 1 2 3 4 5 6 7 Definitely no

b19 Do you contrast .....'s weaknesses and deficiencies with your values, achievements and experience to give him (her) an example that you can be better than he (she) is?

Very often 1 2 3 4 5 6 7 Never

b20 Do you explain (justify) your prohibitions and orders to ..... with your tiredness, sadness, malaise and troubles?

Very often 1 2 3 4 5 6 7 Never

b21 Do you show ..... that you are offended by him/her?

Very often 1 2 3 4 5 6 7 Never

b22 Are there many things in raising ..... that you are helpless with?

Many 1 2 3 4 5 6 7 None

b23 Is changing your mind about tasks and requirements a good way to avoid conflict with .....?

More yes 1 More no 7

b24 Does ……. sometimes feel that you do not know how to deal with him/her?

More yes 1 More no 7

b25 Select your answer with the wheel in the appropriate place on the scale below:

I prefer temporary conflict with ..... to disobedience	1 2 3 4 5 6 7	I prefer to give up on requirements than have even a temporary conflict with ....

b26 When ..... has difficulties completing school or home assignments, then you:

a) do not interfere.
b) do the work for him/her.

I do not interfere	1 2 3 4 5 6 7	I do the work

b27 Choose (circle) the best statement for you:

I should not expose ..... to feeling sorry for the failure to perform tasks; it's better to help him/her complete the task, even if I do it.	..... has a lot to learn in order to live the world of adults, so I must not do his/her work for him/her.
1	7

If you cannot answer completely, emphasizing 1 or 7, do not answer at all!

b28 Sometimes the only way out of a situation is to do the work for ..... .

Very often	1 2 3 4 5 6 7	Very rarely

b29 Choose (circle) the correct statement:

The child I'm writing about is not very mentally resistant that I have to keep protecting him/her.	The child I am writing about is not as weak as (s)he seems; I do not remove every obstacle from his/her path.
1	7

b30 ..... must always feel that it is the center of your aspirations and interests.

Definitely yes 1 2 3 4 5 6 7 Definitely no

b31 ..... is exposed to many different dangers and you must constantly protect him/her.

Definitely yes 1 2 3 4 5 6 7 Definitely no

b32 I want ..... to be perfect, better than others.

Definitely yes 1 2 3 4 5 6 7 Definitely no

b33 Regardless of what others think, ... has only advantages in my view, and even if (s)he has defects, then I tolerate them because (s)he is my child.

Definitely yes 1 2 3 4 5 6 7 Definitely no

Appendix F

Questionnaire of the Child's Perception (version for the assessment of mothers' behavior, Gurycka)

bm1 In how much detail did your mother formulate instructions for you?

Very detailed 1 2 3 4 5 6 7 Very general

bm2 How closely did your mother check that you executed the tasks given to you?

Very precisely 1 2 3 4 5 6 7 Very imprecisely

bm3 When your mother evaluated what you did, did you usually hear praise or reprimands?

More often reprimands 1 2 3 4 5 6 7 More often praise

bm4 How often did you hear from your mother that you would be punished if her orders were not carried out?

Very often 1 2 3 4 5 6 7 Very rarely

bm5 Did your mother use force against you?

Very often 1 2 3 4 5 6 7 Very rarely

bm6 When you upset your mother, how did she typically behave? You can select more than one answer.

– she shouted
– she was sarcastic

– she slapped you
– she insulted you
– she neglected you
– she pulled your ear
– she screamed at you
– ..... (enter other behavior)

bm7 Did your mother often tell you that you were dealing with matters that are not worth spending so much time on?

Very often	1 2 3 4 5 6 7	Very rarely

bm8 When you did something that, according to your mother, was not important, how did she behave? You can select more than one answer.

– she forbade you
– she interrupted you
– she criticized you and gave you another task
– she explained that it does not make sense
– she showed you how to do it better
– she encouraged you to continue what you were doing
– she did not bother you
– ..... (enter other behavior)

bm9 When was your mother more satisfied?

When you were doing the tasks she gave you	1 2 3 4 5 6 7	When you were doing things on your own initiative

bm10 Did your mother experience your joys and sorrows with you?

Rarely	1 2 3 4 5 6 7	Often

bm11 When you had a problem, could you count on your mother's help?

Never	1 2 3 4 5 6 7	Always

bm12 Was your mother interested in your affairs?

Never	1 2 3 4 5 6 7	Always

bm13 Did your mother often point out your faults and depict herself as a model that you should follow?

Never	1 2 3 4 5 6 7	Often

bm14 Did your mother explain to you her problems, orders and restrictions with tiredness, sadness and a bad mood?

Often	1 2 3 4 5 6 7	Rarely

bm15 Did your mother show you that she was offended by you?

Often	1 2 3 4 5 6 7	Rarely

bm16 Did your mother often change her mind about her previous requirements?

Often	1 2 3 4 5 6 7	Rarely

bm17 Did you often feel that your mother did not know how to deal with you?

Often	1 2 3 4 5 6 7	Rarely

bm18 How did your mother act when you disobeyed?

She forced me to follow orders	1 2 3 4 5 6 7	She gave up on the requirements she had set

bm19 When you could not do your homework, what did your mother do?

She did not interfere	1 2 3 4 5 6 7	She did my homework for me

bm20 Did your mother solve your problems for you?

Often 1 2 3 4 5 6 7 Rarely

bm21 When you were tired, did your mother suggest that she could perform some of your duties for you?

Often 1 2 3 4 5 6 7 Rarely

bm22 Did your mother show you that you are the main object of her worries and interests?

Often 1 2 3 4 5 6 7 Rarely

bm23 Did you have the impression that your mother feared for you and tried to protect you from some danger?

Often 1 2 3 4 5 6 7 Rarely

bm24 Did your mother tell you that you should be better than others in every respect?

Often 1 2 3 4 5 6 7 Rarely

bm25 Did your mother often change her requirements of you?

Often 1 2 3 4 5 6 7 Rarely

bm26 Did your mother often change her assessment of your behavior?

Often 1 2 3 4 5 6 7 Rarely

bm27 Did your mother always behave consistently towards you?

Very inconsistent 1 2 3 4 5 6 7 Always consistent

Appendix G

Questionnaire of the Child's Perception (version for the assessment of fathers' behavior, Gurycka)

bo1 In how much detail did your father formulate instructions for you?

Very detailed 1 2 3 4 5 6 7 Very general

bo2 How closely did your father check that you executed the tasks given to you?

Very precisely 1 2 3 4 5 6 7 Very imprecisely

bo3 When your father evaluated what you did, did you usually hear praise or reprimands?

More often reprimands 1 2 3 4 5 6 7 More often praise

bo4 How often did you hear from your father that you would be punished if his orders were not carried out?

Very often 1 2 3 4 5 6 7 Very rarely

bo5 Did your father use force against you?

Very often 1 2 3 4 5 6 7 Very rarely

bo6 When you upset your father, how did he typically behave? You can select more than one answer.
– he shouted
– he was sarcastic
– he slapped you

– he insulted you
– he neglected you
– he pulled your ear
– he screamed at you
– ... . (enter other behavior)

bo7 Did your father often tell you that you were dealing with matters that are not worth spending so much time on?

Very often 1 2 3 4 5 6 7 Very rarely

bo8 When you did something that, according to your father, was not important, how did he behave? You can select more than one answer.

– he forbade you
– he interrupted you
– he criticized you and gave you another task
– he explained that it does not make sense
– he showed you how to do it better
– he encouraged you to continue what you were doing
– he did not bother you
– ... . (enter other behavior)

bo9 When was your father more satisfied?

When you were doing the tasks he gave you 1 2 3 4 5 6 7 When you were doing things on your own initiative

bo10 Did your father experience your joys and sorrows with you?

Rarely 1 2 3 4 5 6 7 Often

bo11 When you had a problem, could you count on your father's help?

Never 1 2 3 4 5 6 7 Always

bo12 Was your father interested in your affairs?

Never	1	2	3	4	5	6	7	Always

bo13 Did your father often point out your faults and depict himself as a model that you should follow?

Never	1	2	3	4	5	6	7	Often

bo14 Did your father explain to you his orders and restrictions with tiredness, sadness, a bad mood and problems?

Often	1	2	3	4	5	6	7	Rarely

bo15 Did your father show you that he was offended by you?

Often	1	2	3	4	5	6	7	Rarely

bo16 Did your father often change his mind about his previous requirements?

Often	1	2	3	4	5	6	7	Rarely

bo17 Did you often feel that your father did not know how to deal with you?

Often	1	2	3	4	5	6	7	Rarely

bo18 How did your father act when you disobeyed?

He forced me to follow orders	1	2	3	4	5	6	7	He gave up on the requirements he had set

bo19 When you could not do your homework, what did your father do?

He did not interfere	1	2	3	4	5	6	7	He did my homework for me

bo20 Did your father solve your problems for you?

Often 1 2 3 4 5 6 7 Rarely

bo21 When you were tired, did your father suggest that he could perform some of your duties for you?

Often 1 2 3 4 5 6 7 Rarely

bo22 Did your father show you that you are the main object of his worries and interests?

Often 1 2 3 4 5 6 7 Rarely

bo23 Did you have the impression that your father feared for you and tried to protect you from some danger?

Often 1 2 3 4 5 6 7 Rarely

bo24 Did your father tell you that you should be better than others in every respect?

Often 1 2 3 4 5 6 7 Rarely

bo25 Did your father often change his requirements of you?

Often 1 2 3 4 5 6 7 Rarely

bo26 Did your father often change his assessment of your behavior?

Often 1 2 3 4 5 6 7 Rarely

bo27 Did your father always behave consistently towards you?

