PSYCHOLOGY IN RUSSIA: STATE OF THE ART

PERSONALITY PSYCHOLOGY

Stigma Towards Depression in the Workplace

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Objective: The goal of this research was to examine the effect of stigma on employing a job candidate with a known mental illness, such as depression.

Background: Prior research established that negative stigmatizing attitudes towards mental illness affected employment discrimination. We hypothesized that participants would be less likely to hire a person with depression than someone without a mental illness.

Design:. A total of 162 undergraduate students from Glendon College were randomly assigned to one of two conditions where they were asked to read a short scenario listing qualifications and characteristics of a job candidate and answer a series of questions. The two questionnaires were identical except that one mentioned a diagnosis of depression and the other did not. We measured the likelihood that the participant would hire the candidate.

Results: The findings obtained were consistent with prior research and our hypothesis; the participants were significantly less likely to hire the candidate with a diagnosis of depression.

Conclusion: It appears that even in populations of highly educated people, we find instances of stigma towards mental illness. As these findings are not generalizable to the population at large, more research is required using a broader range and real-life situations.

Keywords: depression, stigma, employment, mental illness, clinical psychology, social psychology

Introduction

The aim of this study was to examine the stigma related to mental illness and how it affects employability for people afflicted with depression. Participants were asked to decide how likely they would be to hire a job candidate after reading one of two short paragraphs describing the candidate, in one of which a diagnosis of depression was mentioned, whereas, in the other it was not.

In 2015, 43.4 million adults in the US were diagnosed with a mental illness (National Institute of Mental Health, 2017). Statistics Canada released results from a mental health survey from 2012, which stated that 10.1% of the Canadian population (15 years and older) reported symptoms associated with a mental disorder (Statistics Canada, 2012; The Daily, 2013). Of that 10.1%, major depression is the most commonly reported type of mental health illness and affects roughly 3.2 million Canadians (Statistics Canada, 2012; The Daily, 2013). A global cross-sectional survey rated depression as the first most taxing disease for higher income countries and the third most taxing disease globally (Lasalvia et al., 2013).

People diagnosed with a mental illness face innumerable challenges in their daily lives. These difficulties include stigma, which can be defined as "the negative social attitude attached to a characteristic of an individual that may be regarded as a mental, physical or social deficiency" (VadenBos, 2015). The stigma surrounding mental illness has been distinguished by two relevant dimensions: self-stigma and public stigma. Self-stigma occurs when people with mental illness internalize stereotypes, apply these attitudes to themselves, and suffer diminished self-esteem and lessened self-efficacy (Corrigan, Watson & Barr, 2006). Public stigma refers to the attitudes and beliefs of the general public towards people with mental illness (Link, 1987). Although public and self-stigma are intertwined, for the purposes of this research we focused solely on public stigma.

Public stigma can be detrimental to obtaining employment for someone with a mental illness; stigma has a deleterious impact on obtaining good jobs (Link, 1987; Bordieri & Drehmer, 1986). Employment discrimination has been stated as the most recurrent type of stigma experienced by those with a mental illness (Stuart, 2006). The nature of a person's disability is a crucial determinant in the way this person will be perceived and treated by others (Stone & Colella, 1996). In a model done by Stone and Colella, physical disabilities and psychiatric disabilities served as a classic contrast (Stone & Colella, 1996), because research has shown that people with a physical disability face less discrimination in the workforce than those with a mental illness (Mendel et al., 2015). In one study where human resources professionals were given a choice to hire an applicant with either a physical disability ("uses a wheelchair") or an applicant with a mental disability ("takes medication for a depressive illness"), 87.7 % chose the candidate with the physical disability (Koser et al., 1999). Consistently, evidence suggests that hiring someone with a physical disability is favorable, but what is the employment situation for applicants who are diagnosed with a mental illness?

Research using hypothetical situations, such as presenting participants with fictitious scenarios of a person with a mental illness, and asking them to answer questions regarding their employability, has shown that people with a history of mental illness are significantly less likely to be hired than other candidates (Ber-

ven & Driscoll, 1981; Rickard et al., 1963; Stone & Sawatzki, 1980). Misconceptions and stigmatizing attitudes towards people who have undergone psychiatric treatment has also been found in real-world employment situations (Drehmer & Bordieri, 1985; Farina & Felner, 1973). However, there are only a few studies that have examined employers' attitudes toward hiring someone with a common mental illness, such as depression. In one such study, graduate students enrolled in personnel administration courses, expressed the view that an individual who had been hospitalized in the past for depression could not attend work consistently, handle work pressures, or meet high-level job responsibilities (Berven & Driscoll, 1981). Research has shown that gender has a significant influence on the perception of someone with a mental illness, and that men and women hold different attitudes towards mentally ill people. It has been claimed that women are more tolerant and accepting of people who have been diagnosed with a mental illness (Cook & Wang, 2010; Hinkleman & Granello, 2003; Mann & Himelein, 2004).

One study showed a decrease in stigmatizing attitudes towards people with depression after being exposed to a public awareness campaign; however, these effects were not long lasting. After retesting two years later, with no further exposure to the campaign, the experimenters discovered that attitudes had reverted to similar results as in the pre-test (Dietrich et al., 2010). These findings demonstrated that prejudicial attitudes towards mental illness can change when people are consistently educated and made aware of stigma. For this reason, we wanted to examine if undergraduate students, who are consistently educated on related topics, would have prejudiced attitudes towards employing someone with a known mental illness, such as depression.

Prior research suggests that discrimination towards someone with a known mental illness is prevalent in the workplace across varied situations. We hypothesized that participants who were told that the job candidate had a mental illness would report being less likely to hire the candidate than the participants who were not told that the job candidate had a mental illness.

Method

Participants

We randomly recruited 162 undergraduate students from Glendon campus. Some research showed that women tended to have fewer stigmatizing attitudes than men. Thus, to maintain group equivalence, we recruited an even number of men and women. One half (n = 81; M = 20.8 years old, SD = 3.4 40 males & 41 females) were informed that the job candidate had a major depressive disorder, and the other half (n = 81: M = 20.36, SD = 3.44; 40 of males & 41 females) were not.

Materials

The consent form stated who we are and why we were conducting this experiment. It explained the given task and the time it took to complete it. The form clarified that the participant was under no obligation, could decline to answer any questions, and could withdraw at any time. It also stated that all information would be kept anonymous and confidential, and that there would be no risks to the participants.

Questionnaires (attached at Appendix A). There were two questionnaires, each consisting of a one paragraph fictitious scenario in which a man named John was applying for a position as a sales representative. The position of the sales representative was chosen because it was the most common occupation in Canada (Statistics Canada, 2017). In the scenario, John's experience, education, and characteristics were listed. The qualities of the candidate were chosen in such way that contained both positive and negative traits for the position. This was done in order to portray the applicant in a more realistic way and moreover, to make it harder for the participants to figure out the real goal of our research. The content of both scenarios was identical except that in one questionnaire it was mentioned that John had been diagnosed with depression, and in the other questionnaire there was no mention of a diagnosis of depression.

The three questions that followed the paragraph were identical in both questionnaires. The third question, "If you were the employer, what is the likelihood that you would hire John?" was our target question, the only one the responses to which we analyzed to measure the attitudes of stigma. We designed the other two questions as camouflage to keep the participant from guessing the true aim of our study. We measured the target question by using the Likert Scale and asked the participant to mark an X in one of six places along the scale. The scale measurements were from "Very Unlikely" (1) to "Very Likely" (6). We chose six places in the scale to avoid the tendency to want to pick the middle value and to force the participant to make a choice in one direction or the other.

Debriefing notes (attached at Appendix A). It was necessary for us to use passive deception in this study so that we could accurately measure the attitudes of stigma. If the participants had known that the goal of this research was to measure stigma, it might have influenced their responses. Thus, we stated in our consent form that the purpose of our research was to study hiring trends for the next generation, which was not the entire truth. We were, in fact, measuring whether they would be likely to hire someone diagnosed with depression. For this reason, we debriefed the participants by handing them a thank you note including our contact information after participation.

Procedure

We printed an even number of questionnaires per condition (depression or no depression). The depression questionnaires were divided into two equal piles, and the no depression questionnaires were divided into two equal piles. One pile of the depression questionnaires was added to one pile of the no depression questionnaires. They were then shuffled so as to avoid us having any knowledge of which participant would receive which conditioned questionnaire, thus, avoiding us imparting any of our own expectations onto the participants. Then, we put them in an envelope labelled 'M' for males, and the same procedure was followed with the remaining halves of the two questionnaires, except they were put in an envelope labelled 'F' for females. We printed copies of the consent form and our debriefing notes, which we cut into strips.

We stood outside the cafeteria of Glendon campus, where there tends to be a lot of foot traffic, and asked students to participate in our research study and receive

a candy for participation. If they agreed, we handed them the consent form and requested them to read it carefully. Once completed, we asked them if they had any questions and if they understood the form. If the potential participant confirmed that they understood and agreed to participate, we handed them a questionnaire from the appropriate envelope and a pen.

After the participant returned the questionnaire, we added it to a new envelope either labeled F for females or M for males and handed them one of our thankyou/debriefing notes and a candy.

Results

The dependent variable measured the participants' likelihood of hiring a job candidate by asking them to mark an "X" on a Likert scale from (1) "Very Unlikely" to (6) "Very Likely".

A one-tailed independent-measure t-test revealed that the participants were significantly less likely to hire the candidate with depression than the candidate without ($t(160) = -3.30$, $p < 0.01$, see *Figure 1*). The mean score ($M = 4.23$, $SD = 1.29$) in the experimental condition where depression was mentioned was significantly lower than the mean score ($M = 4.81$, $SD = 0.92$) from the control condition where depression was not mentioned. The potential range was the same for both conditions ($R = 6$). The observed range for the experimental condition where depression was mentioned *($R = 6$)* was larger than the range for the control condition where depression was not mentioned ($R = 5$).
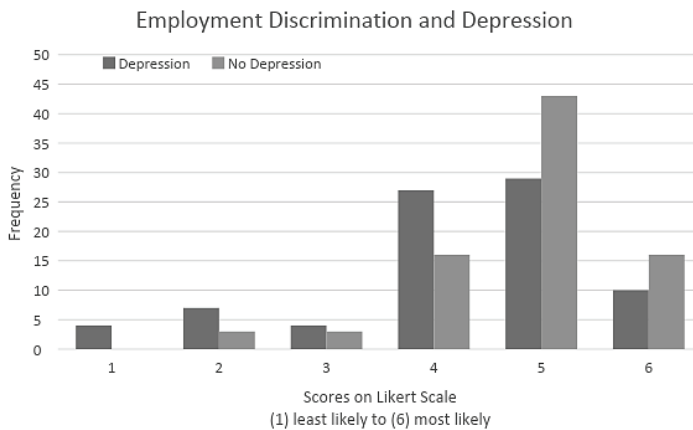
Figure 1. Likelihood of hiring the candidate where a diagnosis of depression was mentioned vs. hiring a candidate with no mention of depression.

Discussion

The main purpose of this study was to measure the effects of stigmatizing attitudes held towards someone with a known mental illness, such as depression, on employment. Prior research on this subject suggests that stigma towards mental illness exists in the workplace and translates into employment discrimination in multiple

forms. Consistent with prior research, participants in the current study were significantly less likely to employ the candidate with a diagnosis of depression than the candidate who did not have a diagnosis of depression. These results supported our hypothesis. Offering a candy as incentive may encourage people who normally would not participate in a research study like ours to volunteer. We believe this strengthened the internal validity of our study by reaching a more varied section of the target population.

Although our results were significant, the external validity of this study is limited. These findings are not generalizable to the entire population, as undergraduate students only represent a small sector of the population. Also, in large part, undergraduate students have not held positions in which hiring possible job candidates would be in their job description and conceivably, were not able to realistically base any judgments from their own life experiences.

Another potential threat to the current research is the possibility that the participants were less likely to hire the candidate with depression, not necessarily because of the diagnosed mental illness, but due to the concern that the person suffering from depression might underperform the job responsibilities. Nevertheless, even if participants' choice was based on the assumption discussed above, it still shows that the students' perception of people with mental illness is distorted, meaning they hold the belief that the individuals with depression will not work as well as people without that mental illness, and that was the main idea we intended to address in this paper.

Fictitious scenarios generated similar results to studies where real-world workplace situations were assessed (Drehmer & Bordieri, 1985; Farina & Felner, 1973). Even when the choice between the candidate with a mental illness was compared to that of a candidate with a physical illness, significant results showed discriminating attitudes towards the candidate with mental illness (Koser et al., 1999). This further illustrates that there is little acceptance of those afflicted with depression and other mental illnesses in the workforce.

We have seen from studies that people with higher levels of education were less likely to hold stigmatizing attitudes towards those with depression (Cook & Wang, 2010). Other studies showed a decrease in stigma after being educated through awareness campaigns (Dietrich et al., 2010). If we found stigma towards mental illness among a population of highly educated students at a university with a large psychology program, what might we find in the general population? Considering this, it would be good to conduct longitudinal studies in North America comparable to those conducted in Germany where awareness campaigns were shown to reduce the stigma of mental illness over short periods of time (Dietrich et al., 2010).

Conclusion

It follows that more research where education and awareness of mental illness being reinforced in a multitude of ways is important in the possible reduction of employment discrimination towards those afflicted. Research of this type conducted in real-life employment situations in all employment sectors is important. In our

study, the hypothetical job position described was that of a sales representative, as it is the most commonly held position in Canada. An important question to ask next would be whether there are differences in stigma towards job candidates applying for a position as a lawyer or police officer compared to a fast food worker or laborer? Is employment discrimination towards mental illness similar across all sections of the workforce? The next step could be to conduct a longitudinal study in which human resources professionals, in varied employment sectors, are tested before and after being exposed to awareness campaigns or educational seminars in their communities or workplaces. These are important questions to answer as depression affects a large percentage of the population and interferes with productivity in the workforce.

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Appendix A

Age: ____   Gender: _____

Please read the following paragraph and reply to the questions below:

John Smith is 42 years old and currently unemployed. He is applying for an opening as a sales representative for an insurance company. The position requires someone who is bilingual. John has an intermediate level of French. He has 12 years' experience as a sales representative. John also has a BA in Finance from a university abroad. He left his last job on good terms and has references from his previous employer. He has been characterized as someone who is detail oriented with good leadership skills. Some of his coworkers have characterized these traits as controlling.

Please answer the following questions:

1. Rank the importance of the following 4 qualifications for job applicants by writing 1 beside the most important through to 4 as the least important.
   a. Work Experience   _____
   b. References   _____
   c. Relevant Education/Degree _____
   d. Personality   _____

2. To what degree do you think John is qualified for this position? (Please mark an "X" on the scale)

   Very Unqualified _____Very Qualified

3. If you were the employer, what is the likelihood you would hire John? (Please mark an "X" on the scale)

   Very Unlikely _____Very Likely

Thank you for your participation.

Age:____   Gender: _____

Please read the following paragraph and reply to the questions below:

John Smith is 42 years old and currently unemployed. He is applying for an opening as a sales representative for an insurance company. The position requires someone who is bilingual. John has an intermediate level of French. He has 12 years' experience as a sales representative. John also has a BA in Finance from a university abroad. He left his last job on good terms and has references from his previous employer. John has been diagnosed with major depressive disorder and has been characterized as someone who is detail oriented with good leadership skills. Some of his coworkers have characterized these traits as controlling.

Please answer the following questions:

1. Rank the importance of the following 4 qualifications for job applicants by writing 1 beside the most important through to 4 as the least important.
   a. Work Experience   _____
   b. References   _____
   c. Relevant Education/Degree _____
   d. Personality   _____

2. To what degree do you think John is qualified for this position? (Please mark an "X" on the scale)

   Very Unqualified_____Very Qualified

3. If you were the employer, what is the likelihood you would hire John? (Please mark an "X" on the scale)

   Very Unlikely_____Very Likely

Thank you for your participation.

The #faceofdepression Hashtag in the Facebook and VKontakte Social Networks: The Public Discourse Features among a Russian-Speaking Audience

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Background. Previous studies of depression in social networks examined the public discourse to look more closely at how users talk about their depressive symptoms. One of these studies, published in JMIR Mental Health journal, was devoted to the trending hashtag #MyDepressionLooksLike on Twitter. The data were collected from an English-language sample; in turn, no similar studies were conducted on a Russian-speaking audience. The appearance of the #faceofdepression hashtag in Russia allowed for a comparative study.

Objective. The purpose of this study was to analyze the thematic structure of the Russian-language posts under #faceofdepression on the social networks Facebook and VKontakte (VK) in 2017 and to compare the results obtained to the analysis of the English-language posts under #MyDepressionLooksLike. First, we suggested that the themes of the Russian-language posts under the hashtag #faceofdepression on Facebook and VK are similar to the themes of the English-language posts under the hashtag #MyDepressionLooksLike on Twitter. Second, there will be a significant difference in the frequency of the themes' representation in different social networks. Third, the unique characteristic of the public discussion in Russia is a topic about antistigma of depression.

Design. To test these hypotheses, we exported the data from Facebook and VK (1527 Facebook and 496 VK publications) by keywords and hashtags using the TargetHunter and YouScan analytical programs. We analyzed a group of posts describing the authors' personal experience (159 original posts on VK and 231 original posts on Facebook). In those posts, users mentioned their depression symptoms, the way they combat the disease, and difficulties encountered throughout the course of the disorder.

Results. Through the thematic analysis of the posts, we identified seven topics that fit into the initial categorical grid used to analyze #MyDepressionLooksLike on Twitter by Lachmar, E. M., Wittenborn, A. K., Bogen, K. W., and McCauley, H. L. (2017). We also discovered an eighth topic, which was missing in Lachmar's study. This topic was called "antistigma" and it proved the Russian-language discourse to be more socially oriented. We also found that Twitter users reported much more often on changes in thinking and perception (25% of all posts) compared to VK (6%) and Facebook users (15%). At the same time, VK users noted changes in their emotional sphere (19%) more often than Twitter users (8%). Facebook users more frequently described ways of coping with depression (22%) than VK (13%) and Twitter users (5%).

Conclusion. We conclude that our hypotheses are generally confirmed.

Keywords: public discourse, depression, Facebook, VKontakte, Twitter, antistigma, mass communication on the Internet

Introduction

Depression is a disease that strongly affects the health and life of individuals. Mental disorders make up 3 of the 10 leading causes of disease burden in middle-income countries. Their lifetime prevalence in Europe accounts for 9% in men and 17% in women[1] of working age.

At the same time, the public perception of depression is not that unambiguous. The World Health Organization is seriously concerned about the problem of stigmatization of mental disorders in general, and depression in particular. Some representations portray depression as a lack of will, laziness, and bad mood. These representations discourage those suffering from depression from seeking help in time, thus worsening their medical condition, increasing their social isolation and risk of suicide.

Mass media coverage of the problems of mental health has expanded of late, but media portrayals of mental disorders have been recognized as being misleading and stigmatizing (Morgan, Jorm, 2009; McGinty et al., 2014; Chen, Lawrie, 2017). For example, it was found that 39% of all media stories focused on mentally unstable people being dangerous and violent (Corrigan et al., 2005). Surely there are some stories containing themes that fall into a broad category of advocacy action and encouraging society to antistigma. But against the general media background, trends such as projects may prove ineffective. Researchers discovered that social networks, unlike traditional media, communicate different attitudes toward those with mental illnesses. For instance, by examining the connotations of posts[2] on Twitter in 2014, Reavley and Pilkington (2014) showed that 65% of the posts were supportive, 27% were neutral, 7% were specifically antistigma, and less than 1% reflected stigmatizing attitudes or personal experience of stigma. More than one-third of the tweets that reflected stigmatizing attitudes were mocking or trivializing toward those with depression (37%). The attitude that those with depression should "snap out of it" was evident in 30% of stigmatizing tweets.

Thus, in addition to the "downward" social processes aimed at changing societal attitudes regarding mental illnesses, the number of spontaneous processes has increased in recent years, initiated and supported by those who have had experience with mental disorders. Due to the development of the Internet, such processes have become increasingly noticeable and involving. Earlier, main help was most often rendered through information portals and forums, where a user could find information about his or her illness. At present, public discourse and mass actions on social networks affect not only those who are facing the problem, but also their friends and family.

Previous studies of depression-related social networks can be divided into two groups. The first includes projects aimed at identifying the markers of depression by analyzing the users' behavior, the content on their pages, and communication with their subscribers. These types of research activities have become more popular, although they remain lacking. Thus, an attempt to predict postpartum depression and identify women in risk groups was conducted by De Choudhury et al. (2013,

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[1]   http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf

[2]   A post in a social network is any article or entry made by a private user, media company, or brand in its account, on a "wall," or in a group that could be open or closed to the public.

2014) using data captured from Twitter and Facebook. The research suggests that reduced social activity, increased interest in social and medical problems, increased negative effects, the cluster structure of the social network, and more active expression of religious views are signals that can result in depression (De Choudhury et al., 2013).

A study of Instagram showed that photos posted by depressed individuals were more likely to be bluer, grayer, and darker, and to receive fewer likes[3]. Depressed Instagram users in the sample had an outsized preference for filtering out all colors from posted photos and showed an aversion to artificially lighting photos compared to non-depressed controls. Depressed users were more likely to post photos with faces, but they preferred to post fewer faces per photo than the controls (Reece, Danforth, 2017).

The second type of studies examined the processes of self-disclosure, obtaining social support, forming an identity, and overcoming stigmatization through discussing depression on social networks. Researchers are interested in the way users receive social support on social networks when disclosing information about their mental illnesses.

A prior study of depression forums revealed that sharing a personal story in support groups helps individuals not only obtain support but also attribute their own identity and express their emotions (Lamerichs, 2003). Balani and De Choudhury (2015) developed a classifier that characterizes Reddit posts as of high, low, or no self-disclosure. Other researchers used different types of content in online support groups, for example, reflecting the measure of empathy, questions asked, and answers formulated, etc. (Davison et al., 1997).

Balani and De Choudhury (2015) conducted their study based on Instagram. They captured #depression posts and found out that posts asking for support obtained significantly more comments than the other publications. All else being equal, a post requesting help received 1.55 times more involvement than a post without a request; it also often received comments with tool support (how to deal with a problem). Posts about illnesses received 2.13 times more social support than posts without such content.

Although those with mental disorders consider Facebook an appealing venue for self-disclosure, the low positivity of their disclosures elicited an undesirable response from others (Forest, Wood, 2012). At the same time, Instagram posts with deep and detailed stories about personal difficulties are heavily supported. Personal stories receive more emotional and tool support, expressions of empathy, and validation. Posts with self-presentation often receive informational support and advice.

A group of studies assessing public discourse about self-disclosure on social networks stands apart. This group is extremely narrow but represents interesting data on how the self-disclosing process on social networks becomes more massive and involving, engaging more users who previously did not face mental illnesses.

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[3]   A like button/option is a feature in social networks, blogs, forums, and media sites wherein the user can express what they like, enjoy, and support. Internet services usually display the number of users who liked each post and may show a list of them. Liking is an alternative to other methods of expressing a reaction to content, such as writing a reply text, but pressing a "like" button is much easier and faster and thus more popular.

One of the studies is devoted to the thematic analysis of public discourse with the hashtag[4] #WhyWeTweetMH ("Why we write about mental health") (Berry et al., 2017). The following post topics were described in the work:

Theme 1. Tweets about mental health provide a sense of community

- Tweets to contact, socialize, and reduce isolation
- Tweets to send and receive messages about support and hope
- Tweets to share and receive information

Theme 2. Tweets about mental health to combat stigma and raise awareness

- Tweets to combat stigma
- Tweets to raise awareness
- Tweets to wage campaigns

Theme 3. Tweets about mental health because Twitter is a safe space for expression

- Tweets to share honest experiences without a feeling of being blamed
- Tweets to vent, have a voice, and feel heard
- The benefit of Twitter over other social media sites

Theme 4. Tweets about mental health are empowering coping mechanisms

- Tweets about mental health provide an opportunity to escape
- Tweets about mental health have an empowering self-management strategy

A study by Lachmar et al. (2017) is much closer to our research. The study examined the public discourse of the trending hashtag #MyDepressionLooksLike and looked more closely at how users talk about their depressive symptoms on Twitter. The authors found that tweets on #MyDepressionLooksLike revealed various topics that described the inner world of those with depression. Some users described the cognitive, personal, and social consequences of depression. They also wrote about a feeling of sadness, hiding depression symptoms, seeking help, and thoughts about suicide. The content of these topics complied with the modern concepts of symptoms and mechanisms of depression: these are dysfunctional beliefs, changes in the emotional sphere, changes in the way of life and motivation, etc. A person or community can obtain some benefits by spreading information about depression, but these benefits and stories need to be explored thoroughly to expand the concept of depression in social media.

Justification for the choice of social networks
We used VKontakte (VK) and Facebook for our research for several reasons.

An estimated 110 million Russians are Internet users. The penetration of social networks is estimated at 47%, with 67.8 million Russians having accounts.[5]

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4   A hashtag is a type of metadata tag in social networks allowing users to apply different marks enabling others to find messages with a specific theme or content.

5   https://www.web-canape.ru/business/socialnye-seti-v-2018-godu-globalnoe-issledovanie/

VK is the second-largest social network in Russia after YouTube with 36.8 million monthly users (in December 2018).[6] YouTube has a monthly reach of 39.7 million users but it loses VK as a communication tool because it is widely perceived as a video blogging platform, not as a space for social discussion. Facebook is the main network worldwide with 2.61 billion users globally but it has only 22.3 million users in Russia and is in fifth place.[7] Twitter is much less popular among Russian-speaking audiences and its popularity is falling rapidly,[8] reaching 7.7 million users in 2017.

VK is the most popular network in Russia by the number of active authors (those who publish at least one post a month) of 36 million in 2018, while Instagram has 23.7 million users, [9] Facebook has 2.2 million, YouTube has 1.1 million, and Twitter has 818,000 active users.

As the user base of social networks has grown, their audiences have been partially intersected. Research into social networks in Russia by the Russian Internet Corporation Mail.ru found that the 25-34 age group is active both on VK (28%) and Facebook (26%), but there are more managers among Facebook users (16% compared with 13% on VK) and fewer students (13% compared with 19% on VK). The gender composition is the same: 47% are men and 53% are women.[10]

Many Russian users have accounts on various social networks. VK and Odnoklassniki have the most "loyal" users: 14% and 7% of their monthly audience did not visit other networks. Meanwhile, nine out of ten Facebook users visit VK.[11]

The main difference between social networks is not in age or demographics, but in the way users behave, in their interests, and the need for particular content.

S. Bodrunova and A. Litvinenko (2014) proved that since 2009, Facebook played a significant role in building the online public sphere in Russia because it has "all the necessary features for the rise of an online communicative milieu for the 'thinking community.' " Facebook became the space for discussion and played a significant role in the political and deliberative polarization of the online audience. At the same time, VK seemed to play a less important role in users' mobilization, and the alternative-agenda media cluster appears to be almost two times less important for the VK audience.

We can compare the most popular content on VK and Facebook using the social analytical platform Brand Analytics that shows the most readable posts per three hours, per day or week real-time, and publicly available. We have chosen the 25 newest publications per week (this is the maximum possible number on the platform).[12]

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6   https://webindex.mediascope.net/top-resources/projects
7   https://mediascope.net/upload/iblock/f97/18.04.2019_Mediascope_%D0%95%D0%BA%D0%
     B0%D1%82%D0%B5%D1%80%D0%B8%D0%BD%D0%B0%20%D0%9A%D1%83%D1%80
     %D0%BD%D0%BE%D1%81%D0%BE%D0%B2%D0%B0_%D0%A0%D0%98%D0%A4+%D0-
     %9A%D0%98%D0%91%202019.pdf
8   https://www.statista.com/statistics/303719/twitters-annual-growth-rate-in-russia/
9   https://br-analytics.ru/blog/socseti-v-rossii-osen-2018/
10   https://corp.mail.ru/media/files/issledovanie-auditorij-sotcialnykh-setej.pdf
11   Ibid.
12   https://br-analytics.ru/mediatrends/?fm_date=week&layout=layout_block&hubs=fb

Content of mass interest is the essence of VK: commercial contests and prize draw-ing by different Russian brands (10); spam of different types (8); entertaining posts on most visited public groups (4); and funny pictures and jokes (3; weekly data: June 29 to July 6). Facebook is more political and socially oriented: it includes ar-ticles published by media outlets devoted to Russian, Georgian, and Ukrainian politics and conflict relations (12), social policy in Russia (2), commercial contests and prize drawing by different Russian brands (3), lifehacks (2), human stories (2), spam of different types (2), tests (1), and opinion polls (1).

The aim of our research was a comparative analysis of attitudes toward depres-sion among the Russian-speaking users on Facebook and VK under the hashtag #faceofdepression.

We conducted an exploratory study to suggest the following three hypotheses:

1. Themes of the Russian-language posts under the hashtag #faceofdepres-sion on Facebook and VK are similar to the themes of the English-language posts under the hashtag #MyDepressionLooksLike on Twitter.
2. There will be a significant difference in the frequency of the themes repre-sented in different social networks.
3. The distinctive feature of the public discourse in Russia is topics about an-tistigma and overcoming prejudice against those with depression.

Methods

Materials

Analyzing publications under the hashtag #faceofdepression, we captured 496 posts from VK and 1527 posts from Facebook.

Each post from the data set was assigned to one of the six following groups:

1. Reposts. The most numerous group, which includes links to media articles, reposted materials from groups (on VK) and public pages (on Facebook), and celebrities' reposts about their experiences (more than 70% of the posts on both social networks).
2. Posts with a description of the authors' personal experiences. In these posts, users talk about their depression symptoms, their fight against disease, and difficulties encountered during that time (15%).
3. General reasoning about depression or public discourse, when users share their thoughts, not their experiences. Among these posts, there were also posts by psychologists with advice on how to combat depression (7%).
4. Very short posts (10–15 words maximum) where the authors support the idea of the #faceofdepression (5%).
5. Posts describing depression among friends and relatives. Users speak about how they noticed (or often did not notice) depression symptoms (approxi-mately 1%).
6. Posts with criticism of the idea of public discourse or ridiculing its mass character (approximately 1%).

Group number 2 is the most important for understanding the essence of the hashtag #faceofdepression. Posts from this group reflect the maximum degree of self-disclosure, and as a result, most actively involve the mechanisms of empathy, involvement, and social support. Thus, we used this particular group of posts as the subject of our study.

We analyzed 159 original posts on VK and 231 original posts on Facebook.

Socio-demographic characteristics of the authors of posts on VK: The majority of the authors were women (79% of women versus 21% of men). The uniform distribution of the authors among age groups from 21 to 34 years: 21-23 years (28%), 24-26 years (33%), 27-29 years (28%), and 30-34 years (31%). Authors under the age of 20 and over 35 totaled 27%.

Socio-demographic characteristics of the authors of posts on Facebook: posts are predominantly written by women (86%).

Procedure

To capture relevant texts, we used two analytical programs, TargetHunter and YouScan. YouScan is a social analytics platform that monitors social media, blogs, forums, and online media. The service subscriber sets up an account to see specific topics and obtains the results in the online interface in real-time. The results uploaded are all texts corresponding to the specified parameters, including duplicate texts. The parameters include keywords, the presence or absence of images, the date of publication, and other attributes. It is possible to set a uniqueness filter that allows the user to see only original posts when each publication is linked to a specific author. TargetHunter works the same way, also analyzing the socio-demographic characteristics of the authors of the posts. The platform does not upload posts in the online interface and provides information about unique users of the social network.

We conducted a content analysis of the captured posts according to the method of thematic text analysis using a categorical grid developed by Lachmar et al. (2017). Four people who specialize in psychology and media research participated in the coding procedure. Their special task was to identify themes that did not fall into any group proposed for encoding. This procedure, on the one hand, made it possible to establish similarities between our results and those of Lachmar et al., and on the other hand, to note the differences.

Results

Through a thematic analysis of the posts, we identified seven topics that comply with the initial categorical grid used by Lachmar et al. (2017). We also found the eighth topic, which was missed in Lachmar's study. This topic was called "antistigma." The names of the themes, the frequency of their occurrence in raw numbers, and examples illustrating the content are given below.

*Theme 1. Dysfunctional thoughts (*Facebook [FB]: n = 104, VK: n = 21)

This topic includes posts about various cognitive distortions: first, changes in the perception of oneself, the future, other people, and the world. Often it is a change of perception toward noticing only negative content.

Participants wrote about:

• Self-hatred:

"... Sometimes I talked with people, but it always seemed to me that they all considered me insignificant, weak, stupid, ugly". (VK)

"For several years I hated myself for not being able to pull myself together and to become happy, like all normal people. For several years I simply did not exist". (FB)

• Conviction in their worthlessness and uselessness:

"I cannot see in myself anything for which I can be respected and loved. I cannot do anything the way I would like to, always haunted by the feeling that everything is falling out of hand". (VK)

• Loss in space:

"I do not leave home for weeks, sometimes because I lose orientation ability. I cannot distinguish the floor from the ceiling; or I immediately feel myself in 32 spaces at the same time and I cannot choose in which I am, it is terribly scary and drives me crazy". (FB)

• Derealization:

"Everything seems unreal, blurry, slow, and gray as if reality is turning into a low-grade art-house film". (VK)

"My entire existence collapsed and was reset to a state of absolute 'nothing.' That 'nothing' settled for a long time inside myself". (FB)

Theme 2. Lifestyle challenges (FB: n = 119; VK: n = 56)

This topic includes posts in which the participants described changes in their lifestyle associated with the depressive state.

• The participants in the discussion described a decrease in motivation and working capacity:

"Sometimes I can lie around on the sofa all day and stare straight in front of myself. I am not able to do anything. I do not care about anything". (FB)

"I lay for days. Without any desire to eat, live, or do anything". (VK)

• Many participants wrote about sleep and eating disorders:

"Insomnia alternated with sleep for 12 hours, hunger strikes alternated with uncontrolled overeating". (VK)

"For the second time in my adulthood, I lost weight to the bone (it's when it hurts to lie, it hurts to sit) (...) I just barely ate anything and generally lay almost all day long (...) Even such a classic depression, with emaciation, refusal of food, apathy, and sometimes unwashed hair people do not notice". (FB)

• The feeling of fatigue, exhaustion, and lack of strength can be also found:

"I was broken, I felt tired, abandoned, devastated". (VK)

• The participants wrote about difficulties in performing household duties and self-care:

"Any thoughts about any activity (to go shopping, to open a book, to check the schedule, whatever it was) are accompanied by a fit of nausea". (VK)

"Yesterday you led an active life, and today you are not able to take a spoon". (FB)

• There were some cases in which the external signs of depression were not visible:

"And the doctor asks: 'What's happened?!' But nothing has happened to me. NO-THING. No catastrophe, nobody died ... something is wrong with my body. I endured almost two years of such fun". (FB)

Theme 3. Social struggle (FB: n = 59; VK: n = 47)

This topic includes posts that report about difficulties in the social sphere and a sense of loneliness, misunderstanding, and isolation.

"I will not lie and tell how my friends and relatives helped me. No one helped. And no one drove me into depression. I was just unbearable for my relatives and myself". (FB)

"In that period of my life, there was too much loneliness, misunderstanding, and rejection". (VK)

Some of the participants describe the communication topic as full of conflict, emphasizing the simultaneous need for social contacts and the desire to avoid them. The participants often mentioned depreciation of their condition by others:

"I wanted to tell someone about what was happening to me, but on the other hand, I was afraid that someone would find out that my soul is full of the nightmare". (VK);

"No one cares about you. It hurts when you notice senseless or sometimes indifferent glances of those you love, who are just irritated. They shrug their shoulders and consider my depression false: 'Come on, what's up? An hour in the morning is worth two in the evening. Are you going to do something with your life? Don't argue! Man is such a creature, he can get used to everything. Raise your arm high and drop it abruptly. Why are you so sad? Oh God, he is his usual self again!' ". (FB)

Theme 4. Hiding behind a mask (FB: n = 75; VK: n = 45)

Many try to hide their depression, to mask it by laughing and smiling. At the same time, the participants acknowledge: "The worst thing in depression is that no one can see it." Thus, it turns out that those with depression partly create this situation themselves:

"I post lots of pictures on Instagram, they present my happy and busy life, which is only a way to fill a void". (VK)

"I remember one comment to the photo on my Facebook: 'Harmony and pacification!' wrote a friend. In fact, that the photo was taken amid my struggle for life". (FB)

"All these years of depression (about 20-25 in my life), everyone (except one of my former partners, who lived with me, nannies of my son, and himself sometimes) saw me only as a luxurious, well-groomed, dressed in designer clothes with expensive jewelry, riding expensive cars, smiling, strong-willed, active woman, to which the majority of men were even scared to flirt with; either he fails, or a lady is too expensive". (FB)

"I tried to look better so that others could not guess the horror that seized me entirely. I hide everything inside, and I only dreamed that someone would notice it, someone would understand". (VK)

Theme 5. Apathy and sadness (FB: n = 96; VK: n = 62)

The discussion participants described various emotional manifestations of depression. They often mentioned four: shame, fear, guilt, and aggression.

- Shame

"That shame created a vicious circle — I had no power to do what I promised or wanted to do — it provoked shame, shame increased disgust for myself, self-disgust made another obstacle to doing something, and this led to another outbreak of shame". (FB)

"I'm ashamed to speak about depression, because of the nasty voice in my head, which reminds me of hundreds of people who live much worse than me". (VK)

- Fear

"When I talk about fear – it is not about emotions, I do talk about physiological sensations. Fear in depression is physiological — you are thrown into a cold sweat, your heart is beating wildly, your head is spinning, you feel sick, you lose the sense of reality". (FB)

"And the emotions inside you are only fear and anxiety. That's all. In one word: stupor". (VK)

- Sense of guilt

"From the age of 14, I live with a constant, endless sense of guilt, every year it becomes sharper, brighter, and more unbearable". (FB).

- Aggression

"At some point, I started yelling back, grab a belt from her hand and throw it out of the window. And then, at the age of 15-18, I started to destroy things. At that time I broke about 6 phones, three pairs of glasses, my favorite headphones, a passport, all the cards, and some other stuff. I demolished the window in my room three times, ruined the closet door, and broke some part of the table". (FB)

Theme 6. Seeking relief (FB: n = 149; VK: n = 44).

This topic includes statements describing the participants' attempts to overcome the symptoms of depression. Different coping strategies are represented in the texts of the posts. All can be divided into constructive and destructive methods. Destructive coping methods are drinking alcohol and, more rarely, using drugs. The most constructive method is using antidepressants combined with psychotherapy. The participants wrote that it is one of the most effective means to combat depression, but some mentioned that they overcame depression without antidepressants.

"I cry and drink alcohol because it is 'cheaper than a psychoanalyst' ". (FB);

"I drink alcohol and comfort myself thinking that this alcohol is expensive and of high quality". (VK)

"I quit alcohol cold turkey, dragged myself out for walks, completed a 'depression meditations' course, and even tried to make a romantic relationship". (FB)

"People helped me, just pulled me out. Psychologists helped as well. I took some medicines, some kind of pills, and I think pills helped, too. But they were people we love who helped me". (FB)

In some posts, the participants wrote about how they tried to cope with depression with the help of sports and travel:

"I have tried many things to overcome depression: dancing, yoga, gym, haircuts and hair colors, courses in every way of self-improvement possible, language schools, traveling, extreme, needlework, and so on. And nothing brought relief to me". (FB)

"I practiced mountain climbing, contact improvisation, Kabbalah, special dream practice, rebalancing, qigong, tai chi, meditation. Everything gave only a temporary effect, and then the depression only became worse". (FB)

Theme 7. Self-harm and suicidal behavior (FB: n = 63; VK: n = 41)

The posts included in this group describe suicidal intentions and attempts, various self-harming behavior, and thoughts about death:

"I tried everything just to stop this stupid, ugly, unbearable stream of ugly thoughts, and then I came to something that you will never be able to refuse self-harm". (VK)

"It thinks I tried to kill myself 7 times or so, those were 7 attempts and about six months that I planned suicide, thought about it". (FB)

"For example, I was rescued in the intensive care unit of Sklifosovsky Hospital. I was also rescued in the central district hospital in Kolomna. For example, once I had cerebral edema because of lack of oxygen". (FB)

Theme 8. Antistigma (FB: n = 22; VK: n = 16)

Many posts contained an important message about the stigma of mental disorders (including depression). Stigmatization creates difficulties when seeking help for overcoming depression. We found that the topic of stigma is specific for the Russian-speaking Facebook and VK users compared to the English-speaking Twitter users. This topic was not singled out in Lachmar's study (2017).

