

# PSYCHOLOGY IN RUSSIA: STATE OF THE ART

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Editorial <i>Zinchenko Yu. P.</i>	2
<b>Special section: the 2<sup>nd</sup> Russian-Japanese forum of social sciences and humanities</b>	
Dark, cold, and hungry, but full of mutual trust: Manners among the 2011 Great East Japan Earthquake victims <i>Abe T., Wiwattanapantuwong J., Honda A.</i>	4
The psychology of eating from the point of view of experimental, social, and applied psychology <i>Sakai N.</i>	14
Extremism from the perspective of a system approach <i>Zinchenko Yu. P.</i>	23
Psychological aspects of the Aum Shinrikyo affair <i>Raevskiy A.E.</i>	34
Interpersonal confidence as a factor in the prevention of disorganized interaction <i>Dontsov A. I., PereLygina E.B.</i>	40
Security in the worldview of Russians <i>Zinchenko Y. P., Zotova O. Y.</i>	50
<b>Developmental psychology</b>	
Psychological boundaries of "I" in the role play of peer-unaccepted children <i>Filippova E. V., Pivnenko T. V.</i>	62
Social anxiety in children <i>Avakyan T. V., Volikova S. V.</i>	73
Representations of happiness and life satisfaction in the group of educated and socially active young people <i>Kokurina I. G., Solina E. I.</i>	83
<b>Psychological diagnostics</b>	
The psychometric properties of the Russian version of the Empathy Quotient <i>Kosonogov V.</i>	96
A substantial psychometric analysis of the scales of the Minnesota Multiphasic Personality Inventory: F. B. Berezin's version, the MMIL <i>Dzherelievskaya M. A., Vizgina A. V., Pantileev S. R., Yashina L. L.</i>	105
Stimulus determinants of the phenomenon of change blindness <i>Gusev A. N., Mikhaylova O. A., Utochkin I. S.</i>	122
<b>Clinical psychology</b>	
Higher mental functions and time perception in internet-addicted teenagers <i>Katasonova A. V., Perkovsky S. V., Kravtsova N.A.</i>	135
Sense of humor disorders in patients with schizophrenia and affective disorders <i>Ivanova A.N., Enikolopov S.N., Mitina O.V.</i>	146
Social representations of drugs among young Russians: shared common views and social positions <i>Bovina I.B., Dvoryanchikov N.V., Berezina E. B., Debolsky M.G., Konopleva I.N., Il'in A. V.</i>	158

## Editorial

The first issue of 2014 opens with the special section “The Second Russian-Japanese Forum of Social Sciences and Humanities”. This forum was welcomed by Lomonosov Moscow State University in October 2013 and included a seminar on psychology. A team of researchers from the Graduate School of Arts and Letters of Tohoku University led by Dr. Tsuneyuki Abe, the head of Psychology Chair, and the Lomonosov Moscow State University Faculty of Psychology professors discussed current advances in psychological science in Russia and Japan with an emphasis on psychophysiology and social psychology. The corresponding section of the journal presents articles based on the seminar papers.

Tsuneyuki Abe, Juthatip Wiwattanapantuwong and Akio Honda explore the experience of a survivor in a great natural disaster. In the article “Dark, cold, and hungry, but full of mutual trust: Manners among the 2011 Great East Japan Earthquake victims” they deconstruct simplified “urban legends” about extremely high levels of helpfulness among Japanese earthquake victims, and present valuable insights into actual resources promoting solidarity and support.

The issue of extremism is analyzed in two articles: Yury P. Zinchenko suggests a system approach perspective as the methodological basis for research on this phenomenon, and Aleksandr E. Raevskiy reflects on psychological aspects of the “Aum Shinrikyo” affair. The article by Yury P. Zinchenko and Olga Y. Zotova “Security in the worldview of Russians” helps to develop a positive agenda for maintaining security in a culturally sensitive way. Certain aspects of psychological security and well-being are addressed in the article “Interpersonal confidence as a factor in the prevention of disorganized interaction” by Aleksandr I. Dontsov and Elena B. Pereglygina. The article by Nobuyuki Sakai “The psychology of eating: from the experimental, the social and the applied psychological points of view” bridges some gaps between psychophysiology and social psychological research on cultural diversity.

This collaborative work produced significant results. During May 21–25 2014 the delegation of the Russian Psychological Society visited the Japanese Psychological Association. In Tokyo Memorandum of Understanding between the Russian Psychological Society and the Japanese Psychological Association was signed by the president of the Russian Psychological Society, Professor Yury Zinchenko and the president of the Japanese Psychological Association, Professor Takao Sato.

The “Developmental psychology” section provides two articles dealing with issues of children’s social development. They discuss psychological boundaries of “I” in the role play of peer-unaccepted children (Elena V. Filippova and Tatyana V. Pivnenko) and social anxiety in children, comparing orphans and children in birth families (Tamara V. Avakyan and Svetlana S. Volikova). Kokurina Irina G. and Solina Elena I., on the other hand, discuss representations of happiness and life satisfaction in the group of educated and socially active young people.

The “Psychological diagnostics” section presents discussions on psychometric properties of the Russian version of the Empathy Quotient (Vladimir Kosonogov) and F. B. Berezin’s version of the Minnesota multiphase personal questionnaire (Maria A. Dzherelievskaya, Anna V. Vizgina, Sergey R. Pantileev and Ludmila L. Yashina). In the work by Olga A. Mikhailova, stimulus determinants of the change blindness phenomenon are described.

The “Clinical psychology” section provides a diverse range of articles dealing with internet addiction in teenagers and its impact on the development of their higher mental functions (Anna V. Katasonova, Sergey V. Perkovsky and Natalya A. Kravtsova), sense of humor disorders in patients with schizophrenia and affective disorders (Alyona N. Ivanova, Sergey N. Enikolopov and Olga V.), and the multidisciplinary issue of social representations of drugs explored in a wide sample of Russian youths by Irina B. Bovina and her colleagues.

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SPECIAL SECTION:  
the 2nd Russian-Japanese forum of social  
sciences and humanities

**Dark, cold and hungry, but full of mutual trust:  
Manners among the 2011 Great East Japan  
Earthquake victims**

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It was reported with praise by the worldwide media that victims of the 2011 Great East Japan Earthquake and tsunami disaster endured the aftermath in a civil manner. We analyzed official crime statistics and investigated data that were collected from residents in disaster-stricken areas. Official statistics showed that crime decreased during the disaster period. Collected data suggest that criminal and deviant behavior were extremely rare, and that the victims helped each other, apparently altruistically. Further research on actual behavior in post-disaster environments is necessary in order to sufficiently prepare for future disasters.