Very inconsistent 1 2 3 4 5 6 7 Always consistent

Appendix H

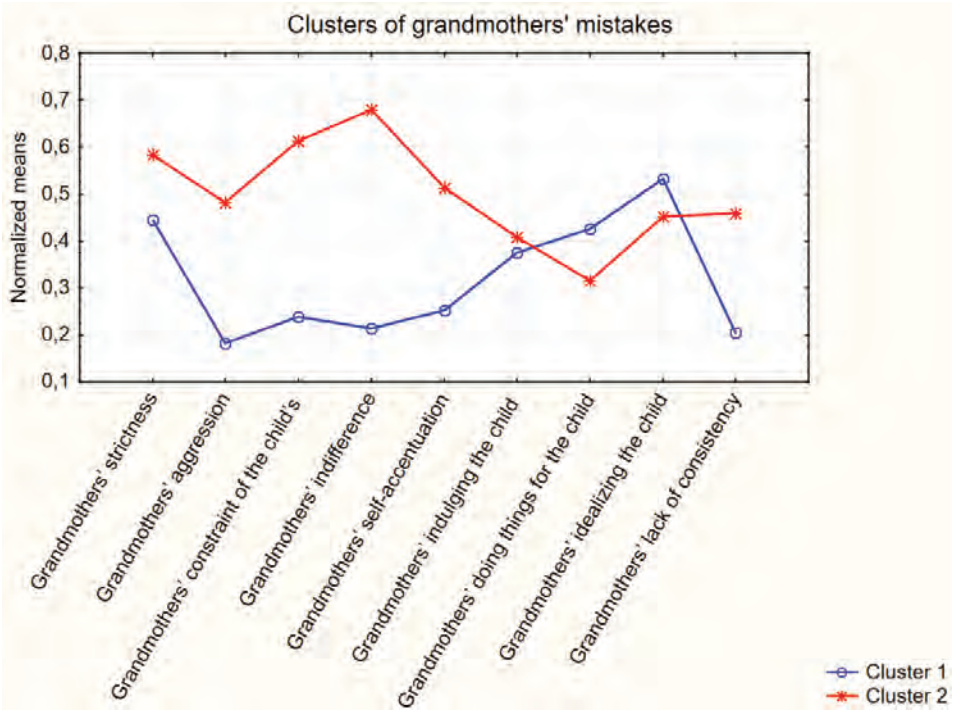

Figure B1. **Clusters of grandmothers' mistakes**

Table A9
Cluster means, sizes and percentages for women's perception of their mothers' mistakes

	Cluster 1	Cluster 2
Grandmothers' strictness	11.0050505	13.5
Grandmothers' aggression	5.46969697	11.1568627
Grandmothers'constraint of the child's activity	5.82323232	11.8039216
Grandmothers' indifference	6.84343434	15.2401961
Grandmothers' self-accentuation	7.28787879	11.7352941
Grandmothers' indulging the child	9.75252525	10.3431373
Grandmothers' doing things for the child	10.6565657	8.68137255
Grandmothers' idealizing the child	12.5909091	11.1323529
Grandmothers' lack of consistency	6.67676768	11.2696078
Numer of cases	198	204
Percent (%)	49.2537313	50.7462687

Table A10
ANOVA results for clusters of grandmothers' mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	η^2 inter pretation
Grandmothers' strictness	625.450	1	4595.995	400	54.4344	0.000000	0.120	medium
Grandmothers' aggression	3249.833	1	4866.299	400	267.1298	0.000000	0.400	large
Grandmothers'constraint of the child's activity	3593.948	1	4226.970	400	340.0968	0.000000	0.460	large
Grandmothers' indifference	7084.235	1	7019.377	400	403.6960	0.000000	0.502	large
Grandmothers' self-accentuation	1987.397	1	3948.297	400	201.3422	0.000000	0.335	large
Grandmothers' indulging the child	35.049	1	6464.854	400	2.1686	0.141643	0.005	very small
Grandmothers'doing things for the child	392.002	1	7604.936	400	20.6183	0.000007	0.05	small
Grandmothers' idealizing the child	213.755	1	8563.290	400	9.9847	0.001698	0.024	small
Grandmothers' lack of consistency	2119.493	1	6781.485	400	125.0165	0.000000	0.238	large

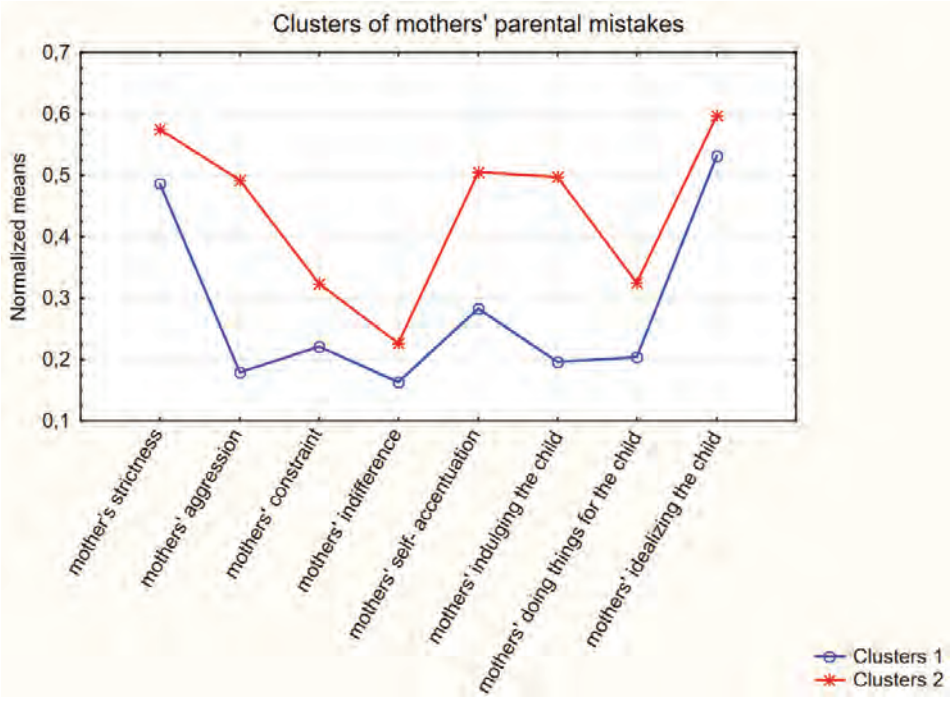

Figure B2. **Clusters of mothers' parental mistakes**

Table A11

Cluster means, sizes and percentage of cases belonging to clusters of mothers' parental mistakes

	Cluster 1	**Cluster 2**
mothers' strictness	15.1976744	17.2291667
mothers' aggression	6.93023256	13.8263889
mothers' constraint of the child's activity	7.63178295	9.80555556
mothers' indifference	6.2751938	7.17361111
mothers' self-accentuation	10.5077519	15.6319444
mothers' indulging the child	8.52325581	15.4444444
mothers' doing things for the child	8.90697674	11.8055556
mothers' idealizing the child	15.7093023	17.1319444
Number of cases	258	144
Percent (%)	64.1791045	35.8208955

Table A12
ANOVA results for clusters of mothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
mothers' strictness	381.405	1	5352.356	400	28.5037	0.000000	0.067	medium
mothers' aggression	4395.116	1	3903.404	400	450.3880	0.000000	0.530	large
mothers' constraint of the child's activity	436.701	1	4200.575	400	41.5849	0.000000	0.094	medium
mothers' indifference	74.595	1	2566.121	400	11.6277	0.000716	0.028	small
mothers' self-accentuation	2426.649	1	5301.978	400	183.0750	0.000000	0.314	large
mothers' indulging the child	4427.081	1	6417.916	400	275.9202	0.000000	0.408	large
mothers' doing things for the child	776.473	1	5764.323	400	53.8813	0.000000	0.119	medium
mothers' idealizing the child	187.046	1	6213.691	400	12.0409	0.000577	0.029	small

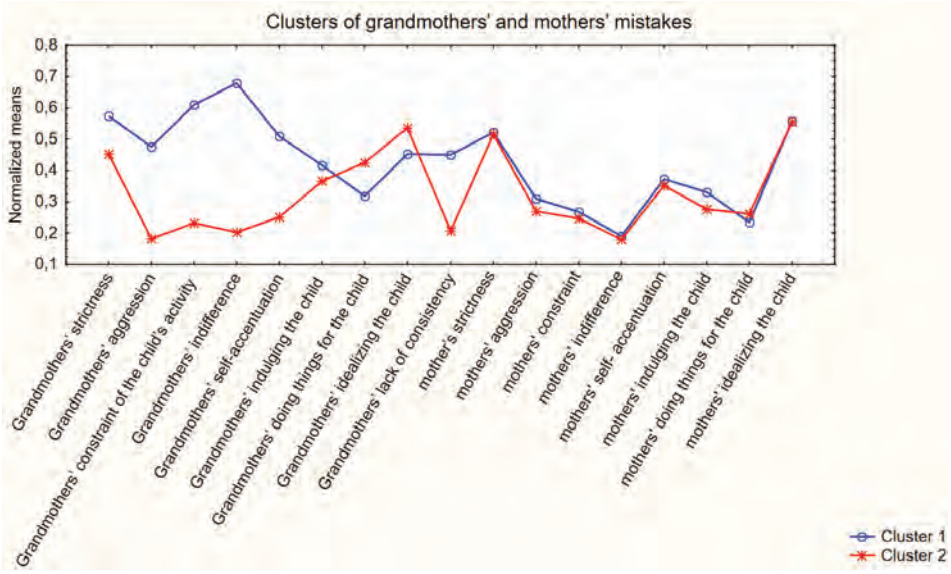

Figure B3. **Clusters of grandmothers' and mothers' mistakes**

Table A13
Means, sizes and percentage of cases belonging to clusters of grandmothers' and mothers' mistakes

	Cluster 1	Cluster 2
Grandmothers' strictness	13.3301435	11.1243523
Grandmothers' aggression	11.0239234	5.46632124
Grandmothers' constraint of the child's activity	11.7511962	5.7253886
Grandmothers' indifference	15.2248804	6.64248705
Grandmothers' self-accentuation	11.6555024	7.25906736
Grandmothers' indulging the child	10.4880383	9.58031088
Grandmothers' doing things for the child	8.71770335	10.6683938
Grandmothers' idealizing the child	11.1196172	12.642487
Grandmothers' lack of consistency	11.1052632	6.7357513
mothers' strictness	15.9856459	15.8601036
mothers' aggression	9.82296651	8.94300518
mothers' constraint of the child's activity	8.63157895	8.17098446
mothers' indifference	6.67464115	6.51295337
mothers' self-accentuation	12.5741627	12.0932642
mothers' indulging the child	11.6267943	10.3264249
mothers' doing things for the child	9.62200957	10.2953368
mothers' idealizing the child	16.2392344	16.1968912
Number of cases	209	193
Percent (%)	51.9900498	48.0099502

