

## PSYCHOLOGICAL ASPECTS OF IDIOPATHIC SCOLIOSIS: THE SPECIFICITY OF THE MOTHER-DAUGHTER RELATIONSHIP

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**Background.** The relationship between teenager girls with idiopathic scoliosis and their mothers may be a source of mental strain during complex restorative treatment.

**Aim of the study.** To assess the mother-daughter relationship of adolescent girls with severe idiopathic scoliosis.

**Materials and methods.** The experimental group consisted of 30 women with teenager daughters diagnosed with idiopathic scoliosis of the 4th degree. The control group included 30 women with teenager daughters with no orthopedic pathology. The questionnaire "Diagnostic of parental relationship" (Varga and Stolin) and the methodology "Teenagers on their parents" (Schafer, Mateychik, and Rzhichan) were used as research methods.

**Results and discussion.** General and specific characteristics of the mother-daughter relationship in families of adolescent girls with idiopathic scoliosis and families of healthy girls were identified. Mothers of girls with idiopathic scoliosis and mothers of girls with orthopedic disorder demonstrated a pronounced positive attitude to their daughters. Mothers of daughters with idiopathic scoliosis, in contrast to mothers of healthy daughters, were more likely to actively cooperate with their daughters in various aspects of life, including treatment. We investigated the mother-daughter relationship and how to assess this relationship with adolescent girls. Emotionally, non-judgmental acceptance of a daughter with severe idiopathic scoliosis is perceived by the daughter as the mother's desire for an emotionally close and trusting relationship. The attitude of the mother regarding an ill daughter as a failure will be perceived as hostility manifested as strict control by the mother. The mother's attitude to a healthy daughter manifesting as overprotection is perceived by adolescent girls as an authoritarian attitude by the mother.

**Conclusion:** General and specific characteristics of the mother-daughter relationship in families of adolescent girls with idiopathic scoliosis and families of healthy adolescent girls were revealed. In the context of complex surgical treatment, preventive measures are necessary to address psychological difficulties in adolescent patients with idiopathic scoliosis.

**Keywords:** idiopathic scoliosis, disabled adolescent, mother/daughter relationship, psychology.

## ПСИХОЛОГИЧЕСКИЕ АСПЕКТЫ ИДИОПАТИЧЕСКОГО СКОЛИОЗА: СПЕЦИФИКА ДЕТСКО-РОДИТЕЛЬСКИХ ОТНОШЕНИЙ

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**Актуальность.** Отношения между девочкой-подростком, страдающей идиопатическим сколиозом, и ее матерью могут представлять источник психического напряжения в условиях сложного восстановительного лечения.

**Цель исследования.** Изучение особенностей детско-родительских отношений у девочек-подростков с идиопатическим сколиозом тяжелой степени.

**Организация и методы исследования.** В экспериментальную группу вошли 30 женщин, воспитывающих девочек-подростков с диагнозом «идиопатический сколиоз 4-й степени». В контрольную группу вошли 30 женщин, воспитывающих подростков без ортопедической патологии.

В качестве методик исследования были использованы опросник «Диагностика родительского отношения» (А.Я. Варга и В.В. Столин) и методика «Подростки о родителях» (Е. Шафер, З. Матейчик, П. Ржичан).

**Результаты исследования и их обсуждение.** Выявлены общие и специфические характеристики детско-родительских отношений в семьях девочек-подростков, страдающих идиопатическим сколиозом, и в семьях здоровых девочек-подростков. Матери девочек с идиопатическим сколиозом и матери девочек без тяжелых ортопедических нарушений демонстрируют выраженное положительное отношение к своим детям. Матери дочерей, страдающих идиопатическим сколиозом, в отличие от матерей здоровых детей, в большей степени настроены на активное сотрудничество с ними в различных областях жизни, в том числе в ситуации лечения. Выявлены взаимозависимости между отношением к своему ребенку матери и тем, как оценивают девочки-подростки это отношение. Эмоционально безоценочное принятие матерью своей дочери, страдающей тяжелой формой идиопатического сколиоза, воспринимается девочкой-подростком как стремление матери к эмоционально близким, доверительным отношениям с дочерью. Отношение со стороны матери к больной девочке как к неудачнице будет восприниматься подростком как враждебность, жесткий контроль со стороны матери. Отношение матери к своей здоровой дочери, проявляющееся как чрезмерная опека, воспринимается девочкой-подростком как авторитарное отношение к ней со стороны матери.