**Keywords:** emergent norm, crime, panic, looting, post-disaster utopia, tsunami

***Preface***

Soon after the 2011 Great East Japan Earthquake, a tsunami struck Japan's eastern shores, inflicting damage to the country, particularly in the northeastern region of *Tohoku*. All of the authors of this report were at the scene of the disaster and saw the victims endure the crisis in a civil manner and engage in mutual assistance despite the difficult circumstances: the disruption of all utilities and supply networks for days or weeks. The reaction by the people in the affected areas was impressive. Consequently, the authors immediately began a psychological study of the behavior and attitudes of victims of the 2011 Great East Japan Earthquake and resulting tsunami.

On August 9, 2013, the first author attended a round table meeting held by the Psychology Faculty of Lomonosov Moscow State University, where he had the opportunity to deliver a talk on the topic. This article summarizes the contents of that talk and presents additional studies.

## **1. General information about the 2011 Great East Japan Earthquake**

The 2011 Great East Japan Earthquake had a magnitude of 9.0 Mw. It occurred under the Pacific Ocean about 130 km east of Sendai on March 11th, generating powerful tremors and huge tsunami waves. The disaster caused 15,555 deaths. Moreover, 5,344 people are still missing (Disaster Management, Cabinet Office, Government of Japan, July 12, 2011). Although the most severely affected area was the Tohoku region, even Tokyo and Chiba prefecture, which are about 350 km from the epicenter, were affected. People in Chiba prefecture were affected by soil liquefaction caused by the tremors. Similarly, approximately 94,000 people in Tokyo and the surrounding areas were unable to return home because of traffic congestion (Yomiuri Shimbun, March 12, 2011). Looking back at the greatest earthquakes in recent Japanese history, the predominant cause of death in the 1923 Great Kanto earthquake was fire. During the 1995 Great Hanshin-Awaji earthquake, building collapses accounted for most deaths. During the 2011 Great East Japan earthquake, the death toll was high because of the huge tsunami, which exceeded all expectations. According to the post-mortem examinations conducted one month after the disaster, 92% of all disaster-related fatalities (12,143 / 13,135) in the Tohoku region were the direct result of drowning (National Police Agency of Japan, *The White Paper on Police* 2011).

In addition, the nuclear accident at the Fukushima Dai-ichi Nuclear Power Plant worsened the situation in several ways. According to data recorded on November 16, 2011, 60,251 residents of Fukushima prefecture were evacuated to other prefectures; 47,995 people had still not returned to their home towns by as late as February 13, 2014 (Reconstruction Agency of Japan, Feb. 26, 2014).

Therefore, the eminent characteristics of the 2011 Great East Japan earthquake were the following: (1) the disaster-affected area was very broad, (2) the main cause of death was tsunami-related drowning, and (3) the occurrence of the consequent nuclear disaster worsened the situations and obstructed the recovery progress.

## **2. Evacuating lives in an orderly manner: Worldwide admiration**

On March 14, 2011, only three days after the disaster's occurrence, a special Tokyo Broadcasting System television news program, and later many newspapers, reported that overseas media had praised the residents of disaster-affected areas for their patience and lack of confusion. For example, the *Kahoku Shimpo* (March 17, 2011), the dominant local newspaper of the Tohoku region, reported that the American media had published articles full of admiration for the orderly lines of people waiting for food without looting or engaging in illegal activity.

Presumably, people hold the conventional belief that chaotic conditions such as panic and looting are representative of conditions that follow a natural disaster. However, abundant sociological and psychological studies have highlighted the scarcity of deviant behavior such as panic and looting after disasters (Clarke, 2002;

Fahy & Proulx, 2009; Quarantelli & Dynes, 1970; Wenger, Dykes, Sebok, & Neff, 1975). The socially accepted idea of the aftermath is nothing but artificial imagery fostered by the mass media: so-called *panic myths* (Clarke, 2002; Keating, 1982) or *disaster myths* (Quarantelli, 1994; Tierney, Bevc, & Kuligowsk, 2006).

Wallace (1956) pointed out that altruistic behavior predominates over egoistic behavior during the short periods after a disaster. People do put others' welfare on a higher level than their own in order to bring happiness to damaged communities. Wolfenstein (1957) named the states of altruism that occur soon after a disaster and remain for a short period a *post-disaster utopia*.

During the few days of a disaster's aftermath, a comprehensive image of disaster-affected areas reveals that actions taken for the sake of others are regarded as the norm. In contrast, civil disturbances are prohibited and occur very rarely. Although it is apparently rare, one cannot say that deviant behavior does not occur at all. Frailing (2007) reviewed reports of crimes after the 1906 San Francisco earthquake, the 1976 Tangshan earthquake in China, and Hurricane Agnes in 1972, and argued that sufficient evidence exists to prove that crime did occur after Hurricane Katrina in 2005.

We examined the question of the actual status of areas that were affected by the 2011 Great East Japan disaster, where the worldwide media praised residents for their gentle manner.

### 3. Actual state of crimes in the affected area:

#### Analyzing police data

First, the official statistics from police in Japan were analyzed (See also Abe, 2013).

Referring to the data released on the website of the Miyagi Prefectural Police in June 2011, the number of reports to the police of penal code offenses in the city of Sendai from January through April 2011 was 8% lower than during the same period the previous year (the data included cases occurring before the disaster: January 1 – March 10, 2011). Intellectual offenses and moral offenses were 55% and 40% lower, respectively. Conceivably, even for potential criminals who lived in the disaster-affected area, opportunities to commit crimes were fewer, which could have led to a lower crime rate.

Furthermore, regarding the *Crime Statistics Document (a comparison of same period data for the current and previous year)* released by the National Police Agency of Japan (July 15, 2011), the *serious offenses index* (murder, robbery, arson, rape, abduction and human trafficking, and indecent assault) and *larceny offenses index* (burglary theft, motor vehicle theft, purse snatching, and pick-pocketing) in Japan were 6% less in January-June 2011 than in the first half of 2010. Notably, the most severely damaged areas of the Tohoku region (Iwate, Miyagi, and Fukushima prefecture) showed a 30% lower serious offenses index and larceny offenses index. Slightly damaged areas in the Tohoku region (Aomori, Akita, and Yamagata prefectures) showed 27% fewer offenses compared to the prior year. Regarding burglaries, the national crime rate was 10% lower, as it was in slightly damaged areas of the Tohoku region. Nonetheless, among severely damaged areas in Tohoku region, data showed 19% fewer burglary thefts in Iwate, and 3% fewer burglary thefts in Miyagi, but in contrast, 41% more burglary thefts were reported in Fukushima. It is reasonable to infer that burglars would have targeted homes that were left empty by the evacuation in Fukushima.



As Quarantelli and Dynes (1970) reported, crimes after a disaster are rarely committed by people in the affected areas (insiders). They tend to be caused by outsiders. Crimes committed in the 2011 Great East Japan disaster aftermath show convergent conclusions.