Table A14
ANOVA results for clusters of grandmothers and mothers' mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	Interpretation η^2
Grandmothers' strictness	488.210	1	4733.24	400	41.2580	0.000000	0.094	medium
Grandmothers' aggression	3099.220	1	5016.91	400	247.1019	0.000000	0.382	large
Grandmothers' constraint of the child's activity	3643.410	1	4177.51	400	348.8597	0.000000	0.466	large
Grandmothers' indifference	7390.850	1	6712.76	400	440.4059	0.000000	0.524	large
Grandmothers' self-accentuation	1939.451	1	3996.24	400	194.1275	0.000000	0.327	large
Grandmothers' indulging the child	82.678	1	6417.23	400	5.1535	0.023731	0.013	small
Grandmothers' doing things for the child	381.816	1	7615.12	400	20.0557	0.000010	0.048	small
Grandmothers'idealizing the child of child	232.704	1	8544.34	400	10.8939	0.001051	0.027	small
Grandmothers' lack of consistency	1915.770	1	6985.21	400	109.7044	0.000000	0.215	large

	Between SS	df	Within SS	df	F	p-value	η^2	Inter-pretation η^2
mothers' strictness	1.581	1	5732.18	400	0.1104	0.739913	0.0003	v. small
mothers' aggression	77.697	1	8220.82	400	3.7805	0.052554	0.009	v. small
mothers' constraint of the child's activity	21.287	1	4615.99	400	1.8446	0.175174	0.005	v. small
mothers' indifference	2.623	1	2638.09	400	0.3977	0.528618	0.0009	v. small
mothers' self-accentuation	23.205	1	7705.42	400	1.2046	0.273062	0.003	v. small
mothers' indulging the child	169.672	1	10675.33	400	6.3576	0.012076	0.016	small
mothers' doing things for the child	45.491	1	6495.30	400	2.8015	0.094958	0.007	v. small
mothers' idealizing the child	0.180	1	6400.56	400	0.0112	0.915609	0.0003	v. small

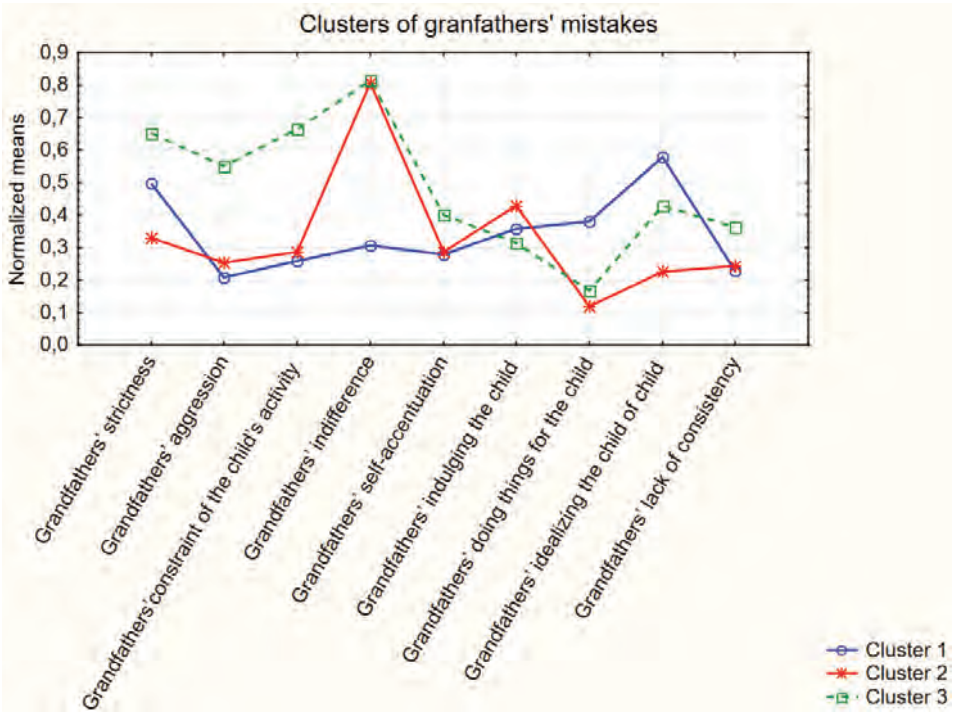

Figure B4. **Clusters of grandfathers' mistakes**

Table A15
Means. sizes and percentage of cases belonging to clusters of grandfathers' parental mistakes

	Cluster 1	Cluster 2	Cluster3
Grandfathers' strictness	11.9342105	8.94957983	14.7175573
Grandfathers' aggression	5.97368421	6.82352941	12.4732824
Grandfathers'constraint of the child's activity	6.11842105	6.58823529	12.6183206
Grandfathers' indifference	8.51315789	17.512605	17.6564885
Grandfathers' self-accentuation	7.75657895	7.86554622	9.81679389
Grandfathers' indulging the child	9.42105263	10.697479	8.66412214
Grandfathers' doing things for the child	9.86842105	5.12605042	6
Grandfathers' idealizing the child of child	13.4013158	7.05882353	10.7328244
Grandfathers' lack of consistency	7.09868421	7.39495798	9.51145038
Number of cases	152	119	131
Percent (%)	37.8109453	29.60199	32.5870647

Table A16
ANOVA results for clusters of grandfathers' mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	Inter-pretation η^2
Grandfathers' strictness	2074.692	2	5445.589	399	76.0067	0.000000	0.276	large
Grandfathers' aggression	3362.782	2	4897.845	399	136.9735	0.000000	0.407	large
Grandfathers'constraint of the child's activity	3512.673	2	3931.608	399	178.2422	0.000000	0.472	large
Grandfathers' indifference	7785.880	2	4435.247	399	350.2135	0.000000	0.637	large
Grandfathers' self-accentuation	358.418	2	4337.445	399	16.4854	0.000000	0.076	medium
Grandfathers' indulging the child	262.020	2	4067.383	399	12.8517	0.000004	0.061	medium
Grandfathers'doing things for the child	1782.796	2	4456.478	399	79.8092	0.000000	0.286	large
Grandfathers' idealizing the child	2686.181	2	5994.757	399	89.3936	0.000000	0.309	large
Grandfathers' lack of con-sistency	466.009	2	7906.690	399	11.7583	0.000011	0.056	small

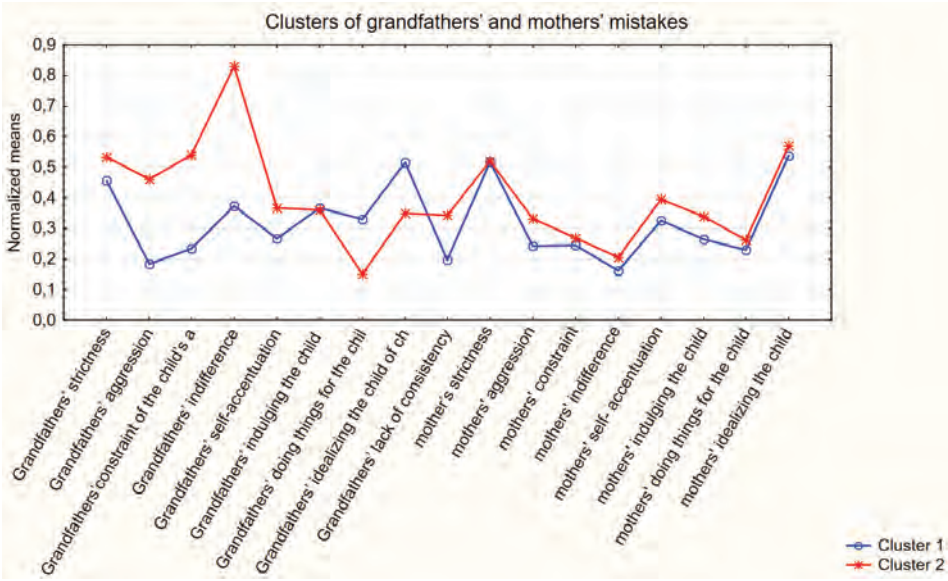

Figure B5. **Clusters of grandfathers' and mothers' mistakes**

Table A17

Means. sizes and percentage of cases belonging to clusters of grandfathers' and mothers' mistakes

	Cluster 1	Cluster 2
Grandfathers' strictness	11.2162162	12.5898618
Grandfathers' aggression	5.48648649	10.7788018
Grandfathers' constraint of the child's activity	5.73513514	10.6267281
Grandfathers' indifference	9.71351351	17.9447005
Grandfathers' self-accentuation	7.52972973	9.25345622
Grandfathers' indulging the child	9.60540541	9.50691244
Grandfathers' doing things for the child	8.95675676	5.70967742
Grandfathers' idealizing the child	12.2648649	9.28110599
Grandfathers' lack of consistency	6.55675676	9.1797235
mothers' strictness	15.9027027	15.9447005
mothers' aggression	8.35135135	10.2949309
mothers' constraint of the child's activity	8.12972973	8.64976959
mothers' indifference	6.27027027	6.87557604
mothers' self-accentuation	11.4810811	13.078341
mothers' indulging the child	10.1027027	11.7695853

	Cluster 1	Cluster 2
mothers' doing things for the child	9.50810811	10.3179724
mothers' idealizing the child	15.8162162	16.562212
Number of cases	185	217
Percent (%)	46.0199005	53.9800995