"We need to struggle with stigma. Mentally ill people are people quite like you". (VK)

"You cannot overcome depression through phrases like 'stay calm and get a grip' or 'you can do it.' It is a disease, it can be treated, and it must be treated. It has nothing to do with willpower. Having depression is not embarrassing, you are not guilty. So, do not be afraid or be shy of psychiatrists as you are not afraid of therapists and surgeons". (FB)

"I would not talk about smart alecks who push the idea that depression is an imaginary disorder of gluttons and lazybones (…). 'Stop beefing! Think positive. In Africa, children are starving and you're just suffering from an excess of prosperity. Smile, your sad face is frustrating. It's not a big deal. Don't overreact. Tear your ass off the couch. Do some sports.' Such recommendations are meaningless and cruel. Diseases are not cured by an effort of the will. Advising a person with depression to 'stay calm and get a grip' is like advising a patient with broken legs to run a marathon right now". (FB)

"I like this discussion. I like today's Facebook as a tool of antistigma". (FB)

Table 1 shows the themes' proportional frequency in the Russian-language posts on VK and Facebook compared to the data obtained by Lachmar et al. on Twitter.

After revealing a thematic difference in describing depression in three social networks, we used a non-parametric chi-squared criterion to identify significant differences between the samples from the Lachmar et al. study and Russian-language samples from two social networks. A comparison of the posts of the English-speaking Twitter users and the Russian-speaking Facebook and VK users showed significant differences (p < 0.001), as well as a comparison of the Russian-speaking

Table 1

The thematic structure of posts with a description of personal experience

Category	Twitter (English-speaking audience)	VKontakte (Russian-speaking audience)	Facebook (Russian-speaking audience)
Theme 1. Dysfunctional thoughts	498 **(25%)***	21 (6%)	104 (15%)
Theme 2. Lifestyle challenges	416 (21%)	56 (17%)	119 (17%)
Theme 3. Social struggle	433 (22%)	47 (14%)	59 (8.5%)
Theme 4. Hiding behind a mask	236 (12%)	45 (14%)	75 (11%)
Theme 5. Apathy and sadness	149 (8%)	62 **(19%)**	96 (14%)
Theme 6. Seeking relief	110 (5%)	44 (13%)	149 **(22%)**
Theme 7. Self-harm and suicidal behavior	136 (7%)	41 (12%)	63 (9%)
Theme 8. Antistigma	0	16 (5%)	22 (3%)
The ratio of themes and posts	1978 themes/ 3225 original texts	332 themes/ 159 original texts	687 themes/ 231 original texts

Note: Maximums in percentages are marked with bold type.

audiences ($p = 0.04$). A one-to-one comparison of the individual data of the users of the Russian-language samples shows significant differences between the "Dysfunctional thoughts" and "Seeking relief" scales ($p<0.001$).

Discussion

The results of our study show similarity in how people describe depression on different social networks and in different cultures. The only specific topic was the antistigma of depression, which was not explicitly presented in the study of the English-speaking audience on Twitter.

Studies at the intersection of psychiatry and media research have shown that mass media contribute significantly to shaping public perceptions of mental disorders, including negative perceptions (Sieff, 2003). Philo (1999) found that not only official media are a source of information and insights into those with mental disorders, but also fictional stories (for example, films, serials, etc.).

A comparison of the frequency of the occurrence of topics related to psychiatry in the Russian media showed that the illegal actions of mentally unstable people are one of the most popular topics in all publications on psychiatry (23%). The texts' authors regularly use disparaging and derogatory names for mental disorders (Serebrinskaya, 2005)

V. Yastrebov and S. Trushchelev (2009) conclude that there is a stereotype of media coverage of psychiatric problems, which leads to negative public percep-

tions, hinders timely access to health care, exacerbates isolation of patients from others, and builds stigma in psychiatry.

The persistence of stigma was also confirmed by research aimed at identifying beliefs associated with those suffering from depression. A study conducted on a Russian-language sample (Dubitskaya, 2009) showed that those who are not involved in psychology and psychiatry rated people with depression as "whiners and pessimists" (95%), "egoists" (86.67%), and "lazy people" (38.33%), and these people are "resentful of their tearfulness" (75%) and are "a burden to fellow officers" (96.67%). Additionally, the majority of respondents believed that those suffering from depression should not have children (78.3%) or work as managers (88.33%). These conclusions agree with the English-speaking sample (Arboleda-Florez, 2002), which showed that those with severe depression are described as dangerous, developmentally disabled, of low intelligence, have communication disorders, are dysfunctional, and do not contribute as workers as they lack the desire or are lazy.

Some cross-cultural studies also show some differences between depression perceptions in Russia, Britain, and the US. For example, the Russian respondents were less tolerant of mental disorders than the British participants. The authors of the study see this as a consequence of insufficient knowledge, lack of economic welfare, and social upheaval, relegating concern for mental illnesses to secondary importance (Shulman, Adams, 2002).

It has been clearly shown that Russian participants endorsed the view that those with depression are "weak-willed" more strongly than their US counterparts. The Russian participants also endorsed the view that those with depression lead an "immoral lifestyle" more often than their US counterparts (Nersessova, Jurcik, Hulsey, 2019).

Thus, the topic of stigmatization of mental disorders, in particular depression, which is more clearly presented in our data, is a natural consequence of the specificity of the perceptions of this disorder in the collective consciousness of Russians.

Facebook (22%) and VK users (13%) describe ways of coping with depression much more often than Twitter users (5%). This is also consistent with the data that the US participants endorsed psychotherapists as a source of help more often than their Russian counterparts. Russians, in contrast, endorsed all help-seeking methods significantly less often than the US participants (Nersessova, Jurcik, Hulsey, 2019).

Despite the similarity of the descriptions of depression on social networks and the topics discussed, some differences were found in the frequency of the occurrence of topics. Twitter users reported significantly more often about changes in thinking and perception (25% of all posts) than VK (6%) and Facebook users (15%). We suggest that this is due to a large amount of English self-help literature on depression based on a cognitive-behavioral approach, in which thoughts and beliefs are the main focus of attention and change. There are practically no such books published in Russia. However, this requires further study.

At the same time, VK (19%) and Facebook (14%) users more often noted changes in the emotional sphere than Twitter users (8%). This trend is in contrast

to the data obtained in the study of the emotional expression of Russians compared to Americans (Sheldon et al., 2017). Russian students were less likely than US students to express unhappiness to "everyone" (3% vs 17%) and to "family" (48% vs 70%). Russians are more self-distancing than Americans when it comes to reflecting on their own emotions, and such emotional self-distancing does not have to be negative correlates in Russia as it does in the US. At the same time, our data reflect the communication within the public discourse on social networks, that is, attempts of users to reveal taboo and difficulties. Perhaps overcoming the habitual propensity to inhibit negative feelings is reflected in the high indicators on these topics.

Conclusion

We conclude that despite the similarities, there are substantive differences in the texts of the posts on the three social networks that do not allow us to confirm the second hypothesis. A further and more detailed study of the linguistic features of posts published on these social networks will make it possible to elucidate the specific meaningful characteristics of these texts.

Limitations

A conclusion cannot be reached because of the limitations of the research method. We captured the published posts with hashtags without controlling the search algorithms on Facebook and VK, so we do not know how many posts were not shown on both social networks. Also, we used ready-made categories of content analysis to structure the data. This could affect the results obtained in this study.

It is necessary to continue the research into users' self-disclosure on social networks within this and other public discourses; how such self-disclosure affects the participants and their families, friends, and acquaintances, etc.; and how self-disclosures can activate mechanisms of empathy, social support, and inclusion in other users.

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Reliability and Validity of the 10-Item Personality Inventory among Older Iranians

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Background: The high interest in short scales to measure personality traits has created a need for psychometric studies to validate such scales in different languages and cultures. There has recently been increasing interest in the study of personality in late life.

Objective: The aim of this study was to investigate the reliability and validity of the Persian version of the Ten-Item Personality Inventory (TIPI) among older Iranians.

Design: In this cross-sectional, psychometric study, 160 individuals older than 60 years were selected using multi-stage and convenience sampling methods. Data were collected using the Ten-Item Personality Inventory (TIPI) and the NEO Five-Factor Inventory (NEO.FFI). The face, content, and convergent validity of the TIPI were examined, and its reliability was evaluated using Cronbach's alpha coefficient and test-retest reliability.

Results: In general, the Persian version of the TIPI had acceptable psychometric properties for measuring the Big Five personality traits in older adults in terms of test-retest reliability (ICC = .92, p = .000) and convergent validity (r = .411, p < .00).

Conclusion: The results of this study demonstrate that the TIPI is a valid and reliable tool for measuring the Big Five personality traits.

Key words: 10-Item Personality Inventory (TIPI), Iranian, older adults, psychometric

Introduction

The global population is undergoing a quiet revolution, as there are now almost 600 million older adults in the world, and this number is expected to double by 2025 and reach 2.0 billion by 2050 (WHO, 2015). In Iran, people over the age of 60 years comprise approximately 7.5 million (9.3%) of the population according to the latest statistics (Statistical Center of Iran, 2016). However, the growing aging population is a major challenge for communities due to specific problems related to old age (Nasiri, Foroughan, Rashedi, & Shahbazi, 2016). These include cognitive impairments such as Alzheimer's disease, changes in bodily response to medication, important life events (such as retirement), moving to a nursing home, declining income, low social contacts, and loneliness (WHO, 2015). All of these factors can affect the personality and, consequently, the health status of older adults (Niclasen, Lund, Obel, & Larsen, 2018; WHO, 2015).

There are two different perspectives regarding the stability of personality traits in old age. The first view is that personality changes continue to happen up until the third decade of life, but the amount of change decreases later to a great extent (Costa & McCrae, 1988). The second view believes that personality changes continue to occur throughout the human life span (Debast et al., 2014). Older adults may experience personality changes through basic learning processes (for example, contact and environmental contingencies and observational learning) as well as experiencing fundamental changes in different domains of their lives (for example, marriage and occupation) (Smith & Spiro III, 2002). For instance, among the Big Five personality traits, neuroticism, extraversion, and openness to experience decline with age, while agreeableness and conscientiousness increase with age (Debast et al., 2014). Studies have also demonstrated the significant role of personality traits in differentiating between healthy older adults and those in the early stages of Alzheimer's disease, and personality has been found to be a better predictor of Alzheimer's disease than cognitive changes (Duchek, Balota, Storandt, & Larsen, 2007).

Although different definitions and categorizations have been provided for personality and its constituents, most scholars have adapted and developed the definition offered by Allport (Allport, 1961): "Personality is a dynamic structure within the person consisting of psychosocial-physical systems determining their characteristic behaviors and thoughts." Based on this definition, several tools have been designed for personality evaluation. The TIPI is one of the tools used to measure the components of personality in different societies (Gosling, Rentfrow, & Swann, 2003). It assesses the Big Five personality factors. The psychometric properties of the original version of the TIPI were analyzed in a sample of 1813 students, and internal consistency estimates were found to be above .55 for all of its subscales. Cronbach's alpha coefficients were also found in the range of .40-.73 (Gosling et al., 2003).

Studies (Ehrhart et al., 2009; Hofmans, Kuppens, & Allik, 2008; Łaguna, Bąk, Purc, Mielniczuk, & Oleś, 2014; Muck, Hell, & Gosling, 2007; Romero, Villar, Gómez-Fraguela, & López-Romero, 2012) conducted to examine the psychometric properties of the TIPI have reported differences and similarities in the psychometric indices; a study on the psychometric properties of the Spanish version of

the TIPI (Romero et al., 2012) revealed a Cronbach's alpha of .50 and alphas in the range of .38-.59 for the whole inventory and its subscales, respectively. Cronbach's alpha of .57 was also reported for the original version of the inventory (Ehrhart et al., 2009). In addition, the TIPI subscales have shown varying test-retest reliabilities in different studies. For example, extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience earned the highest test-retest reliability estimates (with an average of .72) in the Spanish version (Romero et al., 2012), whereas in the original version, emotional stability and agreeableness had the highest (.68) and the lowest (.38) test-retest reliability estimates, respectively (Ehrhart et al., 2009). In a recent study (Łaguna et al., 2014) on the Polish version of the TIPI, as in the original version and the other versions, the TIPI was found to have a relatively low internal consistency. Given that most personality-related constructs are culture-bound, it is essential to examine personality scales in different cultures. In addition, personality scales should be analyzed with advanced statistical and psychometric methods to obtain sufficient trust and confidence in the reliability and validity of their respective measurements (Cheung, van de Vijver, & Leong, 2011).

Considering the fact that the TIPI is a widely used instrument in research and clinical settings, its validated Persian version can be used in educational and clinical centers to assess personality traits among older adults so their different needs can be better addressed (Łaguna et al., 2014). It should also be noted that although numerous tools have been validated for assessing the Big Five personality traits- for example, the 60-Item NEO Five-Factor Inventory (NEO.FFI) (Anisi J., Fathi-Ashtiani A., Soltani Nejad A., & Amiri M., 2006), the 106-item revised version of the Eysenck Personality Questionnaire (EPQ) (Kaviani, Pournasseh, & Mousavi, 2005), and its short version (Bakhshipour & Khorooshahi, 2006) — only two valid instruments can be used with older adults, including the Personality Assessment Inventory (PAI) (344 items) (Morey, 2015) and the Revised NEO Personality Inventory (NEO-PI-R) (344 items) (Costa & McCrae, 2008). Moreover, all of the mentioned tools are relatively long and take time to complete. But the TIPI evaluates personality using only 10 items, requiring just one minute to complete. Therefore, it is a very suitable tool for use with older adults. The present study aimed at validating the Persian version of the TIPI among older Iranians.

Methods

Participants

The statistical population consisted of individuals older than 60 years in Tehran. Using multi-stage and convenience sampling methods, a total of 160 older adults, including two groups of community-residing older adults (n = 118) and those living at nursing homes (n = 42), were selected as the study sample. The inclusion criteria were as follows: age older than 60 years, communicability, and lack of cognitive problems (based on the Abbreviated Mental Test, AMT). Incomplete questionnaires were excluded from the study. The present study was reviewed and approved by the Ethics Committee of the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

Procedure

Questionnaires

The 10-Item Personality Inventory (TIPI) is a self-reported general scale designed to assess the Big Five personality traits including extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), and openness (O). The short form was designed and validated in the US in 2003. Each of the 10 items consists of two descriptors, and each Big Five personality trait is measured by two items. The items in the TIPI are rated on a 7-point Likert-type scale ranging from 1 (disagree strongly) to 7 (agree strongly), and the total personality score (10-70) is obtained by summing the subscale scores. The TIPI takes approximately 1 minute to complete (Gosling et al., 2003). It has quickly become popular, but its psychometric properties have not been adequately examined (Romero et al., 2012). Studies conducted on the psychometric properties of the TIPI demonstrated its proper psychometric properties in terms of test-retest reliability, convergent and divergent validity, factor structure, and correlation with other Big Five personality trait tools (Ehrhart et al., 2009; Gosling et al., 2003; Hofmans et al., 2008; Łaguna et al., 2014; Muck et al., 2007; Romero et al., 2012). In addition to the original version (Gosling et al., 2003), the psychometric properties of the TIPI have also been examined in Spain (14), Belgium (Hofmans et al., 2008), Germany (Muck et al., 2007), the US (Ehrhart et al., 2009), and Poland (Łaguna et al., 2014).

The NEO Five-Factor Inventory (NEO.FFI). The NEO.FFI was developed (Costa & MacCrae, 1992) as a short measure of the Big Five personality traits. The personality traits measured by the NEO PI-R, include neuroticism (N), extraversion (E), openness to experience (O), agreeableness (A), and conscientiousness (C). Convergent and discriminant validity estimates indicate that the short form measures the Big Five personality traits with less accuracy than the long form. The test-retest reliability of the NEO.FFI's subscales ranged from .86 to .90, and their internal consistency varied from .74 to .89 (Anisi, Majdiyan, Joshanloo, & Ghoharikamel, 2011).

The Abbreviated Mental Test (AMT): This test has 10 questions designed to assess orientation, focus/attention, short- and long-term memory, and screening cognitive impairment, including dementia and delirium in older adults. The validity and reliability of the AMT has also been verified in Iran (Foroughan et al., 2017).

Preparation of tools

The following steps were taken to prepare the Persian version of TIPI: (1) acquiring the translation permit from the original authors (Gosling et al., 2003); (2) advanced translation (English to Persian) by two Persian-speaking translators (translators 1 and 2) who were proficient in English translation with a history of inventory translation but were not familiar with the TIPI; (3) after the completion of the translation stage, the differences between the translations were reviewed and documented in a meeting with the researchers and translators, and a final

translation was prepared from the inventory; (4) translators 3 and 4, who were English-speaking and familiar with Persian, translated back the basic translation into English conceptually, and modified the items that seemed to be controversial and not consistent with the original version; and (5) After translation, 10 experts with experience in geriatrics, counseling, and Persian literature and 15 older adults who were interested in giving their opinions were recruited to examine the face and content validity.

The face validity was verified by qualitative and quantitative methods. In the qualitative process, the 10 experts and 15 older adults provided their opinions on the level of difficulty, appropriateness, and clarity of the items; modifications were applied accordingly. The quantitative process involved the use of the item impact method to determine the impact score. For this process, a 5-point Likert-type scale ranging from 1 (strongly important) to 5 (strongly unimportant) was used. If an item's impact was greater than the desired level based on the following formula "item impact = importance x frequency (%)," the item was maintained in the list of items. In this research, the estimated score was more than 1.5 (Broder, McGrath, & Cisneros, 2007) for all of the items, so they were all preserved. The content validity was evaluated using the content validity ratio (CVR). In Lawshe's method (Lawshe, 1975) , each item is evaluated by experts as "necessary," "useful but not necessary," or "unnecessary." The CVR for each question is then calculated according to the following formula:

$$CVR = \frac{Ne - \dfrac{N}{2}}{\dfrac{N}{2}}$$

The acceptable value for each item varies depending on the number of experts determining the content validity. According to Lawshe's method, the minimum acceptable value based on the opinions of 10 experts is .62 (Lawshe, 1975). In the present study, the content validity ratio was higher than .62 for all of the items.

Before administering the questionnaires, the participants' verbal and written consent was acquired. The research questionnaires (the TIPI and the NEO.FFI) were administered using interviews, and the required data were obtained. After two weeks, the TIPI was completed by the older adults for the second time. The study data were analyzed using descriptive statistics (frequency, mean, standard deviation, and percentage), Pearson's correlation coefficient to assess convergent validity, the intraclass correlation coefficient (ICC) to assess the test-retest reliability, and Cronbach's alpha coefficient to evaluate the internal consistency. All of the analyses were performed using SPSS software (version 21).

Results

Among the 160 participants, 74% were community-residing older adults, 34% were between the ages of 66-71 years, 57% were males, 86% were married, approximately 42% (n = 67) were self-employed before retirement, and 33% (n = 53) had middle school educations (see *Table 1*).

Table 1

Descriptive characteristics of the study participants

Variable	Categories	N	Percent	Cumulative percentage
Age	60–65	54	33.8	33.8
	66–71	56	34.1	68.8
	72–77	21	13.1	81.9
	78–83	29	18.1	100
Education	Illiterate	37	23.3	23.3
	Secondary	53	33.1	56.3
	Diploma	42	26.3	82.5
	Bachelor	20	12.5	95
	Master and higher	3	1.9	100
Occupation	Housekeeping	30	18.8	18.8
	Self-employed	67	41.9	60.6
	Employee	47	28.8	89.4
	Military	17	10.6	100
Marital Status	Married	138	86.3	86.3
	Widowed	22	13.8	100
Gender	Men	91	56/9	56.9
	Women	69	43.1	100
Residence	Community residing	118	73.75	73.75
	Nursing homes	42	26.25	100

Note: N = 160

Table 2

Cronbach's alpha coefficients of the TIPI

	Scale if item deleted			
Item	Mean	Variance	Item-total correlation	Alpha
1	43.16	34.85	0.237	0.47
2	45.80	46.18	0.059	0.60
3	42.95	36.29	0.575	0.41
4	42.58	36.15	0.243	0.47
5	44.02	33.19	0.455	0.40
6	44.53	33.50	0.331	0.44
7	42.95	36.57	0.498	0.42
8	43.67	35.80	0.245	0.47
9	43.41	40.15	0.181	0.49
10	45.20	44.45	0.098	0.56

Cronbach's alpha of .51 was found for the TIPI, and alphas in the range of .40–.60 were found for its subscales. As shown in *Table 2*, item 2 had the lowest correlation with the TIPI, and its removal increased the internal consistency to 0.60 (see Table 2). Cronbach's alpha for each of the subscales is presented separately in *Table 3*.

Table 3

Convergent validity of the TIPI and its subscales

Variable	Mean (SD)	TIPI-TOT	TIPI-E	TIPI-ES	TIPI-A	TIPI-C	TIPI-O
TIPI-TOT	49.03 (6.64)	1					
TIPI-E	9.37 (3.34)	.614**	1				
TIPI-ES	10.06 (1.98)	.618**	.204**	1			
TIPI-A	9.21 (2.30)	.310**	−.260*	.215**	1		
TIPI-C	11.45 (2.24)	.681**	.048	.329**	.343**	1	
TIPI-O	8.92 (2.02)	.553**	.404**	.098	−.282**	.333*	1
NEO.FFI	200.66 (21.70)	.411**	.205**	.122	.364**	.358	.079
E	40.91 (7.71)	.748*	.418**	.386**	.509**	.524**	.227**
N	32.78 (7.19)	.056	-.155	.103	.371**	.137	−.234**
A	42.25 (4.84)	.293**	.177*	.048	.269*	.256*	.034
C	47.72 (7.12)	.737**	.355**	.302**	.541	.528*	.332*
O	36.13 (5.75)	.353**	.289**	.050	.092	.259**	.238**
α		.510	.690	.490	.400	.540	.450

Note: $^*p < .05$; $^{**}p < .01$

The NEO.FFI was also administered to the participants (see *Table 3*). The TIPI has a significant and positive relationship with each of its subscales except neuroticism, and also with the NEO.FFI (r = .411) and all of its subscales.

To determine the test-retest reliability, the TIPI was administered to 30 older adults two times with a two-week interval (see *Table 4*).

Table 4

Test-retest reliability of the TIPI and its subscales

Variable	ICC	F-value	DF1	DF2	P-value
TIPI-TOT	.92	26.40	29	29	.000
E	.94	18.38	29	29	.000
ES	.96	48.71	29	29	.000
A	.91	22.32	29	29	.000
C	.84	12.12	29	29	.000
O	.94	32.54	29	29	.000

Discussion

The purpose of this study was to investigate the validity and reliability of the Persian version of the TIPI for measuring the Big Five personality traits among older Iranians. The TIPI has a small number of items (10 items) and requires only one minute to complete; therefore, it does not lead to fatigue and frustration in the respondents. The ease of use of the TIPI due to its features, along with an increasing research interest in the validation and translation of this tool, were the incentives to validate it among older Iranians. In this study, the TIPI was investigated in terms of validity (face, content, and convergent) and reliability (internal consistency and test-retest). The results showed that the TIPI is an appropriate tool for personality studies in older adults.

In the present study, the TIPI was properly translated from the original language into Persian and assessed in terms of the face and content validity. In addition to the face and content validity, convergent validity was established by correlating the TIPI with the NEO.FFI; the correlation coefficients indicated acceptable convergence validity for the TIPI. This finding is consistent with those of various studies conducted in the US (Ehrhart et al., 2009; Gosling et al., 2003), Belgium (Hofmans et al., 2008), Germany (Muck et al., 2007), Spain (Romero et al., 2012), and Poland (Łaguna et al., 2014).

Despite a significant relationship between the total correlation coefficients of the TIPI and the NEO.FFI ($r = .411$), there are deficiencies in some of the correlation coefficients of the scales that should be considered. For example, there is no significant relationship between the Emotional Stability scale in the TIPI with the Neuroticism scale in the NEO.FFI. Also, the correlation coefficient in the Openness to Experience scale is relatively low ($r = .238$). Regarding the low correlation coefficient of the Openness to Experience scale, it can be said that this scale has a low correlation coefficient in other similar studies (Łaguna et al., 2014). The authors argue that Openness to Experience is psychometrically considered as one of the most problematic dimensions (Romero et al., 2012). But there may be several reasons for the insignificance of the Emotional Stability scale, including cultural differences, types of participants (older adults), or other reasons requiring further investigation. The reliability was examined using the test-retest and internal consistency methods. A test-retest reliability coefficient of .92 (for the total TIPI) was obtained within a two-week interval, which is relatively acceptable. Similar values were found in other studies (Gosling et al., 2003; Łaguna et al., 2014; Romero et al., 2012). The reliability coefficients found for the TIPI in this study and in others indicate that this tool remains sufficiently consistent over time, resulting in almost the same results at different times and in various cultures (Hofmans et al., 2008). Cronbach's alpha of .51 was found for the TIPI, indicating its relatively low internal consistency.

A major limitation of the TIPI is its low internal consistency, which was also observed in similar studies, reporting alphas of .55 (Gosling et al., 2003), .50 (Romero et al., 2012), and .57 (Muck et al., 2007). The alpha coefficient for the TIPI is usually low, which is not surprising given that it is a brief inventory (Romero et al., 2012). Indeed, the use of the alpha coefficient for very short scales

(for example, the TIPI) has been questioned by some authors (Kline, 2013). The original developers of the TIPI (Gosling et al., 2003) stated that their inventory does not meet the effective standards of internal consistency, but they rather sought to maximize some psychometric properties, including the content validity and breadth of coverage, to cover more subscales while avoiding redundancy. Therefore, the internal consistency of the TIPI is inevitably lower than that of the traditional tools (Romero et al., 2012).

Cronbach's alpha obtained for the TIPI in the present study indicated that among the two items assessing agreeableness (items 2 and 7), item 2 (critical, quarrelsome) had the lowest correlation with the total TIPI, meaning that the removal of this item will increase the internal consistency to .60. This finding is in line with those of similar studies (Romero et al., 2012). The authors argue that among the Big Five personality traits, openness to experience is conceptually and psychometrically considered one of the most problematic dimensions (Romero et al., 2012). However, consistent with our findings, agreeableness showed the lowest correlation with the whole TIPI in previous studies (Ehrhart et al., 2009; Romero et al., 2012). This may suggest that agreeableness cannot be measured using only a few words and sentences as the TIPI does, but should be examined with more rigor and precision (Romero et al., 2012).

In addition to the low internal consistency, it should be noted that when a comprehensive personality assessment (for example, counseling assessment or in-depth diagnosis) is required, the TIPI cannot be considered an appropriate scale (Muck et al., 2007). Additionally, the TIPI is not suitable in situations in which facets have better predictive power than dimensions. Hence, more accurate and detailed evaluations are required when theoretical foundations place more emphasis on prediction through specific facets. However, the prediction of facets is not always possible (Romero et al., 2012). In such a situation, a scale with a broader coverage can be appropriate (Romero et al., 2012). In fact, the TIPI is a logical option when there is limited time for evaluation. In such a situation, the role of personality traits may be ignored or underestimated by short scales due to their relatively low reliability and lack of comprehensibility (Łaguna et al., 2014; Muck et al., 2007).

Conclusion

It can be concluded that the similarity between the coefficients found in this study and those reported by previous research indicates that the wording of the TIPI items is clear and easy to understand in both non-Persian and Persian languages and that the original version was appropriately adapted to the Iranian culture. The results also highlighted the potential of the TIPI as a tool for measuring the Big Five personality traits in older adults. However, some researchers (Muck et al., 2007) believe that it is inaccurate and misleading to say that scales such as the TIPI can substitute traditional scales of personality in all types of research. In fact, when specific facets of personality are examined, when in-depth clinical assessments are required, or when sufficient time and resources are available, it is advisable to use more comprehensive tools (Łaguna et al., 2014). Overall, the development of short

and reliable personality tools can help the scientific community evaluate personality traits in different domains of psychological research and increase knowledge of individual differences (Romero et al., 2012).

Limitations

There were limitations in this study, including difficulty of access to older adults living in nursing homes. As a result, our sample was largely comprised of community-residing older adults. Therefore, caution should be taken in generalizing the study results to older adults living in nursing homes. It is recommended that the TIPI should be separately validated among this population. Similar to most studies, using self-reported questionnaires that are prone to response bias was the second limitation of the present study. We tried to minimize this bias through administering the questionnaires using interviews; nonetheless, this issue is not entirely within the control of researchers.

Acknowledgments

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Individual Differences in Fine Motor Precision in Participants from Different Countries and their Psychological Meaning

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Background. Despite the global tendency toward multidisciplinary research, there is still an abyss between some areas of human science. For example, in the motor control area, psychology should contribute to a better comprehension of human movement, and vice versa, the motor control in the psychological branch should also be considered more. Comparative studies on individual and personality differences in the representatives of various cultures are less biased if studied with the use of motor control or graphical methods because these methods do not require any linguistic or cultural adaptation.

Objective & Methods. In this study, which aims to observe the individual characteristics of the participants (170 in total) from different cultures (by countries of birth and residence), we used the graphomotor method, the Proprioceptive Diagnostics of Temperament and Character (Tous et al, 2012) that evolved within the traditional Miokinetic Psychodiagnosis of Mira y Lopez (1958).

Design. Individual cultural differences (participants by origin or residence from Spain, Morocco, East Europe and Latin America) in graphical test performance (fine motor precision) were measured in the proprioceptive sensory condition (without visual guidance) for both hands (dominant and non-dominant) in three movement types (Frontal, Transversal and Sagittal). Sex differences were also observed and discussed. The related psychological meaning of these individual differences is also discussed.

Results. The results of this study are discussed in the article. They included not only the description of the specific test conditions (hand use, movement, and bias types) but also the explanation of the psychological meaning of differences (personality dimensions) compared with the cultural groups or sex subgroups levels. Moreover, the differences between men and women within each cultural subgroup are also analyzed. Better comprehension of cultural differences would help in obtaining more qualified therapeutic, educational and judicial help, by reducing of the derived possible negative biases or misinterpretations in human behavior. This can result in such benefits, for example, as better adaptation of immigrants in other cultures.

Conclusion. The majority of significant differences between representatives of various cultural subgroups in this study were obtained in the non-dominant hand, meaning that such differences were more at the basic level. Further adaptive behavior to the environmental changes in their lives led to disappearance of such differences, especially in those who were residing in the same country.

Introduction

The current motor control studies have a predominant orientation to the mechanistic approach that sometimes cannot explain everything. Thus, in the study performed on the pilots, "unexplainable systematic drift was observed in blind reciprocal aiming movements" as described by authors (Rantanen & Rosenbaum, 2003). However, Mira y Lopez, working with pilots before WWII, observed individual differences in space perception; when the visibility was low, vision was limited (due to high density fog). Further work led Mira to create Miokinetic Psychodiagnosis (Mira, 1958) (partially under the influence of Luria's work "Nature of human conflict" (1932), and partially by personally observing the amplitude of movements of different participants under the "lie detector"). In his work, Mira explains the psychological meaning of such systematic drifts (based on individual differences in nervous, perceptive, emotional, and executive systems), which was further developed by different followers. With the help of his colleagues, Prof. Tous from the University of Barcelona made great efforts to advance the methodology by creating the digitalized version of the Miokinetic Psychodiagnosis (MKP) subtests "lineograms" and "parallels", after the statistic validation of the original test performed by Ruben Muiños in his PhD thesis (Muiños, 2008). Although several studies were performed (more than 300) (Liutsko, 2014) with the use of this methodology of exploring the psychological and neuropsychological meaning of fine movements (Tous & Liutsko, 2014), including children (Liutsko, Igelsias, Tous Ral, & Veraksa, 2018) and neurological patients, such as those with Parkinson's disease, for example (Gironell, Luitsko, Muiños, & Tous, 2012), the role of motor control in psychology has been rather underestimated (Rosenbaum, 2005).

Studies performed in the area of motor control related to cognition or emotions are scarce. Motor control performance has been found to have a relationship with cognitive performance in the previous studies: some fine motor precision parameters were significantly related to working memory performance (Liutsko, Muiños & Tous, 2013), and changes occurred toward higher impression in the transversal movement type when the single task (motor precision task) was compared with a dual task (precision plus cognitive task of counting numbers backward) (Liutsko, Segura, Tous, 2014). Other researchers observed nonlinear, quadratic relationships between mental ability for spatial reasoning (Cattell's Culture Fair Intelligence Test) and hand skill assessed by peg-moving tasks in normal left-handers exhibiting different characteristics according to sex and writing hand (Tan, 1990).

Concerning cultural differences in motor performance, very few studies have been performed. In one of them, the results showed that French participants demonstrated a leftward bias in drawing (side views of faces, vehicles, self-centered tools, and animals) with their dominant and non-dominant hands, whereas their Syrian counterparts displayed a rightward bias. However, no differences between two cultural groups were observed in the 6-year-olds, since they did not present any systematic directional bias in their drawings. (Kebble & Vinter, 2013). Some cultural differences were found in the starting positions and directionality in draw-

ing figures (a circle, a pentagon, and a rhombus in one stroke) in the dominant right hand between German and Japanese right-handed students, which may reflect the influence of writing habits (Taguchi, 1985). The previous studies showed that fine motor precision changes depending on the hand used, sensory condition, movement type (Tous-Ral, Muiños, Liutsko, & Forero, 2012), and the preliminary results of existing individual differences between the participants residing in the same country, but from different countries of origin (Liutsko, Malova, Guitierez, & Tous, 2018). We would like to further explore individual differences due to different cultural background and expand the study, which includes participants residing in different countries and immigrants from different countries. These results could contribute to the construction of the integrative model of personality linked to their social and cultural environment (Liutsko, 2019).

In summary, the aim of the current study was to contribute more to the research related to individual differences of participants of both sexes and different cultural subgroups in performing tasks on fine motor precision realized without visual guidance and under different test conditions. In addition, our goal was also to provide the psychological meaning of these behavioral trends in accordance with the tradition of Mira y Lopez's Miokinetic Psychodiagnosis (Mira, 1958); the latest updated version elaborated by Prof. Tous et al. (Tous, 2008; Tous et al., 2012) is included.

Methods

Participants

One hundred seventy participants from four cultural subgroups (Spain, East Europe, and immigrants to Spain from Morocco and Latin America) of a middle age (from 17 to 55 years old) with a similar education level performed the individual test of fine motor precision for both hands and under different test conditions. This study is a secondary analysis of polled data, obtained from different previous studies in different countries using the same methodology and tools. In total, 96% of participants were right-handers (as per self-reports). Criteria of admission to this study were as follows: not having any severe neurological or motor impairments or being forcefully changed in the hand dominance. The participants took part in the studies voluntarily. The studies were realized in conformity with the ethical rules stipulated in the Declaration of Helsinki.

Procedure

The precision of fine motor performance (hand drawings over the model lines of 40 mm — lineograms and parallels in the ascendant and descendent order) was measured by Proprioceptive Diagnostic of Temperament and Character (DP-TC) in mm (Tous et al. 2012, Tous & Liutsko, 2014). The instructions and full description of the procedure as well as the psychological interpretations of the observed results can be read in the manual (Tous et al., 2012) in Spanish or in the articles (Tous & Liutsko, 2014), either lineograms and parallels based on the MKP of Mira y Lopez (Mira, 1958).

DP-TC is based on graphomotor application, where only the instructions for its use are required to be translated into other languages. It can be used in all cultures or even for people who do not know how to read or write (as the original method of Mira y Lopez was used by Dr. Berezin (1976) in an illiterate indigenous population in an adaptation study), or it can be used by psychologists for checking school readiness in pre-school age children. This methodology allows the exploration of the individual and cultural differences because no adaptation of the test is required, and it has no biases produced by falsifying data (social desirability observed while replying to the verbal tests).

Participants were instructed to trace the model which appeared on the touch screen with maximum precision. First movements were performed with the use of vision; then (in the proprioceptive part of the test), the screen (cartoon) was set in order to hide the movement feedback and active hand position.

The observable variables and study design

The observable variables, such as fine motor precision biases, measured in the proprioceptive (without a visual guidance) sensory condition are the following:

- from lineograms: LL — line length, D — directional bias (deviation performed in parallel to the model) and F — formal bias (deviation performed perpendicularly to the model), and
- from parallels: dLL — variability in line length in the parallels (a sum of the ascendant and the descendant ones).

The observable variables were performed by both hands (1 — non-dominant, 2 — dominant), and for the lineogram part, in three movement types (MTs): frontal, transversal, and sagittal. Six dimensions corresponded to different precision bias types described in the DP-TC method by Tous (Tous et al., 2012; Tous & Liutsko, 2014). They were represented by specific movement type, and observable variables corresponded to their psychological meanings: 1) Mood (pessimism — optimism); 2) Decision-making (submission — dominance); 3) Style of Attention (intra-tension — extra-tension); 4) Irritability (inhibition — excitability); 5) Emotivism (cold — warm), and 6) Behavioral Variability (rigidity — variability/flexibility).

The descriptive analysis and multivariate analysis of variance (MANOVA) were run with the use of SPSS v. 20.

Results

The descriptive statistics for fine motor precision (raw measures in mm) in directional bias (see *Table 1*) and in formal, line length performance, and variability of line lengths (see *Table 2*) are presented per hand (non-dominant and dominant), sex (male, female), and cultural group (1 — immigrants to Spain from Morocco, 2 — Spaniards, 3 — Eastern Europeans, 4 — immigrants from Latin America to Spain).

Table 1

Descriptive statistics of fine motor precision (primary deviation or directional bias) in men and women from four cultural groups

| Bias | Mov. Type | Group/ Sex | ND hand | | | | D hand | | | |
| | | | Male | | Female | | Male | | Female | |
			M	SD	M	SD	M	SD	M	SD
Directional	F	1	−7.21	13.79	−1.25	9.56	−4.57	16.63	−3.38	19.33
		2	−8.71	17.55	−4.82	13.9	−3.29	15.2	−7.36	7.82
		3	−4.36	14.65	−4.7	17.25	−6.79	20.15	−7.16	14.39
		4	−4	13.45	−2.5	7.87	−19.67	19.14	−6	4.29
	T	1	−3.5	14.52	−0.13	21.87	2.86	8.13	−2.75	14.42
		2	−10.43	11.43	−4.71	24.96	−4.07	6.03	−1.68	26.26
		3	7.29	17.43	1.48	21.5	−0.71	15.07	−0.23	20.01
		4	−10.33	18.23	−3.83	10.8	2.67	5.51	−0.67	5.57
	S	1	13.07	7.28	20.88	12.18	10.07	10	9.13	11.08
		2	13.29	13.89	14.54	11.35	18.43	9.92	17.46	12.46
		3	9.04	11.02	15.49	14.13	12	11.43	12.2	12.27
		4	18	13	14.83	12.17	16.33	13.58	11	7.04

Notes. M and SD, in mm; Mov. Type (movement type): F — frontal, T — transversal, S — sagittal
1 — Morocco*, 2 — Spain, 3 — East Europe, 4 — Latin America*
* — immigrants to Spain.