#### 4. Actual images of lives during the disaster aftermath (1): Diaries and photographs

No matter how strongly the memory of the disaster had been imprinted in a person's mind, memories fade and change over time. Diaries and photographs taken in real time are invaluable. Consequently, this work examined the circumstances of the emergency period after the 2011 Great East Japan earthquake by gathering real-time records such as diaries and photographs from volunteers (See also Abe, 2012).

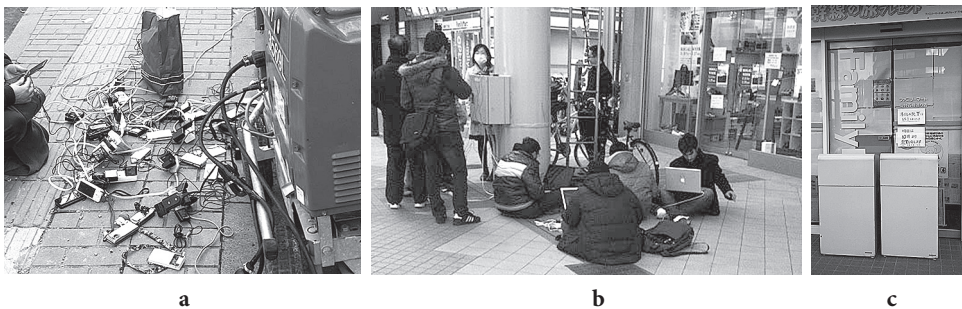
##### *Methods*

With support from *Kahoku Shimpō*, we placed an advertisement on May 5, 2011 calling for diaries, snapshots, and any real time documentation of the circumstances of the 2011 East Japan disaster from volunteers.

##### *Results*

In all, 91 locals volunteered to share their diaries, digital photographs, memos or blogs for the study. Of those people, six sent us diaries, 19 sent pictures, 21 sent memos, 31 sent blogs, six sent pictures and blogs, and eight sent memos and pictures.

Most of the photographs depicted disaster-affected scenes. However, one showed people charging batteries from electric generators at a subway construction site in Sendai (No. 27) or from a junction in a shopping area (No. 85). Another was a picture of a shuttered convenience store, apparently barricaded by trash cans in front of the door (No. 28) (Figures 1a–1c).



**Figure 1.** Odd scenes after the 2011 Great East Japan earthquake

- a: Photograph No. 27 — Batteries being charged from electric generators at a subway construction site (March 12, 2011 in Sendai)
- b: Photograph No. 85 — Batteries are charged from a junction in a shopping area (March 13, 2011 in Sendai)
- c: Photograph No. 28 — Shuttered convenience store with doors apparently barricaded by trash bins (April 3, 2011 in Sendai)

In addition, diaries, memos and blogs reflect people's lives during the disaster's aftermath. Some of the contents are the following (names withheld).

No. 1: Sunday March 13, got tanks of water, rice, tea, yogurt, dried plums, apples, and vegetable juice from a neighbor, N. Got salmon, oranges, apple, banana, miso soup, dried bread, and pickles, from neighbor, I. Tuesday 15 March, got information that supermarket X is open from N. Numerous people were lined up there. It is a 22-hour wait.... They're selling things at very low prices; I felt a great sense of gratitude to the seller.

No. 2: May 6, 10:30, I found a very long shopping queue in front of the supermarket, which made me wait for about 1–2 hours. Some shops have limited the number of items that may be purchased. One time, I saw an older person acting inappropriately. The person had let some friends and acquaintances cut into the line that I was waiting in (giving them the opportunity to get the items they wanted before people further back in the line). What's worse, the older person complained about how a staff member handled the incident.

No. 6: Sunday, March 13, 7 a.m. I was called out to by a woman (as I was walking). She gave me a lot of food and offered to drive me home. I thought I would reach home soon so I refused her. At 10 a.m. I reached home and checked to ensure that my family members were safe!!

No. 56: On Sunday, March 13, in the morning, I walked to the taxi pool at North Sendai station. Halfway there, I saw the police were trying to address some quarrels at the (gasoline) filling station. On March 14, I confirmed the scale of the disaster and left home to buy some food. At that time, product transportation was not fully functioning, and the shops had few products for sale. Despite all this, I saw that they were very polite and waited calmly in line. The situation was similar to what I had been told. My mother and grandmother recalled that people had acted in a similar, peaceful fashion during the aftermath of the 1978 earthquake (author's note: Miyagi earthquake in 1978, Mw. 7.4, death toll 28).

No. 72: On March 12, when I reached the spot to which the water truck would come (the distribution point), people who had come to get water had already made a line. I saw some helping disabled people and elderly people. I thought they were kind. On March 13th, I had a walk nearby. There were many buildings that had been damaged. I saw a car used by an electrician parked at a convenience store. The registration number showed the worker's car was from Niigata prefecture. The fact that they had come here from so far away made me feel glad and thankful, from my soul, my heart.

## ***Discussion***

Results show that every source of information described mutual aid in spite of the difficult and inconvenient conditions that characterized the aftermath of the tsunami. However, disorderly behavior was definitely not absent. Photographs from case No. 27 and No. 85 might show electricity being stolen. In addition, the arrangement of trash cans as barricades in front of the convenience store was intended to thwart trespassers and looters. In addition, case No. 2 is an eyewitness-



ness account of an elderly person who did not observe queues, and case No. 56 highlights quarrels.

Solnit (2009) argued that in the event of an emergency, taking others' belongings, which is ordinarily perceived as looting or theft, may be recognized as reasonable and appropriate *requisitioning* during an abnormal situation. Although residents of the Tohoku region cannot be regarded as angels who sometimes tend to commit deviant behavior in order to survive, the results emphasize that residents affected by the 2011 disaster revealed a strong sense of mutual aid and altruism, which their actions reflected, and that there was no pandemonium or infighting.

## **5. Actual images of lives in the disaster (2): Survey**

Data obtained from diaries included real-time accounts and photographs, which kept those records fresh and lent them a high degree of reliability. Nevertheless, all those materials were given from certain newspaper readers. It is unreasonable to establish any quantitative discussion if it is based solely on the data. Therefore, before too much time had passed after the emergency, another survey was administered to collect information about what happened during that disaster and its aftermath.

### ***Methods***

During May–June, 2011, a questionnaire was administered to 161 participants, all of whom lived in areas affected by the 2011 East Japan disaster. They were college students in Fukushima prefecture (14 participants, aged 20–22 years), college students at a university in Sendai (39 participants, all women aged 19–22 years), college and graduate students at another university in Sendai (90 participants, aged 19–28 years), and participants in an open lecture given to local citizens at Marumori, about 50 km south of Sendai (18 participants, aged 18–84 years).

They were asked to describe odd scenes or atypical behavior in the aftermath of the event, and particularly what seemed to differ from usual, along with date, time and area information if possible.