Table A18
ANOVA results for clusters of grandfathers' and mothers' mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	Interpretation η^2
Grandfathers' strictness	188.432	1	7331.85	400	10.2802	0.001453	0.025	small
Grandfathers' aggression	2797.028	1	5463.60	400	204.7755	0.000000	0.339	large
Grandfathers'constraint of the child's activity	2389.494	1	5054.79	400	189.0877	0.000000	0.321	large
Grandfathers' indifference	6765.974	1	5455.15	400	496.1162	0.000000	0.554	large
Grandfathers' self-accentuation	296.717	1	4399.15	400	26.9795	0.000000	0.063	medium
Grandfathers' indulging the child	0.969	1	4328.43	400	0.0895	0.764937	0.0002	v. small
Grandfathers' doing things for the child	1052.910	1	5186.36	400	81.2060	0.000000	0.169	large
Grandfathers' idealizing the child	889.064	1	7791.87	400	45.6406	0.000000	0.102	medium
Grandfathers' lack of consistency	687.054	1	7685.64	400	35.7578	0.000000	0.082	medium
mothers' strictness	0.176	1	5733.59	400	0.0123	0.911789	0.0003	v. small
mothers' aggression	377.233	1	7921.29	400	19.0491	0.000016	0.045	small
mothers' constraint of the child's activity	27.007	1	4610.27	400	2.3432	0.126620	0.006	v. small
mothers' indifference	36.589	1	2604.13	400	5.6202	0.018228	0.014	small
mothers' self-accentuation	254.775	1	7473.85	400	13.6355	0.000253	0.033	small
mothers' indulging the child	277.470	1	10567.53	400	10.5027	0.001292	0.026	small
mothers' doing things for the child	65.498	1	6475.30	400	4.0460	0.044945	0.010	small
mothers' idealizing the child	55.575	1	6345.16	400	3.5034	0.061971	0.009	v. small

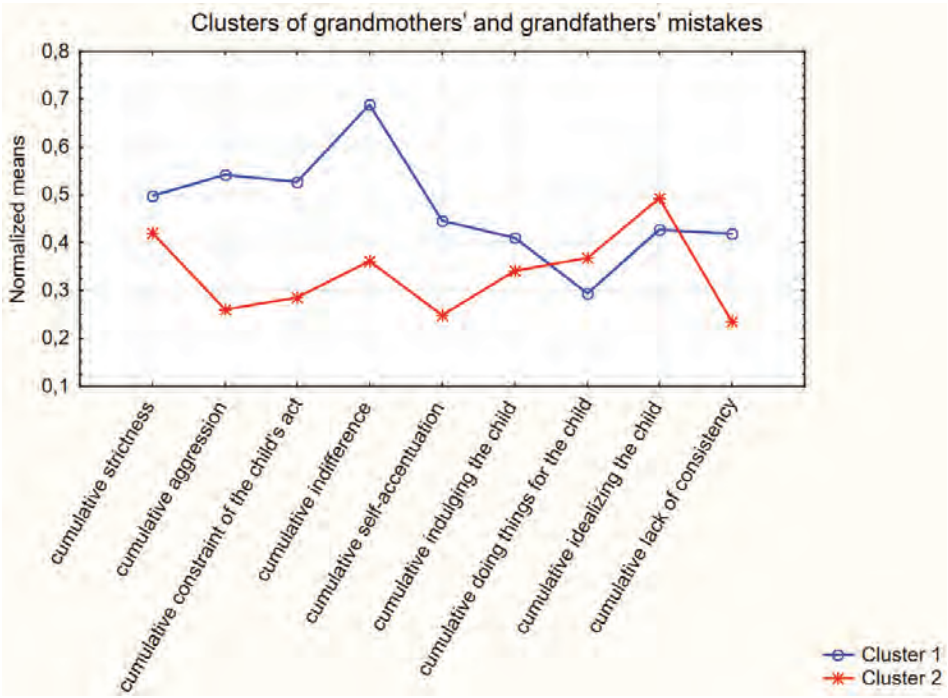

Figure B6. **Clusters of grandmothers' and grandfathers' mistakes**

Table A19

Means. sizes and percentage of cases belonging to clusters of grandfathers' and grandmothers' parental mistakes

	Cluster 1	**Cluster 2**
cumulative strictness	25.4366197	22.8677249
cumulative aggression	20.8169014	12.0582011
cumulative constraint of the child's activity	20.8826291	13.1216931
cumulative indifference	30.7981221	19.021164
cumulative self-accentuation	21.1830986	14.4232804
cumulative indulging the child	20.7793427	18.2804233
cumulative doing things for the child	15.7276995	18.1322751
cumulative idealizing the child	21.3896714	23.7619048
cumulative lack of consistency	19.8309859	13.7671958
Number of cases	213	189
Percent (%)	52.9850746	47.0149254

Table A20
ANOVA results for clusters of grandfathers' and grandmothers' parental mistakes

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	660.86	1	13502.09	400	19.5779	0.000012	0.047	small
cumulative aggression	7682.36	1	12586.22	400	244.1515	0.000000	0.379	large
cumulative constraint of the child's activity	6031.75	1	11000.27	400	219.3312	0.000000	0.354	large
cumulative indifference	13889.34	1	19332.23	400	287.3820	0.000000	0.418	large
cumulative self-accentuation	4575.99	1	12678.00	400	144.3759	0.000000	0.265	large
cumulative indulging the child	625.35	1	15732.77	400	15.8992	0.000079	0.038	small
cumulative doing things for the child	579.02	1	16319.90	400	14.1917	0.000190	0.034	small
cumulative idealizing the child	563.55	1	23066.94	400	9.7724	0.001901	0.024	small
cumulative lack of consistency	3682.17	1	17461.67	400	84.3486	0.000000	0.174	medium

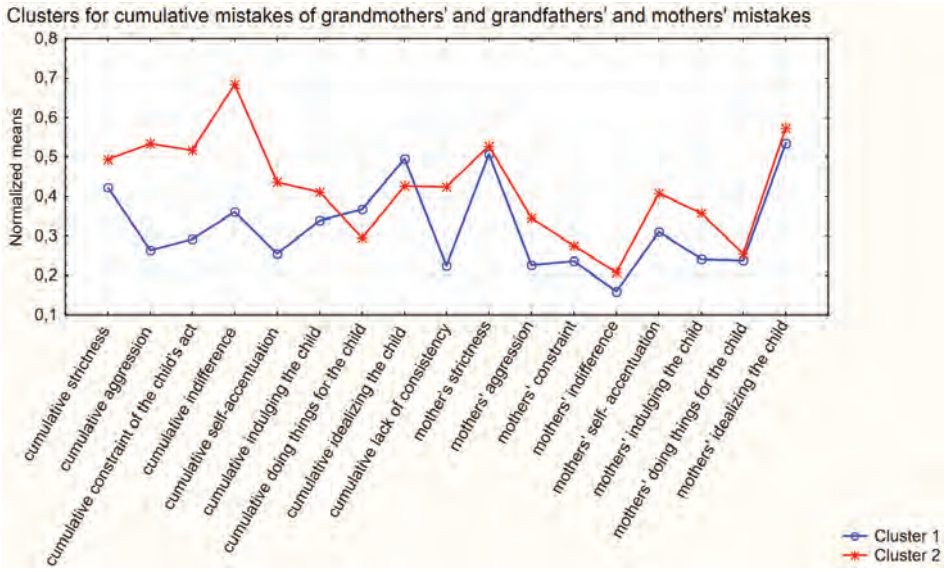

Figure B7. **Clusters for cumulative mistakes of grandmothers' and grandfathers' and mothers' mistakes**

Table A21
Means. sizes and percentage of cases belonging to clusters of grandfathers' and grandmothers' cumulative mistakes and mothers' mistakes

	Cluster 1	Cluster 2
cumulative strictness	22.9513514	25.3179724
cumulative aggression	12.1837838	20.5483871
cumulative constraint of the child's activity	13.3567568	20.5391705
cumulative indifference	18.9783784	30.6175115
cumulative self-accentuation	14.6648649	20.8525346
cumulative indulging the child	18.2162162	20.7880184
cumulative doing things for the child	18.1459459	15.7603687
cumulative idealizing the child	23.8486486	21.359447
cumulative lack of consistency	13.4378378	20
mothers' strictness	15.6810811	16.1336406
mothers' aggression	7.97837838	10.6129032
mothers' constraint of the child's activity	7.95675676	8.79723502
mothers' indifference	6.22702703	6.9124424
mothers' accentuation	11.1351351	13.3732719
mothers' indulging the child	9.57297297	12.2211982
mothers' doing things for the child	9.71891892	10.1382488
mothers' idealizing the child	15.7621622	16.6082949
Number of cases	185	217
Percent (%)	46.0199005	53.9800995

Table A22
***ANOVA results for clusters of* cumulative mistakes of grandmothers' and grandfathers' and mothers' mistakes**

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	559.32	1	13603.62	400	16.4463	0.000060	0.039	small
cumulative aggression	6987.09	1	13281.49	400	210.4307	0.000000	0.345	large
cumulative constraint of the child's activity	5151.65	1	11880.37	400	173.4508	0.000000	0.302	large
cumulative indifference	13528.41	1	19693.17	400	274.7838	0.000000	0.407	large
cumulative self-accentuation	3823.49	1	13430.50	400	113.8747	0.000000	0.222	large
cumulative indulging the child	660.51	1	15697.60	400	16.8309	0.000050	0.040	small
cumulative doing things for the child	568.32	1	16330.60	400	13.9204	0.000218	0.034	small
cumulative idealizing the child	618.76	1	23011.73	400	10.7556	0.001131	0.026	small
cumulative lack of consistency	4300.31	1	16843.54	400	102.1236	0.000000	0.203	large
mothers' strictness	20.45	1	5713.31	400	1.4320	0.232155	0.004	very small
mothers' aggression	693.12	1	7605.40	400	36.4542	0.000000	0.084	medium

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
mothers' constraint of the child's activity	70.54	1	4566.73	400	6.1789	0.013336	0.015	small
mothers' indifference	46.92	1	2593.80	400	7.2350	0.007449	0.018	small
mothers' accentuation	500.24	1	7228.39	400	27.6820	0.000000	0.065	medium
mothers' indulging the child	700.35	1	10144.65	400	27.6146	0.000000	0.065	medium
mothers' doing things for the child	17.56	1	6523.24	400	1.0767	0.300053	0.003	very small
mothers' idealizing the child	71.50	1	6329.24	400	4.5185	0.034143	0.011	small