**Заключение.** Выявлены общие и специфические характеристики детско-родительских отношений в семьях девочек-подростков, страдающих идиопатическим сколиозом, и в семьях здоровых девочек-подростков. В условиях сложного хирургического лечения необходимы профилактические мероприятия для нивелирования трудностей психологической природы у пациенток подросткового возраста, страдающих идиопатическим сколиозом.

**Ключевые слова:** идиопатический сколиоз, дети, детскородительские отношения, психология.

## Introduction

Idiopathic scoliosis is attributed to musculoskeletal diseases of unknown origin. Genetic, immunologic, biomechanical, biochemical, neurophysiological, and other risk factors of this pathology are currently being studied [1–5]. Recently, the hypothesis that the disease is multifactorial in nature has become a research focus. Scoliosis is being considered as an adaptive, compensatory reaction of the organism to various hazards [2]. Till date, the involvement of psychological factors in scoliosis development remains controversial [6].

Meanwhile, the obvious psychological consequences of severe spinal deformation during the progressive development of spinal curvature are clear [7–12]. Severe spinal deformities result in a disfigured body, internal organ dysfunction, especially in the respiratory and cardiovascular systems, pain, restrained mobility due to bracing, and necessity of complex surgical treatment to create specific conditions of vital activity and mental development of a child. The most serious consequences may occur during adolescence because of the hormonal rearrangement in the body and advances in growth that cause a rapid progression of spinal deformation [2–4]. Moreover, pronounced spinal deformities (of third and fourth degrees) may progress to a category of surgical pathology requiring complicated medical intervention [3]. Visible disease signs, including

negative differences in the image, may cause psychological suffering in an adolescent, leading to disturbances in the social and psychological adaptation during the normative crisis period of adolescence [7, 12–16]. Such a situation may be especially painful for teenage girls, who are particularly sensitive to perceived defects in their appearance [17]. Under such conditions, the newly formed intrapsychic elements (emotional-volitional features, coping strategies, and behavioral defense) play an extensive role, which may overcome disease consequences but are negative contributors to personality development. Intrapsychic elements, namely parent–child relations formed during the course of a disease, are important in the life of a sick adolescent [10, 14, 18]. During complicated medical rehabilitation, relations between a parent and his/her child suffering from idiopathic scoliosis may be either a source of mental strain or a resource for coping with the psychological difficulties caused by the disease. Concordant parent–child relation is an essential condition for overcoming psychological problems in children suffering from idiopathic scoliosis. Moreover, an optimal psychological support for patients undergoing pediatric surgery is impossible to achieve without the participation of their parents. Effective interaction between parents and medical specialists during complex stationary restorative treatment requires considering the details of

the parents' directives, disclosure of subjective emotional experiences, and the adolescent's appraisal of their interactions with the closest adults, assuming that this appraisal may otherwise be hidden from doctors, educators, and parents [8, 10, 11, 18].

This study aimed to assess the mother–daughter relationship of adolescent girls with severe idiopathic scoliosis.

## Materials and methods

The present study included 120 individuals in total. The study group comprised 60 individuals: 30 women (aged 35–49 years) and their adolescent daughters (aged 14–17 years) with stage 4 idiopathic scoliosis. The investigation was conducted in the clinic prior to the scheduled surgical treatment. The mothers accompanied their daughters at the surgical hospital during the period of rehabilitation. The control group comprised 30 women (aged 35–46 years) and their adolescent daughters (aged 13–17 years) with no orthopedic pathology. All participants provided written informed consent.