### ***Results***

Each response was considered for inclusion in multiple categories and was duplicated and included in all relevant categories. Therefore, 514 items in all were analyzed. Each of the two authors categorized all of the items into groups separately. Then items in categories that had been assigned by both authors were counted. The results are presented in Table 1.

Those from the category 'Altruistic or orderly behavior' numbered 202 cases. There were 75 'Deviant behavior' cases. Results show that there were 2.7 times more 'Altruistic behavior or orderliness' reports than reports of 'deviant behavior'. For the 'Emotional change' aspect, 'Positive change' (16 items) outweighed 'Negative change' (6 items).

**Table 1.** Categories of odd scenes or behavior in the aftermath, as observed by participants (Numbers show frequencies of response)

Essential utilities	126	Electricity	22	Deviant behavior	75	Ill-mannered people	12
		Gas	4			On-street parking	1
		Water	7			Favoritism sale	4
		Fuel	35			Price gouging	2
		Telephone	3			Electricity theft	8
		Food and drinking water	41			Thefts	10
		Transportation	14			Prejudice	1
Social change	254	Appearance of people in the past	4	Altruistic or orderly behavior	202	Quarrels	7
		Clothing	10			Losses of self-control	1
		Landscape	50			Overreaction	6
		Ordinary scenes taking place despite the emergency	12			Cutting in line	5
		Awareness of nature problem	6			Buying up goods	18
		Concerns of looting	22			Calm attitude	36
		Rumors	9			Strengthening of communication	58
		On-street selling	5			Revival of Communication	9
		Change in media	23			Donations	5
		Supply shortage	20			Price reductions	15
		Queuing	82			Mutual aid	41
		Nuclear plant	11			Sharing	27
		Change in perceptions	22			More blunted	8
More sensitive	14			Others	35		
Emotional change	22	Negative way	6	Translated from Abe (2013)			
		Positive way	16				
Bodily change	2	Pathology	2				

Translated from Abe (2013)

## Discussion

The 'Deviant behavior' category included a subcategory related to the disruption of the peacefulness in refugee communities or crimes. Some examples are 'Ill-manners', 'Electricity theft', 'Thefts' and 'Quarrels'. However, 'Altruistic or orderly behavior' is described as a 'Calm attitude', 'Strengthening of communication', 'Mutual aid', 'Sharing', and other behavior that promoted the health and lives of those being evacuated and prevented crimes of any kind. Considering the fact that there were more examples of 'Altruistic or orderly behavior' than 'Deviant behavior', it can be inferred that the cognition kept in the memory of the disaster victims was an image of peaceful behavior and a cooperative mindset.

However, it had to be noticed that deviant behavior existed, although it was rare. Theft and electricity theft were regarded as crimes. Instances of 'Theft' related to gasoline, vending machines, and convenience stores were reported. Eyewitness accounts of behavior included observations such as, "someone pumped gasoline from a car that had been flooded (by the tsunami)", "I found someone who got drinks by breaking into a vending machine", "My friend's sister had wanted to steal something from a convenience store but it had already been stolen before she got in", "Someone burned the school's chairs to boil water", etc. Even if they did it because it was necessary for survival, one cannot avoid the fact that such behavior threatened the peace in communities during the aftermath.

For the subcategory 'Quarrel', it was reported of some that "They fought because they mismanaged the line (the service staff and a customer at a filling station)", "There were people who were cutting in line for gasoline. People around there got angry very easily and their reactions were stronger than normal".

It must be emphasized that mutual aid occurred everywhere, even among complete strangers. However, some criminal and deviant behavior was also found in the disaster's aftermath, as people sought fundamental assistance for survival. Such behavior is unsuitable under normal conditions, but might be considered permissible during emergencies as proper behavior.

## 6. Conclusion

Even in the case of the 2011 Great East Japan Earthquake and the tsunami which resulted from it, several reports of deviant behavior have arisen. In terms of their criminal significance, they were minor and were conducted in an atmosphere of emergency by people sensing no alternative. Most images held in the victims' minds were those of active self-control, selfless behavior and cooperation, as would befit a description of a *post-disaster utopia*.

During a disaster's aftermath, the emergent norms differ from ordinary norms and are based on and formed by the emergent situation (Turner & Killian, 1972). The behavior of the Japanese admired by many after the 2011 Great East Japan disaster probably derived from the proper creation of emergent norms, which protected the community in the place of traditional norms. Future themes for study could include an examination of what factors make emergent norms suitable for safe living in the aftermath of a disaster, the construction of the emergent norm as a *disaster culture* (Moore, 1964), and the diffusion of such a culture throughout the world; these could be topics for psychological research on post-disaster living.

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## **The psychology of eating from the point of view of experimental, social, and applied psychology**

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In this article, eating behavior is discussed from the point of view of various areas of psychology. First, tasting food and the perception of food palatability are discussed from the viewpoints of sensory and perceptual psychology and of physiological psychology. Second, the phenomenology of some social-psychological effects on eating behavior are introduced – for example, communication at the table, sociocultural variations in food liking/disliking, and emotional changes after eating. Third, these topics are integrated and are applied to food businesses. Two conclusions can be drawn: (1) understanding human eating behavior leads one to understand human beings themselves; (2) a psychological understanding of eating behavior not only gives one broad knowledge of psychology but also provides businesses and governments with hints for improving quality of life.

**Keywords:** eating behavior, taste, food liking/disliking, communication at the table, food business

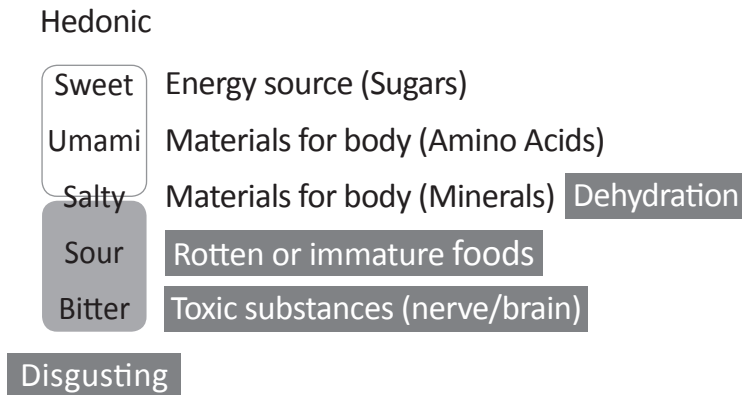
Eating behavior has attracted the attention of the public because of its importance to health, especially in relation to obesity. In this regard, there are many studies about eating behavior in the fields of neuroscience, clinical medicine, and nutrition. Abnormal behavior, such as overeating and the neural mechanisms that terminate eating, is studied in this kind of research; normal and daily eating behavior is an important topic in the field of psychology. In this article, I review some studies about human eating behavior in the fields of social psychology, sensory and perceptual psychology, physiological psychology, and consumer psychology.