The significant individual differences in fine motor precision performance between participants of different cultures with the corresponding psychological dimension are represented for the whole cultural groups (see *Figures 1-2*), for sex subgroups between different cultural groups (see *Figures 3-5*), and for sex differences within each cultural group (see *Table 3*).

Line length representation (lineograms)

The model line length is 40 mm. In the graph, the mean values for all four cultural groups are presented for both hands (see *Figure 1*). The statistically significant difference was found between the participants from Spain and East Europe, and only in the non-dominant hand. The corresponding dimension to this observable variable is *Irritability* (inhibition — excitability).

Table 2

Descriptive statistics (mean and standard deviation) of secondary deviations, line length, and line length variability for both sexes and four tested cultural groups

Bias	Mov. Type	Group/ Sex	ND hand				D hand			
			Male		Female		Male		Female	
			M	SD	M	SD	M	SD	M	SD
Formal	Frontal	1	7.71	4.6	9.25	7.46	7.71	5.8	12.75	16.57
		2	9.07	6.76	17.36	20.19	10.14	8.76	13.5	21.35
		3	8.43	8.06	10.38	14.55	13.36	11.72	12.03	14.78
		4	13	17.35	12	11.14	9	8.89	4.33	2.94
LL	average	1	44.14	10.44	42	12.15	38.07	6.2	40.25	8.68
		2	38.93	11.01	39.36	8.29	39.21	8.33	36.75	8.25
		3	47.07	8.52	44.91	11.14	42.11	8.01	40.9	8.94
		4	44	12.53	32.5	7.5	44.67	10.41	29.83	8.75
ΔLL	average	1	19.93	8.23	22.13	7.74	21.29	9.11	17.5	3.89
		2	13.5	6.61	12.93	6.39	15	7.65	14.61	7.7
		3	19.82	9.49	18.61	7.78	22.14	8.14	20.62	8.76
		4	14.33	5.51	16.67	3.39	27.33	20.53	18.67	3.67

Note. M and SD, in mm; Mov. Type (movement type): F — frontal, T — transversal, S — sagittal
1 — Morocco*, 2 — Spain, 3– East Europe, 4 — Latin America*
* — immigrants to Spain.

Figure 1. Line length biases for four tested groups in mm
(the significant differences are marked with*, *p < .05*)

Note: LL1 — non-dominant hand; LL2 — dominant hand. Cultural groups: 1 — Morocco, 2 — Spain, 3 — East Europe, 4 — Latin America* (* — immigrants to Spain).*

Differences in line length performances (from parallels)

According to the results of MANOVA analysis with Bonferroni correction for post hoc effects, the statistically significant differences are presented with * in *Figure 2*.

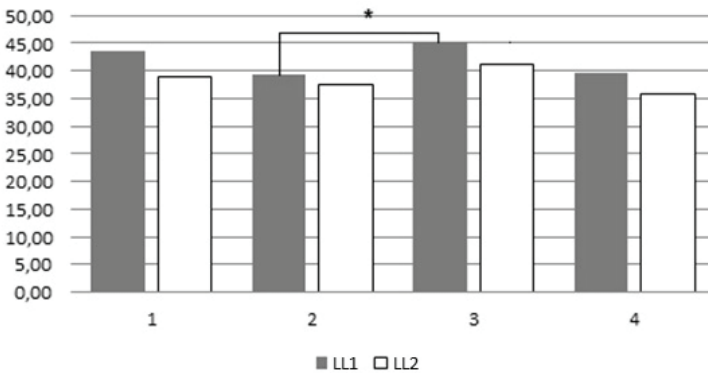The corresponding dimension is *Behavioral Variability* (rigidness — variability/flexibility).
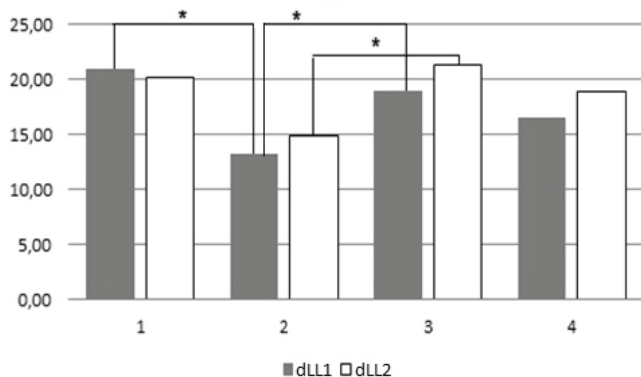

Figure 2. Line length biases for four tested groups
(the significant differences are marked with*, *p < .05*).

Note: dLL1 — non-dominant hand; dLL2 — dominant hand. Cultural groups: 1 — Morocco,*
2 — Spain, 3 — East Europe, 4 — Latin America (* — immigrants to Spain).*

Differences in the transversal movement (directional bias) in men

One statistically significant difference ($p<0.05$) in directional bias/transversal movement type was found between men from Spain and East Europe (in the non-dominant hand) (see *Figure 3*).

The corresponding dimension is *Attention Style* (intra-tension — extra-tension).

Figure 3. Directional biases in transversal movement type in men for four tested groups (the significant differences are marked with*, *p < .05*)

Note: DT1 — non-dominant hand; DT2– dominant hand. Cultural groups: 1 — Morocco,*
2 — Spain, 3 — East Europe, 4 — Latin America (* — immigrants to Spain).*

Line length variability from the parallels in women

The statistically significant differences in line length variability (from the parallels) in women from four cultural groups are presented in *Figure 4*.

The corresponding dimension is *Behavioral Variability*: (rigidness — variability/flexibility).
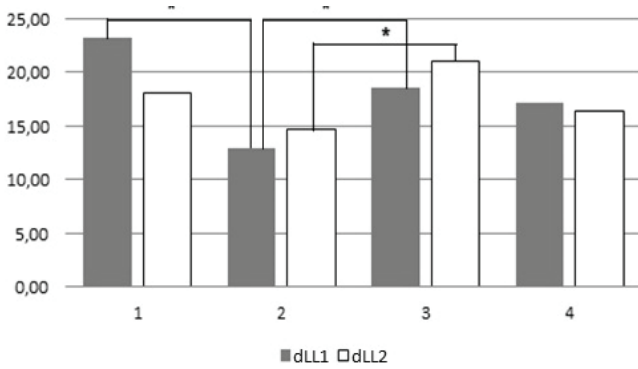

Figure 4. Line length variability in women for four tested groups
(the significant differences are marked with*, *p < .05*)

Note: dLL1 — non-dominant hand; dLL2 — dominant hand. Cultural groups: 1 — Morocco*,
2 — Spain, 3 — East Europe, 4 — Latin America* (* — immigrants to Spain).

Differences in a sagittal movement (directional bias) in women from different cultural subgroups

The statistically significant difference in the directional bias in a sagittal movement type in women were found between immigrants from Latin America to Spain compared to native Spaniards (*Figure 5*).

The corresponding dimension is *Decision-making* (submission — dominance).
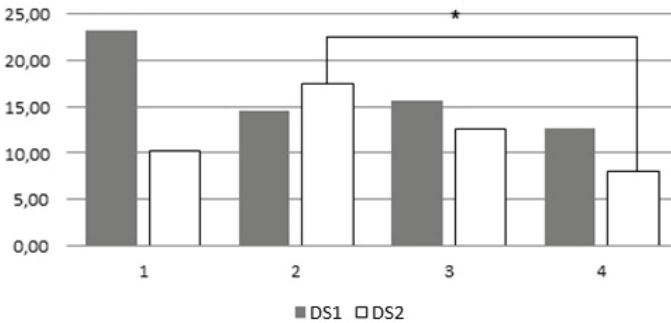

Figure 5. Directional biases in sagittal movement type in women for four tested groups (the significant differences are marked with*, *p < .05*)

Note: DS1 — non-dominant hand; DS2 — dominant hand. Cultural groups: 1 — Morocco*,
2 — Spain, 3 — East Europe, 4 — Latin America* (* — immigrants to Spain).

Fine motor precision differences in men vs. women in different cultural groups

The corresponding dimension is *Decision-making* (submission — dominance).

Table 3

Significant differences between men and women within one cultural subgroup (DS1: directional deviation, sagittal movement, and non-dominant hand)

		Men		Women		ANOVA	
DP-TC	Group	*Mean*	*SD*	*Mean*	*SD*	*F*	*p*
DS1	1	13.07	7.28	23.14	11.19	**6.25**	**0.022**
	2	13.29	13.89	14.54	11.35	0.1	0.757
	3	9.04	11.02	15.71	14.37	**4.83**	**0.03**
	4	18	13	12.6	10.16	0.58	0.461

Discussion

The systematic drifts appeared here as per individual differences of each participant. Other researchers observed these drifts in the fine motor tasks without visual guidance (Rantanen & Rosenbaum, 2003). Because the mechanistic approach is still the predominant technique in motor control scientific research, it has some limitations in explaining such types of evidence. There also exists some neglect of motor control in psychological science (Rosenbaum, 2005). Thus, the mutual contribution of motor control and psychology could be beneficial and make progress toward new integrative models of human behavior.

Nevertheless, the research in general is changing and evolving. The multidisciplinary or integrative approach has become a potential area of new insights into what was found in the past. Human organisms are not an arithmetical sum of their parts, so the synthetic or integrating views of human organisms are closer to the reality. Movements are linked not only by the mechanistic concept of an optimization task, but are also closely linked to other areas of perception, vision, proprioception, equilibrioception, or balance, which are, in their turn, linked to emotions and individual behavioral differences on the whole.

Hence, those drifts in size and spatial biases in the proprioceptive condition (when we cannot observe and correct our fine motor behavior) in this study are also linked to individual intrinsic and dispositional differences in behavior. The bases of the first conclusions can be traced back to distinguished scientists, such as Mira y Lopez (1923; 1958) and Luria (1932). Luria observed that the person who verbally suppressed the truth, created "internal emotional conflict," which changed the amplitude of his movements by the "lie detector." Mira y Lopez, working with this technique, observed that in general, the patterns of the amplitudes or magnitude of fine movements were different in different persons; this suggests individual differences that influence them. Later, this fact was postulated in his work "Mioki-

netical Psychodiagnosis" (Mira, 1958) attributing their psychological meanings to movements. This work was based on many years of Mira's work experience — psychological interpretations of different types of biases and different movement types. Further observational and research studies of the matter were evolved by Prof. Tous et al. (Tous et al., 2012; Tous & Liutsko, 2014) in the Laboratory of Mira y Lopez of the University of Barcelona.

According to these interpretations, the significant individual differences observed in the current study in the participants from different cultures have the psychological meanings described below.

I.   *For the whole groups:*

1)   Line length (from lineograms) — the higher tendency toward excitability in the East Europeans was observed in the non-dominant hand (endogenous) only in comparison with Spaniards; though it is a balance in life adaptation since no statistical differences were shown in the dominant hand see *Figure 1*.

2)   Line variability (from parallels) — both the immigrants from Morocco (but not from Latin America) to Spain and residents from East European countries have significant differences, indicating more variability, impulsivity, and flexibility in behavior compared with those from Spain in the non-dominant hand (*Figure 2*). This difference was also persistent in the dominant hand in Eastern Europeans compared with Spaniards showing the same trend conservation during life. The absence of differences in immigrants from Morocco into Spain in the dominant hand compared with the performance of the participants from Spain suggests that the immigrants have adapted in this context to the social or cultural environment of the country they reside in. No significant difference in both hands between Spanish people and immigrants from Latin America into Spain confirms, for this behavioral dimension, that they are similar as per endogenous (temperamental features, non-dominant) and exogenous ones (character, dominant hand) (Tous et al., 2012; Tous & Liutsko, 2014; Mira, 1958).

II.   *In the sex subgroups:*

In the male subgroup, the only statistical difference observed was the one in directional bias and transversal movement, between the Spanish and the East European subjects, showing higher tendency to extra-tension or more orientation in attention toward the external world in the latter (Tous et al., 2012; Tous & Liutsko, 2014; Mira, 1958).

In the female subgroup, the differences in line variability were identical to the whole group outputs (*Figure 2* — for the whole group, and *Figure 4* — for the women subgroups); indicating that the differences for the whole group were mainly due to the contribution to women. Another significant difference evident in the women subgroup only — in the directional bias and sagittal movement — indicating the trend of less dominance in women who were immigrants from Latin America in Spain compared with Spanish natives (*Figure 5*) (Tous et al., 2012; Tous & Liutsko, 2014; Mira, 1958). Since this difference was shown to be significant only in the dominant hand, this was the reactive behavior to changes in the environment and/ or individual ones.

III. *Differences between men and women in different cultural subgroups:*

The only statistically significant differences between men and women within each cultural subgroup were found in the immigrants from Morocco to Spain and East European residents' group (see *Table 3*) and only in the non-dominant hand, indicating higher tendency (temperamental or endogenous) to dominance in women compared to men (Tous et al., 2012; Tous & Liutsko, 2014; Mira, 1958).

The behavior, observed by the fine motor precision in the proprioceptive condition (without a visual guidance), provides insights into dispositional human behavior. It is free of the conscious control and thus provides information more related to "who we are", which may or may not be closely related to the "what we think we are" obtained by the verbal tests. However, both parts — the verbal one, which reflects more the self-perception and — the motor one — as expression of the dispositional behavior of people, could perfectly complement each other to form an integrated picture of human behavior as a whole. Thus, to see the combination of verbal and motor human behavior, more studies should be done in the future to better understand these individual differences.

Conclusion

This preliminary study explores individual differences of the representatives of different cultures in the proprioceptive behavior reflected by the precision performance or fine motor indicators. Some differences were found in distinct sex subgroups within different and the same cultural subgroups. The majority of significant differences between representatives of various cultural subgroups in this study were obtained in the non-dominant hand, meaning that such differences were more at the basic level, and the adaptive behavior to the changes in the environment in their lives led to their disappearance, especially in those who were residing in the same country. The better comprehension of intrinsic individual and personality differences in behavior will help relevant professionals (psychologists, therapists, social and educational workers, etc.) to reduce the bias or misinterpretation of human behavior of people who come from other cultures and provide better social integration.

Limitations

This was an exploratory study. The methods used were also constructed on observational and exploratory studies, which are still required to construct the explanatory theory. Further investigations in this direction of "embodied" individual and cultural differences are needed to complement the information obtained by other frequent methods (usually verbal tests) and help to construct the relevant theory.

Acknowledgments

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CLINICAL PSYCHOLOGY

Growing Up with ASD (Autism Spectrum Disorder): Directions and Methods of Psychological Intervention

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Background. Autism spectrum disorder (ASD) is a lifelong pervasive developmental disorder affecting subjects' emotions, will, and cognition, and inhibiting their social adaptation.

Objective. To define directions and methods for psychological assistance to autistic people that would let them achieve higher self-actualization and independence, and avoid social maladaptation.

Design. The following methods were used: analysis of the life histories and catamneses of autistic individuals; participant observation of their behavior; analysis of materials (text summaries) of psychological consulting with families who have autistic members; analysis of materials from remedial sessions with people with autism and developmental disorders.

Research participants were autistic individuals age 12 years or more at the beginning and up to 38–40 years at the end.

Results. The long-term manifestations of autistic development in emotions, will, and cognition are described. These manifestations affect subjects' adaptation and independence negatively, even in cases of remarkable progress.

Two important aspects of psychological assistance are: a) mastering of skills; and b) improving comprehension of social relationships, one's own psychological world, and other people's minds. The author proposes some methods of psychological remedial work and insists that rules for social interaction should not be learned mechanically.

Conclusion. The general principles of psychological assistance to autistic individuals are: (a) encouraging their long-term activity jointly with others; (b) providing a well-organized and thoughtful social environment where the activity takes place. Autistic persons often need special assistance to become successfully engaged in a more active and more complex social environment. The present work may be useful for professionals working with people with special needs.

Keywords:
ASD (autism spectrum disorder); qualitative longitudinal search; social maladaptation; social environment; psychological remediation

Introduction

The number of children with autism spectrum disorder (ASD) has increased significantly in the last two decades in many countries. Epidemiological studies indicated 4–5 cases of autism per 10,000 children in the 1970s (Wing, 1976, 1978); in the 1990s this number had increased to 20 cases (Peeters, 1999), and in the 2000s up to 72 and even 110 cases (Bogdashina, 2016; Fonbonne, 2009; Newschaffer, 2007). Despite the wide clinical diversity of autistic development (Nikolskaya, 2015b), in most cases this kind of dysontogenesis seriously impacts cognitive and social-emotional development; most autistic children will still need some special psychological help and support in their socialization as adults (Bolte, 2011; Howlin, P., Goode, S., Hutton, J., & Rutter, M., 2004; Morozov, 2015).

In Russian and foreign literature, autism is viewed as a biologically determined type of pervasive disorder of mental development — one affecting all mental functions (Appe, 2006; Frith, 1989; Nikolskaya, 2014). Russian authors define it specifically as distorted psychological development (Lebedinsky, 2003; Lebedinskaya & Nikolskaya, 1991; Nikolskaya, 2014, 2016). This distortion is caused by disturbed emotional development, which determines the nature of the cognitive problems and deficits in social development. These cognitive and social deficits are significantly different from the difficulties of people with other developmental problems. For example, cognitive development of children and adults with ASD is characterized by a fragmented and uneven picture of the world, paradoxical relationships of simple and complex tasks, achievements and difficulties, as well as deficits in adaptive cognitive functioning.

Despite the heterogeneity of autistic people and differing severity of their socialization difficulties, support for all of them aims to provide opportunities for both children and adults with autistic disorder to live as independently, meaningfully, and actively as possible. To achieve this goal, "it is necessary to create various forms of integrated support for people with severe developmental disorders from birth to the end of life" (Korobeynikov, 2015); a system of psychological and pedagogical support of people with ASD should be specific to their developmental needs and should help them with social adaptation.

First of all, it is necessary to train specialists who are able to build rapport with these people, determine a hierarchy of intervention targets, and use appropriate techniques. It is also necessary to create and maintain an appropriate environment: psychological support in educational institutions, and a system of supported employment and living, communities that unite families of people with disabilities.

In the absence of specialized psychological care, a high risk of difficulties in socialization and social disadaptation is noted in various developmental disorders. Kislyakov (2017) examines risk factors related to antisocial behavior in adolescents with intellectual disabilities, such characteristics of the social-emotional domain as moral and social immaturity, low capacity to feel empathy and compassion, trustfulness and naiveté, which result in suggestibility and dependence in social interaction. Some of these traits may be observed as well in adolescents and young adults with ASD.

Objective and Methods

Our goal was to identify and substantiate the optimal directions of psychological support, as well as special techniques for helping adolescents and adults with ASD that may help them improve the quality of their lives, achieve the highest possible level of self-realization and independence in society, and reduce the risk of social disadaptation.

The work is based on the methodology of qualitative longitudinal research, which is used often in clinical and special-needs psychology. The research is not aimed at making statistically accurate generalizations; the conclusions here are inductive, based on analysis of long-term observations and of the patients' life histories. We used qualitative methods that allow us to explore the persons with ASD in the context of their everyday lives, in their natural interactions. For this, we used the following research methods:

1.   Analysis of *anamnesis vitae* (history of life) and catamneses of autistic children, adolescents, and adults. Particular attention was paid to the following parameters: type of schooling (frontal teaching in a classroom along with other children or individualized education); inclusion in any scheduled group activity after graduating from school (for those who have formally reached the age of adulthood); and the quantity and nature of psychological and pedagogical assistance required for an autistic person and his or her family during different periods of life.

2.   Analysis of the text summaries of psychological consultations of families which include an autistic person. Special attention was paid to the parameters mentioned above.

3.   The main method was participant observation of the autistic children, adolescents, and adults in a wide range of social interactions. Observation was conducted during special remedial classes as well as the rest of the person's activities. First of all, attention was paid to the following aspects:

- endurance in social contacts — how a subject can initiate and maintain social interaction when in emotionally comfortable situations;
- activity and interest of adolescents and young adults with ASD in social interaction;
- stereotyped (or flexible) and reciprocal in communicative behavior, in particular following conversational cues; level of attention to feedback from dialogue partners and concerning their interest in (or indifference to) a topic of conversation;
- paying attention to information that is known (or unknown) to dialog partners;
- reaction to jokes; ability to understand humor;
- degree to which persons with ASD can talk consistently about their own life events, in particular to unfold a coherent and consistent story, to use words of emotional assessment (not just to report the sequence of events);
- ability to state one's own opinions, make one's own choices;
- following the common rules of courtesy, using expressions of courtesy, appropriate to the situation;
- ability to accept ambiguity and the complicated nature of human relationships, emotional interactions, and the human psychological world.

4.   Analysis of materials from individual and group remedial classes for adolescents, youth, and adults with ASD and some other types of developmental disorders (psychological underdevelopment or intellectual disability, deficit in psychological development).

Participants

Participants were 60 adolescents and adults with autism spectrum disorder, who were observed and received professional care (some of them since preschool age) at the Institute of Special Education of the Russian Academy of Education and other organizations. At the beginning of the study, the participants were 12 years old and up; towards the end of the study they were as old as 38–40.

The age distribution of participants and duration of observation are presented in *Table 1* and *Table 2*.

Table 1

Age of Participants

Age when observation began, years	Number of participants
12–14	16
14–17	13
17–20	14
20–25	12
25+	5

Table 2

Duration of Observation

Duration of observation, years	Number of participants
Fewer than 3	20
3–7	14
7–10	8
10+	18

Participants had a clinical diagnosis of F84 (general psychological development disorders), according to the classification of ICD-10: F84.0 — Children's autism; F84.1 — Atypical autism; F84.5 — Asperger syndrome.

Results

We analyzed the manifestations of autistic dysontogenesis in the social, emotional, and cognitive domains, which are persistent and significantly affect individuals' adaptive functioning at different ages (Kostin, 2018). To some extent, as shown in

this longitudinal study, the following difficulties may be observed in most cases of ASD, despite otherwise positive dynamics. Many of our results are also to be found in the literature.

1. *Initiating and Maintaining Social Relations*

- Being easily overwhelmed during social interaction, difficulties in maintaining social interaction;
- Lack of initiative, low activity in interaction;
- Repetitiveness and a monologue-like manner of interaction: People with autism interact with others based primarily on their own interests, often repetitively and in a restricted manner; they have difficulties in understanding feedback from the interlocutor (such as whether the partner is interested in the topic of conversation), as well as the other person's emotional state;
- Naiveté in social relationships: It is difficult for an autistic person to understand the "unwritten laws" of interaction and the context of the social situation, to maintain an appropriate psychological distance. While children with autism tend to increase their distance in interaction, teenagers and adults with ASD frequently reduce the distance inappropriately. The combination of reduced distance and frequently inappropriate emotional openness makes people with autism appear socially ingenuous and immature.

2. *Communication: the Means of Interaction with Other People*

- For many people with ASD, full-phrase speech, and especially verbalization of personal experiences or feelings, remains challenging to various extents;
- Even well-developed, elaborated speech of an autistic person has many peculiarities in intonation, grammar, and choice of words; facial expressions, gestures, and gross motor skills also seem strange when interacting with another person.

3. *Cognitive Sphere*

- In a number of cases, so-called "islets of abilities" are observed in people with an autism spectrum disorder (Frith, 1989) — isolated exceptional abilities, in striking contrast to the person's general level of cognitive functioning. In our long-term observations we encountered such islets as absolute literacy, ability to identify the day of any date ("eternal calendar"), ability to draw the outline of animals very expressively. These exceptional abilities (including constructive, musical, and mechanical memory) are generally interpreted by researchers as a symptom of developmental disability rather than as a strength of the cognitive domain (Frith, 1989; Heaton, 2004; Howlin, 2009; Miller, 1999; Mottron, 2008);
- A person with ASD displays deficiency in the active processing of information and applying the acquired knowledge and skills to solve practical tasks. This cognitive difficulty most negatively impacts the adaptive functioning of the individual in society — for example, inhibiting the generalization of skills and knowledge learned at one setting to any other settings — and this deficit has been described in the literature (Nikolskaya, 2014, 2016). The

accumulated knowledge related to restricted special interests or "islets of abilities" may not help a person with ASD to be better adapted to social life, and to self-realize professionally. Much effort is generally needed to help them to use their knowledge and skills in an adaptive way.

- A fragmented picture of the world is typical for people with ASD. The knowledge available to them is often isolated from other areas of knowledge and from personal experience. In order to integrate new experience and knowledge with the existing picture of the world, special psychological and pedagogical support is needed;

- Difficulties in understanding humor and metaphors are common for people with ASD. Their own attempts to joke (usually infrequent) may be seen as not age-appropriate, as primitive, etc.

Our observations show that ASD and intellectual disability are combined in some cases. Prevalence of lower IQ scores in ASD is noted in the literature (Peeters, 1999). At the same time, an ambiguous and complex relationship between autism and intellectual disabilities has been noted: Intellectual difficulties cannot be assessed only on the basis of the WISC or WAIS or any other common psychometric tool (Howlin, 2002; Kostin, 2010; Morozov, 2016).

4. *Social-Emotional Domain*

- Most people with ASD are characterized by low stress tolerance and a lack of self-control and self-regulation of their emotions. Any surprise, an abrupt change in the environment or in their own agenda is not easy for them and may become stressful. Emotional "meltdowns" can be triggered not only by a low anxiety threshold, but also by a negative attitude towards others' demands upon them. Therefore, the behavior of a teenager or adult with autism in a public place can appear as extremely ill-mannered, like a "spoiled" preschooler.

- The difficulties in decentralization and understanding of another person's perspective, thoughts, and feelings (*e.g.*, information that may be known to the other person, accurate interpretation of their intentions) may remain characteristic of many people with ASD. These difficulties relate deficits in the Theory of Mind (ToM) in autistic disorder, described by Baron-Cohen (2000), Frith (1989), and Appe (2006). Frith (2004) writes about a deficit in "mentalizing", which means an inability to infer information about the emotional states of other people. The consequences of this impairment are huge for both emotional and social life: "… if the deficit in mentalizing makes it difficult to predict and understand the behavior of other people, then the social world cannot be a source of pleasure, as it could be in the case of neurotypical people".

- Many people with autism, including adults, have difficulties in flexible, long-term planning, and in adjusting their lives to constant changes in circumstances, in their own values and interests; they generally need an assistant to help them in life organization, constantly prompting the autistic person to initiate the necessary actions. Most frequently, the role of an external organizer is performed by close relatives of the person with ASD,

who is accustomed to the idea that they are responsible for him and take care of him in his daily routine, while he may "complain" and "report" to them. It becomes customary for a person with autism that decisions about his life are made by other family members (which is good, if at least with his participation). Unfortunately, most people with ASD, without special help, rarely become able to feel responsible for people close to them, which is important for an adult role. At the level of self-awareness, it can be assumed that these traits are related to underdevelopment of the internalized adult role. We even observed an active refusal, a conscious protest of a young man with autism against the adult social role expected of him.

- The inner world of many people with autism generally remains poorly differentiated, poorly understood, and difficult to verbalize. They do not usually have an elaborated "psychological" vocabulary: Words labeling an emotional state or feeling, personal traits, or mood may be unfamiliar or remain in a passive vocabulary, rarely used in spontaneous expressive speech.

Discussion

The severe, persistent, and specific consequences of autistic dysontogenesis in adolescents and adults indicate the importance of creating and applying special psychological techniques to assist an adult with ASD (Kostin, 2018). Moreover, as Nikolskaya (2015c) notes, psychological assistance remains absolutely crucial for a family raising a person with ASD: Parents and other family members often face an emotional crisis when their autistic child becomes a teenager and then an adult.

We suppose that young adults with ASD need to get long-term psychological assistance even more than other mentally handicapped people, because their social skills deficit, lack of flexible adaptation to difficulties in social situations, and naiveté in the understanding of social situations make persons with ASD much more vulnerable in many social interactions than persons with intellectual deficits and some mental illnesses.

The need to continue psychological assistance to young adults with ASD is implied by the significantly increased complexity of the social environment and expectations of appropriate behavior in adolescents and young adults with autism. Appropriate behavior includes such adaptive skills as neatness in clothes and appearance, ability to initiate social interaction and to stop it in a timely manner, ability to consider the situational clues of an interlocutor's behavior, and to initiate (or maintain) interaction based on different social roles in everyday life. Moreover, emotional self-regulation and an ability to cope with frustration or anger in a socially acceptable way become increasingly important; meltdowns and tantrums are perceived as absolutely unacceptable behavior.

We worked on two areas of psychological intervention that appear very important for individuals with autistic spectrum disorder. These areas complement each; one cannot take the other's place, and the combination of the two is necessary for a person with ASD to master an adaptive skill and apply acquired skills as appropriately and flexibly as possible. Specific techniques must be developed, taking into account both the common difficulties of people with autistic disorder, and the

individual characteristics of the person with autism, the zones of his or her actual and proximal development.

The first of these intervention areas concerns home living, self-care, and so-cial/ communicative skills, including appropriate behaviors in different situations of social interaction. It is important that specialists work in close contact with the family, define their responsibilities, and consider the wishes and needs of family members. Moreover, due to the difficulties in practical use of the acquired skills and difficulties in generalization of skills, the social skills training of a person with ASD cannot be effective without close cooperation between specialists and family members.

When teaching new skills of generally accepted behavior in various social in-teractions, it is important to avoid mechanistic and rigid memorization of certain forms of behavior. It might be helpful to form appropriate (that is, socially signifi-cant and approved) habits and to develop social roles. Young people with autism should not only be trained to keep an eye on their appearance, but also to get into the habit of looking in the mirror, keeping their clothes tidy, combing their hair, etc., upon arrival in a new place. This relates as well to communication skills: get-ting into the habit of addressing people by name, apologizing, taking turns in con-versations, introducing oneself when meeting a new person, etc.

To help a person with ASD to learn a social role (for example, as a passenger on public transport, a customer in a store, a pedestrian on a crowded street), it is nec-essary to explain the meaning of social norms accepted in certain social situations and to help the person feel glad about fitting into stereotyped social roles. For ex-ample, "We talk on the bus in a low voice", because we do not want to interfere with other passengers; "We apologize to a stranger on the street whom we accidentally pushed". While helping a person with ASD to master various social roles, a special-ist can also work on concepts that are difficult for people with ASD such as bound-aries and psychological distance in interaction, tactfulness, and assertion of rights.

To facilitate the comprehension and mastering of various social roles by people with autism, we have proposed a model of social relations in the form of concentric circles: An individual is in the center of the picture, and all those with whom he is connected and with whom he interacts are situated around him:

- family members;
- friends and acquaintances;
- classmates and colleagues;
- people providing services (*e.g.*, salesmen or bus drivers);
- neighbors in an apartment building;
- finally, just strangers — the most numerous group for any individual.

This concrete and simple visual model takes into account the specific percep-tions of people with autistic disorder and allows gradual mastery of a wide range of social roles, from the most distant relationships (such as fellow passengers on a bus, a customer and salesperson in a store, or unfamiliar neighbors in a big house) to the closest personal relationships (friends, relatives, children, and parents). To master the model of social relations circles, we suggest dialogues, group discussion, and role play. It is helpful to use visual clues (pictures, photos, pictograms) illustrat-ing the various rules.

Our experience shows that working with this model can be productive in a small, relatively homogeneous group of participants, but may also be used during individual psychological intervention. Moreover, taking into account the specifics of disturbances of social development in autistic spectrum disorder, we consider it particularly important to work with "distant" circles of relationships, that is, mastering situational social interactions (with strangers in the urban environment, with service personnel, with neighbors, etc.): These circles of relationships are easier to master, especially through role play; distant relationships are more regulated than intimate personal ones; finally, it is easier to change such relationships than the established relationships of a person with disability in the family.

For example, while discussing interactions with strangers on the street or on public transport, it is necessary to emphasize the central aspect of all behavioral rules for dealing with strangers: All the rules are aimed to ensure that strangers do not interfere with each other. It is important to discuss in more detail what kind of requests and questions we can address to people around us and what is not acceptable (conversely, what questions and requests from strangers should alert us, how we should act in these situations).

Another important topic for discussion in this context is the inevitable encounter with people who do not follow the rules: "Unfortunately, not everyone always follows the rules. But if someone does something wrong, do not make comments to a stranger or try to correct him or her". This position is important not only to increase social competence, but also as a security measure for a person with developmental disorders: Some autistic people attempt to "call to order" those who violate certain rules, in an inflexible and excessively blunt manner, without maintaining distance. Therefore, the concepts of psychological boundaries, maintaining distance from strangers, need to be discussed in different contexts, on different occasions, and at different levels of complexity; another concept is directing the energy of the "struggle for justice" to analyzing one's own behavior (for example, "You cannot change an adult stranger, so there's nothing to be done. People are different — unfortunately, some people may be rude or brawlers. There are not many of them, and we do not have to try to re-educate them. It is important for us to try not to violate all these reasonable rules ourselves").

Analysis of the literature on psychological assistance to autistic children and adolescents demonstrates that a visual model of relationship circles is used by many authors (Dovbnya et al., 2018; Walker-Hirsch, Champagne, 1991).

Helping the person with ASD to master social roles and human relations allows us to assist step-by-step in increasing the individual's autonomy. The most important step is a possible transition to independent transportation in the urban environment. This task itself may indicate a certain success in adaptation, relatively high achievements of a person with autism disorder: A significant proportion of people with ASD have to be escorted outside their homes for their entire lives. This step may be considered only with the consent of the family and in close contact with them; the respective areas of responsibility of relatives and specialists should be discussed in detail. The final decision about timing (when exactly the young person with developmental challenges may be allowed to go for a trip on his own, for example, from home to a familiar place) also belongs to the person's relatives.

The specific nature of the distorted mental development is manifested in a hierarchy from the simple to the complex in the adaptive functioning of people with ASD (Nikolskaya, 2010). This may also be observed in their progress towards independence: Memorization of a route, generally speaking, does not present a particular difficulty for them, if the person previously had an experience of movement along this route; a person with ASD generally benefits from a well-developed visual memory. The greatest difficulties for a person with autism are the initiation of social interactions and, of course, maintaining calm behavior and responding appropriately in unexpected circumstances.

While practicing specific social roles, it is possible to teach a person with ASD to shop in stores, pharmacies, or to visit various places in the community. With the emergence of supermarkets, where you can buy things almost without interacting with a salesperson, it has become much easier for people with ASD to shop. Different methods may be used in teaching them to make purchases, such as role play and visual algorithms (in written form, in drawings, or a combination of the two, depending on the individual's capabilities) for a sequence of the customer's actions from entering the store to leaving. Considering the person's difficulties in generalization, it is best to teach shopping skills at different stores.

Making the rules of social interaction meaningful for persons with ASD will help them to learn social adaptive skills most efficiently. Any specialist using varied approaches to people with ASD should be careful to avoid mechanical training of any skills: "Both everyday life and academic skills can be mastered either relying exclusively on a person's memory, or meaningfully. Mechanical memorization is a much less effective method of teaching, although at first it seems easier" (Greenspan & Wieder, 2013). Only a rule or skill that is understood by and meaningful for a person will be truly learned, interiorized by a person with ASD, and can be applied in the appropriate situation (Nikolskaya, 2015). Therefore, the intervention aimed to improve social adaptive skills (the first area of psychological assistance that we indicated earlier) should be combined with help in understanding the world of social relations and an individual's inner world (the second area of psychological intervention). To meet our objectives in the second area, we developed such methods as conversation, a diary, joint study of literature (stories and novels), and movies.

The method of confidential conversation may be characterized by several points.

1. The method of confidential conversation (as well as psychological assistance to an autistic person in general) should be applied over a long period of time: A course of several sessions cannot be sufficient to truly increase the emotional and personal maturity of a person with ASD at any age.

2. Conversations with persons with ASD should be about topics that are important for them, even though they may be restricted and stereotyped. Towards adolescence, people with ASD often need and attempt to comprehend the world around them, but this need is realized in a very peculiar way, related to their stereotyped interests, anxiety, general intolerance in their relationship to the world, and fixation on certain acute affective moments. For example, some interests may be expressed in questions that are repeated over and over — day after day, even year after year, despite the detailed answers received on many occasions. These stereotypical questions should not be, however, interpreted only as negative, because this way an

individual generally attempts to understand himself or herself and the surrounding world better. Elaborating on stereotypical interests and topics, we can help persons with ASD to develop their comprehension of themselves, as well as to expand the range of topics in the conversation.

3. The conversation includes the exchange of personal experiences between the person with the ASD and the specialist. This kind of psychological intervention requires relative openness on the part of the specialist, because a person with autistic disorder needs to encounter the perspective of another person. These "collisions" with others' perspective may help people with ASD to overcome, to some extent, the underdevelopment of the ToM, and increase their interest in the exchange of experiences, opinions, and feelings with other people.

The method of confidential conversation can be used to discuss a wide range of "psychological" topics that are difficult for a person with autistic disorder to master, such as human feelings and their expression, relationships between people, motivation, and growing up. Recognizing and differentiating among others' feelings, empathy, age- and context-appropriate expression of one's own emotions, all present a challenge for a person with ASD; however, our experience demonstrates that with special assistance, people with ASD are able to master these skills. Topics of emotions, attitudes, moods, character traits, and moral choices in different contexts should all be referred to both in individual and in group work.

At the beginning of work of this type, the specialist and the person with ASD generally create a list of emotions, discuss the situations in which a person may experience a specific feeling; differentiate among those emotions that are "positive" or "negative". Similar to other types of psychological assistance (*e.g.*, Liders, 2001), it is important to "normalize" different emotions, to demonstrate that everyone can experience anger, fear, jealousy, and other negative feelings.

In the next step, we can talk about appropriate ways of expressing feelings in different situations and within the context of different relationships. People with autism should be given precise verbal examples of how to express a friendly attitude towards different people in an appropriate manner, as well as a clear explanation of the types of physical contact that are acceptable to express feelings towards different people. The discussion of appropriate ways of expressing feelings may be more productive if combined with a discussion of various relationships between people — with family members, friends, colleagues, and a romantic partner. These discussions help to develop clear rules and descriptions of appropriate and inappropriate ways of expressing feelings and maintaining relationships that may be more effectively learned with the use of visual props, such as pictograms with captions. It is important to use neutral language, so as not to trigger an overly agitated response in a person with ASD who tends to focus on hyper-affective experiences.

Another important topic for discussion using the method of confidential conversation refers to socially appropriate ways of expressing negative feelings and coping with negative emotions. It is important to emphasize once again that discussion of personal emotional life should be approached slowly and carefully, as this topic is incredibly difficult for people with autism; the general emotional atmosphere of the discussion should be positive and accepting, but at the same time relatively reserved emotionally, with a calm, business-like manner.

A specialist who works individually or in a group may discuss some culturally appropriate ways that a person can cope with his emotional state; for example, the person may engage in a physical activity, hit a pillow or another suitable object, or eat something tasty. People with "high-functioning autism" may learn simple ways of self-regulation: Close your eyes, breathe deeply, count to yourself, etc. Here it should be stressed for a person with ASD that escalating the conflict is inappropriate, and it is necessary to distance oneself from the source of the conflict, step aside, and focus on one's own emotional balance, rather than to prove oneself correct, which is difficult for a person with autism. With people who have reached legal adulthood, it is important to discuss their personal responsibility for their own emotional and mental state; when frustrated or angry, a person should attempt to calm down to avoid causing any harm. And probably the most important point that should be demonstrated when working on this topic is the importance of a close, trusting relationship with someone (friend, family member, teacher …) that makes it possible to discuss unpleasant life situations, negative feelings, and possible ways to cope with them. It is more effective to discover these and other methods of emotional self-regulation during a discussion (or even group brainstorming), rather than from prescriptive exhortations.

It should be reiterated that using the method of confidential conversation to discuss these topics requires the specialist to be quite open and sincere; it is particularly important to show a person with autistic disorder that people whom they look up to can also experience unpleasant feelings and search for their own ways to cope with these feelings.