The questionnaire “Diagnostic of parental relationship” (Varga and Stolin) [19] and the method “Teenagers about their parents” (Schafer, Mateychik, and Rzhichan) [20] were used. The former method was used to monitor the attitude of parents, which involves various feelings and actions of the parents toward their children, including rational, emotional, and behavioral components. Various parental attitudes toward their children were scored using five scales: acceptance–refusal of the child, cooperation, symbiosis, control, and attitude toward failures of the child. The acceptance–refusal of the child scale represents the general attitude of the parents toward the child as emotionally positive or negative. The cooperation scale reveals the parent's degree of interest in the child's matters and the willingness to collaborate with them. The symbiosis scale shows different poles of psychological distance between the parent and child. The control scale indicates an authoritarian or democratic style of interaction with the child. The attitude to failures of the child scale represents the parent's appraisal of failure or success of the child.

The method “Teenagers about their parents” displays the familial factors of upbringing and educational directives of the parents, as they are subjectively understood by the teenager (hidden from adults). Directives, behavior, and upbringing methods of the parents from the viewpoint of adolescents are rated using five scales: positive interest, commanding, hostility, autonomy, and inconsistency. In this study, we only investigated how adolescent girls subjectively understand the educational directives of their mothers. High ratings on the positive interest scale mean that the daughter positively assessed her mother's educational directives based on the psychological perception of her mother's desire to satisfy the daughter's needs. High rating on the commanding scale correspond to a strict control from the mother, using sanctions, and ignoring her daughter's needs. High ratings on the hostility scale indicate a desire of the mother to somewhat isolate herself from the daughter, an unwarranted suspiciousness against the daughter, and not keeping social standards in her relationship with the daughter. High ratings on the autonomy scale indicate the absence of the mother's care and her indifferent attitude toward her daughter's problems. High ratings on the inconsistency scale indicate an inconsistent behavior of the mother in aspects of parenting and mother–daughter relationships.

Indexes of the mentioned scales allowed the calculation of two additional criteria. The first is a factor of perception by the adolescent of their psychological intimacy with their parent, which characterizes the extent of expressed tender feelings and acceptance of the child. The second is a factor of criticism, which characterizes the extent of the mother's interest and her total control of the child.

All results were statistically evaluated using the Statistica 6.0 program and were compared using Student's *t*-test. Correlation analysis was performed using the Pearson's correlation coefficient. Differences with *p* values <0.05 were regarded as statistically significant.

## Results and discussion

The parameters of parent–child attitudes were compared between the groups. It was found that mothers of adolescent girls with idiopathic

scoliosis as well as those of adolescent girls without scoliosis had high ratings on the acceptance–refusal of the child scale (>24 points). This shows that mothers of girls with idiopathic scoliosis as well as those of girls without severe orthopedic abnormalities treat their daughters in a positive manner, respect their interests and necessities, support them in various life situations, and spend substantial time with them. The mean score on the symbiosis scale (2–6 points) indicates the desire of mothers of girls with scoliosis as well as those of girls without scoliosis to satisfy the reasonable needs of their daughters and to protect them from troubles and unpleasantness in life. The mean score on the control scale (2–6 points) for both groups demonstrated the ability of mothers to agree with the viewpoints of their daughters and to be flexible in choosing education methods. In some situations, mothers punished their daughters for disobedience and obstinacy, and in other situations, they used less severe measures or no measures. On the attitude to failures of the child scale, low ratings (<2 points) demonstrate that mothers of girls with idiopathic scoliosis as well as those of girls without scoliosis are understanding toward the mistakes and failures of their daughters and do not regard these instances as signs of infantilism or personal and social inconsistency. On the cooperation scale, the scoliosis group exhibited high ratings (>6 points) and the control group exhibited intermediate ratings (2–6 points) compared with normative values. This means that the mothers in the scoliosis group were sincerely interested in the problems of their daughters; they were inclined to help, to be involved in the daughters' matters, and

to express empathy and sympathy. Conversely, mothers of the teenage girls without scoliosis were not as likely to always be completely involved in their daughters' affairs and worries, and they often relied on the self-dependence of the child. These data confirm the results of comparative analysis of parameters of various aspects of parent–child attitude (significant differences were found between the two groups only in the cooperation scale) (Table 1).