### **Perception of tastes**

What is taste? Many people misunderstand this phenomenon. Taste is the sense that is evoked during eating foods; it is not gustation. Gustation is the sensation that arises when the taste buds located in our oral cavity are stimulated by the flavors of foods. We can sense only five taste qualities through gustation: the five



basic tastes (Figure 1). Sweet is the taste of sugar, and it signals an energy source. Umami, a term originally used to describe the taste of Japanese soup stock but now an international technical term, is the taste of amino acids, and it signals the presence of proteins. Salty is the taste of salt, and it signals a mineral source. Because these substances are essential for humans, we feel pleasure after tasting them. The other tastes are sour and bitter. These tastes, together with strong saltiness, are unpalatable to humans because foods or beverages with these tastes are harmful. No one would agree, however, that these basic tastes are enough to describe the taste of borsch or beef stroganoff. The taste of foods and beverages is not a sense felt with the tongue but is a more complicated sensation, more like a perception.



**Figure 1.** The five basic tastes.

The taste of juices or foods is changed or diminished when you drink or eat them with your nose closed. In other words, tasting is smelling. Tastes of foods and beverages depend not only on gustation but also on olfaction and somatosenses in the oral cavity. These sensations converge in our brain, as in synesthesia, so we cannot distinguish taste and flavor. These convergences are developed by our eating experience and are based on innate brain mechanisms. Thus, this phenomenon is called *learned synesthesia* (Stevenson, 2009). Both in rats (Sakai & Imada, 2003) and in humans (de Araujo, Rolls, Kringelbach, McGlone, & Phillips, 2003), these associations occur in the primary taste cortex, the insular cortex. Although the insular cortex is believed to play an important role in gustatory processing, it also receives olfactory information (Fu, Sugai, Yoshimura, & Onoda, 2004; Kettenmann, Hummel, Stefan, & Kobal, 1997). Furthermore, cognitive-neuroscientific research with MEG and fMRI show that the human insular cortex responds to olfactory stimulation directly from the primary olfactory cortex (de Araujo et al., 2003; Kettenmann et al., 1997). These findings explain why we misunderstand olfaction as taste or why we cannot distinguish olfaction from taste easily.

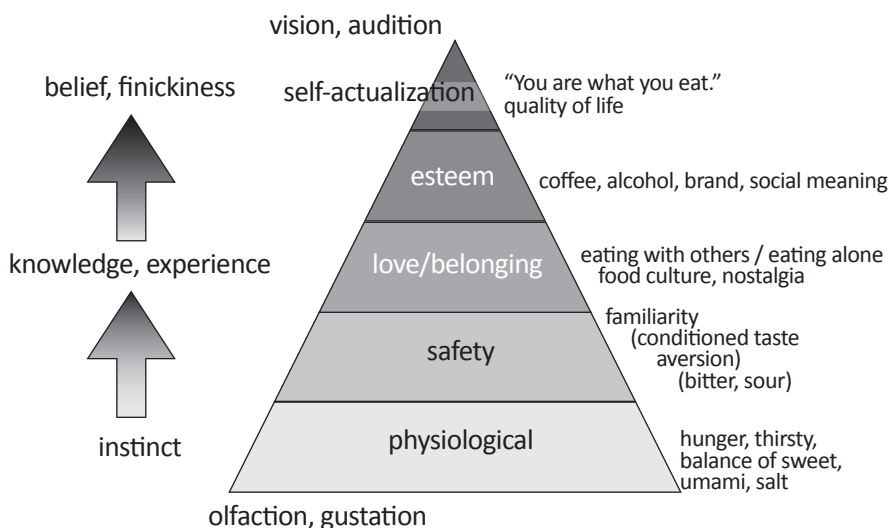
One more misunderstanding about taste is the taste map. In this map, it was suggested that sweetness was detected by the tip of the tongue but bitterness was detected at the back of the tongue. However, we do not have taste localization, as suggested by this map; rather, we can taste all qualities in any areas that have taste buds (Smith & Margolskee, 2001).

### Social-psychological effects on eating behavior: Maslow's hierarchy

Figure 2 presents a model of human motivation for eating based on Maslow's motivation theory (Maslow, 1943). According to Maslow's theory, human motivation develops from physiological motivation, such as hunger, sleepiness, loneliness. When physiological motivation is satisfied, safety motivation appears. The last and highest motivation is self-actualization. As each motivation is satisfied, the emotion of satisfaction is evoked. In the eating situation, satisfaction is comparable to the palatability of foods and beverages; thus in this model I made palatability the main concept.

#### *Motivation for eating at the instinct level*

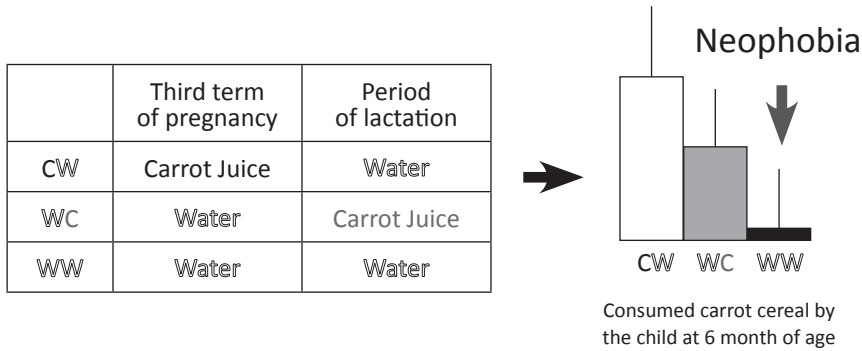
At the physiological stage, foods and beverages that have a sweet or an umami taste (or both) are palatable. At the safety stage, we avoid foods and beverages that have a bitter or sour taste (or both) but eat foods and beverages with familiar tastes. These behaviors are also observed in rats, monkeys, and other omnivores.



**Figure 2.** A model of human motivation for eating and for the palatability of foods and beverages. I have based this model on Maslow's hierarchy of needs.

The behavioral tendency to avoid a novel taste is called food neophobia (Pliner and Hobden, 1992). In an experiment reported by Mennela and her colleagues (Mennela, Johnson, & Beauchamp, 2001), pregnant women were randomly divided into three groups (Figure 3). The women in the first group, CW, were asked to consume at least 200 ml of carrot juice daily in the third trimester of pregnancy. In the second group, WC, carrot juice was introduced in the lactation period. The last and control group, WW, did not consume carrot juice continually. Then the experimenters measured the baby's consumption of carrot cereal. The babies in the WW group ate very little carrot cereal. This is a food neophobia. However the babies in

the CW and WC groups did eat carrot cereal. They had tasted carrots via the amniotic fluid or via their mothers' milk; therefore, the taste was familiar to them, and they had learned that the taste was safe. At this safety stage, we do not select foods through instinct but through our own experiences.