Our study demonstrates the possibility to discuss a broad range of topics that are important for the psychological and social development of adolescents and young adults with ASD, using the method of confidential conversation, including the topics of adulthood, growing up, the human life cycle in general. People with ASD rarely have fully developed insight into adulthood, even though the image of an adult may be quite attractive for them. Therefore, one of the tasks of psychological intervention is to add content to this attractive image, emphasizing adults' responsibility for their actions, the need to be patient, and to care for their loved ones.

Relationships between the sexes present another complicated topic of conversations with people with ASD. When the specialist has developed a sufficient level of trust in his or her relationship with a person with ASD, it is possible to discuss and to role-play such situations as introducing oneself, dating, ways of getting closer to a person of the opposite sex. The complexity of this topic is obvious: Intimate relationships, unlike, for example, interaction between a customer and a salesperson, are not regulated and have neither a guaranteed result nor a clearly defined goal. Nevertheless, one of the useful topics for a confidential discussion and role play, which is possible both in individual and group work, may be where and how to get acquainted. It may be helpful to have the group understand that attempts to meet a romantic partner and get acquainted may be more positive at events where people have something in common rather than just "on the street". A range of comments, questions, and topics that are suitable for dating may be discussed. Different dating situations can be role played in groups; a friendly discussion of each participant's behavior in the group may also be very helpful after the role-play game. Finally, it is very important to discuss with young adults with ASD the unpredictability

of the outcome of any new encounter: A person who is interested in continuing interaction may face a lack of reciprocity, or refusal to continue the relationship. Relationships may continue and evolve, or may stop. And this is normal; it happens often! On the other hand, as with any other relationship discussed (for example, friendship), it is important to emphasize that excessive persistence or obsession is unacceptable, particularly when there is no reciprocity. The experience of separation or rejection may be discussed as a painful experience, but one familiar to the vast majority of people.

The method of confidential conversation has much in common with the internationally recognized method of "Social Stories" created by Carol Gray (USA). This is a psychological intervention technique used with children, adolescents, and adults with ASD (as well as other populations), to help them learn to maintain their emotional balance, stay calm in unpleasant, difficult situations, and cope with negative experiences (Gray, 2018; Kuleshova, 2017). The "Social Stories" technique became particularly popular in helping people with autistic disorder to self-regulate in circumstances that are new or stressful for them. While using accessible language, Social Stories describe certain situations related to social interaction, a person's feelings, and their possible difficulties in this situation; they also provide an example of socially appropriate behavior expected from a person in a similar situation. A Social Story also includes others' positive reaction to the socially appropriate behavior (Morris, 2012).

Keeping a diary as a method of reviewing one's life experiences makes it possible to systematize and conceptualize one's memories, to maintain and develop one's self-identity, and to express one's inner world verbally. While current or recent events are generally reviewed with younger children, more distant or recent past events may be possible to work through with a teenager or an older person. It should be noted, however, that keeping a diary may easily become formal and stereotyped, and its developmental value can be significantly reduced without the adult's support. For example, the diary may turn into a monotonous and stereotyped listing of events, deprived of any attempts at reflection or any expression of feelings and attitudes. In order to use the diary as an effective tool, it is important to follow several rules:

1. An autistic person would benefit, at least initially, from keeping a diary along with an adult. It could be the specialist or a family member who has been given the necessary explanations from the specialist.

2. Particular attention should be directed to using emotionally descriptive words, one's own preferences, comparing the emotional experiences of different people in similar situations, looking at an event from different perspectives. It is also necessary to teach a person with ASD to differentiate among the events of his life and the lives of his relatives from the standpoint of those events' importance and emotional significance, the degree to which they are either routine or unusual.

3. In some instances, the assistant (specialist or family member) may enter into the diary his own content as well; for example, events of his life, his own emotional assessments and experiences that correspond to the topics of the diary of the autistic person. Comparing the experiences and feelings of two (or more) people can provide the person with ASD with additional opportunities to achieve greater understanding, increase self-consciousness, and develop a ToM. In other instances,

when it is necessary to allow a person with ASD the maximum opportunity to verbalize and develop their own inner world, it is better to avoid adding another person's entries.

4. Previous entries should be periodically re-read. Returning to the old records and making occasional additions may help to reorganize life experience and increase self-awareness.

5. Confidentiality must be maintained: If a specialist (not a family member) has worked with the autistic person on the diary, the jointly created texts may not be shown to anyone, including his/her family members, without the autistic person's permission.

The study of texts (books, movies) has the same therapeutic goals: elaborating the inner world of people with ASD, encouraging their interest in other people, developing their understanding of social relationships, developing a ToM. Moreover, this method helps to improve a few necessary academic skills: the ability to understand cause-effect relations, to remember the sequence of events, to find the necessary information in the text, and most importantly, to actively process and integrate information from the book or movie, and connect it with one's own life experience.

The joint study of texts may become an age-appropriate collaborative activity that will become the basis for rapport with an autistic person and replaces the pretending and role playing or joint drawing used in psychological interventions with preschool and elementary school-age children. So that the book or movie is not reviewed formally but rather impacts the emotional and mental life of autistic persons, elaborating their understanding of social relationships and themselves, a few principles of psychological intervention should be followed:

1. The books should be worked through slowly, and parts of the book should be discussed while reading and after finishing the book. A person with ASD should be reminded in different contexts about books and movies they have read or seen. Without this effort, even a book that has been well studied may disappear from active memory fairly quickly.

2. It is very important to draw connections between events in a book (or movie) and experiences of the person with ASD — for example, to discuss such questions as: "Which of your friends does this character resemble?", "Have you ever been in a similar situation and what would you do?", "If you were to meet this character, could you become friends?" While a school teacher generally focuses on the text's composition and structural analysis, the goals of psychological intervention are directed primarily at psychological and social analysis.

3. When working with people who do not use flexible and spontaneous language, it is helpful to suggest that they recall their own or their relatives' experiences that are similar to situations described in the text. After the session, family members can help the person to recall a similar family experience and write it down together at home.

4. A person with ASD may better understand and emotionally assimilate the text, if, along with verbal discussion, the specialist also suggests drawing illustrations of the text, particularly if the adolescent or adult has some inclination for art and drawing. Dramatic presentations of the texts may also help the personal and social development of a person with ASD. Even the simplest type of perfor-

mance — for example, reading a dialogue by each taking a role — may be difficult for many people with autism disorder and requires significant emotional and mental effort, and often assistance.

5. Working through the text generally presents a challenge for people with autism, such as when a person needs to skim the page without reading it thoroughly, to find the essential information about a character or a specific statement. If the text is relatively long and includes many characters, a person with ASD will likely have difficulty remembering the characters' names, their life stories and relationships. It may help to write down all the characters: their names, their personalities, and their relationships.

6. Generally speaking, writing down impressions and feelings about the book's characters and events is a useful technique for better remembering the text. Another effective technique may be brief responses to questions. Depending on the person's abilities, multiple-choice questions may be used. Using multiple-choice questions during individual work with school-age children may also help them to become better prepared for the final school exams, some of which have a similar format.

7. Due to the restricted and poorly differentiated inner world of people with autistic disorder, using books recommended for younger readers may be more productive: It is more effective to work through a relatively "childish" book, discuss various meanings, and help a person with autism to understand and identify with the characters more profoundly, than to tackle complex Russian classical novels, just because those are "supposed to be read" at a certain age. Moreover, when choosing a book, it is important to remember the person's lack of insight into social relationships and feelings, and their tendency to focus narrowly and "get stuck" on specific details and characters' actions: A single frightening or misinterpreted experience may become one more object for their affective self-stimulation. It is, of course, impossible to predict these situations; however, the specialist should always be ready to help the person process an experience that is too intensely affective.

Conclusion

Our long-term observation allows us to articulate some general principles of psychological intervention and support of adolescents and young adults with autistic disorder, despite their different levels of cognitive, emotional, and personal development and adaptive functioning. These principles are: continuous engagement in activities (*e.g.*, education, leisure, employment) that make their daily lives meaningful, and developing a well-organized social environment where these activities are carried out. The optimal social environment, in our view, should combine the following characteristics:

- certain rules and communication norms that all members of the community follow;
- new (achievable) adaptive goals;
- a friendly atmosphere with respectful interest shown to each individual;
- positive, energetic, and optimistic community spirit.

Our long-term follow-up observations show that if these conditions are not met — for example, if autistic persons have no motivating activity and their social environment is restricted — their general activity level may decline, and passive and stereotyped behavior is likely to increase.

Individual psychological support, using the techniques described above, may often be necessary to help a person with ASD to be successfully integrated into activities and a more complex social environment, particularly at first (Kostin, 2015, 2016). When working with people with autistic disorder, other activities can be used to achieve the goals of the intervention, such as arts and crafts, sports, tourism, history, and, of course, educational and occupational activities. A conversation may be constructed around almost any meaningful joint activity to help persons with autism in creating a more holistic picture of themselves and their lives, the people around them, and the world as a whole. To help an autistic person to better comprehend the social environment and relationships, long-term confidential interactions must be developed regardless of the person's age, and "constantly involve him in meaningful and shared activities, using all the opportunities for this …" (Nikolskaya, 2015).

We hope that the directions and methods of psychological work described here may be useful for specialists at psychological, educational, and rehabilitation centers for people with special needs, for psychological teams at schools and other educational organizations, for family members, as well as for researchers who are exploring social adaptation, theory of mind, and growth problems in developmental disorders. These are some points deserving of further exploration:

- adaptation and effects of the above-described methods to the development of emotional intellect in autism spectrum disorder, in other types of dysontogenesis, as well in growing up in an environment of deprivation (for example, in an institution);
- more precise adaptation of these methods for work with autistic people of different ages: younger adolescents, primary school age, mature adults;
- relating these methods to methods designed with other remedial approaches, notably applied behavioral analysis (ABA).

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The Health Belief Model and Prediction of Breast Self-examination Practices in Female Mexican College Students

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Background: Cancer incidence and mortality in young Latin American women has increased over the last few decades. In Mexico, breast self-examination (BSE) is recommended from 20 years of age to create awareness of breast cancer and detect body changes. The health belief model (HBM) allows us to identify young women's beliefs about cancer and BSE, which could help us to design more appropriate strategies to promote BSE in the fight against breast cancer.

Objective: To assess the knowledge, practice, and beliefs about cancer and BSE in female college students; examine the differences between those who practice BSE and those who do not; and determine the most influential variable for performing BSE.

Design: A descriptive cross-sectional design was used; the Health Belief Model scale for BSE was applied to 949 female college students from a public university.

Results: This Major health study showed that suffering benign breast disease and having a family history of breast cancer was associated with BSE performance; it also found that the dimensions of the health beliefs model differed depending upon barriers, benefits, self-efficacy and health motivation were different between women who perform an BSE in. The predicting variables for BSE practice were self-efficacy, the barriers perceived, benign breast disease, and the major subject of study.

Conclusion: Reports of BSE practice in female students from Latin American countries are similar; however, the predictive variables differ from those found in the general population. Perceived barriers and self-efficacy are factors capable of modification, and must be addressed by BSE promotion strategies aimed at female college students.

Key words: breast self-examination (BSE); breast cancer; cancer education; health belief model (HBM); college student health

Introduction

In Mexico, breast cancer is one of the main causes of hospital cancer morbidity in women aged 20 years and older (30.9%), and its mortality is higher than the mortality rates for all types of male cancer combined. Breast cancer mortality rates showed an upward trend from 2011 to 2016, with the highest rate in 2016, totalling 16 deaths per 100,000 women aged 20 years and older (National Institute of Statistics and Geography [INEGI], 2017; INEGI, 2018).

Breast cancer morbidity and mortality affect the quality of life of Mexican women. One of the main reasons for the high breast cancer mortality rates is that most cancers are being detected in the late stages, which explains the importance of increasing and strengthening the implementation of strategies focused on early detection (Mexican Health Secretary, 2013).

According to the Official Mexican Standard (NOM), the promotion of breast cancer detection must include breast self-examination (BSE), the clinical breast exam, and the mammogram (MMG). BSE is recommended from the age of 20 years, and its objective is to create awareness in women about the risk of breast cancer, so that they have better knowledge of their own bodies and are able to identify abnormal changes, and seek adequate medical care (Mexican Health Secretary, 2011).

In Mexico, an increased prevalence of breast cancer in young women under the age of 40 has been observed, comprising 10% of cases, with the youngest recorded case at 23 years of age. Most of the cases detected were in stage III (De la Vara-Salazar, Suárez-López, Ángeles-Llerenas, Torres-Mejía, & Lazcano-Ponce, 2011; Martínez-Cruz, Juárez-Ramiro, Pichardo-Cuevas, & Martín-Ordoñez, 2010). From 2000 to 2009, the breast cancer mortality rate increased by 13.7% in women aged 23 to 29. Therefore, the Mexican health system faces the challenge of increasing the early detection of breast cancer in younger asymptomatic women (Robles-Castillo, Ruvalcaba-Limón, Maffuz-Aziz, & Rodríguez-Cuevas, 2011).

Socio-demographic and psychological factors determine whether a woman performs a BSE or not. Most of the studies conducted in Mexico have focused on socio-demographic factors associated with BSE, such as information available to the general population, general practitioner training, first contact with gynecologists, and fears of the partner and the family (Nigenda, Caballero, & González-Robledo, 2009). Women from lower socioeconomic strata, with lower educational attainment, and without access to health services, engage in significantly lower detection practices than the national average (Agudelo-Botero, 2013).

However, in addition to healthcare provider training needs, in order to ensure greater MMG coverage and the use of breast cancer early detection (offered at no cost), we must consider the cultural obstacles that prevent women from visiting the doctor and pursuing the required treatment. Some women believe that women with breast cancer are considered less feminine, and are abandoned by their partners (Frenk, 2009).

Few studies have been conducted in Mexico about BSE beliefs and practices in young women. Two studies conducted with adolescents focused on their perception of breast cancer campaigns and early detection. The results showed that more information and breast health services for teenagers are required. These studies also reported some of the obstacles to the early detection of the disease, including

male chauvinism, Marianism, nosophobia, and limited access to information and health services (Tapia-Curiel, Villaseñor-Farías et al., 2014; Tapia-Curiel, Nuño-Gutiérrez et al., 2015).

In another study, done with female nursing students in the southern area of Mexico, 59% had knowledge of BSE. The main reasons they gave for performing the examination were "timely detection and cure"; "for pain, masses, and/or discharge"; "it is beneficial, inexpensive, and simple"; and "to know if one is healthy." The main myths detected among the students were "it is a sin," "the breasts loosen," and "self-examination is a morbid practice" (Tenahua-Quitl et al., 2017).

For this reason, in addition to the socio-demographic factors, it is important to identify the cognitive factors associated with these health theories and models, to better understand such behavior and non-adherence to breast cancer detection strategies (Ahmadian & Samah, 2013). The Health Belief Model (HBM) has been used to identify the relevant factors needed to ensure a woman performs BSE (Champion, 1984). This model is focused on two aspects of individual perceptions and health behavior: the perception of a threat, and a behavioral assessment. Threat perception includes the woman's view of her susceptibility to the disease and the severity of its consequences. The behavioral assessment includes beliefs about the benefits and efficacy of the recommended behavior and the barriers to its implementation. The model also includes the person's general health motivation — that is, her predisposition to taking care of her own health (Abraham & Sheeran, 2015).

Studies show that the different dimensions of HBM influence BSE practice differently. Perceived benefits, perceived self-efficacy, and health motivation have a strong association with performing BSE in Iranian women (Hajian-Tilaki & Sahar Auladi, 2014); female students who had greater health motivation and had higher confidence in BSE were more likely to perform the screening (Akhtari-Zavare1, Hanafiah-Juni, Said, & Zarina, 2013). Another study also found that higher scores of perceived benefits, perceived confidence/self-efficacy, and health motivation showed significant positive association with performing BSE in Iranian female students (Didarloo, Nabilou, & Reza-Khalkhali, 2017). In Saudi women significant predictors of BSE performance were perceived barriers and perceived confidence (Abolfotouh, BaniMustafa, Mahfou , Al-Assiri1, Al-Juhani, & Alaskar, 2015). These factors, along with perceived benefits and health motivation, are related to the regular practice of BSE (Erbil & Bölükbaş, 2012).

There are only two studies of women's health-based cognitive beliefs in Mexico: one for BSE and one for MMG. Both demonstrated that self-efficacy influences decisions to practice BSE and MMG, but perceptions of susceptibility, the seriousness of possible consequences, and benefits differed (Cancino, 2004; Ponce, 2013). These studies were conducted in women over 40 years old, and did not use a health belief scale previously validated and adapted to our culture, which resulted in obstacles to reliably identifying which factors influence breast cancer detection behavior.

Therefore, the objective of this study is to identify knowledge about BSE, its practice, socio-demographic factors, and the dimensions of HBM (susceptibility, seriousness, benefits, barriers, perceived self-efficacy, and health motivation), which can predict BSE practice and could help us to design strategies for adequate promotion of BSE.

Method

A descriptive cross-sectional design was used with non-probabilistic sampling.

Participants

Of a total of 949 college students, the inclusion criteria were being a female college student and willingness to participate in the research. The exclusion criteria were a history or current diagnosis of cancer, pregnancy, and/or breast-feeding. Six college students did not answer all items of the Health Belief Model Scale for Breast Self-Examination. Therefore, only the data from 943 participants were analyzed.

Table 1

Characteristics of the Respondents

Variables N=943	F (%)
Age M(SD)	19.4 (2.01)
Marital status	
Single	924 (98.4)
Married/cohabitation	16 (1.6)
Major	
Health science	446 (47.2)
Others	497 (52.8)
History of breast cancer	
Family (yes)	243 (25.7)
Grand mother	69 (28.3)
Mother	20 (8.2)
Aunt	122 (50.2)
Others	32 (13.1)
Other social circles (yes)	333 (35.4)
Friends	105 (31.5)
Neighbors	45 (13.5)
Others	183 (54.9)
Benign breast disease (yes)	52 (5.5)
Cysts	20 (51.3)
Fibrosis	14 (35.9)
Fibroadenoma	3 (7.7)
Mastitis	1 (2.6)
Know about BSE (yes)	709 (75.3)
From whom did you learn how to perform BSE?	
Health care provider	226 (31.8)
Class	250 (35.2)
Workshop	62 (8.7)
Pamphlet	311 (43.8)
BSE practice (yes)	466 (65.6)
Frequency performance BSE last year	
0	(26.7)
1–4	(56)
5–10	(4.2)
12	(11.6)
24	(1.5)

The age range was from 17 to 44 years; 94.7% were single; 47.2% were students in the health field; 5.5% reported a history of breast benign disease; 25.7% mentioned a family history of breast cancer; and 31.5% had encountered the disease in other social circles. When questioned about knowledge and practice of BSE, 75.3% said they knew how to conduct the examination, 65.9% had performed it at least once, and 11.6% had performed it once a month in the previous year (*Table 1*).

Measurements

A general data questionnaire was administered, which consisted of general information questions, including age, marital status, breast cancer history in the family or close social circles, other breast diseases, knowledge of BSE, and frequency of BSE performance.

An additional Health Belief Model Scale for Breast Self-Examination questionnaire was administered (Champion, 1984). The Spanish adaptation by Juárez, Téllez, and García (2019) was used. It consists of 33 items that assess the six dimensions of the HBM for breast cancer and BSE: susceptibility (α.69), seriousness (α.73), benefits (α.72), and barriers perceived (α.77), as well as health motivation (α.80) and self-efficacy (α.87). The optional answers are presented in a 5-point Likert type scale (1 = *I totally agree,* to 5 = *I totally disagree*).

Procedure

The data were collected in public schools from August 2016 to May 2017. Participation in this study was voluntary. The women had the study's objectives explained to them, and those who agreed to participate provided informed consent and responded to the questions. The data were collected in their schools' common areas, such as classrooms, cafeterias, and rest areas.

Statistical Analysis

SPSS software version 24 was used to conduct the statistical analysis. Descriptive data were obtained, including frequency, percentage, mean, and standard deviation of the variables. A Pearson correlation analysis was made between the practice frequency of BSE over the previous year and the dimensions of the HBM. To assess the differences in BSE practice, socio-demographic variables, and the dimensions of the health belief scale among the students, the chi-squared and the Student's t-tests were used. To perform the logistic regression analysis, based on a review of the literature, a wide array of potential factors associated with BSE practice, such as a high level of BSE knowledge (Didarloo et al., 2017), family history of breast cancer (Abolfotouh et al., 2015), and study for a health-related profession (Gençtürk, Demirezen, & Ay, 2017), was taken into account.

Results

Correlation between the Practice Frequency of BSE in the Previous Year and the HBM Dimensions

The results show that there is a negative and significant relationship between the frequency of BSE and perceived barriers (r = −.214, p = .001), and a positive and

significant relationship between the frequency of BSE and perceived self-efficacy (r = .358, p = .001).

Comparison Analysis between the College Students who Perform BSE and Those Who Do Not

The groups that do, or do not, perform the BSE were formed by their answers to the question: Since you learned to perform BSE, have you done a breast self-exam? When performing the comparison analysis, significant differences between the college students who performed BSE and those who did not were observed in age, benign breast disease, family breast cancer history, and benefits and barriers perceived, as well as in the self-efficacy and health motivation (*Table* 2).

Table 2

Comparison between Those Performing and Those Who Did Not BSE

Variable N= 708	Performance BSE f (%) n=465	No Performance BSE n=243	X^2/ [gl](p)
Major			
Health sciences	262 (61.8)	103 (28.2)	
Others	204 (59.1)	141 (40.9)	12.5 [1] (.000)
Benign breast disease	35 (7.5)	8 (3.3)	5.04 [1](.025)
History of breast cancer			
Family	126 (27)	48 (19.7)	4.69 [1] (.030)
Friends	176 (38)	84 (34.6)	.813 [1] (.367)
Know about BSE	464 (65.9)	240 (34.1)	2.79 [1] (.094)
	M(SD)		**t [gl](p)**
Age	19.7 (1.9)	19.3 (2.4)	2.61 [708] (.009)
Susceptibility	10.6 (2.9)	10.6 (2.7)	.198 [706] (.843)
Seriousness	14.6 (3.8)	15.2 (3.8)	−1.79 [699] (.073)
Benefits	15.7 (3.0)	15.2 (3.0)	2.02 [707] (.043)
Barriers	10.2 (3.4)	12.4 (3.9)	−7.66 [707] (.000)
Self-efficacy	34.3 (5.7)	30.2 (5.4)	9.22 [704] (.000)
Health motivation	20.9 (2.8)	20.0 (3.5)	3.43 [411] (.001)

A stepwise logistic regression analysis was performed (*Table* 3). The independent variables comprised the general characteristics and dimensions of HBM that showed significant differences in the t-test and χ-squared test. Step 4 shows the model with the best fit based on -2LL (772.8), and on the omnibus test that was significant (χ^2 [4] = 114.9, p = .001); the factors predicting BSE practice were the barriers perceived, self-efficacy, suffering a benign breast disease, and college major.

Table 3

Logistic Regression Analysis for Performing BSE

Variable	B	SE	Wald	P value	OR	95%CI	
Step 1 Self-efficacy	.135	.016	68.8	.000	1.145	1.109	1.182
Constant R^2 Nagekerke = 0.15	−3.70	.523	50.3	.000	.025		
Step 2 Barriers	−.115	.024	22.4	.000	.891	.850	.935
Self-efficacy	.114	.017	45.0	.000	1.121	1.084	1.158
Constant R^2 Nagekerke = 0.19	−1.71	.662	6.71	.010	.180		
Benign breast disease	.826	.427	3.73	.053	2.284	.988	5.277
Step 3 Barriers	−.118	.025	23.1	.000	.889	.847	.932
Self-efficacy	.112	.017	43.7	.000	1.119	1.082	1.157
Constant R^2 Nagekerke = 0.20	−1.67	.664	6.38	.012	.187		
Step 4 Major	.383	.177	4.66	.031	1.466	1.036	2.075
Benign breast disease	.909	.430	4.46	.035	2.481	1.068	5.761
Barriers	−.115	.025	21.7	.892	.850	.178	.936
Self-efficacy	.108	.017	39.5	.000	1.114	1.177	1.153
Constant R^2 Nagekerke = 0.21	−1.77	671	6.98	.008	.170		

*Significance ** $p<.001$,* $p<.05$, B: Coefficient B, OR: Odds Ratio, SE: Standard error, CI: Confidence Interval.*

Discussion

BSE enables women to know their body and notice any changes during their monthly examinations. In many cases, this helps them to detect tumors. Therefore, it is important to teach them this technique (Torres-Mejía et al., 2011).

Breast cancer rates and mortality have increased in young women. Therefore, it is important to identify their beliefs about breast cancer and BSE (Villarreal-Garza et al., 2013). This study found that 75.3% knew how to perform BSE, and 65.9% had done so. These percentages are lower than those reported in women over 20 years of age in the general population from Mexico, which found that 82.8% know about BSE, and 73.7% perform it on a periodic basis (Yépez-Ramírez, De la Rosa, Guerrero-Albarrán, & Gómez-Martínez, 2012).

Our results are similar to other Latin American studies. For example, 91% of Peruvian medical students reported knowledge of the BSE, but only 71% performed it regularly. The main reasons for not performing it were that they did not

know how to do it; others felt that it was not necessary to perform it in the absence of symptoms, and some feared they might find something wrong (Gutiérrez-Delgadillo, Gutiérrez-Flores, Gutiérrez-Choque, Guzmán-Delgadillo, & Santander-López, 2012). A study of college students from Colombia found that 85.9% knew how to perform the BSE, and 77.8% had performed it; the majority agreed that it provided health benefits. Barriers to performing BSE included forgetting to do it, and the failure of health care providers to explain it fully (Carrillo-Díaz et al., 2015). Similarly, 80.9% of Ecuadorian college students are aware of the purpose of BSE, and 33.9% perform it; the majority of the students showed a favorable attitude to performing BSE, considering it to be beneficial (Bermeo & Chin-Uzhca, 2017).

The results obtained in this study about the beliefs and barriers to performing BSE are similar to those reported in the general population in Mexico, which indicate that the motivational factors in favor of performing BSE include cancer prevention, medical instructions, and a family history of breast cancer. The main reasons for not performing the BSE include not knowing how to perform it, a lack of time, apathy, and laziness (León, 2011; Yépez-Ramírez et al., 2012). In this study, students also believed that BSE could help them find a mass at an early stage, reduce their possibility of dying, and avoid radical treatment for breast cancer.

Students who did not perform BSE perceived more barriers to doing so, a perception which is also a significant predictor of BSE practice. From the HBM standpoint, barriers are understood as the physiological and psychological costs entailed in performing BSE, — that is, the negative aspects of BSE (Champion, 1984). The barrier that was the most prevalent, was the fear of finding something wrong. We suggest that health education strategies focus on identifying methods to eliminate this and other barriers among college students.

Studies conducted in Asian countries investigating BSE knowledge and practice also analyzed the most influential variables on BSE behavior. In female college students in Malaysia, 36.7% indicated that they had performed BSE. In addition, students with more BSE knowledge, who were more focused on their health, and had a better perception of their self-efficacy, were more likely to perform the BSE (Akhtari-Zavare, Juni, Said, & Ismail, 2013).

In Saudi Arabia, an extremely conservative country characterized by significant gender-based discrimination against women, only 22% of women aged between 15 and 29 years had practiced BSE; their practice was associated with their educational level and cancer awareness (Ravichandran, Al-Hamdan, & Mohamed, 2011). Likewise, 27% of Korean college students practiced BSE, and the predicting variables involved were age, subject major, and BSE knowledge (Shin, Park, & Kim, 2012). These data demonstrated that the percentage of students with BSE knowledge and practice was lower than in our study. However, among the variables that predict performing BSE, some matched those found in this study, mainly self-efficacy and their major area of study.

In European countries like Cyprus, 91.5% of young women have heard about BSE, and 71.3% have performed it, a higher percentage than in our study. Variables that influenced BSE practice included perceived susceptibility; an association was also found between BSE practice, perceived barriers, and self-efficacy, as well as BSE awareness and a high education level (Petro-Nustas, Tsangari, Phellas, & Constantinou, 2013). This is similar to our study, where the barriers perceived,

self-efficacy, history of benign breast disease, and studying health sciences had the highest influence on BSE practice.

Self-efficacy refers to the confidence a person has to perform an action (Champion & Skinner, 2008). Our study found that the women who practice BSE experience greater self-efficacy than those who do not. When self-efficacy was analyzed in college students in general, women reported greater self-efficacy than men (Aguirre, Blanco, Rodríguez-Villalobos, & Ornelas, 2015).

In contrast, a study of women over 20 years of age from the northern area of Mexico shows that the susceptibility dimension of HBM influences BSE practice (Cancino, 2004). This finding may differ because of age, the population studied, and low perceived susceptibility levels in this sample.

A history of benign breast disease also influences BSE performance. It can act as a trigger, and is consider a cue for action within the health beliefs model, and a stimulus that drives a person to take up a given behavior. Examples include remaining aware of and remembering breast cancer campaigns and the BSE, the influence of health care professionals and intimate others, as well as personal experiences with the disease (Cabrera, Tascón, & Lucumí, 2001).

In this case, the experience of benign breast diseases causes women to be more attentive to their body and perform BSE more frequently. Similarly, students who perform BSE have had more family members, friends, and acquaintances with breast cancer, which can also act as a trigger to take action.

The variables with the greatest predictive value of BSE practice among college students were self-efficacy and perceived barriers, both of which can be modified. Accordingly, health promotion strategies should focus their efforts on eliminating the barriers perceived, and on promoting BSE efficacy among students. Current efforts are directed mainly to eliminating breast cancer myths, rather than removing barriers to practicing BSE. There is a study that reports college students' myths about BSE (Tapia-Curiel et al., 2014). Another barrier is the fear of finding something wrong; therefore, an intervention is also required in this area.

Self-efficacy involves the capacity to confidently deploy the necessary skills to perform a specific task (Bandura, 1997). Information about self-efficacy can be obtained from a woman's achievements, life experience, verbal persuasiveness, and physiological status. Performance achievements are considered the most influential information sources because they are based on personal experience (Rosenstock, Strecher, & Becker, 1988). Thus, an intervention is required to improve perceived self-efficacy in addition to providing knowledge about BSE, to order to ensure that women practice it to increase their skills. Psycho-educational interventions have had positive effects on promoting BSE in all the dimensions of the HBM scale (Yılmaz, Sayın, & Öner-Cengiz, 2017).

Conclusion

Reports of BSE practice in female students from Latin American countries are similar; however, the predictive variables differ from those found in the general population. Studying in a health-related area, having a history of benign breast disease, and breast cancer in the family are associated with the practice of BSE; the dimensions of the health belief model that relate to, and predict, the practice of BSE

are the perceived barriers and perceived self-efficacy, which are factors that can be modified through intervention. Therefore it is recommended that these variables be taken into account when designing intervention strategies to improve the practice of BSE in female students.

Limitations

It is important to consider the limitations of this study. The first is that the results cannot be generalized to women of all ages and educational levels, because this study was conducted with young women with a higher education. Second, this study assessed their beliefs about BSE practice based on self-reports. Therefore, the results could be affected by the social desirability of BSE practice. However, this study provides us with information about college students' perceptions of BSE. College students who performed BSE were more likely to have had family members and friends with breast cancer, have suffered a benign breast disease, or be studying a health sciences major. They found it beneficial, felt more self-efficacious, and were more interested in their health in general. They also perceived fewer barriers to performing BSE than those who do not practice it.

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DEVELOPMENTAL PSYCHOLOGY

Parent Responsiveness and its Role in Neurocognitive and Socioemotional Development of One-Year-Old Preterm Infants

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Background. It has been demonstrated that preterm birth negatively affects the neurocognitive and socioemotional development of a child. It is therefore important to identify the factors that can decrease potential risks for atypical development in preterm infants. The social environment which surrounds a child is considered to be one such factor. We hypothesize that parent responsiveness positively influences the development of a preterm child.

Objective. The purpose of this research is to reveal differences in the development of two one-year-old preterm children whose parents have exhibited opposite types of parent responsiveness.

Design. Based on the analysis of video recordings of child-parent interactions, we identified two children whose parents registered opposite patterns of responsiveness. Parent responsiveness was measured based on Parent Responsiveness Markers Protocol methodology. The Bayley-III was used to assess the children's cognitive and socioemotional development.

Results. We identified that the preterm child whose parent showed a high level of parental responsiveness had normative levels of neurocognitive development, socioemotional skills and adaptive behavior. The preterm child, whose parent showed a low level of parental responsiveness, scored lower on the Bayley-III.

Conclusion. Preterm birth not only affects infant development, but also has a psychological impact on parents, evoking fear and anxiety for their child. This affects parental behavior and their responsiveness towards their child. This study showed that parent responsiveness has a positive effect on the neurocognitive and socioemotional development of a preterm child. Further research should focus on assessing the role of parent responsiveness in child development using a larger sample.

Keywords:
parent responsiveness, preterm child, early parent-child interaction, early socioemotional development, neurocognitive development, Bayley Scales III

Introduction

Social learning happens from birth itself and is driven by the child's orientation towards another human. While the course of such orientation depends on biological precursors, the caregivers' behavior and the quality of emotional contact that develops between a child and a caregiver play a more critical role (Mukhamedrakhimov, 2001; Kholmogorova, 2016). Research suggests that the brain has the potential to develop exponentially during the first years of life, a process that slows down towards adolescence (Boryeson et al., 2009). This potential could be maximized or constrained by a caregiver who facilitates important environmental inputs such as love, acceptance, understanding, and a recognition of the child's needs (Galasyuk & Shinina, 2007). The relationship between parental behavioral patterns and the neurocognitive and emotional development of both typically and atypically developing children are described in a range of research (Boryeson et al, 2009; Klain, 2010; Odinokova, 2015; Shpits, 2000; Skoblo, Belyanchikova, & Trushkina, 2005; Greenspan, & Wider, 2017; Call, 1984; Girolametto, 1999).

The term "parent-child interaction" refers in general to joint activity between a child and a parent (Andreeva, 2007), and is precisely defined behavior or a set of behaviors that can be observed and assessed (Mukhamedrakhimov, 2001).

In Russia, one of the most developed and in-depth methods standardized for the observation of adult communication and interaction with a child is the approach created in the School of Communication's ontogenesis by M.I. Lisina (Lisina, 2007), which, unlike other current, widely used international procedures involving the use of video recordings and observation scales, is standardized on a Russian sample.

One of the key characteristics of parent behavior is parent responsiveness that relates to the frequency, intensity, and type of parent reactions toward a child's needs. Parent responsiveness has the following key features: immediacy, urgency; suitability to situation and circumstances (contingent); positive emotions, affectively positive reactions; parent's ability to follow the current focus of a child's attention (Landry, Smith, & Swank, 2006). It has also been demonstrated that different aspects of parental responsiveness are associated with a child's future academic success (Fey et al., 2006), inquisitive behavior during playing, speech development, and the child's ability to cooperate (Landry, Smith, & Swank, 2006).

From birth, children exhibit a wide spectrum of signals to attract parental attention, including sensory, perceptual, and motor skills (Ovcharova, 2006). However, these signals are not always well-read by parents. Many reasons may explain a parent's inadequate reaction towards the typical behavior of a developing child. These include low communication competencies of a parent, inability to regulate one's own emotions, inability to adequately express emotions, the a heightened level of anxiety, depression, and low criticality (Karabanova, 1997; Maler et al., 2018; Ivanova, 2010).

A child's physical pathologies, genetic anomalies, and the preterm birth factor may create an inability in the mother to see the 'child's beauty' (Kalinina, 2014). In such cases, a mother might be unable to adequately perceive a child in line with her abilities.

Observational research studies identified some mother-child micro-interactions that could also negatively affect the emotional well-being of a child and increase the

risk of psychopathology. In psychoanalytic terminology, in such situations, a mother, due to a distorted maternal image, fails to be sensitive to the emotional needs of her child and so remains emotionally inaccessible (Kalinina, 2014).

This plays a critical role in our research which focusses on parent-child interactions specific to mother-preterm child, and aims to show that the mother's pattern of interaction with such a child may be a consequence of its preterm birth.

Situation-specific aspects of parenting preterm children, during the first year of life, include prolonged separation of a newborn from its mother, due to the child requiring intensive care. Such separation may negatively affect the psychological state of a parent: it is common for parents to experience fear of their child's potential death. It has been identified that this kind of parental anxiety further affects the neurocognitive and socioemotional development of a premature child (Hadfield et al., 2017). While parenting at home, any negative emotions experienced by the parents may be further aggravated by their realization that the child requires special care and protection, which in turn may cause parents to feel inadequate and result in a disadaptive attachment between the parents and the child. Frequently, parents perceive such a child as more vulnerable physically and emotionally, even without obvious reasons (Ivanova, 2010).

Finally, a child's age and periods of developmental crisis, postulated by Lev Vygotsky's and Pavel Blonsky's works, play an important role in parent responsiveness. Katerina Polivanova (2000) identified an important paradox in science. Periods of developmental crisis are commonly recognized, and yet there has been a dearth of theoretical and experimental research attempting to better understand this phenomenon.

Describing the crises that could affect a newborn, Lev Vygotsky (2018) identified particularities specific to preterm infants. He criticized Gezellel's conclusions drawn on the research of preterm infants which claim that their behavioral development follows an ontogenic process, regardless of the term of birth. Vygotsky pointed out that the first months of life are directly related to the last months of uterine development. The individual developmental trajectory of a nervous system of a preterm infant is likely to differ from that of a full-term infant. Recent research suggests, that based on the Bayley Scales of Infant and Toddler Development (3rd Edition), preterm infants that are considered healthy still have significant delays in development compared to full-term infants. Preterm infants are at-risk of communication and emotional problems (Ivanova, 2010).

One of the least studied periods of developmental crisis in early childhood is the first-year crisis. In describing this crisis, Lev Vygotsky (2018) identifies the development of autonomous speech, which is unclear to people around, and which provokes the symptoms of learning difficulties at this age. Learning difficulty is observed in hyperbolic reactions (heightened emotional reactions, during which a demanding child falls on the floor, cries, and stamps his feet). Polivanova (2010) doubts that such reactions of a child can solely be explained away as a parent's inability to understand a child's reactions and suggests that understanding the causes of this psychological process requires a wider context — one that takes into account all the emerging reactions of a child.

We believe that parent responsiveness to the communication signals of a child is one of the elements of such a comprehensive context. It is obvious that a child's

behavior reflects a combination of age-specific developmental characteristics and psychophysical particularities of a preterm infant. It becomes obvious that parental responsiveness should not remain static, but adapt to changes caused by the developmental crisis and immature brain development in preterm birth.

Sensitivity towards the emotional state and needs of a child is at the core of parent responsiveness. However, along with the developmental changes of a child, qualitative aspects of parent responsiveness should also change. The discrepancy in parent responsiveness is most pronounced during periods of developmental crisis.

Research Questions and Hypotheses

This research hypothesizes that there is a relationship between parent responsiveness and the neurocognitive and socioemotional development and adaptive behavior of a preterm infant during the first-year crisis.

Participants

Two preterm infants participated in this research. These infants were chosen from a sample of preterm infants who participated in a longitudinal study that was conducted by the Laboratory for Brain and Neurocognitive Development (Ural Federal University, Yekaterinburg).

Case 1
Participants: Mother and child (boy M).
Child: Premature infant (gestation period is 26 weeks, adjusted age 11.8 months).
Family: Mother (30 years of age), father (32 years of age), older sister (10 years of age).
Education of both parents: Higher education.

Case 2
Participants: Mother and child (boy E).
Child: Premature (gestation period is 32 weeks, adjusted age 11.7 months).
Family: Mother (36 years of age), father (36 years of age).
Education of both parents: Higher education.

Both sets of parents signed consent forms for the presentation of study results in scientific publications and meetings.