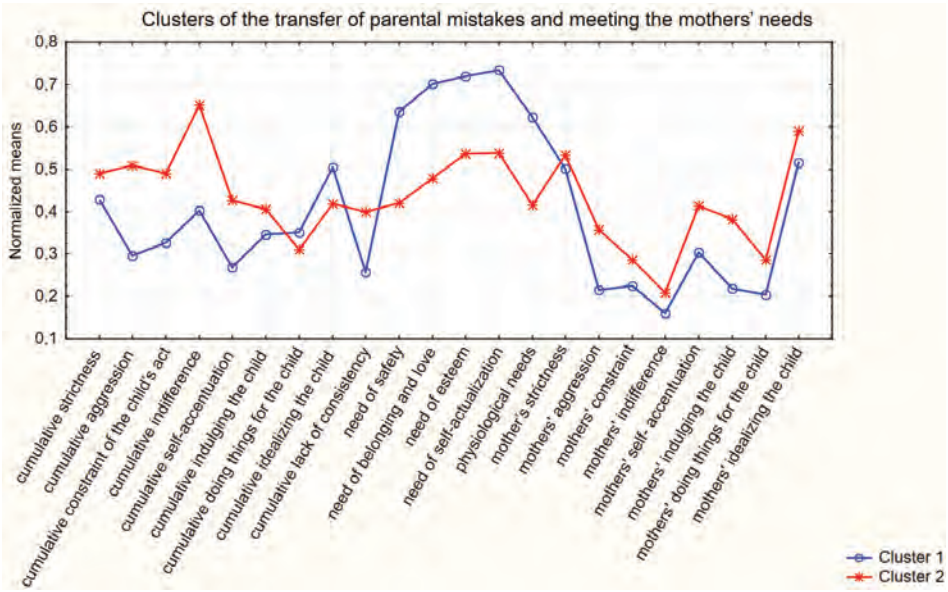

Figure B8. **Clusters of the transfer of parental mistakes and meeting the mothers' needs**

Table A23
Means, numbers and percentages of cases belonging to clusters in the analysis of the transfer of parental mistakes and meeting the needs of mothers

	Cluster 1	Cluster 2
cumulative strictness	23.1542553	25.1728972
cumulative aggression	13.1914894	19.7803738
cumulative constraint of the child's activity	14.4574468	19.6728972
cumulative indifference	20.4680851	29.4719626
cumulative self-accentuation	15.143617	20.5186916
cumulative indulging the child	18.4468085	20.6214953
cumulative doing things for the child	17.5744681	16.228972
cumulative idealizing the child	24.1382979	21.0700935
cumulative lack of consistency	14.5	19.1588785
need of safety	38.2021277	28.2943925
need of belonging and love	44.9468085	34.4813084
need of esteem	43.4734043	32.6261682
need of self-actualization	45.3617021	34.5981308
physiological needs	36.7553191	27.8411215
mothers' strictness	15.5159574	16.2850467
mothers' aggression	7.7393617	10.8598131
mothers' constraint of the child's activity	7.71808511	9.01869159
mothers' indifference	6.24468085	6.90654206
mothers' accentuation	10.9946809	13.5280374
mothers' indulging the child	9.00531915	12.7570093
mothers' doing things for the child	8.87765957	10.8831776
mothers' idealizing the child	15.3404255	16.9906542
Number of cases	188	214
Percent (%)	46.7661692	53.2338308

Table A24
ANOVA results for clusters in the analysis of the transfer of parental mistakes and meeting the needs of mothers

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	407.82	1	13755.13	400	11.8593	0.000634	0.029	small
cumulative aggression	4344.80	1	15923.78	400	109.1398	0.000000	0.214	large
cumulative constraint of the child's activity	2722.26	1	14309.76	400	76.0951	0.000000	0.160	large
cumulative indifference	8113.43	1	25108.14	400	129.2558	0.000000	0.244	large
cumulative self-accentuation	2891.44	1	14362.55	400	80.5273	0.000000	0.168	large
cumulative indulging the child	473.30	1	15884.81	400	11.9184	0.000615	0.029	small

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative doing things for the child	181.18	1	16717.74	400	4.3350	0.037971	0.011	small
cumulative idealizing the child	942.14	1	22688.35	400	16.6101	0.000055	0.040	small
cumulative lack of consistency	2172.24	1	18971.60	400	45.7999	0.000000	0.103	medium
need of safety	9824.14	1	22428.77	400	175.2059	0.000000	0.305	large
need of belonging and love	10961.39	1	27806.89	400	157.6787	0.000000	0.283	large
need of esteem	11775.62	1	28582.96	400	164.7922	0.000000	0.292	large
need of self-actualization	11594.67	1	32932.84	400	140.8280	0.000000	0.260	large
physiological needs	7952.62	1	21441.34	400	148.3604	0.000000	0.271	large
mothers' strictness	59.20	1	5674.56	400	4.1728	0.041733	0.010	small
mothers' aggression	974.50	1	7324.02	400	53.2219	0.000000	0.117	medium
mothers' constraint of the child's activity	169.29	1	4467.98	400	15.1560	0.000116	0.037	small
mothers' indifference	43.84	1	2596.88	400	6.7529	0.009706	0.017	small
mothers' accentuation	642.30	1	7086.33	400	36.2558	0.000000	0.083	medium
mothers' indulging the child	1408.64	1	9436.36	400	59.7111	0.000000	0.130	medium
mothers' doing things for the child	402.53	1	6138.27	400	26.2309	0.000000	0.062	medium
mothers' idealizing the child	272.54	1	6128.19	400	17.7894	0.000031	0.043	small

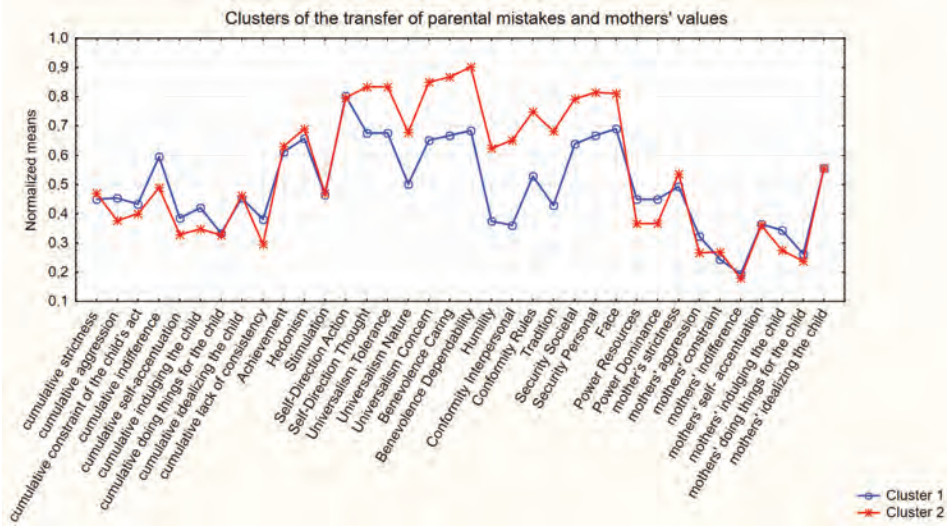

Figure B9. **Clusters of the transfer of parental mistakes and mothers' values**

Table A25
Means. sizes and percentage of cases belonging to clusters in the analysis of the transfer of parental mistakes and mothers' values

	Cluster 1	Cluster 2
cumulative strictness	23.8554913	24.510917
cumulative aggression	18.0809249	15.6550218
cumulative constraint of the child's activity	17.8554913	16.7641921
cumulative indifference	27.4508671	23.6069869
cumulative self-accentuation	19.0924855	17.1834061
cumulative indulging the child	21.0982659	18.4759825
cumulative doing things for the child	16.9942197	16.7554585
cumulative idealizing the child	22.3526012	22.6200873
cumulative lack of consistency	18.5780347	15.7729258
Achievement	12.5549133	12.8209607
Hedonism	13.1965318	13.6593886
Stimulation	9.95375723	10.0655022
Self-Direction Action	15.6416185	15.5676856
Self-Direction Thought	13.132948	15.5152838
Universalism Tolerance	13.132948	15.5152838
Universalism Nature	10.5317919	13.1615721
Universalism Concern	12.7514451	15.7510917
Benevolence Caring	14.6705202	16.6637555
Benevolence Dependability	14.2138728	16.8340611
Humility	9.24277457	12.7336245
Conformity Interpersonal	8.39306358	12.768559
Conformity Rules	10.9248555	14.2445415
Tradition	9.42774566	13.2445415
Security Societal	12.9479769	15.0786026
Security Personal	13.3410405	15.4104803
Face	13.3468208	15.1790393
Power Resources	9.73988439	8.49781659
Power Dominance	9.73988439	8.49781659
mothers' strictness	15.3468208	16.3624454
mothers' aggression	10.0982659	8.87336245
mothers' constraint of the child's activity	8.10404624	8.6419214
mothers' indifference	6.71098266	6.51091703
mothers' accentuation	12.3988439	12.30131
mothers' indulging the child	11.8843931	10.3362445
mothers'doing things for the child	10.2890173	9.68558952
mothers' idealizing the child	16.2138728	16.2227074
Number of cases	173	229
Percent (%)	43.0348259	56.9651741

Table A26
ANOVA results for clusters in the analysis of the transfer of parental mistakes and mothers' values