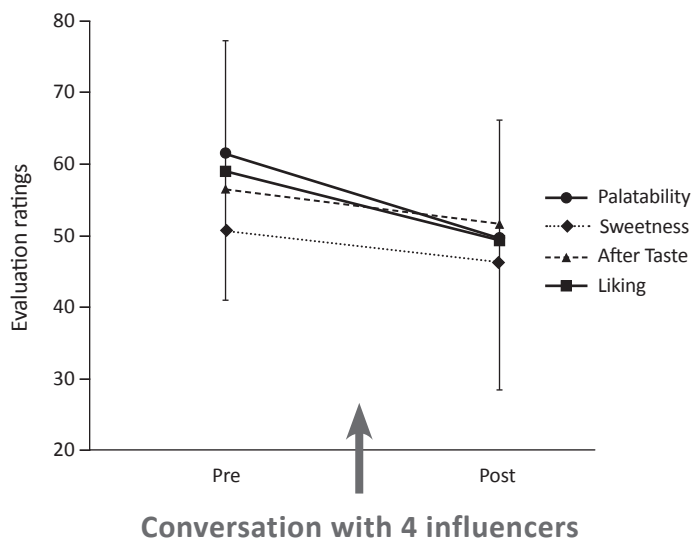


**Figure 3.** The results of an experiment to determine the effect of food familiarity (based on Mennela et al., 2001).

### ***Motivation for eating at the knowledge level***

The next stage in Maslow's theory is motivation for love or belongingness. In Japan, the eating problem called *koshoku* has been gaining attention recently. *Koshoku* means eating alone; it has been found especially in children and the elderly. *Koshoku* leads people to have an unbalanced diet or to be undernourished. Also *koshoku* diminishes the palatability of foods. We feel satisfied when we eat foods with other people, especially with friends and family members. This emotion is related to the motivation for belongingness.

Some research has shown that palatability ratings of foods are affected by others' ratings and by word by mouth. My colleagues and I studied the effect of knowing others' palatability ratings of unfamiliar juices (Sakai, Korosaki, & Fuchimoto, 2013). In this study, participants were recruited to take part in a sensory study of beverages. They were asked to rate an unfamiliar juice on its palatability (along with their liking for it, its sweetness, and whether it had an aftertaste) while sitting at a table with others. Four of the people at the table had been coached to act as influencers, but the participants did not know that. The participants were asked to rate two kinds of lychee juice. After they evaluated one kind, the experimenter asked the participants to wait for a minute to evaluate the other lychee juice, and the experimenter left the laboratory. During the interval, one influencer at the table started to talk about the juice that they had tasted. All four influencers at the table said that the juice tasted bad. Some participants agreed with the evaluations of the influencers, but others did not. Then the experimenter entered the laboratory again and asked the participants to evaluate the other juice, which was actually the same juice. Comparing the ratings from the first trial (Pre) to those from the second trial (Post) revealed that the palatability ratings for the juice significantly decreased (Figure 4). Similar findings have been shown in other research (Robinson & Higgs, 2012).



**Figure 4.** Participants' palatability evaluation of lychee juice was decreased by knowing others' negative evaluation of the beverage (based on Sakai et al., 2013).

These phenomena are discussed from the viewpoint of sympathy or of group pressure for belongingness, both of which are important concepts in social psychology. My colleagues and I are continuing our study of the effects of the social and psychological context of the eating situation on the palatability of foods and beverages and on contentment.

### *Motivation for eating at the belief level*

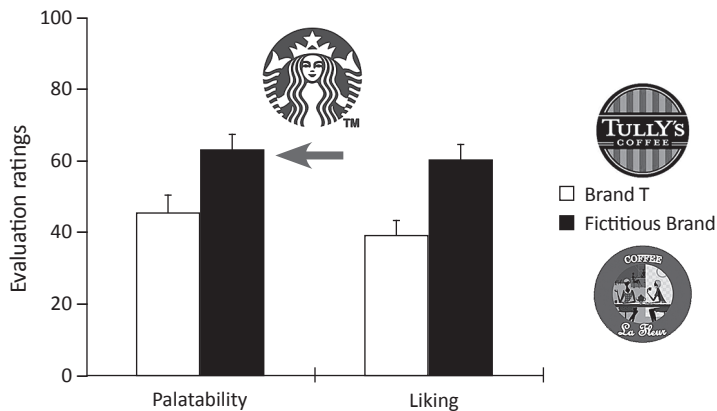
The next stage in Maslow's theory is esteem. At this stage, one motivates oneself to be respected by others and to feel self-esteem through others' respect for oneself. Achievement of this stage leads to self-confidence and contentment. An example of this level is motivation to be rich or famous. In eating behavior, preference for certain brands is an example of this stage.

We studied the palatability of three brands of coffee-flavored lactic drinks (Sakai & Imada, 2012). The participants in the experiment tasted the same drink twice, once with the brand logo shown and once without the brand logo shown. One of the results was that beverages with the logo of the Siren in Greek mythology (Brand S) were judged to be 30 percent more palatable than those without the logo in a blind test. The only difference was the logo. The other two brands did not have such an effect. The palatability ratings for these two brands did not show any difference between those with and without brand logos. We interpreted the result as follows: the brand with the Siren has beverages in markets and coffee in their coffee shops.

In the second part of the experiment, we asked the question, Why does the logo make the beverage more palatable? We hypothesized that the participants evaluated the beverage of Brand S as more palatable and more real because they recalled that the brand had its own real coffee shop from their own memory. Thus we intro-

duced another two brands (Brand T and Brand D), both of which have lactic drinks in the market and original coffee in their cafe. In this experiment, only Brand S was rated more palatable when the logo was shown than in the blind condition. This effect was not found with the other two brands. Then we used semantic differential methods and measured images for the brands. The key factor was fashion consciousness; participants who (based on their knowledge about the coffee shops) perceive a brand as more fashion conscious evaluate the beverage with the brand logo as more palatable.

In the third experiment, we made up a fictitious brand logo that young women found very fashion conscious. The participants were first introduced to the brand through fashion-conscious pictures and a logo. Then the participants were asked to drink and evaluate the coffee-flavored lactic drink. The beverage was the same as one of the coffee-flavored lactic drinks in the previous experiment (Brand T). With this fictitious brand, the beverage was more palatable and liked more than the real brand; we had successfully made a fashion-conscious brand. Although the beverage itself was the same, and only the brands were different, palatability ratings for the beverage showed a statistically significant difference. Palatability ratings of the new and fictitious brand were comparable to those of Brand S (the most palatable brand, Figure 5).