Methods

Method of Parent Responsiveness Analysis 'Evaluation of Child-Parent Interaction' (ECPI)

We video-recorded the child-parent interaction which consisted of two periods. The first period was five minutes of free interaction without toys. The second period was ten minutes of interaction with a set of toys (Lavrova, & Tokarskaya, 2018).

After the video recording, the parents completed a questionnaire that required information about the family's daily schedule and the children's and parents' behavior at the time of the recording (typical/unusual behavior) (Tokarskaya et al., 2017).

The method of Parent Responsiveness Analysis ECPI (the "Markers of Parent Responsiveness" protocol) was used to code the video, making it possible to evaluate the following components of parent responsiveness: affective, physical, cognitive, and effective (Galasyuk, & Shinina, 2017).

Affective component: The evaluation of an affective background that the parent creates during a child-parent interaction:

1) non-verbal indicators (facial expressions, tone of voice, physical contact).
2) verbal behavioral indicators (the parent's ability to express his own emotions, show sensitivity to the child's emotional state, and an ability to describe the child's inner world and his feelings).

The physical component allows us to track the speed, frequency, and duration of the parent's response to the child's signals on a physical level. We distinguish the following indicators of these components:

1) "mirroring" — the parent's ability to be a "mirror" to the child, instantly reflecting back his non-verbal behavior (repetition of facial movements), verbal behavior (repetition of the child's words and vocalizations by the parent), large and small motor movements.
2) "synchronism" — harmony, the complementarity of movements in the mother-child dyad (Condon, & Sander, 2015; Stern, 1971).

The cognitive component contains:

1) the ability of the parent to follow the child's attention and to fix his attention on a general subject for a long period of time ("Joint attention" indicator);
2) the parent's desire to understand where the child's interest lies by stimulating his exploring activity ("support of exploration" indicator). This is the ability of the parent not only to fix attention on subjects that are interesting to the child, but also to support his active exploration of the surrounding world. A very important behavioral indicator is "pace of activity", which describes the parent's ability to provide the child a period of time to answer questions and to make inquiries during joint activities. According to the dialogue model, it is important to allow the child to "speak out" even if the child does not already speak. After all, the information which the child wants to convey to adults, can be expressed by a look and gestures, besides vocalization. The absence of such behavior interferes with a parent's understanding of the child's interests and needs.

The effective component includes:

1) the parent's actions in response to the child's signals about his needs ("response to the child's needs" indicator); evaluation of the parent's ability to respond to the needs of the child (sensitivity to physical needs, the need for love, affection, the need for activity, the need for new impressions).
2) verbal manifestations of engagement, positive attention, interest in the child's activity, confidence in the child's abilities, not a directive position, sincere encouragement ("communicative activity" indicator).

Each of the indicators of parental responsiveness can show up with both a positive ("positive" markers) and a negative ("negative" markers) value. We also estimated time intervals when indicators of parental responsiveness were absent in both negative and positive values ("neutral" marker).

The "spontaneous play" indicator is highlighted separately and reflects the parent's ability to provide an opportunity for the child "to be in charge" and lead. Thanks to this, the parent can understand the meaning of a child's actions which he puts into his activity. "Didactic play" acts in opposition to "spontaneous play".

The computer program "The Observer XT" was used to track the frequency and duration of each indicator of parental responsiveness, the average of, and the total duration of the indicators.

The Bayley Scales of Infant and Toddler Development — 3rd Edition (Bayley III)

The Bayley Scales were used to assess neurocognitive development, socioemotional development, and adaptive behavior. Bayley III is widely used to assess children's development from birth to 42 months of age. The method consists of two parts: direct testing conducted by an experimenter, which includes assessment of development based on five scales: cognitive, receptive communication, expressive communication, fine motor and gross motor; and indirect testing — a questionnaire filled out by the experimenter while interviewing parents, which allows him to assess the level of socioemotional development and adaptive behavior.

The Socioemotional and Adaptive Behavior Questionnaire allows us to determine the level of a child's socioemotional development, the level at which sensory information is processed, and adaptive skills. "Communication", "Health and Safety", "Leisure", "Self-Care", "Self-Direction", "Social", "Motor", "Community Use", "Functional Pre-Academics," and "Home Living" — each of these skills describe the models of behavior of a child at home, or in other contexts (Weiss, Oakland, & Aylward, 2010).

Results

In this study, we examine the analysis of parent responsiveness indicators in the first case (boy M), during the first period of the recording. The results of the second period of this case were obtained with the Observer XT program. That interpretation is also presented. The results of the second case (boy D) were also obtained with the Observer XT program.

Analysis of the Results: Case 1

The results were analyzed in two ways:
1) The general impression of the expert on the interaction of the mother with the child, evaluated under the ECPI method.
2) Statistical data obtained with the Observer XT program.

In the questionnaire after the interaction, the mother confirmed that her behavior and that of her child's fully corresponded to their typical play.

*The General Impression of the Expert on the Interaction
of the Mother with the Child*

The tone of the mother's voice was calm, her intonations were filled with joy, and she was constantly smiling and enthusiastically offered the child various activities. It was evident that the mother was trying to create a positive emotional background for the interaction. However, all activities of the child were strictly under the mother's control as if she had a fear of letting the child out of her sight. The general impression was that the mother demonstrated a high motivation to interact with the child "in the correct way".

The interaction with the child did not match his age: almost the entire time the parent held the child in her arms, limiting the movements and activity of the child. It seemed as if the parent "was fighting" to contain the child who was trying to "get free".

Results of the First Period of ECPI Investigation

A general picture of the frequency and duration of a parent's behavior indicators of interaction with the child during the first period is shown in *Figure 1*.

Figure 1. Visualization of the frequency and duration of parents' behavior indicators of interacting with a child without toys

The mean, total duration of indicators and the frequency of each behavioral indicator are shown in *Table 1*.

An analysis of the positive markers of parental responsiveness demonstrates that the mother talked a lot to the child. At the same time, only two positive verbal markers were noted: the mother commenting on the state of the child ("You are pleased, pleased!", "Interesting? Yep, you are interested!").

The least expressed positive markers of parental responsiveness are "mirroring", "synchronicity", "joint attention," and "support of exploration". Each of them manifested only once.

Table 1

Statistical data of parental responsiveness markers for the first period of interaction

	Behavioral indicators	Mean duration	Total duration	Total number
	Non-verbal +	00:11.42	00:34.25	3
	Verbal +	00:01.87	00:03.75	2
	Mirroring +	00:01.48	00:01.48	1
	Synchronism +	00:01.12	00:01.12	1
	Joint attention +	00:05.28	00:05.28	1
	Support of exploration +	00:12.58	00:12.58	1
	Response to the child's needs +	00:10.54	00:42.16	4
	Communicative activity +	00:25.49	00:50.98	2
Parent	Non-verbal -	00:42.81	03:34.03	5
	Verbal -	00:15.84	01:19.19	5
	Mirroring -	00:14.68	00:58.71	4
	Synchronism -	00:10.89	01:16.23	7
	Joint attention -	00:19.36	01:36.78	5
	Support of exploration -	00:51.20	00:51.20	1
	Response to the child's needs -	00:55.45	05:32.72	6
	Communicative activity -	00:12.44	01:02.21	5
	Play -	00:24.90	01:14.71	3

Analysis of negative markers of parental responsiveness has shown that their frequency and duration are significantly higher than the same indicators of positive markers.

The negative markers of the "synchronicity" indicator were the most noticeable. They predominated the mother's behavior (frequency — seven times, total duration — 1 minute 16 seconds). The mother restricted the child's movements when he was trying to get off the rug or hugged the child tightly when he was breaking free from her embrace. She held him up — and the child verbally and non-verbally showed that he did not like it.

The negative markers of the "response to the child's needs" indicator (frequency — six times, total duration — 5 minutes 32 seconds), and the indicator "communicative activity" (frequency — five times, duration — 1 minute 2 seconds) were also displayed. So was the indicator "mirroring", presented when the parent smiled in response to the crying and tantrums of the child (frequency — four times, duration 58 seconds).

Also, in Case 1, the mother imposed games in which the child showed no interest. She chose "didactic" rather than the more "spontaneous" type of play.

We surmise that in the first period of interaction with the child, the mother's interaction was dominated by the directive position — she insisted on certain types of play, and did not take into account the child's need for motor activity and his desire to explore his surroundings (the room in which the study was being con-

ducted). There was a prevalence of negative behavioral markers of parental responsiveness indicators. The mother tried to create a positive emotional background for the communication, but this superficial attempt corresponded to neither the mother's nor the child's real non-verbal and verbal manifestations.

We also concluded that the mother's interaction with the child was not based on the characteristics of an eleven-month-old child, but was more appropriate for an earlier period (five months). The mother did not take into account that the motor activity needs of the growing child had advanced (held the child in her arms, restricted his movements, suggested play that the child did not support, and did not follow the child's interests).

Results of the Second Period of ECPI Investigation

In the second period lasting ten minutes, the parent was invited to interact with the child using a standard set of toys. The general picture of the frequency and duration of the parent's behavior indicators during the second period is shown in *Figure 2*.

Figure 2. Visualization of the frequency and duration of the parent's behavioral indicators while interacting with a child using toys

The mother's behavior revealed a prevalence of negative markers of parental responsiveness — especially for long durations under "joint attention" and "response to the child's needs". The mother persisted in trying to direct the child's attention to an object that she considered useful to him and urged the child to spot the object, overlooking the fact that the child did not show any interest in it, and even opposed it. The parent not only did not notice the child's needs, but interfered with the realization of those needs and restricted the activity of the child.

In the second period, we observed the absence of a positive marker for "nonverbal reactions", which indicates the absence of a positive emotional background for the mother-child interaction. The mother's face was tense, the tone of her voice was alert.

There was no "mirroring" with both positive and negative values, and also missing "synchronism" and "support of exploration" with positive values.

The duration and frequency of each behavioral indicator are presented in detail in *Table 2*.

Table 2

The duration and frequency of each behavioral indicator is presented in detail

	Behavioral indicators	Mean duration	Total duration	Total number
Parent	Verbal +	00:03.04	00:18.26	6
	Joint attention +	00:29.43	00:29.43	1
	Communicative activity +	00:03.57	00:07.13	2
	Non–verbal –	00:50.27	01:40.54	2
	Verbal –	00:26.97	00:26.97	1
	Synchronism –	00:08.57	00:08.57	1
	Joint attention –	02:04.81	04:09.62	2
	Support of exploration –	01:10.43	01:10.43	1
	Response to the child's needs –	02:03.31	04:06.62	2
	Communicative activity –	00:08.30	00:08.30	1
	Play –	00:47.89	02:23.66	3

A comparative analysis of the first and second periods of Case 1 is presented in *Table 3*.

Table 3

A comparative analysis of the manifestations of parent responsiveness markers in the first and second periods of the study

Parent Responsiveness' Components	Behavioral indicators of Parent Responsiveness	Total duration (positive, negative)		Frequency	
		1 period (+/-)	2 period (+/-)	1 period (+/-)	2 period (+/-)
Affective component	Non-verbal	0. 34/3. 34	0/1.41	3/5	0/2
	Verbal	0. 04/1. 19	0. 18/0. 27	2/5	6/1
Physical component	Mirroring	0. 02/0. 58	0/0	1/4	0/0
	Synchronism, distance	0. 01/1. 16	0/0. 09	1/7	0/1
Cognitive component	Joint attention	0. 05/1.37	0. 29/4.10	1/5	1/2
	Support of exploration	0. 13/0.51	0/1.10	1/1	0/1
Effective component	Response to the child's needs	0. 42/5.33	0/4.07	4/6	0/2
	Communicative activity	0. 51/1.02	0. 07/0.08	2/5	2/1
The conditions of evaluation	Play	0/1. 15	0/2.24	0/3	0/3

A comparison of the parent responsiveness indicators during the two periods of interaction. revealed that in the second period there was a decrease in the positive emotional background to the communication. However, the parent began to talk more to the child, and the verbal component with a positive value increased. Positive markers of the physical components of parental responsiveness were still not observed, but its negative values also decreased.

In the second period, there was a long-term absence of markers for "joint attention" and "support of exploration". It seemed that the mother felt puzzled when it was necessary to organize a game with a child and took a few steps away from him, ignoring the interests of the child. In addition, there were negative indicators for spontaneous play, which indicates the desire of the mother to replace the "spontaneous" game with teaching.

Thus, an analysis of parental responsiveness in both periods of the study shows a predominance of negative behavioral indicators for all components of parent responsiveness. The parent took a more directive position rather than create conditions for cooperation and did not encourage the child. In the dyad there were no harmonious movements; the parent did not support the child's desire to explore the environment and interacted with the child without taking into account his age.

Results of Bayley-III assessment: Case 1
Data on the neurocognitive development of child M is shown in *Table 4*.

Table 4

Results of Bayley-III for the child M.

Cognitive scale	Receptive communication scale	Expressive communication scale	Fine motor	Gross motor
7	7	8	8	6

Each scale is measured by a maximum of 19 points. A measure of 8-12 points is considered average. On the cognitive, receptive communication, and gross motor scales, child M has demonstrated scores in the below-average range.

In the trials within the cognitive scale, the child experienced difficulties in completing the tasks of attention distribution and manipulation with objects. We assessed the number of raw points gained by the child in accordance with his age equivalent. This method of measuring is used in cases where a low indicator is received on one scale or another, and it allows us to determine an approximate level of skill development. The child's level of skill development on the cognitive scale conforms to 8-9 months.

While completing the trials within the receptive communication scale, the child experienced difficulties understanding forbidden words, participating in the play processes of other people, and demonstrating appropriate reactions to regular, domestic requests. The child's level of skill development on the receptive communication scale conforms to 8 months.

On the gross motor scale, the child did not complete the following requests: hold weight for two seconds; get up and take a standing position (with support); move back and forth; walk with support; walk sideways with support. The child's level of skill development on the gross motor scale conforms to 9 months.

The child's results on the expressive communication and fine motor scales present on the lower end of average scores.

Child M's socioemotional development and adaptive behavior are shown in *Table 5*.

Table 5

Data on socioemotional development and adaptive behavior of the child M.

Level of social-emotional development	Commu-nication	Health and Safety	Leisure	Self-Care	Self-Direction	Social	Motor
14	8	11	12	9	8	7	10

The child demonstrated "uneven" results for adaptive skills (according to the scale scores, the lowest is 7 points, while the highest is 13 points).

Child M also scored a low result on the measurement of "Social", which reflects behavior manifesting in daily social interaction, and includes sub-behaviors such as: "smiles when sees a parent", "babbles/laughs when happy or satisfied", "relaxes body when taken in one's arms (leans toward)", "raises hands when wants to be taken in one's arms", "demonstrates sense of humor", "demonstrates special bond with parents", etc. The child did not exhibit close contact (hugging and kissing parents and significant others) appropriate for his age. In the meantime, the skill "Leisure" (ability to play independently and with other children and adults, watch how others play, choose toys, ask to read a favorite book, etc.) met the average criteria. In other words, the child plays with toys, is fluent in subject activities (for his age), but lacks effective communication with others (for his age). In other words, despite having a high level of socioemotional development for his age, certain models of behavior have not yet sufficiently formed.

General Conclusion: Case 1

The study of parental responsiveness, under the ECPI method, showed the predominance of negative behavioral indicators for all components of parental responsiveness. On the Bayley-III developmental scale, the child's results showed below-average values on the cognitive scale, receptive communication, and large motor skills.

Analysis of Results: Case 2

General impressions of the mother-child interaction in the ECPI study process.

The child (child E), during the entire time of recording, was freely moving around the room and exploring the environment. The mother not only allowed the child to

explore the space but demonstrated interest and engagement in what the child was doing. Moreover, the parent "explored" the space herself, changed it, and enriched the play environment for the child. So, for example, the mother, without waiting for an offer of toys by the experimenter, found a box with toys, chose several of them, put them on the carpet, and let the child choose the most interesting for him.

The total duration of behavioral indicators for each of the parent responsiveness indicators in the two periods does not differ significantly (see *Table 6*).

Table 6

A comparative analysis of manifestations of parental responsiveness markers in the first and second periods of the study

Parent Responsiveness' Components	Behavioral indicators of Parent Responsiveness	Total duration (positive, negative)		Frequency	
		1 period (+/−)	2 period (+/−)	1 period (+/−)	2 period (+/−)
Affective component	Non-verbal	2.57/0	2.17/0	10/0	7/0
	Verbal	0.07/0	0.11/0	3/0	4/0
Physical component	Mirroring	0.04/0	0.02/0	3/0	1/0
	Synchronism, distance	2.47/0	3.06/0	2/0	3/0
Cognitive component	Joint attention	0.12/0	3.13/0.34	2/0	5/1
	Support of exploration	2.31/0	1.54/0	4/0	4/0
Effective component	Response to the child's needs	0.32/0,4	0.11/0	2/1	2/0
	Communicative activity	0.10/0	0,47/0	6/0	6/0
The conditions of evaluation	Play	0/0	0.48/0	0/0	2/0

The study of parental responsiveness under the ECPI method, showed the predominance of positive behavioral markers for all indicators of parental responsiveness in comparison with short-term and rare negative markers. There was a positive emotional background for communication. Long intervals of "synchronism" are fixed in the physical component of responsiveness. The mother showed interest in what the child was doing ("joint attention") which was especially evident during the second period when the mother was playing with the child. We noted the longest duration of neutral indicators of verbal and communicative activity, at the same time, the lowest value of the total duration of them. In other words, the mother did not have enough time and often talked to the child (the total duration of positive verbal markers in the two periods is 1 minute 14 seconds out of ten minutes of interaction).

Results of Bayley-III assessment: Case 2

Data on neurocognitive development of child E is shown in *Table 7*.

Table 7

Results of Bayley-III for the child E

Cognitive scale	Receptive Communication scale	Expressive Communication scale	Fine Motor	Gross Motor
13	12	10	10	18

The child demonstrated average scores on receptive communication, expressive communication, and fine motor scales. The result on the cognitive scale was above average, while the result on the gross motor scale almost reached a maximum. Also, the child had a large passive vocabulary; he participated in games, made distinct sounds, had 4 pairs of consonants-vowels, used a minimum of two words, and used words to express his wishes.

The child demonstrated high results on all scales of neurocognitive development, with above-average scores on the cognitive and gross motor scales.

Results on the socioemotional development and adaptive behavior of child E are shown in *Table 8*.

Table 8

Data on socioemotional development and adaptive behavior of child E

Level of social-emotional development	Commu-nication	Health and Safety	Lei-sure	Self-Care	Self-Direction	Social	Motor
14	11	8	10	8	10	11	12

The scores representing the adaptive skills of the child are quite even, the difference in the learning of the skills is small, and almost all of them meet the criteria of a "good" norm. The level of socioemotional development is high: it aligns with the level of solving social tasks and self-awareness; the child uses a series of interactive emotional signals/gestures for communication; one can observe shared play with the adult; the child could wait for the desired object if given an explanation; he could also express his state through gestures and facial expressions.

In comparison with other skills, yet still within normal range, "Self-Care" and "Health and Safety", which reflect an ability to satisfy needs and self-serving skills (eat, sleep, dress, wash oneself, etc.), as well as the self-preservation skills and safe behavior (avoid contact with dangerous items, communicate injuries, stay calm during medical procedures), are the least formed.

General conclusion: Case 2

The analysis of parental behavior using the ECPI method showed the predominance of positive behavioral indicators for all markers of parent responsiveness. The child showed good results on all Bailey scales; some of the indicators were above average.

Research on the two premature infants showed that the child whose parent demonstrated predominantly positive indicators of responsiveness had a higher neurocognitive development' level (Bayley III), in comparison with the child whose parent demonstrated predominantly negative responsiveness. It is important to emphasize that having positive examples of parental responsiveness observed in both mothers in our study, signifies that resources do exist to develop participants' parent responsiveness.

Discussion

Delays in premature children's neurocognitive development may be connected to the negative factor surrounding their premature birth (Feldman, & Eidelman, 2007; Milevski, Kachorovska-Braj, & Chaplevskaya, 2011; Chuhutova, 2014). Environmental factors also have an impact on premature children's psychological development and behavior in negative, as well as in positive ways (Erica et al., 2015). According to the "diathesis stress" model, premature children are more susceptible to the negative influence of the environment (Hadfield, Fearghal, & Gerow, 2017). The interaction of a child with a significant adult is the most important environmental factor during the first year of his life. Our research shows that positive indicators of parental responsiveness may weaken the negative effect of the prematurity factor. In our case, the premature child whose parent demonstrated a high level of parental responsiveness was noted to have normative levels of neurocognitive development, socioemotional skills, and adaptive behavior, based on nearly all scales of Bayley-III. At the same time, the child whose parent had a low level of parental responsiveness recorded lower results on indicators for neurocognitive development, socioemotional skills, and adaptive behavior. The results obtained are consistent with previous studies, where it was shown that a certain way of interacting with a premature child may promote the development of cognitive skills — speech, in particular (Kiselev, 2017).

A parent's non-verbal behavior, including mimicking one's child, tone of voice, and touch, not only helps a child to regulate his emotional and physical well-being but is also considered fundamental to teaching behavior for expressing one's emotional state (Gerhardt, 2017).

It is important to note that a low level of responsiveness may be linked, not only to a parent's personal characteristics, but also to the influence of the prematurity factor. For example, anxiety and fear for the child may significantly affect a parent's level of responsiveness. Under the limited scope of this research study, we cannot answer what the low level of responsiveness of child M's mother could be attributed to. In the future, we plan to conduct a comparative analysis of the level of parental responsiveness of parents who are raising premature and full-term babies, while considering other factors that may affect parental responsiveness.

In our research study, we described a link between parental responsiveness and a child's level of development at one year of age. We suggest that at this age parental responsiveness should have the strongest impact on the development of socioemotional and neurocognitive processes, due to the fact that the first two years of a child's life are characterized by the most active brain development, especially the so-called "social brain" development. However, it is imperative to investigate the impact of parental responsiveness during various periods of a child's life. Therefore, we plan to conduct a longitudinal study examining the influence of the child-parent interaction on the psychological development and behavior of children from three months onwards, until they are three years old.

Conclusion

As the percentage of survival among premature babies increases (Skripnichenko, Baranov, & Tokova, 2014), this study gives specialists an opportunity to render comprehensive assistance. The closest social circle of a child plays a special role in this assistance (Ivanova, 2010). Research results allow us to state that a significant number of negative indicators of parental responsiveness, and the denial of a child's needs characterized by the one-year crisis, affects adaptive skills and cognitive development in a child. This is indicated through the child's low scores on cognitive and socioemotional development. The opposite is also true: the higher parental responsiveness is, the higher does the child score on adaptive skills and the cognitive index.

The cases provided here are the only two examples. However, results indicate that there is significant potential for further studies on "mother-premature baby" dyads. Considering all possible aspects (including genetic, neurological, etc.), we would like to emphasize complex and interdisciplinary assistance for families with small children. We believe that parental responsiveness is key to provide an "elusive ballet" (citing Stern) in the dialogue between a child and a parent. This will ensure not only the emotional-personal, but also communicative and cognitive development of a child.

The cases examined here, demonstrate the importance of designing a model for the development of premature children which account for the biological, social, and psychological characteristics of the child, as well as the parent, in a dynamic trajectory of development (considering various age crises).

Limitations

This work represents a description of two cases, which limit to generalize the applicability of the obtained results of the obtained results.

The children from the provided cases differed in their gestational terms. In future research studies, we strive to even out the factors which significantly affect the neurocognitive and socioemotional development of premature babies, including gestational terms.

Further research can aim to:
1. Trace the dynamics of relationships in "mother-child" dyads, in a longitudinal study starting from three months of age to three years.

2. Compare the results with data on different groups of children (for instance, children who have a family risk of autism).

3. Determine the most critical aspects of the child-parent interaction which influence children's development during various stages of life.

4. Design and implement programs directed at improving parental responsiveness.

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Differences in Fathering among Russian Men Brought up with and without a Father

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Background. In this article, we present the results of a study on the fathering characteristics of Russian men, in early and middle adulthood, brought up with and without a father. There is a theory that fathering practices are determined both by early childhood experiences, as well as by marital relationships in adulthood, because of the links between co-parenting and fathering. Thus, we hypothesize that the fathering characteristics of men in early and middle adulthood, brought up with and without a father, will be different.

Objective. We studied the characteristics of fathering and marital satisfaction in middle adulthood among Russian men brought up without a father, who suffered from paternal deprivation in childhood.

Design. Ninety married men (48 fathers who experienced paternal deprivation in childhood and 42 men brought up in two-parent families) were assessed on a number of measures.

Results. The statistical analysis of the data, including descriptive statistics, t-test and correlation analysis, let us distinguish between the two groups of fathers. Significant t-test differences between the two groups were found in caregiving identity, breadwinning identity, attitudes towards parenting, and marital satisfaction. Also, men brought up in paternally deprived homes, unlike the men from two-parent families, were more likely to indicate difficulties with father-child relationships and gender role conflict in parenting, and give greater relevance to their female partners' attitudes and expectations towards their fathering.

Conclusion. The lack of a father's influence on men in childhood strengthens the influence of marital relationships on fathering, in maturity.

Introduction

The importance and complexity of issues surrounding fathering, and rising practical demand has resulted in sustained academic attention on fathering over the years (Parke, 2002; Goldberg, Tan & Thorsen, 2009). The psychological and sociological issues surrounding fathering practices have been studied in detail. There are two principal approaches to studying fathering, depending on where the research starting point is — on the child or the father (Ovcharova, 2003). The first approach opens the door to many interesting studies of the direct influences (father to child) and indirect influences (via its effects on mothers (Scoblo, Baz, Lukovceva, 2004) and siblings, or reciprocal influences between fathers and children (Pleck, 2010b)), and the effects of paternal involvement on different child outcomes such as: child's intellectual, emotional, and financial well-being (Sigle-Rushton & McLanahan, 2004; Miller, 2013; Eggebeen & Knoester, 2001;   DePasquale, et al., 2016).

Russian researchers (Filatova, 2010; Bezrukova, 2013; Kon, 2009) consider that the father is also responsible for the social status of the family during the child's early years and adolescence. Any problems in the father-child relationship may have a negative impact on the child (Fthenakis, 2004; Kon, 2009; Pleck, 2010b), manifesting in emotional problems in children of one-parent families (Sigle-Rushton & McLanahan, 2004), less material security (Gurko, 2003), or development risks, because of the processes hypothesized by attachment theorists (Kotelchuck, 1976; Lamb, 2002), who consider father involvement critical to promote secure infant attachment, which leads to good outcomes for the child. Though the attachment theory does not explain paternal influences on older children, and on adolescents, or on the quality of the relationship between older fathers and adult children (Polenick, DePasquale, Eggebeen, Zarit, & Fingerman, 2016), it provides the basis for interpreting why paternal involvement leads to positive developmental outcomes for the child, and mediation of the association between the father's presence and child outcomes through paternal involvement (Carlson, 2006), and the association between the father-son relationship and male mental health (Miller, 2013) or gender identity (Pleck, 2010a). So the unique role that a father's influence plays on child development is now well recognized (Amato & Rivera, 1999; Fagan, 2016; Pleck & Masciadrelli, 2004; McBride, Dyer & Laxman, 2009).

Studies on the second approach focus on the development of parenting skills in men (Belsky, 1984, Volling & Belsky, 1991; Woodworth, Belsky & Crnic, 1996), exploring the actual meaning of fathering to a man (Eggebeen & Knoester, 2001), studying the association between fathering and masculinity as it was referred to above (Pleck, 2010a), and also analyzing such factors of paternal involvement (the phenomenon theoretically conceptualized by Lamb, 2002; Pleck, 1997; Palkovitz, 2002; Pleck & Hofferth, 2008) as marital satisfaction directly correlated with paternal involvement (DeLuccie, 1996), or marital conflict which is negatively correlated with paternal involvement (Doherty, Boss, LaRossa, Schumm & Steinmetz, 1993), and family relations across generations as a model for fathering (Eggebeen & Knoester, 2001), factors of psychological readiness for fathering (Ovcharova, 2003). In the overlap between these two approaches lies the issue of the influence of father-son attachment during infancy on the adult son's fathering (Bailey, 1992; Kon, 2009). Although there are a lot of studies defining the father's influence on a child's

gender-typed behavior (Amato, & Rivera, 1999; Deutsch, Servis & Payne, 2001; Coley, Votruba-Drzal, & Schindler, 2009; Pleck, 2010a) and some studies proving that the mother-daughter attachment during early infancy determines daughter's mothering and her attachment to her baby (Brutman, Pankratova & Enikopolov, 1994; Filippova, 2002) such an effect of father-son attachment on the son's own fathering practices in adulthood, has not yet been well understood.

In Russia, this is a particularly relevant issue for historical reasons, as is the influence of social attitudes on male roles in general, and fatherhood in particular. Since Bronfenbrenner's (1970) early work paid attention to the differences between Russian and US socialization models, a number of studies have assessed aspects of Russian family life and child development (Gurko, 1997; Utrata, 2008; Nelson, et al., 2010; Nelson, et al., 2014; Podkladova, 2016). During the last thirty years, family roles in Russia have dramatically changed in keeping with the economic, social, and religious changes in the country. Having long been *de jure,* equal in rights with men, Russian women *de facto* were (and in some points are nowadays) more involved in the running of the household and have most of the responsibility for their children's upbringing, even in two-parent families (Antonov, 1998). Moreover, modern Russian women are not any less interested than Russian men in their professional careers, self-realization, and personal comfort (Biryukova & Tyndik, 2014; Borisenko, 2016). As a result of this conflict, the value of parenthood in contemporary Russia is being replaced with non-family values. (Dobrykov, 2010).

Contemporary Russian families belong to a "modernized" family unit that demonstrates planned reproductive behavior and proclaims equal rights and obligations in breadwinning and childcare (Antonov, 1998; Dobrykov, 2010). Nonetheless, the inequality in employment and payment for the same work between men and women results often in a man becoming the foremost but not the only breadwinner for the family, and traditional attitudes towards the female role ensure that women end up with the responsibility of housework (Ashwin & Lytkina, 2004) and childcare. This double employment continuing during the modernization of the Russian family unit results in women demanding greater male involvement in family life and, in particular, in parenting (Gurko, 2003; Radosteva, 2013). This leads to marital conflicts (Ashwin & Lytkina, 2004), especially in the case when spouses have different attitudes towards childcare due to the differences in (or the absence of) parenting models in their own upbringing during childhood. Besides this, increased socioeconomic pressures and the fathers' beliefs about the irrelevance of nonresident fatherhood in Russia, push many fathers into disappearing altogether from their child's life (Gurko, 2003; Utrata, 2008). And, when the man has experienced the very same situation in his own childhood, the probability of such behavior increases (Gurko, 2003). Our study may therefore, expand our understanding of the fathering beliefs and practices among this group of men. And the results provided in this paper may be interesting to family therapists and family psychologists, as well as to family researchers studying fathering all over the world, providing opportunities for cross-cultural comparison and interpretation.

Paternal Influences

The unique role that fathering plays on impacting child outcomes is well studied (Palkovitz, 2002; Pleck, 2010b; Rominov, Giallo, Whelan, 2016). Even before a child's birth, the father has an impact on his/her development's through providing favorable conditions for the pregnant woman (Scoblo, Baz, Lukovceva, 2004; Bouchard, 2012). Later, the father provides development for a child's motility, spatial orientation, physical skills (Doucet, 2009; El-Shadan, Schluter, 2015); which is an important factor for the child's intellectual development (Jeynes, 2015; Varghese, Wachen, 2016) as it was proved in T. A. Dumitrashku's study covering 120 children, 9–10 years old, from 60 Russian families (Dumitrashku, 1996). Also, identification with the father is the most important factor in the assimilation of moral standards and social and gender roles, especially for boys (Kon, 2009; Zakharova, 2011).

While fathering has a direct effect on shaping sons' gender-typed behavior, the most important determinant of male identification for the boy are: 1) father dominance, and 2) father involvement. The association between paternal masculinity orientation and paternal involvement also influences child outcomes (Pleck, 2010a) because a father's masculinity orientation can have a direct and indirect influence on his parenting, as long as the more masculine father demonstrates different behavior in parenting than a less masculine one. Also, a father's masculinity orientation can directly influence his child, when the son takes his father's masculinity orientation as a direct model for his behavior and/or self-esteem (Pleck, 2010a). If the father-son attachment is safe and their interactions are warm, the desire to be as "male" as the father considerably strengthens positive perceptions and attitudes, specifically about men's roles and the development of male behavior and identity (Kon, 2009; Zakharova, 2011).

Paternal absence influences many children living in one-parent families. If there is neither an auxiliary, nor a counterbalancing influence of the father, the value of the mother's identity and mother effects becomes much higher than usual (Wainright, & Patterson, 2008; Kon, 2009). One more important factor in such a case is the absence of social confidence or stability and social security. A father's employment usually represents the real and symbolic status of the family, providing the basis for the economic progress of a family and providing security and confidence — at least in modern Russian reality (Gurko, 2003).

Also the father represents for boys the most natural source of knowledge about the world, work, equipment, etc., influencing their orientation towards their future professions, and developing socially useful purposes, ideals and behavior. That is why fatherless boys growing up without gender modeling are less successful in the resolution of conflicts, in the solution of cognitive tasks, and have particular difficulties in developing masculinity orientation and demonstrating male behavior (Bezrukova, 2013; Evans, 2017). Furthermore, a social environment where the boy (young man) since early childhood meets female behavioral models much more than male ones, as it usually occurs in Russian kindergartens and schools (Kletsina, Chikalova, 2013), complicates the issue even more. Not having gender-typed male role models, a boy can imitate female behavior (as demonstrated by mothers, grandmothers, and teachers) and may grow up to be soft and sensitive. Or, he could go the other way in supposing that a male's behavior is the opposite of female behavior. Thus, instead of adopting a female's social normativity and avoidance of

addictions he could demonstrate contrary behavior leading to alcohol abuse, drug addiction and/or deviance (Kon, 2009). Therefore the importance of the modeling effect of male gender-typed behavior (provided by the father, the grandfather, or by the sports trainer) on boys' behavior is undoubted (Kletsina, Chikalova, 2013).

Consequently, if the fathering of an adult man is part of a male gender role interconnected with his masculinity orientation (Pleck, 2010a), it is influenced too, by the fathering modeling from the man's own early childhood. However, the studies of parents' gender influence (Biblarz & Stacey, 2010; Tasker, 2010) demonstrate that it's not the parents' gender alone but the parents' involvement and parenting practices as well, that influence a child's behavior. So, the relationship between the man and his own father in childhood, and also his father's behavior patterns and his attitudes towards masculinity, may be important determinants of the man's relationships with his own child (Ovcharova, 2003; Zakharova, 2011; Miller, 2013). This has also been confirmed by R. C. Fraley and P. R. Shaver (2000) by assessing the similarity between one's attachment styles with different people in one's life from infancy to adulthood. Where broken relationships with the father have led to unsafe attachment — such a modeling effect either is absent or is negative — how this influences a man's fathering practices, has not yet been well examined. We hypothesize that there may be difficulties with the father-child relationship due to his unsafe attachment since childhood or his attempting to play a mother's role, stemming from the strong attachment to his mother in his own childhood — taking unclear parenting as a model.

Influence of Marital Relationships

The majority of modern studies claim that parenting is not just a personal phenomenon (Miller, 1986) because of its interconnection with the marital relationships (Erel & Burman, 1995; Pleck, 2010b; Bouchard, 2012). In academic studies that research fathering practices, the mother is considered to be the father's co-partner who, in many ways, defines the father's behavior. Father involvement studies view the father-child relationship as embedded in a broader pattern of family interaction (Pleck, 2010a). The father's involvement is proved to be influenced by the mother's involvement as long as more involved mothers force their partners to also be more involved in their child's life (Pleck& Hofferth, 2008). Moreover, J. Pleck and S. Hofferth have postulated that parental identity can be defined only in close interrelation with a partner's actual and perceived reflected-appraisal (Pleck & Hofferth, 2008). Thus, a man's fathering is closely associated with an appraisal of his wife as a mother and with her expectations for his fathering and male behavior. Her own maternal identity is also connected with her husband's attitudes towards the mother-role and the priority of a woman's career over her role as a caregiver for her children. In addition, the smaller the role a father plays in a child's life, the stronger the economic, social, and psychological stress a woman undergoes, which leads to a different set of family conflicts, and the risk of divorce (Radosteva, 2013).

Thus, a man's fathering is closely connected 1) to his relationship with own father who provided a masculine model for the growing man through his childhood (Pleck, 2010a) and, 2) with his own marital relationships (Roskam, 2016; Kwan,

Kwok, Ling, 2015), where male gender-typed behavior is realized and transformed. We believe that due to having an unsafe attachment to his father (Fraley & Shaver, 2000) and/or absence of male gender-typed model leading to the unclear masculinity orientation (Kletsina, Chikalova, 2013), paternal deprivation in a man's childhood may complicate, in some ways, marital relations in his own marriage, which cannot but complicate the father-child relationship as well. In this case, the attitudes and expectations of a female partner towards a man's behavior become more relevant than his own unclear masculinity model. It may cause additional tension, both in the child-parent and in marital relations in such a man's family.

Here, the influence of the marital relationship on fathering may be the potential difference between fathers who have grown up with or without a father in their family of origin. In this way, we define the scientific issue of this study: to examine whether the fathering practices of men who did not have a father, or any close male figure, in childhood, differ from the fathering practices of men brought up in two-parent families. Such a study will fill some gaps in our knowledge about the development of parenting skills in men by focusing on this particular context. So, the goal of this study is to find out the fathering specifics of men who grew up in paternal deprivation. Bearing in mind these issues, we put forward:

Hypothesis: The men brought up in paternal deprivation, unlike men brought up in two-parent families, may 1) have different attitudes towards parenting and experience difficulties with the father-child relationship; and 2) be are more likely to attempt to play a mother-role for their children and may also give more weight to the attitudes and expectations of their female partners towards masculine behavior, compared to fathers raised in two-parent families.

Methods

Sample

Ninaty Russian fathers were the focus of this study. They were divided into two groups. Forty eight men who experienced paternal deprivation in childhood for any reason (divorce, abandonment, unwed mother, etc.) were in the first group. Forty two men raised in two-parent families formed the second group. The respondents were recruited and compensated through the local Research community. A 30-minute, face-to-face, baseline survey interview was conducted between December 2013 and September 2017. This gathered data on the basic characteristics of the respondents: aspects of demographic information; family background; employment and educational characteristics, as well as some data about their spouses. After that, all men were asked to answer the questionnaires. The groups were equal in age, education, social status, and marital status (*Table 1*). The average age of the men was 32 years (SD = 3.3), with a mean education level of 14.0 years (SD = 2.2). Men of this age were chosen because this age is more typical and productive for the creation of a family and the birth of children, *i.e.*, acceptance of a father role. All the participants were living in the Kemerovo Region in Russia. Sixty six percent were from urban families from the cities of Kemerovo, Novokuznetsk, Belovo and Mariinsk; 36% were from rural families. All participants were married. Ninety eight percent of the fathers in the first group were employed, as were 95 % of those in the

second group. The average number of children per family was 2.0 (SD = 0.9) and the average age of a child was 7 years (SD = 0.9). Firty percent of the participants had one child, 68% of men had two children, 2% had three or more children (if the father had more than one child, we collected data about the oldest child.) Of the children, 58% were boys and 42% were girls.