Therefore, there were differences between parental directives of mothers parenting adolescent girls with idiopathic scoliosis and of mothers parenting adolescent girls without scoliosis. Mothers of sick daughters are more inclined to have an active interest in the matters and problems of their daughters and are more adapted for active collaboration and interaction with them in various spheres of life, including the process of medical treatment. They are ready to nurture the child during necessary medical procedures and to be actively involved in the prescribed restorative procedures.

The opinions of adolescent daughters on the educational directives of their mothers corresponded with intermediate scores (2–4 points) for both the scoliosis and control groups compared with normative indexes. This indicates that the daughters are capable of adequately assessing the directives, behavior, and educational methods of their mothers, and the ratings are similar in adolescent girls with idiopathic scoliosis and those without scoliosis. However, differences were revealed between the scoliosis and control groups in the ratings of parental attitudes (Table 2).

Table 1

Comparison between mothers parenting adolescent daughters with idiopathic scoliosis and mothers parenting adolescent daughters without idiopathic scoliosis

Scale name	Study group (Mean ± SD)	Control group (Mean ± SD)	<i>p</i> -value
Acceptance–refusal of the child	27.57 ± 5.42	29.13 ± 4.59	–
Cooperation	6.08 ± 0.93	5.31 ± 1.38	< 0.01
Symbiosis	4.59 ± 1.72	4.14 ± 1.16	–
Control	3.96 ± 1.76	3.64 ± 2.02	–
Attitude to failures of the child	1.78 ± 1.06	1.38 ± 0.75	–

Note: *p*-value, confidence level of difference.

Table 2

Comparison of directives, behavior, and education methods of mothers as evaluated by their adolescent daughters using the method "Teenagers on their parents"

Parameter	Study group (Mean ± SD)	Control group (Mean ± SD)	<i>p</i> -value
Positive interest	2.87 ± 1.36	2.15 ± 0.99	< 0.05
Commanding	2.72 ± 1.19	2.51 ± 1.11	–
Hostility	3.01 ± 1.29	3.12 ± 0.97	–
Autonomy	3.35 ± 1.12	2.91 ± 0.82	–
Inconsistence	2.96 ± 0.88	3.01 ± 0.96	–
Factor of intimacy	2.41 ± 1.02	2.02 ± 0.19	< 0.05
Factor of criticism	3.01 ± 0.18	3.02 ± 0.03	–

Note: *p*-value, confidence level of difference.

Significant differences were found in the positive interest and factor of intimacy scales between the groups. Both indexes were higher in adolescent girls with idiopathic scoliosis. It follows that adolescents with severe spinal deformities more often consider their mothers to be emotionally close, friendly, and actively interested in various aspects of their lives, whereas adolescent girls without such deformities consider this aspect of parenting to be seldom. As per the opinion of girls suffering from idiopathic scoliosis, their mothers are attentive toward and careful with them. They notice that their mothers are ready to help them in any situation, including the difficulties in clinical treatment and conflict situations with other teenagers or adults. However, adolescents with idiopathic scoliosis complain that their mothers provide redundant care, treat them as babies, and often restrict their independence and initiative. Meanwhile, the girls mention conniving, when the mother is ready to be fetcher and carrier to satisfy any wish of the daughter. Apparently, in cases of disease requiring complex medical intervention, adolescent girls develop a propensity to regard themselves as requiring to be controlled, supported, and cared for. This behavior may be a way to cope with a difficult life situation arising from a serious physical defect. The emotional support from an inner circle, especially a mother, is extremely important for children suffering from severe diseases. However, loving mothers who are hypersensitive to the problems of their daughters may express petty-minded meddling, overprotection, and yearning for excessive satisfaction of every need of their child.