**Figure 5.** The effect of brands on the rating of beverages (based on Sakai & Imada, 2012).

These experiments showed that the images of brands affect the evaluation of their products. McClure and his colleagues (McClure et al., 2004) also showed that the Coca-Cola brand affects participants' preference for cola beverages and that the brand evoked neural responses from the brain areas involved in processing taste and palatability but also in processing memory.

### Palatability or contentment?

As I showed above, humans evaluate the palatability of foods and beverages based on their sensory properties, such as odors, tastes, and textures. Such a strategy is called *bottom-up perception*. Humans also evaluate the palatability of foods and beverages based on their brands, their origins, and their appearance. This strategy

is called *top-down perception*. Humans evaluate the palatability of foods and beverages by both bottom-up and top-down perception.

In sum, experiments show that the palatability of foods and beverages is affected by our physiological states, by our psychological and social contexts, and by our beliefs. These factors are not included in the foods and the beverages but are evoked and integrated in our brain or cognitive processes. Some researchers, mainly in the field of food science, insist that we should classify palatability as being caused by the food factor or by the brain factor. From a psychological viewpoint, this classification is meaningless because palatability is the emotional experience evoked by eating foods or drinking beverages and not the chemical substances in the foods or the beverages.

Other researchers insist that we cannot assess our palatability exactly and that discussions like that in this article are meaningless. This argument is worth considering. Damasio (1999) proposed a theory called the somatic-marker hypothesis. In this theory, we do not cry because of sadness, but we feel sadness because of shedding tears. The best example of this hypothesis is an experiment on a fear-arousing suspension bridge reported by Dutton and Aron (1974). In that experiment, male participants passing by a suspension bridge wrote more sexual content in stories for the TAT questionnaire and showed a higher tendency to make contact with an attractive female interviewer than did the participants passing by a solid wood bridge. In this experiment, the participants mistook their fear for the attractiveness of the female interviewer. This is also an example of misattribution.

In the eating situation, palatability can also be misattributed and can be interpreted by using the somatic marker hypothesis. We feel contentment after eating foods and drinking beverages. This contentment is the emotional experience caused by activity in the parasympathetic nervous system. And the palatability of the foods is substituted for this contentment. This is a misattribution in an eating situation. We evaluate the dinner on a train as more palatable than that in an ordinary restaurant (Sakai, unpublished data). In an experiment, a lunch of curry and rice was sold in a train restaurant car and in a restaurant (the lunch itself was the same in both conditions). The participants misattributed the contentment of traveling by train to the palatability of the curry in the restaurant car. We are doing similar experiments using background music, communication at the table, and dishes as stimuli. These factors are not chemical substances in the foods and beverages, but they do have an effect on our palatability evaluations. Thus, we must consider these psychological properties of humans in studying or developing foods and beverages.

### **Other psychological factors in eating**

I have reviewed here some psychological topics in eating behavior, but other research has been reported on these topics. For example, many behavioral neuroscientific researchers are studying the brain mechanisms involved in controlling appetite, in reward systems, in learning about what to eat, and so on. Other researchers have reported that classic feeding centers (such as the ventromedial hypothalamus and the lateral hypothalamus) and classic reward systems (such as dopaminergic neurons in basal ganglia) are not critical brain areas for eating behavior but are still important.



In other areas, many reports show that eating foods and drinking beverages eases human psychological stress (Komatsu, 2008; Sakai, 2009; Sakai et al., 2011). Some researchers have found that we have our own comfort foods—for example, chocolate or potato chips for Americans (Wansink, Cheney, & Chan, 2003), rice for the Japanese (Komatsu, 2008). When we feel depressed, we tend to eat those comfort foods to ease the negative emotion.

There are also many research topics on eating behavior in clinical psychology and health psychology. The problems of obesity, anorexia nervosa, and bulimia nervosa are not limited to developed societies. One study reports that we start eating not only because of hunger but also because of knowing that it is time to eat or seeing others eating (external eating behavior), and this eating pattern correlates with obesity (Van Strien, Frijters, Bergers, & Defares, 1986). We start eating also when we feel negative emotions such as sorrow, anger, and depression. This eating pattern is called emotional eating and has been shown to be correlated with bulimia and overeating (Van Strien et al., 1986).

Because eating is essential for living, to study the psychology of eating is to study the psychology of organisms. I welcome psychologists who join the study of eating behavior and hope many decide to do so.

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## Extremism from the perspective of a system approach

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Extremism is seen as a complex, multilevel, and multicomponent phenomenon. The problems of modern science in understanding extremism are revealed. The following bases of extremism as a system phenomenon are singled out: social factors, latent extremism, and extremist acts. It is demonstrated that a system approach makes it possible to shape a notion of a subject as a system, to identify patterns of the manifestations of the given phenomenon, and to translate them into concrete practices.

**Keywords:** extremism, system approach, latent extremism, security, extremist outlook

Modern Russian society is witnessing a considerable level of extremism. By denying basic vested rights and freedoms of citizens or by opposing the established order of socio-regularized and legitimized relations, extremism is a threatening phenomenon to society.

Extremism is an equally urgent problem for many countries irrespective of their political and socioeconomic advancements. Worldwide experience shows that as a way and a means of handling socioeconomic, political, religious, ecological, and other issues extremism can emerge in almost any country including industrially developed and politically stable ones. As Dontsov and Pereylygina (2011) put it, “A great threat to social stability is posed by periods of acute social crises and shocks, upheavals, and revolutions, which have brought about drastic changes in social structure, together with the resulting very profound crises of historical consciousness and also of ‘time out of joint,’ the crisis of the historical continuity of culture” (p. 43).

It has become a rule to explain the decrease in the number of conflicts involving state participation in the late 1990s and the early 2000s by the increase of international efforts at peaceful conflict settlement (Human Security Centre, 2006a, 2006b). However, despite the decrease in several indicators of military activity, threats to security have not disappeared, but, on the contrary, they have increased according to various independent parameters. Total human losses caused by all kinds of political violence have been virtually unchanged since the beginning of the 2000s. According to Stepanova’s data, “Those forms of armed violence that do not only decrease in number but are on the uptick — terrorism, interconfession and

other forms of intercommunity violence — and are less lethal than, for instance, conventional wars, are first and foremost directed towards civilians” (Stepanova, 2008). The general level of the infringement of human rights worldwide is not decreasing either. “The public mind has not yet adjusted to the perception of modern risks. The current dynamic of social sentiments reflects a growing level of expectations of uncertainty” (Zinchenko & Zotova, 2013, p. 110).