Table 1

Main respondent characteristics of fatherless fathers and fathers brought up in two-parent families in Russia, N = 90

Respondent characteristics	All men	Fathers brought up in one-parent families	Fathers brought up in two-parent families
Average age (years old)	32	32.3	31.7
Permanent residence (%)			
Town	64	63	65
Country	36	37	35
Education (%)			
High school diploma	18	19	17
College attendance	41	42	40
Bachelor's degree	32	31	33
Graduate degree	9	8	10
Married (%)	100	100	100
Employment (%)	97	98	95
Average number of children per man			
One child (%)	30	31	29
Two children (%)	68	67	69
Three or more children (%)	2	2	2
Average age of child (years old)	7	7.1	6.9
Average age at first childbirth (years old)	26	25	27
Sex of the children			
Boys (%)	58	59	57
Girls (%)	42	41	43
Child with special needs (Down's Syndrome) (%)	1.1	0	2.2
Spouse's employment (%)	72	73	71
Spouse's family of origin			
One-parent families (%)	32	33	31
Two-parent families (%)	68	67	69

Additionally, 1.1% of the fathers (1 out of 90) had a child with special needs (Down's Syndrome). None of the men in the first group had any kind of relationship with their biological fathers since early childhood (the last connection was on average at two years of age), and did not have a step-father or any constant male figure in their childhood.

Measures

Family characteristics were measured with a semi-structured interview specially developed for studying the relationship of the man with his partner and his parents. The relationship with the father, for all the respondents, was coded as paternal deprivation (0), conflict (1), stable (2), and warm (3).

Family context included parent-family characteristics (family status, relationships with the parents) and marital-family characteristics (the number of children in the family and marital conflict).

Marital conflict was assessed by the men's response to: How often do you argue with your partner? (1 = never, 2 = once in a while, 3 = often, 4 = fairly often, 5 = very often).

Gender role conflict was assessed by the men's response to: How often does the inconsistency of gender or parenting roles cause a quarrel in your family? (1 = never, 2 = once in a while, 3 = often, 4 = fairly often, 5 = very often).

Marital satisfaction was assessed by "The Marital Satisfaction Measure Instrument" (MSMI) of V. Stolin, T. Romanova, G. Butenko (quoted in Borisenko, 2011), which contains 20 statements about marital relations with three answer variants (1 = agree, 2 = not sure, 3 = disagree).

Child characteristics including age and gender of the child (1 for male and 2 for female) and *Father employment* were assessed using scales, based on a semi-structured interview that indicates father's employment and family status.

Father's attitudes, involvement and identity were measured with PARI (Parent Attitude Research Instrument of E.S. Schaefer and R.A. Bell (Schaefer & Bell, 1958), CBIRAI (Caregiving and Breadwinning Identity and Reflected-Appraisal Inventory of J. Pleck, T.W. Maurer, H.R. Rane (Pleck, Maurer & Rane, 2001) and some scales of a semi-structured interview. Respondents' attitudes towards parenting on the whole, and, fathering in particular, were assessed by PARI — a self-report questionnaire that assesses parental attitudes towards child-rearing and family life — united into 23 scales, hypothesized to be relevant in child-rearing practices. They are: Encouraging Verbalization, Fostering Dependency, Breaking the Will, Fear of Harming Baby, Marital Conflict, Strictness, Irritability, Deification, Suppression of Aggression, Rejection of Homemaking Role, Equalitarianism, Approval of Activity, Inconsiderateness of Husband, Suppression of Sexuality, Ascendance of the Mother, Intrusiveness, Comradeship and Sharing, Dependence of Mother, Seclusion of Mother, Martyrdom, Irritability, Excluding Outside Influences, Avoidance of Communication, and Acceleration of Development. PARI contains 115 statements with the response format consisting of a 4-point scale (strongly agree, mildly agree, mildly disagree, strongly disagree).

Father parental identity and relevance of a female partner's expectations towards a man's behavior were assessed by CBIRAI. CBIRAI is a self-report questionnaire

that has six sections (three for each of the two most significant parenting domains (caregiving and breadwinning) including respondents' parental identity (Caregiving Identity, Breadwinning Identity); the evaluations of their wives as mothers (Caregiving Reflected-Appraisal, Breadwinning Reflected-Appraisal), and the perceptions of their wives' evaluations for their fathering (Caregiving Perceived Reflected-Appraisal, Breadwinning Perceived Reflected-Appraisal).

Father involvement was assessed by the men's response to questions of a semi-structured interview such as: How often does your child talk over important decisions with you? How often do you listen to your child's side of an argument? Do you feel close to your child? How often do you know who your child is with when he (she) is not at home? How often do you miss events or activities that are important to your child? How often do you share ideas or talk about what really matters to your child? How often do you spend time or play with your child? (1 = never, 2 = once in a while, 3 = often, 4 = fairly often, 5 = very often).

Results

Table 2 presents the results of the statistical analysis. The Student t-test with a Bonferroni-Holm correction was used to compare mean values between two groups. Statistics were calculated with a 5% significance level.

Comparison of the output data of this investigation with statistic normative values showed that the mean and standard deviation of the values of the PARI scales were within the range of normative values of this instrument. The mean and standard deviation of the values of the CBIRAI scales were comparable with the range of values showed by the authors (Maurer, Pleck & Rane, 2001) and Russian translation and validation of values (Borisenko, 2013).

While analyzing the questionnaire output data, we found significant differences regarding parenting attitudes (Seclusion of mother, Martyrdom, Irritability, Excluding outside influences, Avoidance of communication; Acceleration of development, Parenting identity (Caregiving Reflected-Appraisal, Breadwinning Identity and Breadwinning Perceived Reflected-Appraisal). Also, family parameters such as gender role conflict, marital conflict, and the man's relationship with his father, varied in the two groups.

There were no statistically significant variances in the mean values of the following scale of PARI: Encouraging Verbalization, Fostering Dependency, Breaking the Will, Fear of Harming Baby, Marital Conflict, Strictness, Irritability, Deification, Suppression of Aggression, Rejection of Homemaking Role, Equalitarianism, Approval of Activity Inconsiderateness of Husband, Suppression of Sexuality, Ascendance of the Mother, Intrusiveness, Comradeship and Sharing, Dependence of Mother and some scales of CBIRAI (Caregiving Identity, Caregiving Perceived Reflected-Appraisal, Breadwinning Reflected-Appraisal) and statistically significant variances in the mean values of parenting involvement scales between the two groups were absent. Only the "feeling of closeness to a child" indicator was found to vary.

The men from the first group were found to demonstrate on a higher scale (than men of the second group), attitudes towards parenting such as claiming a male role (Seclusion of mother (PARI) which might be the result of absence of

Table 2

Group characteristics of fathers brought up in one-parent and two-parent families (M, SD), and results of their statistical analysis (t, p)

Variable	Fathers brought up in one-parent families M (SD)	Fathers brought up in two-parent families M (SD)	t-value	p
CBIRAI:				
Caregiving Reflected-Appraisal	2.78 (.375)	2.54 (.415)	−2.56	.01
Breadwinning Identity	3.19 (.467)	3.65 (.479)	2.34	.02
Breadwinning Perceived Reflected-Appraisal	3.85 (.634)	3.12 (.356)	3.23	.00
PARI:				
Seclusion of mother	13.79 (.517)	10.31 (.490)	1.52	.00
Martyrdom	16.02 (.347)	10.95 (.419)	1.24	.00
Irritability	13.91 (.345)	16.27 (.698)	2.24	.03
Excluding outside influences	11.99 (.478)	15.89 (.511)	3.31	.00
Avoidance of communication	15.28 (.409)	11.73 (.450)	2.13	.04
Acceleration of development	16.98 (.398)	12.74 (.429)	−2.03	.04
INTERVIEW:				
Marital conflict	3.00 (.262)	2.70 (.290)	1.29	.01
Marriage satisfaction	33.15 (1.27)	41.10 (.988)	.19	.85
Feeling of closeness to the child	3.30 (.453)	4.20 (.399)	3.15	.00
Gender role conflict	4.64 (.479)	2.80 (.402)	2.13	.00

male role models in childhood), avoidance of communication with the child, and accentuation on martyrdom of parenting (PARI). They, less than fathers from the second group, desire the acceleration of child development and are less irritated with caregiving (maybe because they are more likely to attempt to play the mother's role for their children) and are more likely to admit extra-family influences on the child (PARI).

Greater avoidance of communication with the child and lower feelings of closeness to the child which were found in the first group could indicate difficulties with the father-child relationship, in the group of fathers brought up in one-parent families.

Also. some variances in paternal identity and marital relations were found between the two groups. The men brought up in single-mother families identified themselves with the breadwinner, more through marital relationships (higher than in second group level of Breadwinning Perceived Reflected-Appraisal) than through breadwinner identity (lower than in second group level of Breadwinning Identity which is hypothesized to be a mark of the male gender role), which might be interpreted as their inclination to consider the expectations of a female partner towards man's behavior as more relevant, than fathers brought up in two-parent

families. Meanwhile, they value their wives less as mothers and are more likely to have marital conflict and a gender-role conflict in parenting (most likely, these could be interpreted as choosing between the maternal and paternal caregiving domains), which indicates an inclination to attempt to play a mother-role for their children.

A remarkable variance was found when we divided men from the first group according to their spouses' families of origin. *Table 3* presents the variance between families with two spouses brought up without a father and families where only the man was brought up without a father. Husbands of wives who were also brought up in one-parent families were more likely to indicate marital and gender role conflicts and a lower level of marital satisfaction. The same variance regarding wives' families of origin in the group of men brought up in two-parent families were not found.

Table 3

Group characteristics (M, SD) of fathers brought up without a father, divided regarding their spouses' family of origin, and results of their statistical analysis (t, p)

Variable	Families with both spouses brought up without a father M (SD)	Families with only the man brought up without father M (SD)	t-value	p
INTERVIEW				
Marital conflict	3.11 (.433)	2.89 (.400)	1.19	.01
Gender role conflict	4.81 (.890)	4.49 (.345)	3.12	.00
MSMI				
Marriage satisfaction	32.6 (1.122)	33.7 (.899)	.11	.05

A deeper look at the correlation matrixes differential in the two groups helped to pinpoint strong correlations (with $p \leq 0.01$) between marital satisfaction and parameters of co-parenting, such as Caregiving Reflected-Appraisal (.64) and Bread-winning Perceived Reflected-Appraisal (.72) in the group of men deprived of a father in childhood. For the fathers brought up in two-parent families, we could not find any significant correlations.

Discussion

The absence, or lack of male influence in childhood, may lead to an emergence of boys' difficulties in assimilating a gender role. In our study, most of the men deprived of fathers in their childhoods were more likely to have marital conflicts and gender role conflicts in parenting with regards to choosing between the maternal and paternal caregiving domains, and were likely to have difficulties with the father-child relationship. This is consistent with other findings and may be interpreted as the result of the emotional problems faced by children in one-parent families (see Sigle-Rushton & McLanahan, 2004 and Fagan, & Lee, 2016, for similar results) or insecure infant attachment with father (see Fraley & Shaver, 2000 for

comparable results). Also, this may be interpreted as a consequence of the violation of the gender role, due to the absence of father's own male role model since early childhood as indicated by I.S. Kon (2009) and E.I. Zakharova (2011).

Therefore, it can be concluded that men brought up without a father may face difficulties in taking on a male's role in marital relationships and fathering. Although this doesn't define the quality of fathering, it does demand a greater effort from the men while developing their own father-child relationships (Kon, 2009).

Thus, it can be said that fathering is influenced by the existence of a behavior-model of one's own father. Men who were brought up in two-parent families have a clearer behavior model of what is called "doing family" (see Pleck, 2010b). However, all men in our sample were involved in varying degrees in their children's lives; therefore, the absence of a father's behavior-model does not preclude the ability to be a good father, but rather, influences the specifics of developing appropriate fathering practices due to a lack of male behavior-model since childhood. But the effects and risks of broken attachment raised more concerns, since fatherless fathers may feel less emotional closeness to their children (and, perhaps, to their partners) due to their early childhood experiences. This is consistent with the findings of G. Bouchard (2012), of the correlation between a man's childhood experiences and paternal engagement in adulthood. We have found differences in fathering between men brought up with or without a father in their family of origin. Fathers from one-parent families, differ from fathers raised in two-parent families in attitudes towards parenting, may have difficulties with the father-child relationship, are more likely to have gender-role conflict in parenting, and also give greater relevance to the attitudes and expectations of their female partner, than fathers from two-parent families

Our study helped to obtain evidence that fathering and the family role that these men develop has a close connection with their marital relationships. This corresponds with the concepts explored in the work of J. Pleck (Pleck, 2010b), who affirmed that a father's involvement in a child's life is directly influenced by the mother's involvement in the child's life. That is to say, the man's fathering is influenced not only by his relationship with own father in his childhood (Pleck, 2010a), but also by his marital relationships - which is also consistent with other findings (for instance, Pleck & Hofferth, 2008; Roskam, 2016; Kwan, Kwok, Ling, 2015).

Conclusion

However, this study has raised more questions than answers and will be continued with more detailed research and a larger sample. It will be of great practical value in providing psychological assistance for young people entering into marriage, for pregnant couples and families with infants, as well as for children, adolescents and adults from one-mother families. Future research should seek to identify barriers that hinder young men from adopting good fathering practices; ways in which these barriers differ among groups of men; and strategies to successfully address these barriers. Finally, future research on parenting identity and behavior, and future theoretical models should include studying mechanisms by which co-parents can influence their partners' parenting identity and behavior.

Limitations

Some limitations of the current study should be mentioned. First, for practical reasons, retrospective reports by adults of their own experiences in childhood were used to measure men's relationships with their fathers. Although retrospective reports have a worthwhile place in research, they are vulnerable to inaccurate recall and may involve substantial measurement errors. For instance, G. Bouchard (2012) cites a number of studies showing low levels of agreement between contemporaneous parental reports and retrospective recall by the children in adult life.

Second, all measures for this study relied on fathers' self-reports. In further studies, father engagement, for instance, could be evaluated using reports by external observers, such as the other parent. This will eliminate the influence of shared method variance in the evaluation of the relationships between the variables.

Third, the sample may have underrepresented fathers with more modest incomes or potentially less involved fathers. Adopted families and also non-resident fathers were also not represented. Finally, this study's use of a convenience sample limits the generalizability of results.

Despite these limitations, the current study furthers our understanding of the parenting practices of men brought up without a father, a sample that has too often been overlooked in previous studies. In addition, the current results reveal, as suspected by W. Doherty (1993), that in the study of fathers' engagement with their children, cohabitation and marriage should be part of the conversation.

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EDUCATIONAL PSYCHOLOGY

Overcoming Normative Educational Crises: The Human Agency Factor

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Background. The problem of students' adaptation to a new educational level (normative educational crises, according to Slobodchikov, 2008) is considered. Unlike the literature (Barber & Olsen, 2004; Akçinar, 2013; Symanyuk & Pecherkina, 2016; Nisskaya, 2018), we explored this problem from the standpoint of human agency and studied all categories of students to determine the general patterns of overcoming normative educational crises.

Objective. The study aimed to explore the general criteria of agency — capacity to use psychological resources to solve problems and achieve goals — while overcoming normative educational crises (crises of adaptation to new learning conditions).

Design. The participants were 383 students aged 7–18 years (81 first graders, 84 fifth graders, 110 tenth graders, and 108 freshmen). Students' agency and psychological resources were surveyed at the beginning of the first academic year at the new educational level. Adaptation criteria (informational, behavioral, and affective) were estimated at the end of the academic year. By using the k-means method of cluster analysis, each category of students was divided into clusters with similar agency indicators. We also compared agency indicators, abilities, and personal traits in these clusters by using U-tests and exploring correlation links between the psychological resources and adaptation criteria indicators in each cluster by Spearman's rank correlation coefficient.

Results and Conclusion. In each age category of students, we observed many significant correlation links between the psychological resources and adaptation criteria indicators only in the cluster of students with a high agency level. We also found only isolated correlation links (or absence of links) between the psychological resources and adaptation criteria indicators in the clusters of students with a low agency level. This finding confirms our hypothesis that only students with a high level of agency use their psychological resources to successfully overcome normative educational crises. Students with a low agency level do not use their resources in full during normative educational crises: These students, despite their capacities, have a negative emotional state and problems in learning and behavior. This finding is also true for each age category of students. Thus, without human agency qualities, the intellectual and personal resources of students can remain unused during the period of adaptation and further training, as the results of the study demonstrated.

Introduction

The problem of students' adaptation to a new educational level arose in the 1960s (Bozhovich, 1968; Cowen, 1973) and remains acute. At the beginning of training in grades 1, 5, and 10 (in accordance with the levels of education in Russia) and at the beginning of university training, each student must adapt to new learning conditions. V.I. Slobodchikov (2008) defined these periods of adaptation as normative educational crises. We consider the problem of overcoming normative educational crises from the standpoint of human agency.

The term "agency" is generally used in philosophy and psychology to refer to the ability of individuals to direct their conscious activity to achieve goals. Agency, as a behavioral concept, is an individual's sense of what he or she can do and what he/she thinks he/she can do. Findings from psychologists' surveys conducted in Russia and abroad (Koops, 2017; Borchet et al., 2017; Białecka-Pikul et al., 2017; Belolutskaya, Veraksa, 2016; Polito, Waters & McIlwain, 2015; McIlwain, 2015; Balconi, 2010; Leontiev, 2010; Slobodchikov, 2008) have confirmed the agency role in child behavior. One of the most notable criteria of agency is the *capacity to use abilities, personal traits, mental capabilities, and skills to solve problems and achieve goals* (Abulkhanova, 2005). Agency formation in childhood means a gradual development of a child's self-consciousness as a result of sequence of *age-related* crises. According to cultural-historical psychology (Vygotsky, 1983), age-related crises occur when the social situation of development changes: a new level of child consciousness appears, and social relationships remain the same.

At the *age of 6–7 years*, a normal developing child needs a new social role — the role of pupil — to do socially important work and receive an evaluation from a teacher. The result of resolving the crisis at 6–7 years old is the formation of "the inner schoolchild position (ISP)" (Bozhovich, 1968) — the next level of a child's agency.

At the *age of 11–12 years*, the adolescence crisis begins, caused by the need for self-consciousness. Children of this age attempt to understand and realize themselves in different activities. Often, these activities are asocial; their ISP is reduced, as a rule. However, after resolving this crisis, the I-concept is formed, and the next level of agency occurs. Thus, adolescent crisis synchronization with normative educational crises of fifth graders, or tenth graders adaptation to the next educational level, may lead to a negative emotional state and to problems in learning and behavior. We hypothesized that fifth graders with a high level of agency, whose ISP has been preserved, such as when the adolescence crisis did not begin, use their intellectual resources and personal traits to successfully adapt to and overcome crises. Additionally, tenth graders with a high level of agency, whose self-consciousness and I-concept has been formatted as a result of adolescence crisis resolution, use their personal resources to successfully adapt to and overcome crises.

At the *age of 17–18 years*, the new adolescence crisis begins, caused by the need for a professional self-consciousness. A result of the youth crisis resolution is the readiness to master the chosen profession — the next level of human agency. However, at the beginning of university training, not every freshman has this readiness. We hypothesized that students with a high level of agency (as a result of youth crisis resolution) use their psychological resources to successfully adapt to and overcome crises.

Thus, *the general research hypothesis* is as follows. During normative educational crises (crises of adaptation to the new level of education) human agency is the main

factor of success in each age group: students with a high level of human agency use their psychological resources to solve educational crisis problems. Accordingly, students with a low level of agency do not use their resources in full: These students, despite their capacities, have negative emotional states and problems in learning and behavior.

Table 1

Methods for agency indicators assessment

Age Groups	Agency Indicators	Assessment Methods
First graders	Inner schoolchild position (ISP)	ISP technique (Nezhnova, 1988)
Fifth graders	Personal traits (rule consciousness, self-discipline)	CPQ — Children's Personality Questionnaire (Porter& Cattell, 1985; Rukavishnikov, 2000) factors G — rule consciousness Q3 — self-discipline
	Motives for achieving and self-development	School motives questionnaire (Rean, Yakunin, 2004) MA — motive for achieving MS — motive for self-development
Tenth graders	Personal traits (rule consciousness, locus of control)	HSPQ — High School Personality Questionnaire (Rukavishnikov, 2000) factors G — rule consciousness
		Purpose-in-Life Test (Leontiev, 2002) LCI — locus of control – I LCL — locus of control – Life
	Motive for professional training	Motives for learning activities of students questionnaire (Rean, Yakunin, 2004) MP — Motive of profession training
	Goals in Life	Purpose-in-Life Test (Leontiev, 2002) GL — Goals in Life
Freshmen	Personal traits (rule consciousness, self-discipline, locus of control)	16PF — Sixteen Personality Factor Questionnaire (Cattell et al., 1970; Rukavishnikov, 2000) factors G — rule consciousness Q3 — self-discipline
		Purpose-in-Life Test (Leontiev, 2002) LCI — locus of control – I LCL — locus of control – Life
	Motive for professional training	Motives for learning activities of students questionnaire (Rean, Yakunin, 2004) MP — motive for profession training MK — motive for knowledge obtaining
	Goals in Life	Purpose-in-Life Test (Leontiev, 2002) GL — Goals in Life

Methods

The participants were 383 students (81 first graders, 84 fifth graders, 110 tenth graders, and 108 freshmen). The students' agency indicators, abilities, and personal traits were surveyed at the beginning of the academic year (see *Table 1* and *Table 2*). First graders' agency indicators are also surveyed in the middle and at the end of the school year.

The adaptation criteria (informational, behavioral, and affective) were defined in accordance with B.F. Lomov's systemic approach (Lomov, 1973). The adaptation

Table 2

Methods for psychological recourse assessment

	Recourses	Assessment Methods
First graders	intellectual abilities	RPM — Raven Progressive Matrices test (Raven, 2000)
Fifth graders	intellectual abilities	RPM test (Raven, 2000)
	personal traits	CPQ — Children's Personality Questionnaire (Porter& Cattell, 1985; Rukavishnikov, 2000) factors A — warmth B — intellectuality C — emotional stability D — overactivity, spontaneity E — dominance F — liveliness G — rule consciousness H — social boldness I — sensitivity O — apprehension Q3 — self-discipline Q4 — tension, frustration
Tenth graders	intellectual abilities	RPM test (Raven, 2000)
	personal traits	HSPQ — High School Personality Questionnaire (Rukavishnikov, 2000) factors A — warmth B — intellectuality C — emotional stability D — overactivity, spontaneity E — dominance F — liveliness G — rule consciousness H — social boldness I — sensitivity J — individualism O — apprehension Q2 — self-reliance Q3 — self-discipline Q4 — tension, frustration

	Recourses	Assessment Methods
Freshmen	intellectual abilities, knowledge	USE — The Unified State Exam sum result*)

	personal traits	16PF — Sixteen Personality Factor Questionnaire (Cattell et al., 1970; Rukavishnikov, 2000)
		factors
		  A — warmth
		  B — intellectuality
		  C — emotional stability
		  E — dominance
		  F — liveliness
		  G — rule consciousness
		  H — social boldness
		  I — sensitivity
		  L — suspiciousness
		  M — abstractedness
		  N — shrewdness
		  O — apprehension
		  Q1 — openness to change
		  Q2 — self-reliance
		  Q3 — self-discipline
		  Q4 — tension, frustration

* The USE is a series of exams in the Russian Federation that every student must pass after graduation from school to enter a university.

criteria were estimated at the end of the academic year by using the expert assessments method and academic performance analysis (see *Table 3*).

Statistical analysis of the data was carried out in each age group according to the following scheme: (1) we divided each sample of students into homogeneous

Table 3

Methods for adaptation criteria assessment

	Adaptation criteria		
	informational	behavioral	affective
Pupils	academic performance	expert assessment: rules of conduct, communication with teachers and classmates, ability to cooperate, etc. (on a scale of 0–2: 0 — no, 1 — sometimes, 2 — constantly)	expert assessment: tired appearance, absenteeism, isolation (on a scale of 0–2: 0 — no, 1 — sometimes, 2 — constantly)
Freshmen	academic performance	self-assessment: adoption of the profession's rules, communication with teachers and fellow students, ability to cooperate, etc. (on a scale of 0–2: 0 — no, 1 — sometimes, 2 — constantly)	self-assessment: satisfaction with the choice of profession and university, quality of education, student life, etc. (on a scale of 0–2: 0 — no, 1 — partially, 2 — yes)

groups (with a similar level of agency indicators) by the k-means method of cluster analysis; (2) agency indicators, abilities, and personal traits in these groups were compared by using the U-test; and (3) correlation links between the psychological resources and adaptation criteria indicators in each group were explored by Spearman's rank correlation coefficient. Statistica v.13 software was used for computations.

Results and Discussion

6–7 Year-Old Crisis and First Graders' School Adaptation Crisis

First, we divided all the pupils into clusters with similar ISP dynamics. Cluster 1 (52%) comprised pupils with high agency: their ISP was formed before the beginning of the academic year. Cluster 2 (27%) comprised pupils with ISP, formed during the first half of the academic year. Cluster 3 (21%) comprised pupils with low agency: their ISP was not formed during the first academic year (see *Figure 1*).
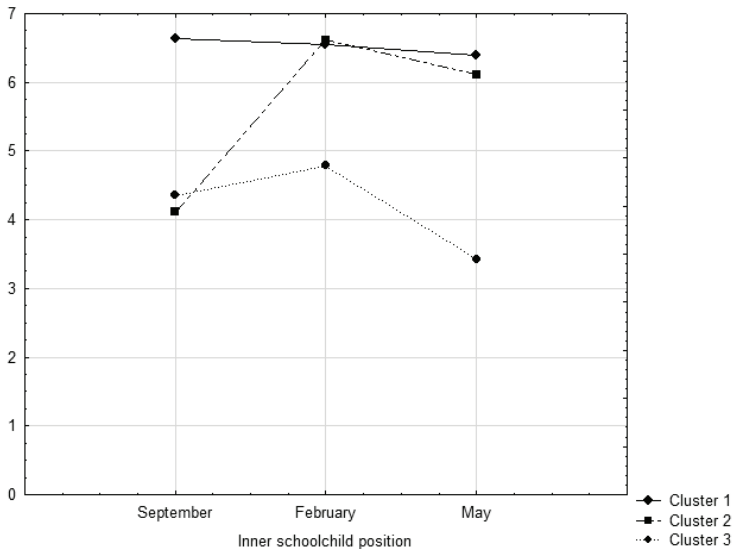
Figure 1. ISP in clusters during the academic year

The ISP differences between the clusters were proven by the U-test: between Clusters 1 and 2–3 in September (U = 0, p = 0.00), and between Clusters 1–2 and 3 in February (U = 18, p < 0.001) and in May (U = 11, p < 0.001). We want to emphasise that we did not observe any statistically significant differences in the age and intellectual levels between the clusters of pupils.

Next, we compared the adaptation criteria in the clusters at the end of the academic year (see *Figure 2, Table 4*). The comparison showed that the first graders from Cluster 1 were the best in overcoming the adaptation crisis. The results of the first graders from Cluster 2 were the same according to the informative and behavioral criteria (without any statistically significant differences), but their result according to the affective criteria was the lowest.
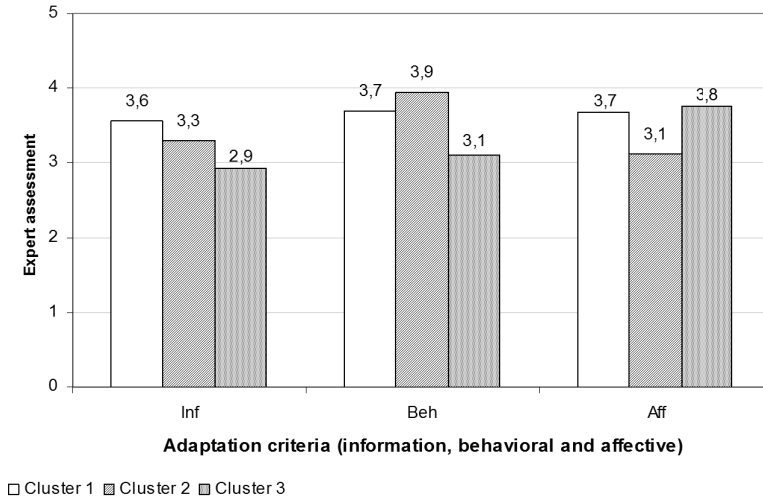
Figure 2. Adaptation criteria in clusters at the end of the first academic year

Table 4

Statistical differences of adaptation criteria between the clusters (U-test)

Adaptation criteria	Cluster 1 – Cluster 2	Cluster 1 – Cluster 3	Cluster 2 – Cluster 3
Informational	U = 257.5 ; p = 0.28	U = 149.0 ; p = 0.03	U = 91.5 ; p = 0.2
Behavioural	U = 265.5 ; p = 0.36	U = 162.5 ; p = 0.07	U = 71.5 ; p = 0.04
Affective	U = 192.0 ; p = 0.02	U = 227.5 ; p = 0.7	U = 79.0 ; p = 0.07

This shows a definite psychological restructuring in the first graders' consciousness due to overcoming the age-related and educational crises simultaneously. The highest result, according to the behavioral criteria, in Cluster 2 confirms this conclusion. The first graders from Cluster 3 (despite having the same intellectual abilities as pupils from Clusters 1 and 2) have the lowest result in overcoming the adaptation crisis according to the informative and behavioral criteria, but they are not worried regarding this matter (the affective criterion). This finding reveals social immaturity and a low agency level in Cluster 3.

One of the general criteria of agency, as aforementioned, is the readiness and capacity of an individual to use her or his abilities, personal traits, mental capabilities, and skills to solve problems. To explore the peculiarities of intellectual resource application to solve adaptation problems, we calculated Spearman's rank correlation coefficient between the Raven Progressive Matrices (RPM) test result and the indicators of adaptation criteria in each cluster of first graders. We found a statistically significant correlation ($p < 0.05$) between these parameters only in Cluster 1 (see *Figure 4*). We did not observe any statistically significant correlations between these parameters in Clusters 2 and 3.
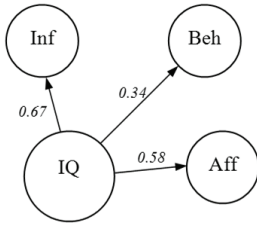
Figure 3. Correlations between intellectual abilities (RPM result) and indicators of adaptation criteria in Cluster 1

This confirms our hypothesis that first graders with a high level of agency, whose ISP was formed before starting school (as a result of the age crisis), use their intellectual resources to solve adaptation crisis problems.

Adolescent Crisis and Crises of Fifth Graders' and Tenth Graders' Adaptation to the Next Educational Level

First, by using the k-means method of cluster analysis, we divided all the pupils into clusters with similar agency level. Cluster 1 (67%) comprised pupils with a high level of agency. Cluster 2 (33%) comprised pupils with a low level of agency (see *Figure 4*).

The differences between the clusters were proven for every characteristic by using the U-test ($p < 0.000$). We did not observe any statistically significant differences in intellectual level (measured by RPM) between the clusters of pupils ($U = 189{,}5$; $p = 0.65$). After comparing the pupils' personal traits (see *Figure 5*), we posed the following conclusions. The fifth graders from Cluster 2 are characterized by a statistically significant higher level of factors D, E, F, O, and Q4. These signs are the signs of the adolescence crisis beginning for fifth graders from Cluster 2.
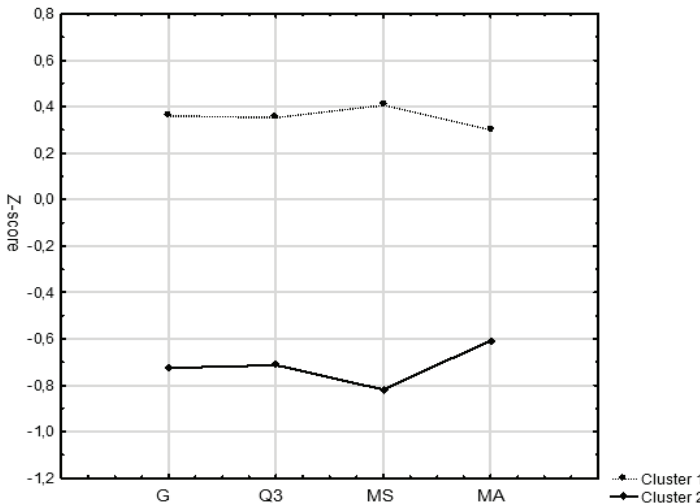

Figure 4. Agency level in clusters: G, Q3, motives of achieving (MA), and self-development (MS)
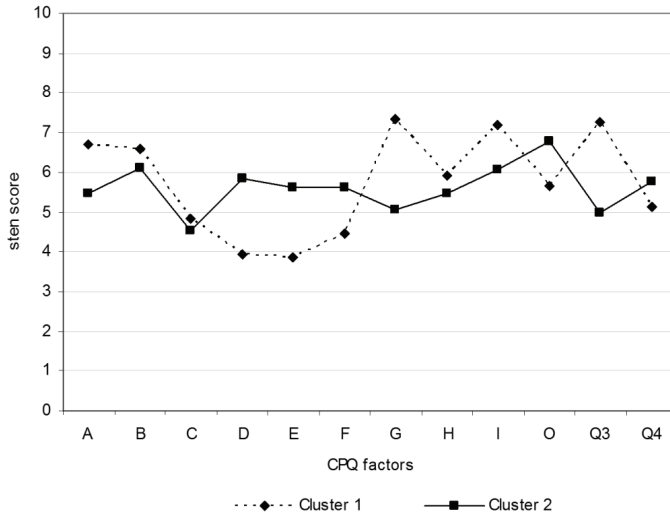
Figure 5. Personal traits in clusters of fifth graders (measured by CPQ)

To explore the peculiarities of intellectual and personal resource application to overcoming an adaptation crisis, we calculated Spearman's rank correlation coefficient between the pupils' resources (intellectual and personal) and the indicators of adaptation criteria in both clusters of fifth graders. We found many statistically significant correlations ($p<0.05$) between these parameters in Cluster 1 (see *Figure 6*).
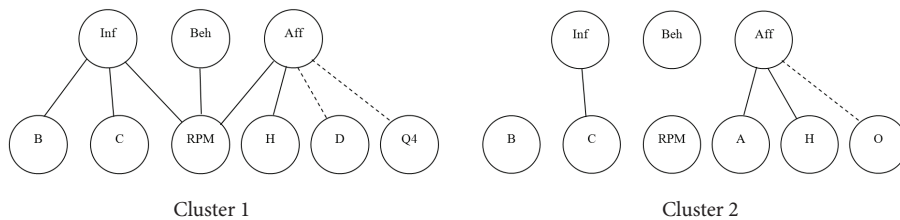

Figure 6. Correlations between recourses (intellectual and personal) and adaptation criteria indicators in clusters of fifth graders

In Cluster 2, only isolated correlations were found. We also observed the absence of statistically significant correlations between the RPM result and the indicators of adaptation criteria in Cluster 2. This finding confirms our hypothesis that fifth graders with a high level of agency, whose ISP has been preserved, because the adolescence crisis did not begin, use their intellectual resources and personal traits to successfully adapt to and overcome crises.

Similar results have been obtained with a sample of tenth graders. First, by using the k-means method of cluster analysis, we divided all the pupils into clusters with similar agency levels. Cluster 1 (72%) comprised pupils with a high level of agency. Cluster 2 (28%) comprised pupils with a low level of agency (see *Figure 7*).
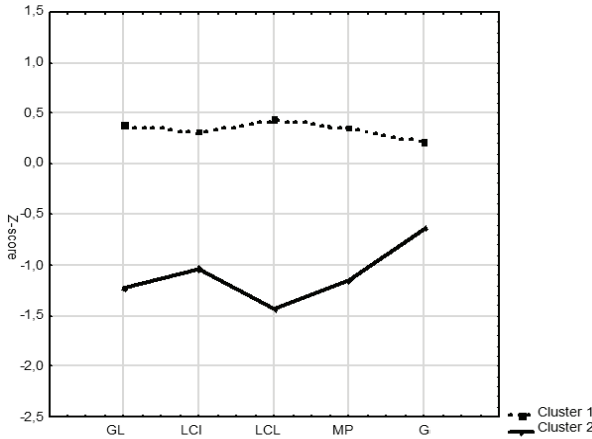
Figure 7. Agency level in clusters: Goals in Life — GL; Locus of Control — LCI, LCL; motive for professional training MP; G factor

The differences between the clusters were proven for every characteristic by using the U-test ($p < 0.001$). We did not observe any statistically significant differences in the intellectual level (measured by RPM) between the clusters of pupils. By comparing the pupils' personal traits (see *Figure 8*), we pose the following conclusions. The tenth graders from Cluster 1 are characterized by a statistically significant higher level of factors A, C, F, and H and a lower level of factors J, O, and Q2. These signs are the signs of the adolescence crisis resolution of tenth graders from Cluster 1.
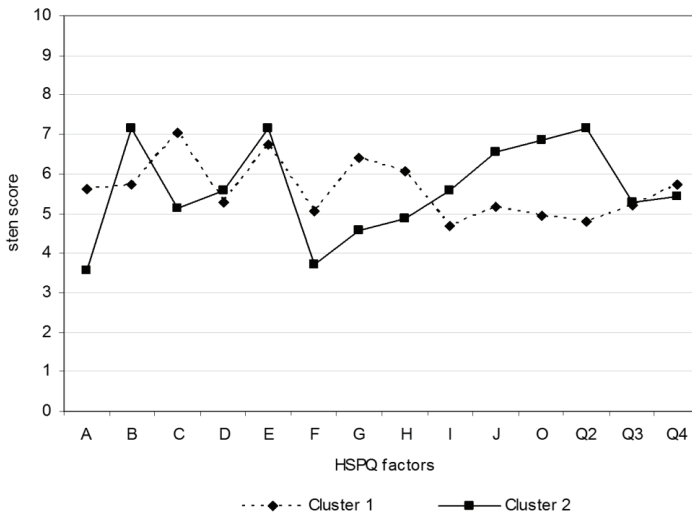

Figure 8. Personal traits in clusters of tenth graders (measured by HSPQ)

To explore the peculiarities of intellectual and personal resource application to overcoming an adaptation crisis, we calculated Spearman's rank correlation coefficient between the RPM and HSPQ results and the indicators of adaptation criteria

in both clusters of tenth graders. We found some statistically significant positive correlations (p<0.05) between personal traits and adaptation criteria indicators in Cluster 1 (see *Figure 9*).
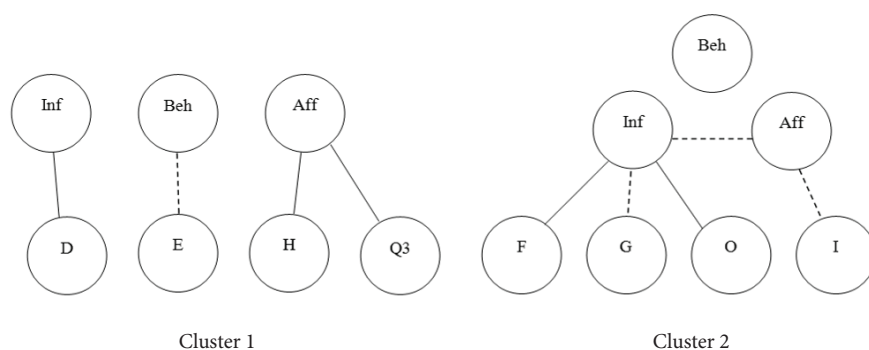

Figure 9. Correlations between resources (intellectual and personal) and adaptation criteria indicators in clusters of tenth graders

Social boldness (H) and self-discipline (Q3) are the main adaptation recourses for pupils with a high level of agency (Cluster 1). This finding partially confirms our hypothesis that tenth graders with a high level of agency, whose self-consciousness and I-concept has been formed as a result of adolescence crisis resolution, use their personal resources to successfully overcome the adaptation crisis.

In Cluster 2, mostly negative correlations were found. We observed positive correlations only between information criteria indicators and personal traits such as liveliness (F) and apprehension (O); however, they are not resources.

Additionally, the absence of statistically significant correlations between the information criteria indicator (academic performance) and RPM result, and self-discipline (Q3) and rule consciousness (G) was observed. This was caused by individual learning styles and the fact that school conditions did not change, in general.