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	42.335	1	14120.61	400	1.1992	0.274131	0.003	v.small
cumulative aggression	579.966	1	19688.61	400	11.7828	0.000660	0.029	small
cumulative constraint of the child's activity	117.366	1	16914.65	400	2.7755	0.096500	0.007	v.small
cumulative indifference	1456.113	1	31765.46	400	18.3358	0.000023	0.044	small
cumulative self-accentuation	359.173	1	16894.82	400	8.5037	0.003744	0.021	small
cumulative indulging the child	677.665	1	15680.45	400	17.2869	0.000039	0.041	small
cumulative doing things for the child	5.618	1	16893.30	400	0.1330	0.715510	0.0003	v.small
cumulative idealizing the child	7.051	1	23623.44	400	0.1194	0.729877	0.0003	v.small
cumulative lack of consistency	775.452	1	20368.39	400	15.2285	0.000112	0.037	small
Achievement	6.975	1	3842.39	400	0.7262	0.394641	0.002	v.small
Hedonism	21.113	1	3186.75	400	2.6501	0.104331	0.007	v.small
Stimulation	1.231	1	5129.65	400	0.0960	0.756896	0.0002	v.small
Self-Direction Action	0.539	1	2459.98	400	0.0876	0.767416	0.0002	v.small
Self-Direction Thought	559.321	1	2881.14	400	77.6528	0.000000	0.163	large
Universalism Tolerance	559.321	1	2881.14	400	77.6528	0.000000	0.163	large
Universalism Nature	681.545	1	5000.10	400	54.5225	0.000000	0.120	medium
Universalism Concern	886.739	1	2333.12	400	152.0260	0.000000	0.275	large
Benevolence Caring	391.537	1	1317.33	400	118.8881	0.000000	0.229	large
Benevolence Dependability	676.582	1	1452.78	400	186.2861	0.000000	0.318	large
Humility	1200.931	1	2794.55	400	171.8958	0.000000	0.301	large
Conformity Interpersonal	1886.731	1	4956.01	400	152.2784	0.000000	0.276	large
Conformity Rules	1086.049	1	2456.33	400	176.8573	0.000000	0.307	large
Tradition	1435.666	1	5146.65	400	111.5806	0.000000	0.218	large
Security Societal	447.373	1	4153.12	400	43.0879	0.000000	0.097	medium
Security Personal	422.047	1	2380.29	400	70.9236	0.000000	0.151	large
Face	330.834	1	2948.85	400	44.8763	0.000000	0.101	medium
Power Resources	152.036	1	5108.54	400	11.9044	0.000620	0.029	small
Power Dominance	152.036	1	5108.54	400	11.9044	0.000620	0.029	small
mothers' strictness	101.653	1	5632.11	400	7.2196	0.007512	0.018	small
mothers' aggression	147.863	1	8150.66	400	7.2565	0.007362	0.018	small
mothers' constraint of the child's activity	28.511	1	4608.76	400	2.4745	0.116494	0.006	v.small
mothers' indifference	3.945	1	2636.77	400	0.5984	0.439648	0.001	v.small
mothers' accentuation	0.937	1	7727.69	400	0.0485	0.825760	0.0001	v.small
mothers' indulging the child	236.200	1	10608.80	400	8.9058	0.003017	0.022	small
mothers'doing things for the child	35.884	1	6504.91	400	2.2066	0.138208	0.005	v.small
mothers' idealizing the child	0.008	1	6400.73	400	0.0005	0.982519	0.0001	v.small

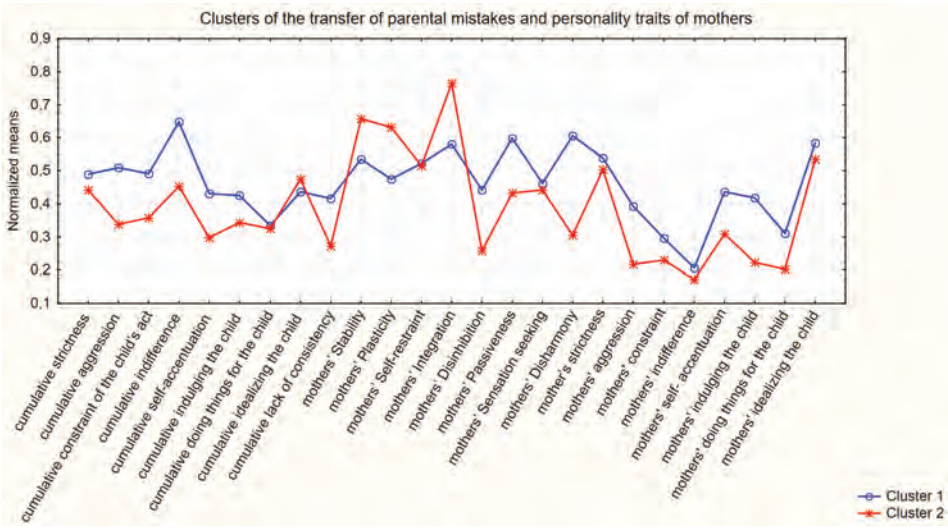

Figure B10. **Clusters of the transfer of parental mistakes and personality traits of mothers**

Table A27

Means. sizes and percentage of cases belonging to clusters in the analysis of the transfer of parental mistakes and personality traits of mothers

	Cluster 1	Cluster 2
cumulative strictness	23.199095	25.4861878
cumulative aggression	13.9547511	20.0497238
cumulative constraint of the child's activity	15.158371	19.7679558
cumulative indifference	21.6561086	29.6629834
cumulative self-accentuation	15.9864253	20.4696133
cumulative indulging the child	18.4117647	21.0607735
cumulative doing things for the child	16.959276	16.7348066
cumulative idealizing the child	23.2986425	21.5359116
cumulative lack of consistency	14.9547511	19.4530387
mothers' Stability	36.1131222	33.0552486
mothers' Plasticity	33.6651584	29.9005525
mothers' Self-restraint	28.6696833	28.4254144
mothers' Integration	37.9230769	32.8232044
mothers' Disinhibition	17.5701357	23.801105
mothers' Passiveness	21.4162896	25.1325967
mothers' Sensation seeking	22.5701357	23.6629834
mothers' Disharmony	19.081448	28.3646409

	Cluster 1	Cluster 2
mothers' strictness	15.5339367	16.4033149
mothers' aggression	7.59276018	11.6077348
mothers' constraint of the child's activity	7.71493213	9.25966851
mothers' indifference	6.37104072	6.87292818
mothers' accentuation	10.9095023	14.0939227
mothers' indulging the child	8.94570136	13.5138122
mothers' doing things for the child	8.95475113	11.1546961
mothers' idealizing the child	15.7918552	16.7403315
Number of cases	221	181
Percent (%)	54.9751244	45.0248756

Table A28
ANOVA results for clusters in the analysis of transfer of parental mistakes and personality traits of mothers

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	520.490	1	13642.46	400	15.2609	0.000110	0.037	small
cumulative aggression	3696.480	1	16572.10	400	89.2218	0.000000	0.182	large
cumulative constraint of the child's activity	2114.309	1	14917.71	400	56.6926	0.000000	0.124	medium
cumulative indifference	6379.268	1	26842.31	400	95.0629	0.000000	0.192	large
cumulative self-accentuation	1999.948	1	15254.04	400	52.4437	0.000000	0.116	medium
cumulative indulging the child	698.251	1	15659.86	400	17.8354	0.000030	0.043	small
cumulative doing things for the child	5.014	1	16893.90	400	0.1187	0.730618	0.0007	very small
cumulative idealizing the child	309.184	1	23321.31	400	5.3030	0.021801	0.013	small
cumulative lack of consistency	2013.442	1	19130.40	400	42.0993	0.000000	0.095	medium
mothers' Stability	930.430	1	6611.62	400	56.2906	0.000000	0.123	medium
mothers' Plasticity	1410.210	1	14291.43	400	39.4701	0.000000	0.090	medium
mothers' Self-restraint	5.937	1	13217.13	400	0.1797	0.671875	0.0004	very small
mothers' Integration	2587.995	1	8650.03	400	119.6756	0.000000	0.230	large
mothers' Disinhibition	3863.278	1	11095.00	400	139.2799	0.000000	0.258	large
mothers' Passiveness	1374.257	1	11564.52	400	47.5336	0.000000	0.106	medium
mothers' Sensation seeking	118.840	1	12910.60	400	3.6819	0.055716	0.009	very small
mothers' Disharmony	8575.107	1	12590.47	400	272.4317	0.000000	0.405	large
mothers' strictness	75.208	1	5658.55	400	5.3164	0.021637	0.013	small
mothers' aggression	1604.022	1	6694.50	400	95.8412	0.000000	0.193	large
mothers' constraint of the child's activity	237.440	1	4399.84	400	21.5862	0.000005	0.051	small

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
mothers' indifference	25.064	1	2615.65	400	3.8330	0.050948	0.009	very small
mothers' accentuation	1009.034	1	6719.59	400	60.0652	0.000000	0.131	large
mothers' indulging the child	2076.434	1	8768.56	400	94.7217	0.000000	0.191	large
mothers' doing things for the child	481.580	1	6059.22	400	31.7916	0.000000	0.074	medium
mothers' idealizing the child	89.515	1	6311.22	400	5.6734	0.017691	0.014	small

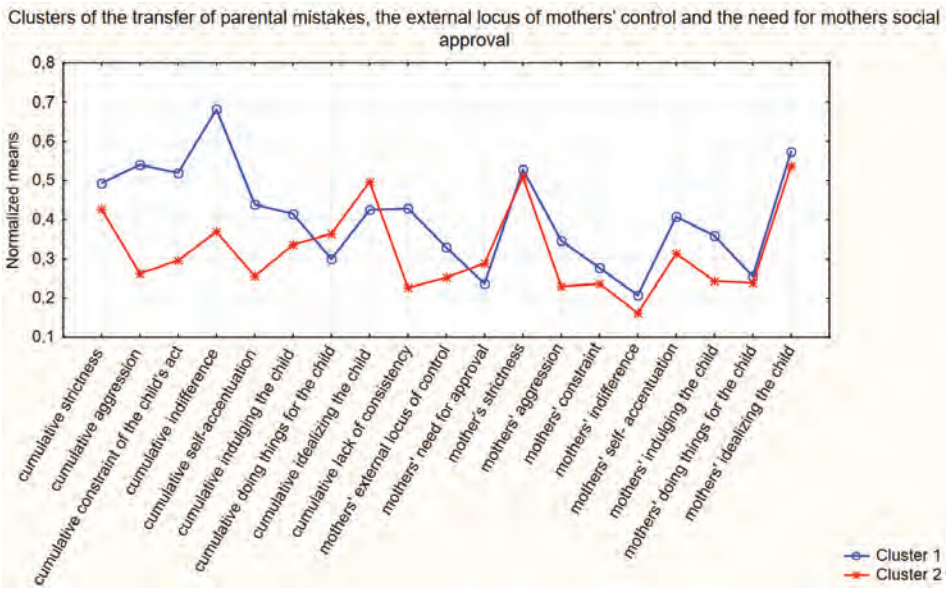

Figure B11. **Clusters of the transfer of parental mistakes, the external locus of mothers' control and the need for mothers social approval**

Table A29

Means. sizes and percentage of cases belonging to clusters in the analysis of the transfer of parental mistakes, the external locus of mothers' control and the need for mothers social approval