Correlations between parameters of parental attitude and teenage girl's subjective notions of their mother's educational directives were analyzed. These correlations were stronger in the scoliosis group than in the control group. For example, the acceptance–refusal of the child scale negatively correlated with the hostility scale ( $r = -0.50$ ,  $p < 0.05$ ) and the inconsistency scale ( $r = -0.50$ ,  $p < 0.05$ ) but positively correlated with the factor of intimacy scale ( $r = 0.39$ ,  $p < 0.05$ ). The attitude to failures of the child scale positively correlated with the commanding scale ( $r = 0.52$ ,  $p < 0.05$ ), hostility scale ( $r = 0.47$ ,  $p < 0.05$ ), and factor of criticism scale ( $r = 0.39$ ,  $p < 0.05$ ). In the control group, only the symbiosis scale was positively related to the hostility scale ( $r = 0.49$ ,  $p < 0.05$ ).

The results disclosed the relationship between the mother's attitude toward her daughter and the daughter's estimates of this attitude. This relationship was clearer in the scoliosis group. The data demonstrate that an emotionally positive attitude and emotional, uncritical acceptance of the daughter with all her corporal defects are regarded by an adolescent girl as her mother's aspiration to create emotionally close, trusting, and friendly relations. Conversely, a mother's attitude toward her sick daughter as an unlucky, awkward, and inconsistent person, and a propensity for excessive criticism of her daughter are regarded by the daughter as hostility, imperiousness, and strict control from the mother. We found that relationships between parental attitude and subjective perception by the daughter have a different meaning in the control group. Tendencies of the mothers of girls without severe orthopedic

conditions to remove interpersonal boundaries and an absence of psychological distance between the mother and adolescent daughter may be perceived by the adolescent as the mother having an aggressive, authoritarian, or unfairly rigid attitude. Such subjective interpretation by the daughter may be accompanied by a protest and quarrelsome behavior, which may be qualified by adults as the traits of a problem child; in fact, this is the expression of profound changes in the mental development of the child, which is representative of a normative adolescent crisis related to transferring to a new level of life activity. Symptoms of the normative crisis are different between adolescent girls with idiopathic scoliosis and those without scoliosis of the same age. In the first case, the child's subjective appraisal of the parental educational directives completely depends on objective educational positions of the mother and does not cause obvious protests against unreasonable parental care. Such peculiarities may reflect defensive behavior for overcoming a traumatizing situation by means of avoiding the realities of the surrounding world via a safe parent-child environment. Whereas, during normative maturation of a young individual, new necessities appear, which may oppose the previous infantile behavioral directives and lead to interpersonal conflicts and specific behavioral patterns. Here, an adolescent simultaneously exhibits the "clinging" behavior of a little child and an ostentatious independence of an adult person from parental influence. Such inconsistent actions and nervous breakdown of an adolescent may be unintelligible to involved adults, who may qualify this as unreasonable and quarrelsome behavior, as well as a lack of proper parenting. These behavioral issues of adolescent patients may complicate the procedures of medical rehabilitation in a surgical hospital. Prophylaxis for behavioral and nervous breakdowns in teenage patients with idiopathic scoliosis during their complex surgical service in a hospital requires the involvement of clinical psychologists to perform psychological diagnostics, family consulting, and correction.

## Conclusion

General and specific characteristics of parent-child relationships in families of adolescent girls

with idiopathic scoliosis and in those of adolescent girls without scoliosis of the same age category were revealed. The discovered peculiarities in the mother-daughter relationship showed different specificities in the manifestation of a normative crisis in girls with and without a severe form of this disease. In the surgical hospital setting, preventive measures are necessary to address mental problems during the course of a complex operative therapy in teenage patients with idiopathic scoliosis.

## Author contribution

G.V. Pyatakova — clinical management, data acquisition, data analysis, and manuscript preparation; S.V. Vissarionov — selection and consultation of patients.

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The authors declare no explicit and potential conflicts of interest.

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