Youth Crisis and the Crisis of freshmen's Adaptation to University Learning

First, by using the k-means method of cluster analysis, we divided all the pupils into clusters with similar agency levels. We could not divide the sample of freshmen into two clusters because of the variance in motivation indicators in the group of the students with a low level of agency personal traits. Thus, we used three clusters (see *Figure 10*).

Cluster 1 (54%) comprised students with a high level of these agency indicators. Cluster 2 (31%) comprised students with a low level of personal traits but a high level of motivation; these students, we assert, want to learn but have not yet determined their life goals. Cluster 3 (15%) comprised students with a low level of personal traits and low level of motivation; we posited that these students entered the university not as a result of their conscious choice.

The students' personal traits comparison (see *Figure 11*) led to the following conclusions. The freshmen from Cluster 1 are characterized by a statistically significant higher level of factors A, C, G, and Q3 and a lower level of factor O.
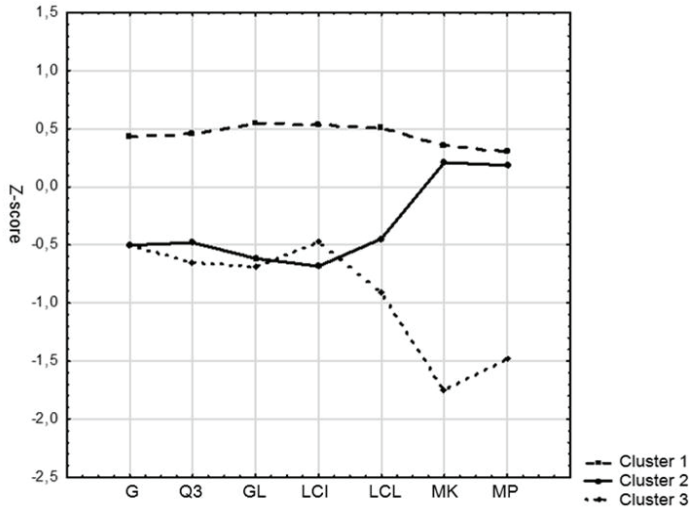
Figure 10. Agency level in clusters: Goals in Life — GL; Locus of Control — LCI, LCL; MK — motive for obtaining knowledge, MP — motive for professional training; G, Q3 factors 16PF.
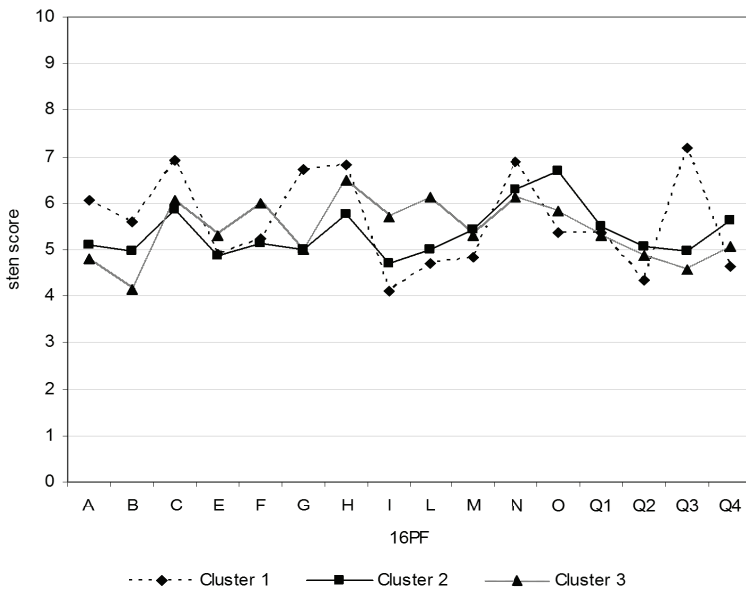
Figure 11. Personal traits in clusters of freshmen (measured by 16PF)

To explore the peculiarities of intellectual and personal resource application to overcoming adaptation crisis, we calculated Spearman's rank correlation coefficient between the students' resources (intellectual and personal) and the indicators of the adaptation criteria in each cluster of freshmen. We found a statistically signifi-cant positive correlation ($p < 0.05$) between personal traits and adaptation criteria indicators in Cluster 1. In Clusters 2 and 3 only isolated links, mostly negative, were

found (see *Figure 12*). We noticed that the Unified State Exam results (USE) connected with adaptation criteria in only Cluster 1.
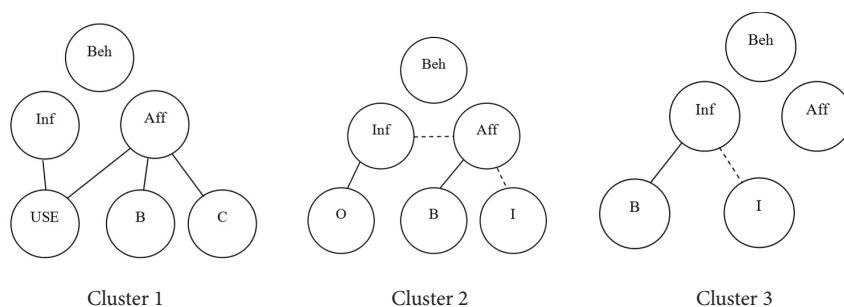

Figure 12. Correlations between personal traits and adaptation criteria indicators in clusters of freshmen

This confirms our hypothesis that only freshmen with a high level of agency, with readiness to master the consciously chosen profession, use their psychological resources (intellectual abilities, knowledge, personal traits) to successfully overcome the adaptation crisis.

Discussion

In modern society, educational conditions in schools and universities have often been changed without considering students' needs (Samokhvalova, Kryukova, 2016; Symanyuk, Pecherkina, 2016; Akçinar, 2013; Karabanova, 2010; Deci et al., 1991). On the one hand, this phenomenon leads to changes in the psychological context of age-related crises; on the other hand, it increases the duration of educational crises because new educational conditions and demands came without students' "needs and aspirations."

The results of the surveys demonstrated that students' level of agency is the key factor of successfully overcoming normative educational crises. In each age category of students, we obtained the same result: In the group of students with a high level of agency indicators (*i.e.*, Cluster 1) we observed many positive correlation links between indicators of psychological resources and indicators of adaptation crisis overcome criteria. In the group(s) of students with a low level of agency indicators (*i.e.*, in Cluster 2 and in samples of first graders and freshmen, Cluster 3), we observed only isolated correlation links between indicators of psychological resources and indicators of adaptation crisis overcome criteria. Consequently, educational results in Cluster 1 were determined by students' resources. However, the same was not true for Clusters 2-3. This explains why smart, good children do not learn well often.

Conclusion

The result of the study confirms our hypothesis: Only students with a high level of agency use their psychological resources to successfully overcome normative educational crises. Students with a low agency level do not use their resources in full during the normative educational crises: These students to despite their

capacities, have a negative emotional state and problems in learning and behavior. This finding is true for each age category of students. Thus, without human agency qualities, the intellectual and personal resources of students can remain unused during the period of adaptation and further training, as the results of the study demonstrated.

Limitations

The lack of statistically significant correlations between indicators of psychological resources and adaptation criteria may also be due to the small size of groups.

Acknowledgements

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Effect of the Training Program to Improve Emotional Creativity among Undergraduate Students

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Background. The study of emotional creativity has not received very much attention in Arab studies. Emotional creativity is a clear concept that appears in the everyday practice of individuals.

Objective. The present study aimed to examine the effect of a training program on emotional creativity among undergraduate students.

Design. The study comprised 67 undergraduate students at the Hashemite University; the participants were divided between a control group (N = 35), and an experimental group (N = 32), and data was collected using the Emotional Creativity Inventory (ECI).

Results. The results showed that the training program was effective in improving participants' emotional creativity, and a statistically significant difference was found between the control and experimental groups, showing the effectiveness of the training program in favor of the experimental group. The researcher recommends that students begin to be trained in emotional creativity skills from an early age.

Conclusion. The results of data analysis in the current study document the impact of the training program in improving the level of emotional creativity among members of the experimental group. This may be due to the strategies and techniques used in the training program, which contributed to raising the level of emotional creativity.

Keywords:
training program;
creativity;
emotional
creativity;
undergraduate
students

Introduction

The concept of creativity has long been accepted as the aptitude to originate thoughts, perceptions, explanations, and resolutions, both novel and theoretically valuable (Amabile, 1996; Runco, 2004). The customary description of creativity denotes its duality by demanding novelty and innovation as well as efficacy (Kaufman & Baer, 2012; Runco & Jaeger, 2012). Characterizations of creativity are generally centered on the sphere of cognition (Williams, 1980), and the resolution of problems (Mumford, Mobley, Reiter-Palmon, Uhlman, & Doares, 1991).

Averill and Nunley (1992) expanded the concept of creative expression to include the emotive characteristic, putting forward the proposition that the capacity to feel and communicate (*i.e.,* emotional creativity) differs from one individual to another. Later, Averill, Chon, and Haan (2001) added that emotional transformations are themselves an expression of creativity, in which case the acquisition of emotional creativity benefits the individual's appreciation and enjoyment of life's pleasures, thereby leading to a more sensitive, aware, and gratifying life.

Since their research was published in 1980, Averill and his associates have focused on advancing awareness of the notion of emotional creativity from the standpoint of social-constructivism (Averill & Nunley, 1992), thus creating a clear distinction between emotional creativity and emotional intelligence. Later studies (Averill, 2004; Ivcevic, Brackett, & Mayer, 2007) carry a strong implication that emotional creativity could actually be taught, irrespective of natural ability.

In general, creative abilities are related to a wide range of variables along the spectrum of feelings and sentiments, particularly in regard to established constant emotional features. In their 1992 paper, Averill and Nunley propound the thesis that creativity is a state of mental activity, which combines all intelligent behaviors. Then Averill's 2005 study defined emotional creativity as a novel approach which extends an individual's thinking processes and improves relational interactivity, based on the following concepts: *innovation, honesty,* and *effectiveness.*

Innovation involves the ability to either change normal emotions into a novel emotive state distinctively unlike the normally accepted one, or to innovatively blend an individual's emotional norms. *Effectiveness* is the ability to adapt and harmonize creative responses to socially and culturally acceptable norms, thereby enabling the building of bonds and interactive relationships, and improving the individual's thought processes. *Honest emotional expression* signifies the origin or source of an emotion in the individual's personally-held views and principles (Manavipour, 2010). Averill (2005) expands these criteria and considers emotionally creative individuals to have the natural inclination and facility to devote more time to emotional recognition.

Emotional creativity therefore is a conceptual structure that facilitates the recognition and conceptual definition of emotions as either objectively or subjectively creative. In a further study Averill (2013) delineated four key emotional creativity criteria, founded on his concept of social constructivism**:**

1) *Novelty*: Novelty refers to an individual's ability to have a novel or different response from his/her previous behavioral reaction, or more generally, from usual societal reactions, and at the same time demonstrate relevance to current determinations. In this context it should also be mentioned that creativity is not limited to

a small number of people, but since realization and achievement of new behavioral conduct is vital to human development, every individual must therefore possess some degree of creativity.

2) *Effectiveness*: In order to be creative, a reaction or response theoretically needs to benefit the individual, or a number of people. Therefore not all novel reactions are creative; on the contrary, some may in fact be peculiar and unhelpful.

3) *Authenticity*: The standards, ideals, morals, and principles embraced by an individual are reflected in a creative response and are, in fact, defined as tools.

4) *Preparedness*: Individuals go through a creative stage, which is of prime importance to the process of creativity, and may require long years of preparation before real creativity is achieved in a specific field (Ebrahimi, 2006).

Evaluation of individual levels of emotional creativity should be assessed by applying three criteria (*e.g.,* effectiveness, modernization, and trust) to the individual's previous behavior. Given the assumption that the past predicts the future, preparedness can be a further indication of differences in individual creativity potential. To enable an individual to perform creatively in a particular field, it is imperative that he/she acquires the relevant knowledge, skill, and scientific understanding to do so (Jenaabadi, Marziyeh, & Dadkan, 2015).

Ivcevic, Brackett, and Mayer (2007) define emotional creativity as the configuration of an individual's cognitive aptitudes and personality behaviors in relation to innovation, and his/her aptness in emotional responses; this encompasses, for example, simply applying an appropriate existing emotion, or a complex response in which the individual has to modify a customary emotion to meet current individual or group requirements (Averill, 1999). Ivcevic, Brackett, and Mayer (2007) also state that a key feature of emotional creativity includes the ability to deviate from the usual or commonplace, and originate innovative emotive reactions.

Gutbezahl and Averill (1996) had previously conceptualized the theory of emotional creativity within similar creativity constructs. Ivcevic, Brackett and Mayer (2007) commented on empirical research, which had studied the similarity and divergence of emotional creativity and emotional intelligence, including statistical and confirmatory factor analysis, which supported the division between emotional and cognitive creativity. This research confirmed that resolving emotional problems required the convergent thinking of emotional intelligence, whereas emotional creativity demanded divergent thinking in order to generate novel and apt responses. Research studies have found the dimensions of emotional creativity to correlate with feelings and attention, which is the emotional intelligence dimension. Similar results indicating this positive relationship have also been observed between the dimensions of effectiveness and authenticity of emotional creativity, and the clarity dimension of emotional intelligence, denoting the capability to clearly and appropriately differentiate individuals' moods.

Averill (1999, 2000) comments that comparisons between emotional and cognitive creativity are easily distinguished due to their use of diverse processes, although Davis (2009), and Runco and Jaeger (2012), point out that the two constructs do share a certain commonality, since both produce a creative reaction, either as an emotion or an idea generated on the basis of the common criteria of effectiveness and originality. In addition, Alfonso (2000) asser a positive association

between a person's self-perception as having creative potential, and the conscious pursuit of creativity, both of which are positive adjuncts to creative results.

The small number of Arabic studies, which have researched emotional creativity, has focused on its association with cognitive memory, study skills, and academic interaction. The current study is aimed at examining the effects of a training program on emotional creativity among undergraduate students at the Hashemite University, and testing the following hypothesis:

Hypothesis 1

There are statistically significant differences in favor of the increased emotional creativity of the experimental group which underwent a training program, as compared to the control group.

Methodology

Participants

The study sample consisted of 67 students from the Faculty of Educational Science at the Hashemite University and was randomly divided into two groups, an experimental group comprising 32 students (9 male and 23 female), and a control group comprising 35 students (10 male and 25 female).The experimental group was exposed to the training program on emotional creativity while the control group was not exposed to any training program.

Measures and Procedures

Emotional Creativity Inventory (ECI): The emotional creativity inventory was developed by Averill (1999) and comprises 30 items. It consists of three subscales: 1) *Novelty* (14 items: *e.g.,* "I can imagine myself being lonely, angry, and joyful, all at the same time"); 2) *Preparedness* (7 items: *e.g.,* "I think about and try to understand my emotional reactions"), and 3) *Authenticity/Effectiveness* (9 items: *e.g.,* "My emotions help me achieve my goals in life"). The respondents are asked to rate their agreement or disagreement with the statements based on a 5-point Likert-type scale ranging from 1 = strongly disagree, to 5 = strongly agree, with the higher scores on each of the three scales reflecting higher levels of emotional creativity. The Cronbach Alpha results were (0.84, 0.82, and 0.83) respectively for *Novelty, Preparedness*, and *Authenticity/Effectiveness.*

For the purposes of the current study, the authors have translated the emotional creativity inventory from English into Arabic; the translation was assessed by two qualified faculty members to ensure its integrity.

The Cronbach Alpha results were (0.69, 0.71, and 0.68) respectively for novelty, preparedness, and authenticity/effectiveness.

Training Program

To achieve the study objectives, we developed a training program in emotional creativity within the theoretical framework of the previous studies related to emotional creativity. We prepared training activities and training positions aimed at develop-

Table 1

Training program content and goals

Session no	Title	Session content and goals	Time
1.	Introduction	The session aimed to acquaint the students and researcher, and define the general and special objectives of the training program.	50 minutes
2.	Definition of the training program	The session aimed at the definition of emotional creativity concept, and get students to recognize the importance of the training program and component.	50 minutes
3.	Emotion	The session aimed to identify and describe a feeling associated with an emotion.	50 minutes
4.	Perceiving emotions	The session aimed to develop students' abilities to identify their own emotions and the emotions of others.	50 minutes
5.	Understanding emotions	The session aimed to train students to understand emotional information, understand emotions' meaning, and relationships between emotions.	50 minutes
6.	Importance of emotions	The session aimed to train students in understanding the importance of emotions in daily life.	50 minutes
7.	Regulation of emotions	The session aimed to train students to recognize emotions and feelings, and understand how emotions affect others' behavior.	50 minutes
8.	Thinking about emotions	The session aimed to train students to think about their emotions before having emotional reactions.	50 minutes
9.	Emotional response	The session aimed to train students to emotionally respond in new ways.	50 minutes
10.	Expression of emotions	The session aimed to train students to express emotions which help them establish relationships with other people, and express emotions in a verbal and non-verbal manner.	50 minutes
11.	Attention to emotions	The session aimed to train students to be aware of their emotions, and pay attention to emotions of others in order to understand their own emotions better.	50 minutes
12.	Emotional experience	The session aimed to train students to meditate on their previous emotional experiences and to benefit from them in their current emotional experience.	50 minutes
13.	Causes of emotions	The session aimed to train students to understand the causes of their emotions and those of the emotions of others.	50 minutes
14.	Development of emotions	The session aimed to train students to develop their emotions in effective ways.	50 minutes
15.	Diversity of emotional response	The session aimed to train students to demonstrate non-traditional emotional responses and show varied emotional responses.	50 minutes
16.	Relevance of emotional response	The session aimed to train students to show appropriate emotional responses to different situations.	50 minutes
17.	Control of emotions	The session aimed to train students to control their emotional reactions.	50 minutes
18.	Discrimination of emotions	The session aimed to train students to distinguish between real and unreal emotions.	50 minutes

ing students' emotional creativity skills according to the followings steps: 1) Define the skills of emotional creativity (novelty, preparedness, authenticity/ effectiveness) targeted in the training program; 2) Implement the training using the following methods: discussion, divergent thinking, activities, small-group work, role playing, feedback, giving examples, reading story, and brainstorming; and 3) Have researchers train the students in the experimental group on the skills in three training sessions per week, according to the procedures and steps outlined above.

The training program was designed for the purposes of the current study, in accordance with the dimensions of emotional creativity, which include the areas of novelty, preparedness, and authenticity/effectiveness. The program consisted of 18 sessions, and it was carried out over the period between Oct. 15, 2017 and Dec. 5, 2017) at a rate of three sessions per week; each session was assigned fifty minutes. The contents of the training program are described in *Table 1*.

Data Collection and Analysis

Before and after completing the training program with the experimental group, the Emotional Creativity Inventory (ECI) was distributed to participants in both the experimental and control groups. Data were entered and processed using SPSS (V.20). To achieve the study objectives, means, standard deviations, and independent sample t-tests were used to ensure equivalency between the control and experimental groups. Analysis of covariance (ANCOVA) was used to compare the control and experimental groups on emotional creativity at the end of the training program.

Results

To ensure equivalency between the control and experimental groups, the Emotional Creativity Inventory was administered to all participants. The means and standard deviations were calculated, and the independent sample t-test was used to find differences in emotional creativity, as shown in *Table 2*.

Table 2

Results of independent t-tests regarding comparison of students' emotional creativity before treatment

Variables	Group	N	M	SD	df	T	sig
Novelty	Control	35	2.98	0.71	65	0.185	0.85
	Experimental	32	2.95	0.60			
Preparedness	Control	35	2.89	0.82	65	0.686	0.49
	Experimental	32	2.76	0.77			
Authenticity/ Effectiveness	Control	35	2.98	0.67	65	−0.099	0.92
	Experimental	32	3.00	0.66			
Emotional creativity	Control	35	2.95	0.59	65	0.346	0.73
	Experimental	32	2.90	0.56			

The level of emotional creativity among control and experimental groups before treatment as shown in *Figure 1*.
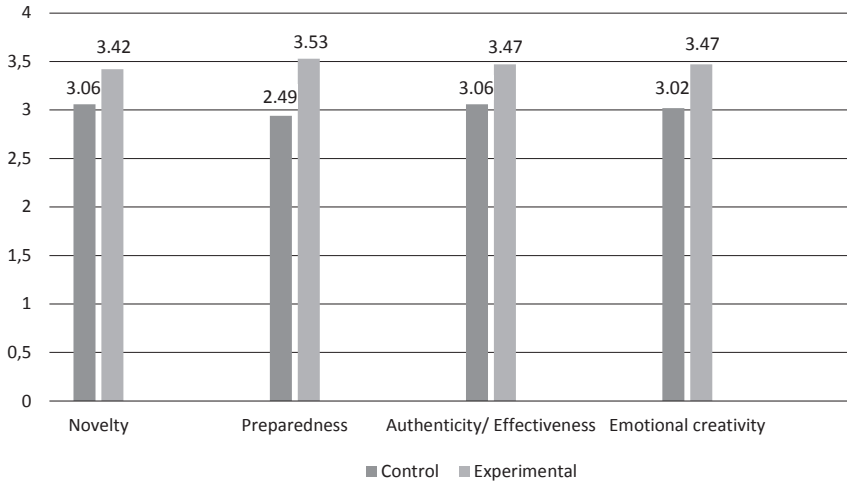

Figure 1. Levels of emotional creativity before treatment

Table 2 shows no statistical differences between control and experimental groups in levels of emotional creativity. The t-test values were not significant at the 0.05 level. This result indicates control and experimental group equivalence in the level of emotional creativity.

Hypothesis 1: There are statistically significant differences in favor of the increased emotional creativity of the experimental group which underwent a training program, as compared to the control group.

Means and standard deviations of the students' emotional creativity scores on the post-test were calculated. *Table 3* presents the values.

Table 3

Means and standard deviation for the results of the students' emotional creativity test after treatment

Variables	Group	N	Means	S.D
Novelty	Control	35	3.06	0.63
	Experimental	32	3.42	0.42
Preparedness	Control	35	2.94	0.68
	Experimental	32	3.53	0.34
Authenticity/ Effectiveness	Control	35	3.06	0.38
	Experimental	32	3.47	0.28
Emotional creativity	Control	35	3.02	0.45
	Experimental	32	3.47	0.23

The level of emotional creativity among control and experimental groups after treatment as shown in *Figure 2.*
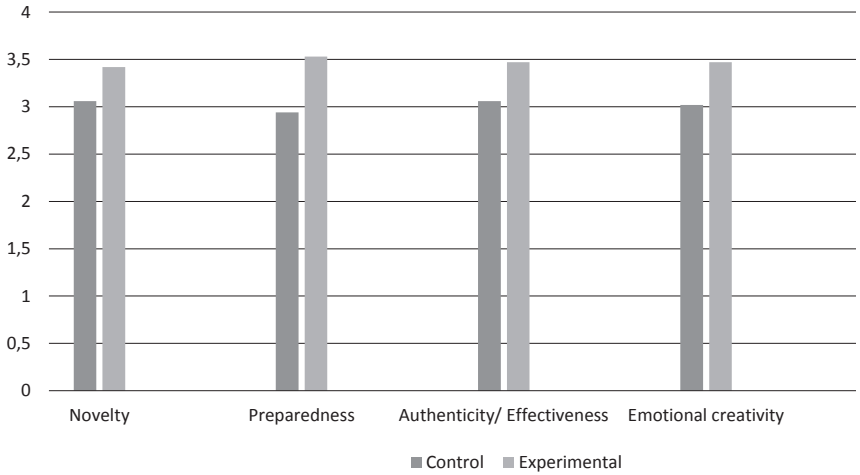

Figure 2. Levels of emotional creativity after treatment

Table 4

ANCOVA determining the significance of the differences between the control group and the experimental group in emotional creativity scores

Source	Sum of squares	Df	Means square	F	Sig.	Partial Eta squared
Novelty	6.183	1	6.183	29.516	0.00	.31
Method	2.318	1	2.318	11.065	0.00	.14
Error	13.406	64	0.209			
Corrected total	21.737	66				
Preparedness	6.120	1	6.120	29.314	0.00	.31
Method	6.709	1	6.709	32.132	0.00	.33
Error	13.362	64	0.209			
Corrected total	25.190	66				
Authenticity/ Effectiveness	1.007	1	1.007	9.696	0.00	.13
Method	2.760	1	2.760	26.586	0.00	.29
Error	6.644	64	0.104			
Corrected total	10.452	66				
Emotional creativity	3.418	1	3.418	41.060	0.00	.39
Method	3.688	1	3.688	44.309	0.00	.40
Error	5.328	64	0.083			
Corrected total	12.141	66				

Statistical Significance Level of 0.05

Table 3 shows that there are statistical differences between the control and experimental groups in the level of emotional creativity after the end of the training program. The mean post-test scores for novelty were: control group = 3.06, experimental group = 3.42; the mean post-test scores for preparedness were: control group = 2.94, experimental group = 3.53; the mean post-test score for authenticity/effectiveness were: control group = 3.06, experimental group = 3.47; and the mean post-test scores for emotional creativity were: control group = 3.02, experimental group = 3.47. To determine the significance of the differences, ANCOVA was conducted. *Table 4* presents the values.

Table 4 shows that there are statistically significant differences in the students' emotional creativity post-test between the control and experimental groups on all strategies attributed to the training program, in favor of the experimental group. More specifically, *novelty* explained 31% of variance in emotional creativity; *preparedness* explained 22% of variance in emotional creativity; *authenticity/effectiveness* explained 13% in emotional creativity.

Discussion

The results of the current study revealed that students who underwent training scored higher in emotional creativity than those who did not. As reported before, the mean scores for *novelty* were control group = 3.06, experimental group = 3.42; the mean scores for *preparedness* were control group = 2.94, experimental group = 3.53; the mean scores for *authenticity/effectiveness* were control group = 3.06, experimental group = 3.47; and the mean scores for emotional creativity were control group = 3.02, experimental group = 3.47.

These results can be explained in the light of the training program contents and the components of the program sessions. The training methods encouraged participation and involvement in discussion, role-playing, imagination, and molding, which contributed to increasing the motivation of students to benefit from the program.

The successful results may also be explained by the comfortable psychological atmosphere of the training session, the full freedom to think and express opinions, respect for individual differences, and openness to new experiences that combined to develop the self-confidence of the students participating in the training program. Perhaps this contributed to the interaction of students in training activities and their participation was effective in discussing problems and developing appropriate solutions. The consistent dimensions of the training program (*novelty, preparedness* and *authenticity/effectiveness*), have also contributed to the improvement of students' emotional creativity.

As to the first dimension, *novelty*, students were trained to show different and unique emotional reactions, imagine positive and negative emotions at the same time, respond uniquely to emotional situations, imagine situations calling for non-traditional emotional reactions, and explore a variety of emotional reactions, all of which increased the ability of the experimental group students to create novel responses. As to the second dimension, *preparedness*, students were trained to search for reasons that provoke individuals' strong emotional reactions, to work on emotional development, understand emotional reactions, and be fully aware

of the emotional aspects of their lives, thereby increasing preparedness among the students of the experimental group. As to the third dimension, *authenticity/ effectiveness*, students were trained to respond well in situations that require new and unusual emotional responses, a good expression of emotions, achievement of life goals by emotions, and emotional reactions truly reflecting their thoughts and feelings, which increased the authenticity/effectiveness among the students of the experimental group.

Up until now, all the investigations into creativity training have focused on the cognitive aspect (Ma, 2006; Scott, Leritz, & Mumford, 2004). Experimental studies in the field of emotional creativity training are rare, although a proposal by Averill (1999) suggested participation in dramatic performance as a potential aid in increasing emotional creativity. In their study of trainee teachers who took emotional creativity courses pre-service and in-service, Singh and Kumar (2010) found a higher level of emotional creativity among those who took the training program in-service. The results of the current study differ from the results of a study by Dyson et al. (2016), which showed that there was no effect of tabletop role-playing games on emotional creativity among Taiwanese college students.

A significant in-depth analysis of 70 emotional creativity training studies covering a wide range of diverse approaches was undertaken by Scott, Leritz, and Mumford (2004). Their results demonstrate that not only is it possible to teach cognitive creativity, but also that the most effective results were achieved using divergent thinking and problem-solving methods. Averill (1999) conjectures that since the use of divergent thinking was found to be highly effective, individuals' creativity levels may well be increased by using drama and acting methods as a training technique.

Given the similarity of commonly used creativity training methods, there is a need for trainers themselves to use their imaginative and creative skills to explore and create novel and effective ways of improving creativity. Recognizing the need to inspire student interest, a few studies (Dziedziewicz, Oledzka, & Karwowski, 2013; Dziedziewicz, Gajda, & Karwowski, 2014), used innovative methods to construct appropriate activities with the aim of inspiring student curiosity and interest; in addition, they used the important novel concept of the doodle-book, and at the same time introduce intercultural competence training, thus contributing to enhancing learner creativity.

 Frolova (2016) proposes that there is now acceptance and confirmation of the positive effect that emotional creativity has on optimizing individual potential and merits, which results in the ability to adapt both psychologically and socially. Controlling emotions both flexibly and creatively provides a coping mechanism for handling anxiety and reducing exaggerated reflex reactions to the normal stresses and strains of daily life. The ability to swiftly change an automatic strongly emotional negative reaction and replace it with a more constructive emotional response serves a dual beneficial purpose, by exerting a calming and steadying influence and thereby diminishing the likelihood of impulsive violence.

 Developing emotional creativity improves self-confidence and creates an optimistic outlook, which increases resistance to the damaging effects of stress. An essential criterion for effective anger management is acquiring the ability to rapidly convert a stereotypical negative emotional reaction into a positive response, which

protects the individual against the exhausting and damaging effects of mental stress. Developing the ability to quickly convert stereotypically arising negative emotions is a prerequisite to good anger management and serves to prevent mental exhaustion.

The university should give greater attention to the activities of talented and creative students in various fields because these students are future leaders. And it should provide all students the opportunity to develop their creativity and give them an atmosphere of freedom for thinking and experimentation.

Based on the results of the current study, we recommend that students be trained in emotional creativity skills starting at an early age. The current study was limited to undergraduate student in the faculty of educational science. Future studies should involve students at the elementary school or high school level. Future studies can also focus on the effects of training program-based problem solving on improving emotional creativity.

Conclusion

The results of data analysis in the current study demonstrate the impact of the training program in improving the level of emotional creativity among members of the experimental group. This may be due to the strategies and techniques used in the training program which contributed to raising the level of emotional creativity.

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Psychological Indicators of Delinquent Behavior in Adolescents: The Potential of the 'Psychological Risk Factors of Deviant Behavior in Adolescents Inventory' for Differentiating Between Adolescents with Delinquent Behavior, Drug Addiction, and Controls

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Background. The Psychological Risk Factors of Deviant Behavior in Adolescents Inventory was developed based on "empirical keying" comparisons of answers to a pull of self-regulation-related items in clinical (drug addicts) and control groups.

Objective. To reveal differences between adolescents with delinquent behavior from drug addictions and controls using the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory and to study their relationships to anxiety, depression, and personal resources.

Design. 760 adolescents aged 13–17 from three schools of the Murmansk Region of Russia, 288 from eight Russian special education institutions for adolescents with delinquent behavior (prevalent diagnosis was F91), and 108 adolescents having drug addiction filled out the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory. Adolescents from the control and delinquent behavior groups also filled out the Hospital Anxiety and Depression Scale. Additionally 280 pupils in the 10th-11th grades and 99 adolescents with delinquent behavior in the 10th grade and up filled out the Hardiness Test, Life Orientation Test, and Self-Efficacy Scale.

Results. Data reproduced results indicating higher dissatisfaction with relationships with parents, "black-and-white" thinking, a technology addiction tendency and antisocial tendencies, a low level of self-regulation and a high level of risky behavior and sensation seeking in adolescents with drug addictions that could be explained not only by psychological differences but also by different social situations or strategies in responding to items. Adolescents with delinquent behavior also reported higher antisocial tendencies, novelty seeking, as well as lower self-regulation. In both the clinical and control groups, there were reasonable correlations between better self-regulation (lower technological addiction and antisocial tendencies, better self-regulation and emotion control) and personal resources of self-regulation.

Conclusion. Antisocial tendencies, novelty seeking, and lower self-regulation could be psychological indicators of self-regulatory deficiencies in adolescents with a risk of involvement in delinquent behavior, but further studies are needed to distinguish whether these differences are explained by self-regulation, social situation or strategy of responding to items in adolescents with deviant behavior compared to controls.

Introduction

Psychodiagnostic instruments for screening for risk factors of possible deviant behavior in adolescents is of acute importance due to the high sensitivity of children and youth to psychological interventions and the negative prognosis for deviant behavior if it develops in adolescence. Existing data suggests that there are common self-regulatory deficiencies underlying different forms of deviant behavior, which could potentially be used as psychological indicators of risk: impulsivity (Patton, Stanford, & Barratt, 1995) and low self-control (Maranges & Baumeister, 2016; Hagger, Wood, Stiff, & Chatziasarantis, 2009); risky behavior and sensation seeking (Zuckerman, 2007); and imbalanced time perspective (Hall & Fong, 2007). For instance, drug addiction was related to impulsivity and self-control deficiencies (Shin, Chung, & Jeon, 2013; Verdejo-Garcia, Bechara, Recknor, & Pérez-García, 2007); difficulties in emotion regulation (Poon, Turpyn, Hansen, Jacangelo, & Chaplin, 2016), as well as antisocial behavior patterns including aggressive ones (Jesús Gázquez et al., 2016), and sensation seeking and risky behavior (Bidwell et al., 2015; Kong et al., 2013). Similarly, sensation seeking and impulsivity (Mann et al., 2017), low self-control (Bahadorikhosroshahi & Habibi-Kaleybar, 2017), and aggression and antisocial attitudes (Xie et al., 2017; Savolainen et al., 2012) were found in people with delinquent and aggressive forms of behavior, especially adolescents.

However, taking into account that psychological deficiencies in clinical samples are frequently explained by the common factor of "demoralization" (Tellegen et al., 2008), these psychological factors require proof of their specificity compared to general psychopathological symptomatology. There is also a need for comparisons of such risk factors with the wide range of personal resources suggested in positive psychology as factors contributing to successful self-regulation and buffering negative effects of stress and high situational demands (Leont'ev [Ed.], 2011). Another problem in the screening for risk factors is related to possible falsifications in responses by adolescents with deviant behavior, which could be not only an attempt to give socially desirable answers, but also a result of compensation or poor reflection.

Tellegen and colleagues (2008) differentiate three approaches to personality psychodiagnostics: (a) "empirical keying", which is used in the MMPI-2 and is based on empirical choice of items with different patterns of endorsements in the normative and clinical groups; (b) a theoretical approach that is based on theoretical models; and (c) a psychometric approach that is based on defining as many research constructs as possible and further statistical selection of items that allow for the best description of the sphere of research. However, as the authors mentioned, today most researchers use a mix of approaches. For instance, in the MMPI-2, most constructs were revised due to their psychometric properties.

This strategy was embodied in our study of the risk factors of deviant behavior in adolescents (Demenko, Rasskazova, Tkhostov, Brun, & Arshinova, 2018). First, based on expert appraisals and existing studies, we chose items from various inventories related to self-regulation, and also formulated some new items. Second, items differentiating clinical and normative samples (the "empirical keying"

strategy) were selected, and, finally, new scales were created from these items based on expert appraisals (content validity), reliability, and factor structure, especially in the clinical sample. Comparison of 108 adolescents with drug addiction and 637 adolescents from various Russian schools revealed 50 items that differentiated the clinical and control groups. Expert and psychometric appraisal of the items made it possible to suggest the following scales: technological addiction, antisocial tendencies, low self-regulation, emotional control, novelty seeking, risky behavior, and child–parent relations, as well as additional indicators of answers that are considered socially desirable, random answers, and answers that express "black-and-white" thinking (the last of these indicate a tendency to either complete agreement or complete disagreement with some items, which was typical of addicts compared to controls). Adolescents with drug addiction compared to controls demonstrated dissatisfaction with child–parent relations, "black-and-white" thinking, low self-regulation, and a tendency toward technological addiction, but reported high emotion control and did not report novelty seeking and risky behavior.

The aims of the present study were to reproduce previous differences between adolescents with drug addictions and controls on the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory (Demenko et al., 2018) using another control sample, as well as to reveal their difference from another form of deviant behavior: delinquency. We suggested that at least some of the psychological risk factors revealed in drug addicts would be similar to those in adolescents with delinquent behavior. Moreover, for further validation of the Inventory, we studied relationships of the scales for anxiety, depression, and personal resources (hardiness, optimism, self-efficacy). Based on Leont'ev's model of personal resources of self-regulation (Leont'ev [Ed.], 2011), we suggested that a deficiency in self-regulation typical of delinquent behavior would be related to a deficiency in personal resources underlying that type of self-regulation.

Methods

The control group included 760 pupils (356 males) from three schools in the Murmansk Region of Russia; 480 adolescents were in the 7th-9th grades and 280 were in the 10th–11th grades.

The clinical group included 288 adolescents (205 males) aged 13–17 from eight special education institutions for adolescents with delinquent behavior. It should be noted that proportions of male and female offenders in the sample does not correspond to their proportions in the population. There are separate male and female special education institutions for offenders in Russia. Five male and 3 female institutions agreed to participate in the study. Information about delinquencies and diagnoses was obtained by psychologists of each institution who organized access to a computer-based platform with inventories and assisted participants if they had questions. In Russia such institutions are closed ones so there was no opportunity to control for differences between organization of the testing in different institutions, and that is the limitation of the study. For the same reason all the information about delinquencies and diagnoses obtained was general for the subsamples (we could have it for 5 out of 8 institutions) and could be used only for general descrip-

tion not allowing for statistical comparisons. The most frequent delinquencies were theft, drug selling and use, and robbery. Most of the adolescents had either F91 diagnoses according to ICD-10 (verified by psychiatrists either before their offense or after they were referred to the institution) or no mental disorder diagnoses. The subjects included 189 in the 7th–9th grades, 75 in the 10th–11th grades, and 24 were first- or second-year college or university students before they were referred to the special education university.

An additional comparison group included 108 adolescents (62 males) aged 12–19 from various Moscow schools and with another form of deviant behavior, drug addiction, from the previous study (Demenko et al., 2018).

The *Psychological Risk Factors of Deviant Behavior in Adolescents Inventory* includes 56 items combined into 8 scales: social desirability, technological addiction, antisocial tendencies, low self-regulation, emotional control, novelty seeking, risky behavior, and child–parent relations (Demenko et al., 2018). There is an additional scale for answers that express "black-and-white" thinking, which includes 7 items that evoked either complete agreement or complete disagreement in addicts more frequently than in controls (p < .05). The initial pull of items for the Inventory included items from Zuckerman's Sensation-Seeking Scale (Zuckerman, 2007), the Barratt Impulsivity Scale (Patton et al., 1995); the Style of Behavioral Self-Regulation Questionnaire (Morosanova, 2001); the Frontal Systems Behavior Scale (Grace & Malloy, 2001), the Behavior Rating Inventory of Executive Functions (Gioia, Isquith, Guy, & Kenworthy, 2000); the Technology-Related Psychological Consequences Questionnaire (Emelin, Tkhostov, & Rasskazova, 2014); and the Parent–Child Relationships Questionnaire (Troyanovskaia, 2003), as well as new items suggested by the researchers.

The final items were derived using the "empirical keying" method and were combined into scales based on expert appraisals and psychometric characteristics. Cronbach's alphas were .67–.91 for the different scales in adolescents with drug addiction, except for the antisocial tendencies scale, which had demonstrated low consistency in the previous study (.55). In the present study, Cronbach's alphas for the scales in the normative sample were acceptable (.64–.90) for all the scales except the antisocial tendencies and low self-regulation scales. As for MMPI-2 (Tellegen et al., 2008), while combination of "empirical keying" with expert appraisals and reliability testing led to meaningful and reliable scales, it could not provide a clear meaningful factor structure across groups, thus not allowing us to test measurement invariance. We address this limitation below in the paper. For convenience, the raw scores for each scale were standardized based on our normative sample and transformed into an IQ-type scale with a mean of 100 and standard deviation of 15. This transformation does not affect any of the statistical analysis below, but it makes perception of the results easier for teachers and for further implementation of the results in consultations with pupils (Prochaska, Wright, & Velicer, 2008).