	Cluster 1	Cluster 2
cumulative strictness	25.2676056	23.0582011
cumulative aggression	20.7464789	12.1375661
cumulative constraint of the child's activity	20.5962441	13.4444444
cumulative indifference	30.5399061	19.3121693
cumulative self-accentuation	20.943662	14.6931217
cumulative indulging the child	20.9389671	18.1005291
cumulative doing things for the child	15.8591549	17.984127
cumulative idealizing the child	21.286385	23.8783069
cumulative lack of consistency	20.1314554	13.4285714
mothers' external locus od control	4.60093897	3.52910053
mothers' need for approval	2.12676056	2.5978836
mothers' strictness	16.1267606	15.6984127
mothers' aggression	10.6056338	8.04232804
mothers' constraint of the child's activity	8.79812207	7.97354497
mothers' indifference	6.89671362	6.25925926
mothers' accentuation	13.3615023	11.1957672
mothers' indulging the child	12.2629108	9.58201058
mothers' doing things for the child	10.1361502	9.73015873
mothers' idealizing the child	16.5962441	15.7936508
Number of cases	213	189
Percent (%)	52.9850746	47.0149254

Table A30

ANOVA results for clusters in the analysis of transfer of parental mistakes, the external locus of mothers' control and the need for mothers' social approval

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	488.84	1	13674.11	400	14.2997	0.000180	0.035	small
cumulative aggression	7421.85	1	12846.73	400	231.0890	0.000000	0.366	large
cumulative constraint of the child's activity	5122.08	1	11909.94	400	172.0269	0.000000	0.301	large
cumulative indifference	12624.08	1	20597.49	400	245.1576	0.000000	0.380	large
cumulative self-accentuation	3912.47	1	13341.53	400	117.3019	0.000000	0.227	large
cumulative indulging the child	806.82	1	15551.30	400	20.7524	0.000007	0.049	small
cumulative doing things for the child	452.19	1	16446.73	400	10.9977	0.000996	0.027	small
cumulative idealizing the child	672.76	1	22957.73	400	11.7217	0.000682	0.028	small

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative lack of consistency	4499.24	1	16644.60	400	108.1248	0.000000	0.213	large
mothers' external locus od control	115.05	1	3214.17	400	14.3174	0.000178	0.035	small
mothers' need for approval	22.23	1	1141.02	400	7.7921	0.005499	0.019	small
mothers' strictness	18.37	1	5715.39	400	1.2859	0.257475	0.003	very small
mothers' aggression	657.99	1	7640.53	400	34.4471	0.000000	0.086	medium
mothers' constraint of the child's activity	68.09	1	4569.19	400	5.9607	0.015061	0.015	small
mothers' indifference	40.69	1	2600.02	400	6.2603	0.012746	0.015	small
mothers' accentuation	469.71	1	7258.92	400	25.8830	0.000001	0.061	medium
mothers' indulging the child	719.74	1	10125.26	400	28.4335	0.000000	0.066	medium
mothers' doing things for the child	16.51	1	6524.29	400	1.0120	0.315035	0.003	very small
mothers' idealizing the child	64.51	1	6336.23	400	4.0723	0.044260	0.010	small

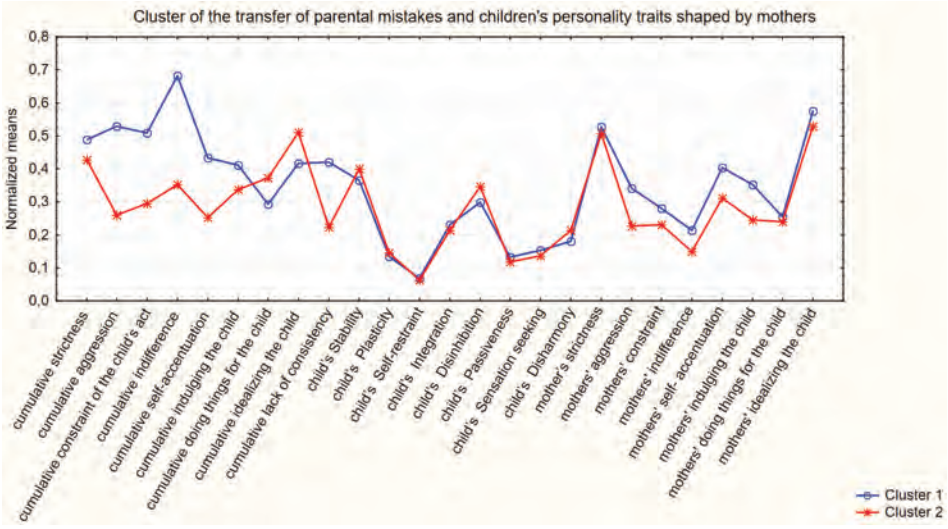

Figure B12. **Cluster of the transfer of parental mistakes and children's personality traits shaped by mothers**

Table A31

Means. sizes and percentage of cases belonging to clusters in the analysis of the transfer of parental mistakes and children's personality traits shaped by mothers

	Cluster 1	**Cluster 2**
cumulative strictness	25.1255605	23.1117318
cumulative aggression	20.4349776	12.0446927
cumulative constraint of the child's activity	20.2780269	13.4413408
cumulative indifference	30.5560538	18.6648045
cumulative self-accentuation	20.7219731	14.6201117
cumulative indulging the child	20.7982063	18.1173184
cumulative doing things for the child	15.6860987	18.3184358
cumulative idealizing the child	21.0044843	24.3743017
cumulative lack of consistency	19.8654709	13.3854749
child's Stability	1.46188341	1.60335196
child's Plasticity	0.538116592	0.581005587
child's Self-restraint	0.206278027	0.189944134
child's Integration	0.69058296	0.642458101
child's Disinhibition	1.19282511	1.39106145
child's Passiveness	0.529147982	0.469273743
child's Sensation seeking	0.614349776	0.547486034
child's Disharmony	0.542600897	0.642458101
mothers' strictness	16.1300448	15.6703911
mothers' aggression	10.5156951	8.01117318
mothers' constraint of the child's activity	8.87443946	7.83240223
mothers' indifference	7.0044843	6.08938547
mothers' accentuation	13.2914798	11.1620112
mothers' indulging the child	12.0896861	9.64804469
mothers' doing things for the child	10.1076233	9.74301676
mothers' idealizing the child	16.6636771	15.6648045
Number of cases	223	179
Percent (%)	55.4726368	44.5273632

Table A32
ANOVA results for clusters in the analysis of transfer of parental mistakes and children's personality traits shaped by mothers

	Between SS	df	Within SS	df	F	p-value	η^2	Inter-pretation η^2
cumulative strictness	402.70	1	13760.25	400	11.7061	0.000687	0.028	small
cumulative aggression	6990.13	1	13278.45	400	210.5707	0.000000	0.345	large
cumulative constraint of the child's activity	4641.12	1	12390.90	400	149.8237	0.000000	0.375	large
cumulative indifference	14040.64	1	19180.94	400	292.8040	0.000000	0.423	large
cumulative self-accentuation	3697.06	1	13556.93	400	109.0825	0.000000	0.214	large
cumulative indulging the child	713.66	1	15644.46	400	18.2469	0.000024	0.044	small
cumulative doing things for the child	688.04	1	16210.88	400	16.9773	0.000046	0.041	small
cumulative idealizing the child	1127.57	1	22502.92	400	20.0431	0.000010	0.048	small
cumulative lack of consistency	4169.47	1	16974.37	400	98.2534	0.000000	0.197	large
child's Stability	1.99	1	378.26	400	2.1014	0.147944	0.005	v. small
child's Plasticity	0.18	1	225.00	400	0.3247	0.569109	0.0008	v. small
child's Self-restraint	0.03	1	100.05	400	0.1059	0.745019	0.0003	v. small
child's Integration	0.23	1	218.77	400	0.4205	0.517068	0.001	v. small
child's Disinhibition	3.90	1	311.33	400	5.0134	0.025701	0.012	small
child's Passiveness	0.36	1	190.14	400	0.7488	0.387359	0.002	v. small
child's Sensation seeking	0.44	1	237.18	400	0.7487	0.387414	0.002	v. small
child's Disharmony	0.99	1	168.46	400	2.3510	0.125996	0.006	v. small
mothers' strictness	20.98	1	5712.78	400	1.4689	0.226227	0.004	v. small
mothers' aggression	622.85	1	7675.67	400	32.4582	0.000000	0.075	small
mothers' constraint of the child's activity	107.82	1	4529.46	400	9.5217	0.002172	0.023	small
mothers' indifference	83.15	1	2557.57	400	13.0047	0.000350	0.031	small
mothers' accentuation	450.27	1	7278.36	400	24.7458	0.000001	0.058	small
mothers' indulging the child	591.96	1	10253.03	400	23.0942	0.000002	0.055	small
mothers' doing things for the child	13.20	1	6527.60	400	0.8089	0.368991	0.002	small
mothers' idealizing the child	99.07	1	6301.66	400	6.2886	0.012547	0.015	small

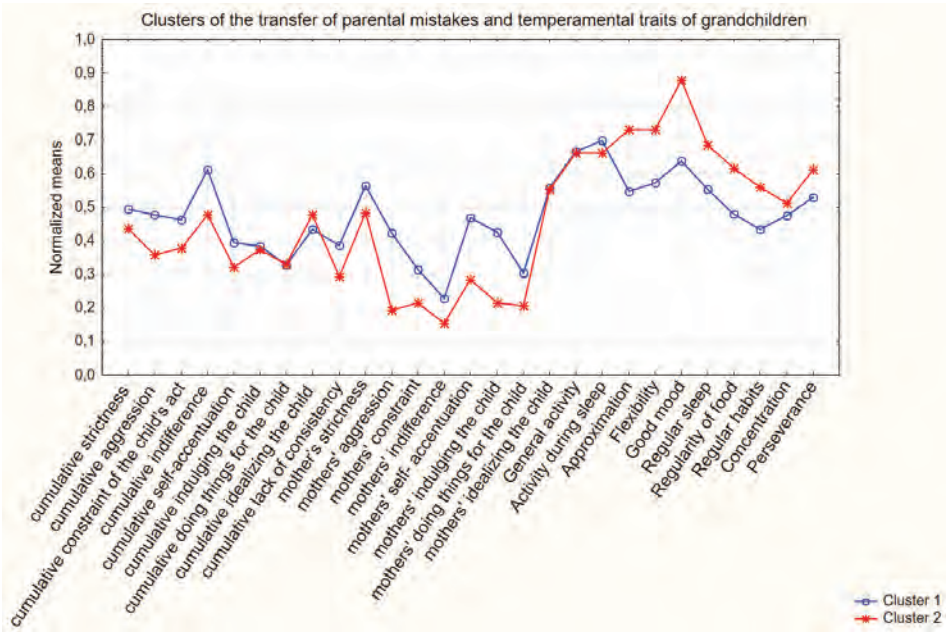

Figure B13. **Clusters of the transfer of parental mistakes and temperamental traits of grandchildren**