All the adolescents from the control and delinquent behavior groups filled out the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983); 280 pupils in the 10th-11th grades and 99 adolescents with delinquent behavior from 10th grade and up additionally filled out the Hardiness Test (Maddi, 2002; Leont'ev & Rasskazova, 2006), the Life Orientation Test (Scheier & Carver, 1985; Gordeeva,

Sychev, & Osin, 2010), and the Self-Efficacy Scale (Schwarzer, 1993). The Life Orientation Test was suggested as a screening measure of dispositional optimism, and the Self-Efficacy Scale as a measure of the general confidence of the person in his/her capacity to follow their chosen goals and to achieve them. The Hardiness Test includes three components of hardiness as a system of beliefs buffering stress and its negative impact on health: commitment (the belief that through active involvement one could find important and interesting things in life); control (the belief that through active achievement and struggle one could be successful); and challenge (the belief that a person should stay active or even take risks, because even negative results could be used as a positive experience and resource for the future; an important part of challenge is the capability to learn from mistakes). In the control group Cronbach's alphas for all the scales, but depression, varied from medium to excellent (.70–.91). In the clinical group they were of the same range (.77–.87) for all the scales but depression and challenge. Reliability of depression scale was low in both groups (.40–.50) as well as reliability of the challenge scale in adolescents with delinquent behavior (.45). Although we describe results on all the scales below, it should be noted that data on depression and data on challenge in adolescents with delinquent behavior may be not trustworthy, and demand further studies.

Data were processed in SPSS Statistics 23.0. Taking into account the relatively large sample sizes, in addition to null hypotheses testing, we computed effect sizes (Henson, 2006).

Results

Common patterns of self-regulatory factors in adolescents with drug addiction and delinquent behavior compared to controls included a higher level of antisocial tendencies and novelty seeking, as well as low self-regulation (*Table 1*). Unlike the adolescents with drug addiction, adolescents with delinquent behavior were not dissatisfied with their relationships with their parents, did not demonstrate interest in risky behavior or think in "black and white" patterns, and had a significantly lower level of "socially desirable" answers and technological addiction tendencies comparing to controls. The latter result could be explained by their current experience of being in special education institutions, where technology use is limited and controlled. All the patterns of differences remained after implication of Bonferroni correction (*e.g.*, Boferroni correction for comaprisons of 9 scales lead to $p < .005$) and most of them were characterized by small (Cohen's $d > .20$) or medium (Cohen's $d > .50$) effect size (Cohen's $d > .20$).

Since previous study revealed some gender differences in the scales of Inventory although not moderating group differences (Demenko et al., 2018), we completed 2 (Controls versus Delinquent) $\times$ 2 (Males versus Females) MANOVA for all the nine scales. Females scored higher than males on technological addiction tendency, antisocial tendencies, and novelty-seeking scales but lower on the emotion control scale ($F = 17.10$–41.55, $p < .001$). However, all the major effects of group on scales remained significant ($p < .005$), and no interaction effects between gender and group were revealed.

Age was almost unrelated to the scales of Psychological Risk Factors of Deviant Behavior in Adolescents Inventory. In the clinical group there were no scales correlated with age stronger than r = |.15| while in the control group there was only one weak correlation between age and a lower score on "black-and-white thinking" scale (r = −.16). Consequently, we did not include age in further analysis.

Table 1

Comparison of adolescents with drug addiction and delinquent behavior with the control group, on the scales of the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory

Scales	Adolescents with drug addiction (N = 108)		Student's t-test	Effect size Cohen's d	Adolescents with delinquent behavior (N = 288)		Student's t-test	Effect size Cohen's d
	Mean	St. dev.			Mean	St. dev.		
Parent–child relationships	89.87	18.28	−5.45***	.59	100.79	14.34	.76	.05
"Black-and-white" thinking	110.20	17.94	5.47***	.62	99.13	14.94	−.84	.06
Social desirability	101.60	18.07	.88	.10	96.24	12.94	−4.01***	.27
Technological addiction tendency	106.23	17.47	3.53***	.38	96.60	14.82	−3.29***	.23
Antisocial tendencies	107.62	19.79	3.85***	.43	103.46	14.54	3.36***	.23
Low self-regulation	108.08	20.43	3.96***	.45	106.42	14.15	6.28***	.44
Emotion control	96.49	17.85	−1.95	.21	98.50	15.17	−1.45	.10
Risky behavior	106.11	16.73	3.90***	.38	99.19	13.58	−.80	.06
Novelty seeking	109.25	18.84	4.89***	.54	104.31	12.77	4.64***	.31

*Note. N = 750. * — p < .05. ** — p < .01, *** — p < 0.005.*

Taking into account gender differences in some scales of the Inventory in the correlational analysis, we calculated both Pearson's correlations and partial correlations adjusted for gender. The general pattern of correlations remained the same and *Table 2* provides partial correlations. In the normative sample, satisfaction with relationships with parents is related to greater hardiness, optimism, and self-efficacy, but also to higher anxiety. By contrast, there is no correlation between parent–child relationships and personal resources in adolescents with delinquent behavior. Antisocial tendencies and low self-regulation as possible general indicators of deviant behavior, as well as a tendency toward technological addiction, are related to lower levels of hardiness, optimism, and self-efficacy, but also to a lower level of anxiety. On the other hand, greater emotion control is correlated to higher levels of

anxiety, depression, and hardiness, but is unrelated to optimism and self-efficacy. There are only low or nonsignificant correlations between personal resources on the one hand, and risky behavior and novelty seeking on the other.

Differences in correlations in the control and clinical samples are rare. The most prominent differences are the positive correlations of hardiness challenge, hardiness control, and self-efficacy with parent–child relationships in the controls, compared to no such correlations in the group with delinquent behavior. Additionally, hardiness challenge could be affected by a socially desirable strategy for answers in controls, but not in adolescents with delinquent behavior. Greater emotion control is related to self-efficacy in controls, but not in the clinical sample. However, after implementation of Bonferroni correction for multiple comparisons, the only difference in correlations between groups is that warmer parent-child relationships are related to higher control in the control group but not in the clinical group.

Table 2

Partial correlations adjusted for gender of scales of the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory with anxiety, depression, and personal resources (in control / clinical groups)

Scales	Anxiety	Depression	Hardiness – Total Score	Hardiness – Commitment	Hardiness - Control	Hardiness - Challenge	Optimism	Self-efficacy
Parent–child relationships	.32*** / .14	.12 / −.18	*.40*** .12/*	.36*** / .20	**.37*** / −.01**	.36*** / *.12*	.31*** / .22*	.33*** / .09
"Black-and-white" thinking	.04 / .04	−.08 / .31***	.27*** / .42***	.27*** / .43***	.29*** / .29***	.20*** / .32***	.21*** / .27**	.22*** / .19
Social desirability	.24*** / .11	.10 / .30***	.35*** / .19	.36*** / .21*	.34*** / .24*	.26*** / *.03*	.21*** / .15	.21*** / .16
Technological addiction tendency	−.21*** / −.19	.01 / −.21*	−.38*** / −.35***	−.31*** / −.26*	−.42*** / −.31***	−.29*** / −.32***	−.24*** / −.27**	−.22*** / −.25*
Antisocial tendencies	−.23*** / −.24*	−.14* / −.08	−.35*** / −.36***	−.34*** / −.33***	−.33*** / −.27***	−.27*** / −.29***	−.29*** / −.27**	−.23*** / −.17
Low self-regulation	−.32*** / −.18	−.17** / −.17	−.46*** / −.38***	−.43*** / −.38***	−.43*** / −.34***	−.39*** / −.24*	−.32*** / −.37***	−.40*** / −.38***
Emotion control	.45*** / .29***	.15* / .23*	.47*** / .33***	.39*** / .22*	.46*** / .32***	.42*** / .27***	.26*** / .12	.26*** / *.03*
Risky behavior	−.22*** / −.15	−.08 / −.22*	−.14* / −.22*	−.12* / −.31***	−.12* / −.20	−.14* / −.04	−.07 / −.27***	−.06 / −.16
Novelty seeking	−.14* / −.28***	−.08 / −.08	−.11 / −.05	−.08 / .04	−.09 / −.07	−.12 / −.09	.01 / .02	.03 / .08

Note. * — *p* < .05. ** — *p* < .01, *** — *p* < .005. *The scores that are in Italic are correlations that are different (p < .05) in the control and delinquent groups; correlation that is different (p < .001) is bolded.*

Discussion

The aim of the study included further validation of the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory (that was developed for differentiation between adolescents with drug addictions and controls) on adolescents with delinquent behavior, as well as revealing relationships between self-regulatory factors measured by the Inventory with anxiety, depression and personal resources. Due to the correlational design of the study, sampling strategies and methodological issues underlying this instrument (more details in Limitations section), we could not conclude about psychological factors for the risk of deviant behavior. However, based on previous studies, it seems reasonable that regulatory deficiencies could be typical for a wide range of deviant behaviors and thus could be used as psychological indicators of risk groups.

Comparisons of drug addicts' data with another normative sample replicated previous findings (Demenko et al., 2018), that they either appraised or just reported their relationships with their parents more negatively than did controls; they more frequently responded to a number of items with either complete agreement or disagreement ("black-and-white" thinking); and they admitted antisocial tendencies, signs of technology addiction, and a low level of self-regulation. However, inconsistent with previous findings, they did not responded in the "socially desirable" manner and appraised their emotion control as high as frequently as did controls. Moreover, in line with Zuckerman's (2007) model, adolescents with drug addiction expressed a higher (not lower) level of novelty seeking and risky behavior. These inconsistencies, which require validation in further studies (especially using another clinical sample of addicts), seem to reflect occasion fluctuations in the normative data.

Consistent with previous findings, gender differences on scales of inventory didn't explain nor interact with group differences. However, there was an interesting general pattern when females tended to respond more problems related to emotion control, antisocial tendencies, technological addiction as well as novelty seeking. While these results could be interpreted in terms of earlier pubertal changes in female adolescents, that it also possible that females are more sensitive to their emotion control problems and are more ready to report them. Age seemed to be only weakly related to scales of the Inventory.

Self-Regulation Patterns in Adolescents with Delinquent Behavior: Comparison with Drug Addicts and Controls

In line with our hypotheses, there are three indicators distinguishing both adolescents with drug addiction and those with delinquent behavior from the normative sample: higher antisocial tendencies, novelty seeking, and lower self-regulation. Interpreting these results, it should be noted that the antisocial tendencies scale includes items indirectly describing interest in socially disapproved behavior (for instance, "Beliefs about the harmfulness of alcohol are exaggerated" or "I would like to have a tattoo or piercing"). Thus, the antisocial tendencies scale does not describe current antisocial behavior, but rather beliefs that negative social opinion about some behavior could be inaccurate. Moreover, it should be noted that differences between adolescents with delinquent behavior and controls could

reflect not only self-regulatory differences but also differences in their current social situation (special education institutes) or differences in the reactions to items.

Suggesting that there are psychological differences underlying our results, our data are in line with the Zuckerman model of high sensation seeking and risky behavior as factors of deviant behavior (Zuckerman, 2007): While drug addicts demonstrated interest in both novelty seeking and risky behavior, adolescents with delinquent behavior had higher scores for novelty seeking only. Although this result might be explained by their experience of being caught, comparisons between the control and clinical groups by hardiness components suggest another interpretation.

Another interesting pattern of results is the low level of reported self-regulation in both adolescents with drug addiction and those with delinquent behavior, accompanied by a mean level of emotion control (in the previous study it was higher than the mean; Demenko et al., 2018). When initially developing the inventory, we expected that addicts would demonstrate lower levels of self-control and self-regulation than the controls. However, the "empirical keying" strategy revealed that there are items that indeed indicate the tendency of reporting regulatory problems in drug users (as shown by the low self-regulation scale) and items rated by the addicts to be even higher than those in the controls (the emotion control scale). Although that latter higher level of emotion control was not supported in this study, there is an important difference in content between the two kinds of items. Items from the low self-regulation scale express problems with or unwillingness to plan for tomorrow and to think about the future, while the emotion control scale measures subjective appraisal of emotion and the capacity for self-control. We suggested that emotion control items are much more vulnerable to perceived social desirability and could reflect illusions or self-presentation as a successful person with high self-regulation. Another possible explanation is that items from emotion controls scale are more affected by social desirability than items from low self-regulation scale leading to different patterns of answers in clinical samples.

The lower level of technological addiction in adolescents with delinquent behavior should not be considered a specific risk indicator, because it is clearly explained by the limited Internet access in special education institutions.

Convergent and Discriminant Validity of the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory

Supporting the discriminant validity of the inventory, the strongest correlation of the scales with anxiety, depression, hardiness, optimism, and self-efficacy was .47 if using partial correlations (adjusted for age), and .48 using bivariate correlations. Nevertheless, in both samples, anxiety was related to a lower level of technological addiction and antisocial tendencies, as well as to greater emotion control and self-regulation, while depression was related to greater emotion control only. This pattern of correlations is not in line with the "demoralization" hypothesis, because anxiety and depression are not related to self-regulatory deficiency. We suggest that high emotion control that is merely illusory or self-presentational in this sam-

ple is related to poorer well-being, because it is not self-congruent. It is also possible that anxious adolescents with deviant behavior try to reject technological addictions and antisocial tendencies to feel more safe when replying to the test. Additionally, planning for the future, prosocial orientations, and low likelihood of technological addiction in stressful situations could be factors of sensitivity to anxiety versus avoidance or ignorance. It should be also noted that the depression scale in our samples was inconsistent, so results regarding this scale need further replications.

Supporting the convergent validity of the inventory in both clinical and control samples, antisocial tendencies, technological addiction, low self-regulation, and low emotion control are related to greater hardiness and optimism. In the normative sample, satisfaction with parent–child relationships is also related to hardiness, optimism, and self-efficacy but that is not true for the clinical sample. We suggest that satisfaction with parent–child relationships in adolescents isolated from their families could be of a defensive or compensatory nature and not based on personal resources. Another explanation could be that parent-child relationships are perceived differently by those involved in deviant behavior.

Limitations and Further Research

Although the study provides some background for comparisons of psychological factors associated with delinquent behavior in adolescents comparing to drug addiction and controls, there are several limitations. First, the methodological strategy of "empirical keying" (Tellegen et al., 2008) is based on deriving items from some initial pull that differentiate between groups and is frequently lead to inventories without clear structure. As for MMPI-2, combining this strategy with expert appraisals of the items and reliability analysis led to reliable and meaningful scales of our Inventory (Demenko et al., 2018), but did not come yet to clear factor structure. That is the reason for the impossibility of measurement invariance testing suggesting that differences between groups could be explained not by psychological differences per se but by different subjective meaning of items. Further research on the Inventory concentrating on item-by-item comparisons between different clinical groups could be helpful in establishing both better factor structure and measurement invariance. At the moment results should be interpreted merely as psychological indicators that could be associated with underlying regulatory differences but not factors of delinquent behavior.

Second, due to the organization of a special education system for adolescents with delinquent behavior in Russia (closed-type institutions, limited access to personal information, separate institutions for males and females), the question of whether our clinical sample is representative of well Russian adolescents with delinquent behavior, especially females, needs further study. Another interesting dimension of further studies is taking into account diagnoses and type of crime of these adolescents. Unfortunately, we could not compare clinical data by participants' gender and even had access to such data in 5 out of 8 institutions only. In none of these cases were data on comorbid internalizing problems provided, and further data on structured clinical interviews, probably with smaller samples, are

needed. It should be also noted that while adolescents with deviant behavior were from different Russian regions, adolescents from the control group were from only one region (Murmansk) that could have an impact on results. However, given that the data of control group were close to those obtained in the previous study using a number of Russian regions (Demenko et al., 2018), we consider this last problem as unlikely to occur.

Third, while some scales (*e.g.*, depression in both groups, hardiness challenge in adolescents with delinquent behavior) did not reach good reliability, these results need further study and explanation of the reasons for the low reliability.

Fourth, the cross-sectional design of the study doesn't allow for conclusions in terms of psychological factors so we could only speculate on the possible interpretations of differences in scores as indicators corresponding to delinquent behavior. Of the most importance is that clinical groups include adolescents who either are already in the special education system (group with delinquent behavior) or are already registered by hospitals as addicts (group with drug addiction). Obviously, differences in their responses could be due to their current social situation. Further studies using prospective data could be helpful for clarification of this problem.

Conclusions

The data support the validity of the Psychological Risk Factors of Deviant Behavior in Adolescents Inventory in differentiating between adolescents with drug addiction, delinquent behavior and controls. We reproduced results indicating higher dissatisfaction with relationships with parents, "black-and-white" thinking, a technology addiction tendency and antisocial tendencies, a low level of self-regulation and a high level of risky behavior and sensation seeking in adolescents with drug addictions that could be explained not only by psychological differences but also by different social situations or strategies in responding to items. Adolescents with delinquent behavior also reported higher antisocial tendencies, and novelty seeking, as well as lower self-regulation. Supporting the discriminant validity of the inventory, no correlations with anxiety, depression, hardiness, optimism, and self-efficacy were higher than .50. In both the clinical and control groups, there were reasonable correlations between better self-regulation (lower technological addiction and antisocial tendencies, better self-regulation and emotion control) and personal resources of self-regulation. Further research is needed to clarify whether these differences are explained by psychological differences, current social situation, and past experience of adolescents or strategies on responding to items.

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Cultural Congruence Test for Russian Adolescents

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Background. Cultural congruence serves as a measure of the conformity of an adolescent's behavior to age-specific rules inherent in a particular cultural context. A cultural context is a system of situations with pre-set behavior-regulating rules.

Objective. Rule-based behavior management is known to be an issue in adolescence. Teenagers often defy common rules, thus pitting themselves against adults. In our study, we recruited adolescents between the ages of 12 and 15 years (N = 699) who completed a questionnaire on the rules that they have to comply with in their day-to-day lives.

Design. Based on 2,498 responses, we identified 70 rules that were mentioned in 98.15% of the responses. We then designed a cultural congruence diagnostics test to measure the extent to which an adolescent's behavior fits invariable age-specific rules in the Russian cultural context. The rules are combined into four factors: *management*, *safety*, *studies*, and *social interaction*.

Results. These factors appear to be in line with existing theories on the adolescents' social context. According to cultural and historical psychology, peers are considered as the most important subjects that adolescents interact with within their social context; this is confirmed by relevant items in the questionnaire. *Studies*, the factor that dominates in the pre-adolescent age, are still relevant, which is why the test features such factors as *studies* and *management*. *Safety* emerges as an important factor in the cultural congruence test for pre-school children and primary school students. This factor helps regulate behavior in adolescence since safety rules are part of the typical rules in the adolescent cultural context.

Conclusion. The test design features the following psychometric properties: internal consistency of the scale (Cronbach's alpha), discriminatory power (Ferguson's coefficient), validity, and reliability.

Keywords: adolescent, behavior, normative situation, cultural congruence

Introduction

Adolescence has been a major focus area in Russian psychology due to the fact that both parents and teachers face the largest number of issues dealing with 12- to 15-year-old teenagers. In our research into teenage rule-fitting behavior, we proceeded from the assumption that there is an invariable set of rules that are specifically typical for 12- to 15-year-old adolescents. Research shows that the personal development of a teenager is aimed at finding an image of an adult, whom he or she would like to be like (Vygotsky, 1982; Feldstein, 2010; Dubrovina & Prikhozhan, 2010; Polivanova & Korzun, 2017; Lazareva, 2009; Lavrichenko, 2013). Russian psychologists believe that by the age of fifteen, a teenager should acquire a subjective sense of himself as an adult — a "feeling of adulthood." This complex process of a teenager identifying with an adult image produces conflicts with parents and teachers. The source of the conflict is the contradiction between the teenager's desire to be an adult, and the failure of his parents and teachers to recognize him or her as an adult.

The complexity of the formation of the teenage personality is confirmed in Lichko's works, where it is shown that about 50% of teenagers have accentuated personalities (Lichko, 2010). The teenage years are the phase of the highest suicide rate, along with some adolescents committing crimes or getting drawn into asocial subcultures. According to the World Health Organization, suicides resulted in 814,000 deaths in 2010, of which about 20% were in adolescence (Grachev & Bazhinova, 2016).

These aspects have driven an intense interest in this age group among psychologists. Most commonly, practicing psychologists receive requests from parents and instructors to consult on the teenagers' reluctance to comply with the rules established by adults. Indeed, adolescence is the most challenging period in terms of behavior regulation, and is often called an age of crisis when teenagers tend to break rules. There is a quite high degree of delinquency among teenagers. Studies by N. Grudinina and V. Griaznova reported that in 2015, 55,365 crimes were committed by teenagers; that's 1203 offenses per 100 thousand people in Russia (Grudinin & Gryaznov, 2015).

Are there invariable adolescence-specific rules that are supposed to regulate teenage behavior? If we had such a fixed list with the main day-to-day rules, could we possibly measure how well a teenager's behavior fits those rules?

We designed a test to measure how well a teenager's behavior fits the social environment. It relies on a questionnaire used to assess the level of cultural congruence. In our paradigm, culture is a set of situations with inherent behavior-regulating rules (Veraksa, 2000). We've produced similar tests for 5–6 year-old children (Bayanova & Musstafin, 2016) and 7–11 year-old school students (Bayanova et al., 2016). The tests are designed to measure the level of cultural congruence, *i.e.*, conformity to the invariable rules that are supposed to regulate a child's behavior in the environment he or she occupies.

Analysis of the literature on the adolescent vs. rule interaction demonstrates that there is active interest in this topic in contemporary developmental psychology. We looked at the latest papers that examine the issue. In her study, Ana R. Urmeneta examines the impact of social norms and rules vis-a-vis the development

of sociological thinking in children. She presents culture as a multi-faceted system of values, norms, and role models that regulate the behavior of individuals and social groups. Her findings reveal the existence of sociological thinking in children, which means that it can be safely stated that children have an active outlook on the social world, which involves them thinking, analyzing, and creating their own hypotheses on how the social institutions and the society they belong to work. This brings Urmeneta to the conclusion that teenagers cannot continue to be viewed as passive subjects, nor can their action potential be underestimated. They have their own ways of interpreting, constructing, and actively influencing their social world. Children's sociological thinking is produced within a specific social context where school plays a prominent and influential role. (Urmeneta, 2014).

Faizah Bte Abdul Ghani, Suraya Lin bt Abdullah Kamal, and Azian bt Abd Aziz examined the implications of parenting styles on Muslim teenagers. The authors are convinced that lack of parental control leads to delinquency. Most of the respondents' parents practiced authoritative styles. Malaysian parents want their children to comply with all the family's requirements and rules. Upon correlation analysis, the researchers concluded that the authoritative parenting style has a positive relationship to the students' academic performance (Ghani, Kamal, & Aziz, 2014).

In their study of foster youth, David Mullins and Marie S. Tisak assessed whether children and adolescents differentiate between moral, social-conventional, and personal rules. The results suggest that foster youths' judgments distinguished between the moral, conventional, and personal domains. However, in providing reasons to support their judgments or evaluations, the foster youth referred to social-conventional reasoning even when evaluating moral and personal rules and violations, while their peers who lived with their biological parents focused more on punishment in case of transgression (Mullins & Tisak, 2006).

Olivier Desrichard, Sébastian Roché, and Laurent Bègue examined why adolescents, boys in particular, tend to violate driving rules, and how their behavior is related to parental supervision. Over the last quarter century, road accidents have remained the largest single cause of mortality among 15 to 25 year-olds in most European countries. In the majority of cases, accidents occur in situations where one or more driving rules have been violated. The effect of the role of parents shows that adolescents growing up in a family with strong parental supervision have a more negative attitude toward violating driving rules and, consequently, have less intention of doing so. The findings also show that girls are more supervised by their parents and commit fewer offenses than boys (Desrichard, Roché, & Bègue, 2007).

Susanne Pedersen, Alice Gronhoj, and John Thøgersen studied the link between social norms and healthy eating among adolescents. The survey, completed by 757 teenagers, revealed vulnerability to peer pressure. Those who generally embraced healthy eating acknowledged that in a situation where their peers or friends consume unhealthy food, they would also violate the rule (Pedersen, Gronhoj, & Thøgersen, 2015).

Tara D. Warner, Peggy C. Giordano, Wendy D. Manning, and Monica A. Longmore investigated the impact of social norms on sexual activity in adolescence. The authors believe that the line between what is acceptable and unacceptable in sexual

behavior has shifted significantly. According to their study, teenagers internalize norms of social behavior based on imitating and analyzing other people's activities. This approach confirms the authors' commitment to A. Bandura's social learning theory. Peer influence is particularly strong in this respect. Even during a gang rape situation, studies indicate, adolescents commit the crime because of group conformity — the desire to match the expectations of others, and demonstrate that they are part of the group. This is why emerging sexual behavior in adolescence is studied with connection with socialization in general (Warner, Giordano, Manning, & Longmore, 2011). American researchers (Frisco, 2008; Kaestle & Halpern; Meier, 2007) confirmed that there is indeed a link between the number of sexual contacts in adolescence and the social status of their neighborhoods since, the authors believe, location has an impact on whether teenagers adopt certain rules and comply with norms. Teenagers who live in a socially disadvantaged neighborhood turn out to have a higher chance of an early sexual debut and a higher proven number of sexual partners.

In studying adolescence, Russian psychology relies on Lev Vygotsky's social development theory. According to Vygotsky, each age represents a specific social development situation; there is an age-specific type of social interaction between a child and the environment (Vygotsky, 1978; Vygotsky, 1982; Vygotsky, 1996; Veraksa, N., & Veraksa, A., 2018). Behavior is regulated by social rules; therefore any research into behavior cannot ignore culture-inherent rules.

Within the diverse literature on adolescent rules, there have been no papers on invariable, typical rules that regulate a teenager's behavior in a specific cultural context. There have been no diagnostic tests that measured the level of compliance with the invariable rules inherent in a cultural context, *i.e.,* cultural congruence. Therefore, our study pursued two goals:

1. Identifying invariable rules specific to Russian culture that regulate teenage behavior.
2. Designing a diagnostic test to measure an adolescent's cultural congruence, *i.e.,* the extent to which his or her behavior is in line with typical rules.

Methods

Sample and Participant Selection

Our sample included 734 respondents. Thirty-five were excluded from the original sample due to incomplete data, and thus the final list featured N = 699. The adolescents were between 12 and 15 years old (M = 13.86, SD = 0.91). Among them were 296 girls (42.34%) and 403 boys (57.66%). Both parental consent and participant's consent for minors were obtained for all participants. The participation rate was high (97%).

All participants received an agreement to sign and an information sheet. The informed consent was agreed upon with the children involved, and was re-discussed during the study. Pseudonyms have replaced the names of participants. Participants were given the opportunity to leave the study at any time. The research was carried out in accordance with Code of Ethics of the Russian Psychological Society.

Procedure

Questionnaires

Based on our research goals — identifying an invariable list of adolescence-specific rules and designing a compliance diagnostics test — we conducted an empirical study along the following timeline:

Stage 1: Adolescents complete a questionnaire providing a list of rules that they deal with on a day-to-day basis.

Stage 2: Based on the frequency analysis, we identify the most frequently mentioned rules.

Stage 3: We design a questionnaire for adolescents to measure their level of cultural congruence, *i.e.,* their conformity to rules, and verify the reliability and validity of the diagnostics test.

In Stage 1, adolescents completed the following questionnaire:

1. Which rules are familiar to you and easy to comply with?
2. Compliance with which rules will guarantee approval and praise from adults?
3. Violation of which rules is followed with a reprimand or punishment from adult parents?
4. Violation of which rules is followed with a reprimand or punishment at school?
5. Which rules do you prefer to follow in your relationships with your peers?
6. Violation of which rules in your relationships with peers is unacceptable?
7. Which rules must you comply with after school?
8. Which rules restrict your behavior?
9. Which rules are particularly difficult for you to comply with?
10. Which rules do you prefer to follow in an unfamiliar situation?

In Stage 2, it was important to select the high-frequency rules that are typical for the majority of the respondents. Out of 2,498 responses, we identified 70 rules that were found in 98.15 percent of all the responses using the frequency analysis. Based on these 70 rules, we designed a questionnaire where adolescents were asked to evaluate each of the rules according to the following instruction: "Please rate the rules on five-point scale, where:

1 = I never follow the rule.
2 = I would rather break the rule because I do not believe it is binding.
3 = I may follow the rule, but I may also choose to break it.
4 = I take the rule as guidance.
5 = I always strictly follow the rule."

Results

The outcomes of the questionnaire were exposed to factor analysis by means of varimax rotation, with four factors identified: management, safety, studies, and social interaction (*see Table 1*).

Table 1

Adolescence Cultural Congruence Factors

No.	Factor 1: Studies	
1	Be polite	.608
2	Behave yourself	.583
3	Get good marks	.576
4	Obey people older than you	.566
5	Behave in a decent way	.556
6	Comply with etiquette rules	.521
7	Do your homework	.520
8	Do not argue with instructors	.509
9	Respect people older than you	.497
10	Comply with dress code, dress neatly	.495
11	Help everyone / each other	.485
12	Do not be late	.484
13	Do not speak during class	.459
14	Respect others	.441

No.	Factor 2: Management	
1	Exercise in the morning	.658
2	Go to bed at the right time	.614
3	Follow your daily regimen	.591
4	Do not spend too much time on social media	.580
5	Have your meals at the right time	.572
6	Eat healthy food	.544
7	Keep upright posture	.532
8	Make your bed	.516
9	Keep your room clean and tidy	.506
10	Do not play computer games	.503
11	Wash the dishes	.490
12	Do not cheat other people	.475
13	Wake up at the right time in the morning	.471
14	Plan your day in advance	.448

No.	Factor 3: Safety	
1	Do not leave without informing your parents	.682
2	Do not stay out too late	.647
3	Do not play with matches/fire	.645
4	Do not harass the other gender	.591
5	Do not use obscenities in your conversations with friends	.588
6	Do not miss classes	.517
7	Do not engage in brawls	.503
8	Do not drink alcoholic beverages	.502
9	Do not laugh at your teacher	.501

10	Do not smoke	.500
11	Do not use foul language	.484
12	Do not talk with strangers	.481
13	Follow school rules	.466
14	Take care of yourself	.451

No.	Factor 4: Social Interaction	
1	Be a good friend	.629
2	Be appreciative	.577
3	Keep your promise	.566
4	Do not inform on your friends	.559
5	Be strong enough to defend yourself	.558
6	Do not offend each other	.460
7	Give up your seat to seniors	.448
8	Do not take someone else's belongings without permission	.437
9	Respect the opinions of other people	.427

These four groups of invariable rules regulating the behavior of Russian adolescents are the backbone of the cultural congruence diagnostic test. In line with the methodological design, we then made psychometric calculations of validity and reliability. *Table 2* demonstrates that Cronbach's alpha value is statistically relevant. High values confirm internal consistency of the scale.

Table 2
Cronbach's alpha values

	Cronbach's alpha	Number of items
Management	0.873	14
Safety	0.893	14
Studies	0.882	14
Social interaction	0.790	9
Overall cultural congruence	0.949	51

Table 3
Ferguson's coefficient values

	Σf_i	Σf_i^2	k*		Δ
Management	699	15,064	14,715	1.00007	**0.969**
Security	699	17,499	17,150	1.00006	**0.964**
Studies	699	18,683	18,334	1.00005	**0.962**
Social interaction	699	41,839	41,490	1.00002	**0.914**
Overall cultural congruence	699	6,369	6,019.5	1.00017	**0.987**

* — *Ferguson's coefficient*

We then proceeded to calculate the discriminatory power of the test, *i.e.*, its capacity to differentiate respondents between those with the highest and those with the lowest scores (*see Table 3*).

Discussion

The goal of our research was to identify typical age-specific rules that adolescents face on the day-to-day basis. Out of a long list, we were able to select those mentioned by the majority. It turned out there are 70 rules that regulate the behavior of adolescents in the Russian cultural context. Our next step was to check to what extent compliance with that invariable set of adolescence-specific rules may define cultural congruence. This will eventually determine the level of their socialization, behavior management capacity, and interaction with their surroundings.

Lev Vygotsky introduced the notion of a "social development situation" as a psychological marker for a certain age. It is an age-specific system of relationships between a child and his or her surroundings (Vygotsky, 1982). For example, matching the expectations of adults and obeying them is the dominant requirement for pre-school children. Dialogue is critically important for children up to the age of 10-12. Adults are the center of their social development situation. It is different for adolescents, though, who consider peers as an important factor. In their research, Jorien van Hoorn, Eric van Dijk, Rosa Meuwese, Carolien Rieffe, and Eveline A. Crone demonstrate that it is peer attitude that regulates adolescents' behavior. If the norms are asocial, but viewed positively by peers, adolescents will act in an asocial manner.

Our research also revealed the role of peers. Factor analysis allowed us to identify four major categories for the rules regulating adolescent behavior in the Russian cultural context. We will now detail each of the categories, or factors.

The first factor, *Management*, features rules on time and schedule management. These rules help to bring teenage behavior as closely as possible to the behavior patterns of an adult: "Eat healthy food," "Keep your room clean and tidy," "Wake up at the right time," etc. According to Lev Vygotsky, adolescents are usually keen to become adults. It is seen as a personal achievement for adolescents and they seek to identify themselves with adults. The ability to manage your time, and plan your schedule and activities, is an attribute of an adult; therefore teenagers want to behave like grownups. This makes *Management* a factor that is substantively valid for adolescence.

Safety rules grouped into the second factor are listed by pre-school children aged 5-6 (Bayanova & Mustafin, 2016) and primary school students aged 7–11 (Bayanova et al., 2016). They are relevant for adolescents, too. However, at age 12 teenagers are learning to predict consequences, so they can pinpoint which rules they have to comply with because non-compliance might undermine their psychological safety. Teenagers know their psychological safety would be threatened if the rule is broken. For instance, *Safety* includes such rules as "You cannot leave without informing your parents," "Do not laugh at your teacher," and "Do not drink alcoholic beverages." Breaking the norms would entail consequences; therefore teenagers see them as rules. Younger children are not mature enough to compre-

hend those rules. If the rule regarding relationships with a teacher (laughing at the teacher) is included in the *Safety* factor, it means that it is dangerous for a teenager to laugh at the teacher because of the degree of punishment which would result.

The third factor, *Studies*, includes rules that teenagers must follow at school, including while interacting with adults and teachers, doing their homework, or in class.

The fourth factor, *Social Interaction*, includes rules that determine teenage behavior toward their peers, *e.g.,* the ability to stand up for one's self, keep one's promises, and be appreciative. Loyalty is generally considered to be a widespread value among Russian adolescents. The concept is encapsulated in the "Do not inform on your friends" rule. It refers to a situation in which adults are looking for a guilty party, and the adolescent knows for sure that his or her peer is guilty, but he or she will not give away the name. Adolescents will not betray their peers by informing on them. Other teenagers will approve of this attitude; therefore this kind of behavior acts as a rule regulating teenage conduct.

Analysis of all the rules grouped under each factor yields an image of an ideal social subject as perceived by adolescents. A good friend is one who can keep his or her promise, act in a noble way, and respect the opinion of other people. This image encompasses the rules that determine certain behavior patterns for adolescents in the Russian cultural context.

Conclusion

Our research pioneers in highlighting common rules out of a multitude that adolescents face in day-to-day life. These are permanent and sustainable adolescence-specific rules. All the rules that regulate the lives, school behavior, and interaction of Russian teenagers can be placed into four groups that are in line with existing science on teenage psychology: adolescents control their behavior while dealing with other people, and they also need to follow the rules for their own safety. Rules also play a vital role in shaping teenage behavior at school, as well as in their mapping out their day and taking care of themselves. Four factors were obtained by factor analysis. Each of the factors has a meaningful unity of rules. These factors are confirmed by psychometric assessments of their validity and reliability.

The cultural congruence test is a practical tool that can measure the level of conformity of adolescent behavior to age-specific rules. The rules that determine behavioral patterns to be adopted in adolescence are grouped into four factors: management, safety, studies, and social interaction. The test text can be found in the appendix to this article (*see Appendix*). Since this study focuses on the techniques involved in constructing the age-specific rules for adolescents, the potential for future work must still be clarified in further studies, on areas such as cultural congruence of a teenager and different psychological features of his character, temperament, manifestations of social qualities, etc.

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Appendix

Please rate the rules on the list on a five-point scale, where:

1 =   It is not an important rule, and I never follow it
2 =   I would rather break the rule because I do not believe it is binding
3 =   I may follow the rule but I may also choose to break it (50/50)
4 =   I take the rule as guidance
5 =   I always strictly follow the rule

No.	Rule	Response
1.	Get good marks	
2.	Comply with dress code, dress neatly	
3.	Do your homework	
4.	Behave yourself	
5.	Obey people older than you	
6.	Do not use foul language	
7.	Be polite	
8.	Respect others	
9.	Help everyone / each other	
10.	Comply with etiquette rules	
11.	Do not engage in brawls	
12.	Do not argue with instructors	
13.	Do not be late	
14.	Follow your daily routine	
15.	Keep your room clean and tidy	
16.	Behave in a decent way	
17.	Wake up at the right time in the morning	
18.	Do not cheat other people	
19.	Respect people older than you	
20.	Do not speak during class	
21.	Give up your seat to seniors	
22.	Eat healthy food	
23.	Do not smoke	
24.	Respect the opinions of other people	
25.	Go to bed at the right time	
26.	Do not miss classes	
27.	Do not insult each other	

28. Do not drink alcoholic beverages

29. Follow school rules

30. Do not stay out too late

31. Have your meals at the right time

32. Wash the dishes

33. Do not play computer games

34. Do not spend too much time on social media

35. Be appreciative

36. Keep your promise

37. Make your bed

38. Be a good friend

39. Do not talk with strangers

40. Do not inform on your friends

41. Stand up for yourself

42. Do not play with matches/fire

43. Exercise in the morning

44. Do not take someone else's belongings without permission

45. Keep your posture

46. Do not laugh at your teacher

47. Do not harass the other gender

48. Do not use obscenities in your conversations with friends

49. Do not leave without informing your parents

50. Plan your day in advance

51. Take care of yourself

Test Key:

Factor 1 — *Management*: 14, 15, 17, 22, 25, 31, 32, 33, 34, 37, 43, 44, 45, 50.
Low: 14–40. Average: 41–59. High: 60–70.

Factor 2 — *Safety*: 6, 11, 23, 26, 27, 28, 29, 30, 39, 42, 46, 47, 48, 49.
Low: 14–49. Average: 50–67. High: 68–70.

Factor 3 — *Studies*: 1, 2, 3, 4, 5, 7, 9,10, 12, 13, 16, 18, 19, 20.
Low: 14-49. Average: 50–64. High: 65–70.

Factor 4 — *Social Interaction*: 8, 21, 24, 35, 36, 38, 40, 41, 51.
Low: 9–35. Average: 36–44. High: 45.

The overall level of cultural congruence is calculated as a sum of four factors.
Low: 51–179. Average: 180–231. High: 232–255.

Standard ten	Management	Safety	Studies	Social Interaction	The overall level of cultural congruence
1	14–34	14–40	14–44	9–31	51–161
2	35–40	41–47	45–49	32–35	162–181
3	41–45	48–55	50–55	36–38	182–197
4	46–48	56–58	56	39–40	198–202
5	49–53	59–62	57–59	41–42	203–212
6	54–57	63–66	60–63	43	213–224
7	58–62	67–68	64–66	44	225–236
8	63–67	69	67–68	44	237–246
9	68–69	69	69	44	247–250
10	70	70	70	45	251–255