Table A33

Means. sizes and percentage of cases belonging to clusters in the analysis of the transfer of parental mistakes and temperamental traits of grandchildren

	Cluster 1	Cluster 2
cumulative strictness	25.3157895	23.4242424
cumulative aggression	18.8187135	15.1298701
cumulative constraint of the child's activity	18.7836257	16.0865801
cumulative indifference	28.0643275	23.1861472
cumulative self-accentuation	19.4327485	16.9480519
cumulative indulging the child	19.8654971	19.4112554
cumulative doing things for the child	16.7953216	16.9047619
cumulative idealizing the child	21.6081871	23.1688312
cumulative lack of consistency	18.7192982	15.6926407
mothers' strictness	16.9824561	15.1428571
mothers' aggression	12.3216374	7.23809524
mothers' constraint of the child's activity	9.60818713	7.52380952
mothers' indifference	7.20467836	6.14718615

	Cluster 1	Cluster 2
mothers' accentuation	14.7894737	10.5324675
mothers' indulging the child	13.7894737	8.93939394
doing things for the child	11.2690058	8.96536797
mothers' idealizing the child	16.251462	16.1948052
General activity	20.9824561	20.8961039
Activity during sleep	12.3859649	11.9350649
Approximation	18.4736842	22.3766234
Flexibility	14.005848	16.2424242
Good mood	22.2105263	26.0779221
Regular sleep	15.9707602	18.3419913
Regularity of food	12.2046784	14.2294372
Regular habits	12.0701754	13.8268398
Concentration	12.1461988	12.6926407
Perseverance	7.76608187	8.51082251
Number of cases	171	231
Percent (%)	42.5373134	57.4626866

Table A34
ANOVA results for clusters in the analysis of transfer of parental mistakes and temperamental traits of grandchildren

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
cumulative strictness	351.574	1	13811.37	400	10.1822	0.001530	0.025	small
cumulative aggression	1337.096	1	18931.48	400	28.2513	0.000000	0.066	small
cumulative constraint of the child's activity	714.757	1	16317.26	400	17.5215	0.000035	0.042	small
cumulative indifference	2338.287	1	30883.29	400	30.2855	0.000000	0.070	medium
cumulative self-accentuation	606.637	1	16647.35	400	14.5762	0.000156	0.035	small
cumulative indulging the child	20.275	1	16337.84	400	0.4964	0.481501	0.001	v.small
cumulative doing things for the child	1.177	1	16897.74	400	0.0279	0.867525	0.0007	v.small
cumulative idealizing the child	239.326	1	23391.16	400	4.0926	0.043736	0.010	small
cumulative lack of consistency	900.137	1	20243.70	400	17.7860	0.000031	0.043	small
mothers' strictness	332.528	1	5401.23	400	24.6261	0.000001	0.058	small
mothers' aggression	2539.305	1	5759.21	400	176.3647	0.000000	0.306	large
mothers' constraint of the child's activity	426.909	1	4210.37	400	40.5578	0.000000	0.092	medium
mothers' indifference	109.884	1	2530.83	400	17.3673	0.000038	0.042	small
mothers' accentuation	1780.699	1	5947.93	400	119.7526	0.000000	0.230	large
mothers' indulging the child	2311.425	1	8533.57	400	108.3450	0.000000	0.213	large
mothers' doing things for the child	521.447	1	6019.35	400	34.6514	0.000000	0.080	medium

	Between SS	df	Within SS	df	F	p-value	η^2	inter-pretation η^2
mothers' idealizing the child	0.315	1	6400.42	400	0.0197	0.888414	0.0005	v.small
General activity	0.733	1	8314.45	400	0.0352	0.851169	0.0009	v.small
Activity during sleep	19.978	1	3104.55	400	2.5740	0.109424	0.006	v.small
Approximation	1496.806	1	6572.87	400	91.0900	0.000000	0.185	large
Flexibility	491.529	1	3155.42	400	62.3092	0.000000	0.135	medium
Good mood	1469.668	1	3841.02	400	153.0498	0.000000	0.277	large
Regular sleep	552.497	1	3408.84	400	64.8311	0.000000	0.140	large
Regularity of food	402.836	1	4464.68	400	36.0910	0.000000	0.083	medium
Regular habits	303.221	1	2278.23	400	53.2380	0.000000	0.117	medium
Concentration	29.341	1	2382.52	400	4.9260	0.027016	0.012	small
Perseverance	54.499	1	1276.37	400	17.0796	0.000044	0.041	small

Appendix I

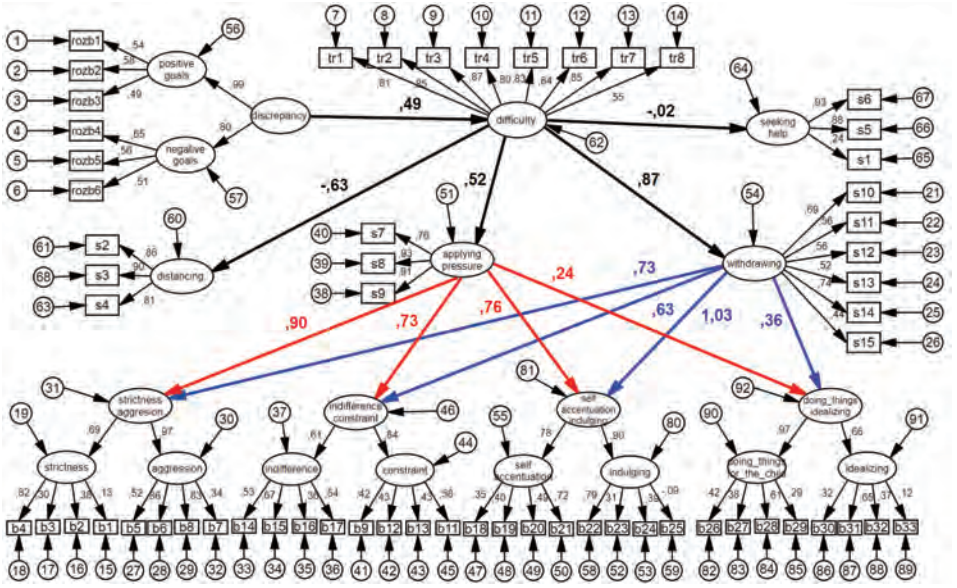

***Figure C1*. Diagram presenting the structural model tested by a system of structural equations. Standardized results with pure relationships between variables after eliminating the influence of other variables calculated on the whole sample (n=402). Relationships between latent variables are in bold.**

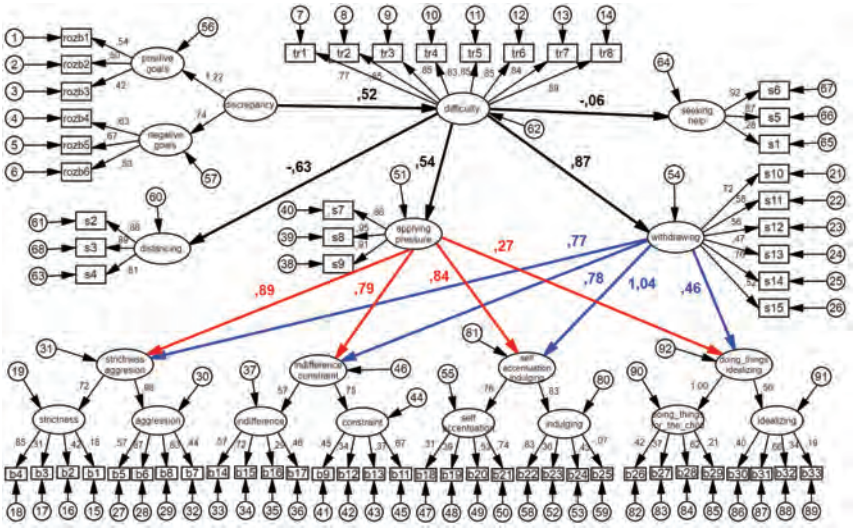

Figure C2. **The graph for the theoretical model tested using the system of structural equations in the group of mothers whose parents committed more parental mistakes (n=213). Standardized results with pure relationships between variables after eliminating the influence of other variables. The relationships between latent variables have been bolded.**

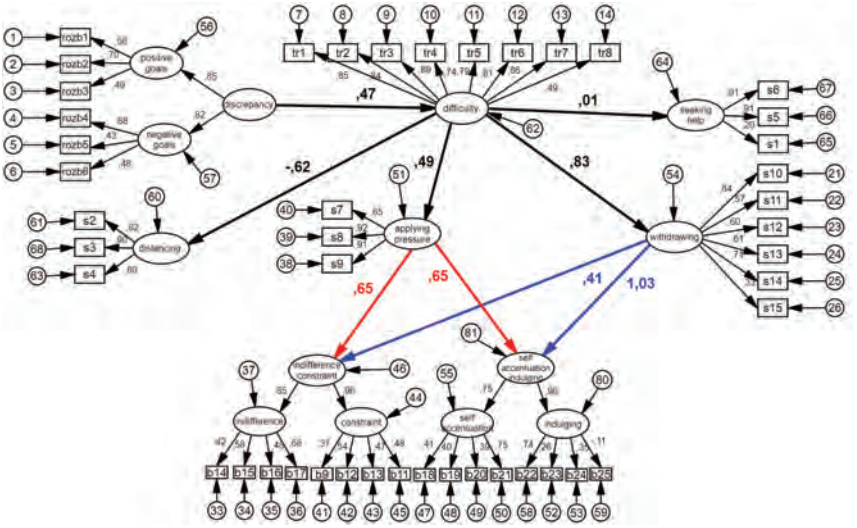

Figure C3. **The graph for the theoretical model tested using the system of structural equations in the group of mothers whose parents committed less parental mistakes (n=189). Standardized results with pure relationships between variables after eliminating the influence of other variables. The relationships between latent variables have been bolded.**

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