The concept of extremism (from the Latin *extremis*, ultimate, and the French *extremisme*) is used to define a stance (regarding ideology, intentions, actions) corresponding to extreme opinions. According to documentation from the Parliamentary Assembly of the Council of Europe (PACE) extremism is a form of political activity that, directly or indirectly, denies the principle of parliamentary democracy. In Russia the legal definition of acts treated as extremist ones is provided in article 1 of Federal Law 114-Φ3: “On counteracting extremist activities.” In compliance with amendments of April 29, 2008, the following activities are among those referred to as extremist: forcible changes in the constitutional structure and corruption of the integrity of the Russian Federation; public justification of terrorism and terrorist activities; incitement of social, racial, national, or religious enmity; propaganda about exceptionalism, the superiority or inferiority of an individual owing to his/her social, racial, religious, or linguistic background or attitude toward religion; violation of the rights, freedoms, and legitimate interests of an individual as a citizen depending on his/her social, racial, religious, or linguistic background or attitude to religion (Zinchenko, 2011).

The psychology of extremism itself is a subject of special interest. Psychology researches extremism in its multiaspectual form of origin and its multivariant forms of passing into society as a sociopsychological phenomenon expressed by the actions of individuals and groups.

In a position paper entitled *Addressing Extremism*, Coleman and Bartoli (2003) emphasize that “extremism is, in essence, a complex phenomenon in spite of the fact that its complexity is difficult to detect and to understand. The simplest way is to define it as an activity (as well as beliefs, attitudes towards somebody or something, feelings, actions, strategies) of an individual which are far from being common, generally accepted ones. In conflict circumstances there is demonstration of tough conflict settlement. Nevertheless, the way to mark activities, people and groups as ‘extremist’ along with the way to find out what is ‘common’ or ‘generally accepted’ is always a subjective and political matter” (p. 2).

In studying the content of the concept of extremism one should pay attention to a number of problems. First, despite the seemingly clear and obvious simplicity of the concept, in the scientific environment there are different understandings of this phenomenon. This lack of conformity in defining extremism is characteristic of the entire world community, and tough debates about the correctness of the diagnostics take place worldwide on a regular basis. Therefore, one can speak about the multifaceted nature of the meanings and interpretations of extremism. Considering the vagueness and imprecision and, consequently, the great potential to interpret extremism too widely, there appear great possibilities for terminological manipulation, for classifying any action beyond those generally acknowledged and allowed by the rules of a certain society or a state as extremist. Each party treats this phenomenon on the basis of its own position.

Second, extremism is seen exclusively as being of a negative character. Lev Levinson, in particular, believes that “the ambiguity of extremism is, first of all, generated by the possibility of embracing a wide scope of activities that fall in the category of this phenomenon. That is why there is no point in banning extremism as it is. Extremism is not a crime; it also involves Green Peace, peace marches, in a word, it includes everything travelling out of the limits of ‘the commonly accepted’” (quoted in Belasheva, 2002, p. 3). From Tukumov’s point of view it is not correct to diagnose extremism exclusively as a socially dangerous and, as a result, an illegal phenomenon because in this case one would have to admit that many extreme acts and views could be considered violations of public order and fall under criminal or administrative jurisdiction (for example, public hunger strikes, protest marches) (Tukumov, 2004, p. 10).

The third problem concerns the treatment of extremism as an activity (A.A. Khrovinnikov, I.A. Abdulaeva, V.A. Sosnin, R.N. Getts, I.M. Gregor, K. Nash, N. Mann, E. Curtis, and others). In practice extremism is not always accompanied by actions, and it cannot be defined on the basis of one of its elements — namely, extremist activity. Vekhov, in particular, argues that extremist attitudes, beliefs, views, and ideas are more widely spread in society than explicit aggression and hatred; extremist views can be found in all segments of society. This “nonactualized” extremism, when “dissipated” in public consciousness, creates a basis for social tension. It is of equal importance that while forming the background of everyday life, in which routine individual activities take place, this latent extremism affects the socialization and world perception of the youth, thus reproducing itself in future generations (Vekhov, 2011, p. 26).

Finally, the concepts of extremism, terrorism, and fanaticism are intermingled and are seen as inescapable companions by many researchers. In Yakhev’s opinion, fanaticism and extremism are similar in character and in their ways of achieving goals as they both tend to use extraordinarily violent and destructive acts — that is, terrorist methods. This similarity leads to mixing up fanaticism and extremism and to intermingling both with terrorism. In order to avoid mixing up extremism and terrorism Yakhev points out that extremism entails a specific, extreme type or method of social action and includes such features as goals, ideology, action motivation, means and ways of action. Terrorism involves just one action type or method. It is much narrower in its logical sense, although it undoubtedly has been adopted as an everyday extremist weapon. But terrorism does not exhaust the arsenal of extremism as a social practice (Yakh’ev, 2008).

“Extremism cannot be compared to a virus which mankind has happened to catch. It is its internal disease, primarily generated by disharmony in social, political and cultural development” (Pain, 2002, p. 117). Extremism ruins the spiritual foundations of society and threatens Russia’s security; society should keep a close eye on it. High social tension in the world poses a challenge for scholars to identify the reasons for its growth and to find ways to neutralize it within the frameworks of the sociopsychological program. Therefore, considering such a complicated phenomenon as extremism as a system of interrelated elements seems to be a reasonable way of knowing it.

In the course of debates on the “Cross-ethnic world: Who makes an appeal for a hatchet and why?” in the newsroom of the *New Times* on August 12, 2013, E.L. Pain,

professor at the Higher School of Economics, head of the Centre for the Study of Xenophobia and Extremism Prevention, Institute of Sociology, the Russian Academy of Sciences, emphasized the rise in the level of extremism. He substantiated his statement by referring to the General Prosecutor's Office data, according to which "from 2008 to 2012 extremism increased by five times, and about 70% of the cases involved the fuelling of interethnic, international enmity" (Al'bats, 2013). Examining the causes he named the growth of protest sentiments in society mutating into another state. "It is characteristic of us to swing between ethnic mobilization and political mobilization. Until 2012, a greater part of mobilization proceeded in the ethnic form. When the Bolotnaya and Sakharov [cases] occurred, political goals seemed to have the potential of uniting different groups of people. ...As soon as the political process went away everything resumed its natural course. On the one hand is xenophobia; on the other is the consolidation of ethnic groups (Central Asian nationals specifically) as a reaction to their illegality" (Al'bats, 2013).

However, sociological survey results show that the problem of extremism is not central in the Russian consciousness. On January 18–22, 2008, the Yuriy Levada Analytical Centre (Levada Centre) carried out a representative poll involving 1,600 interviewees. The question was: "What do you think presents a key internal threat for Russia?" Most of all, Russians were anxious about "arbitrariness and irresponsibility typical of uncontrolled authorities" (20%), "economic problems, lower economic growth rate" (19%), and "political instability" (16%); only 5% of the respondents indicated political extremism (fascism, Muslim radicalism, ultranationalism) as the most important (Levada Centre, 2008).

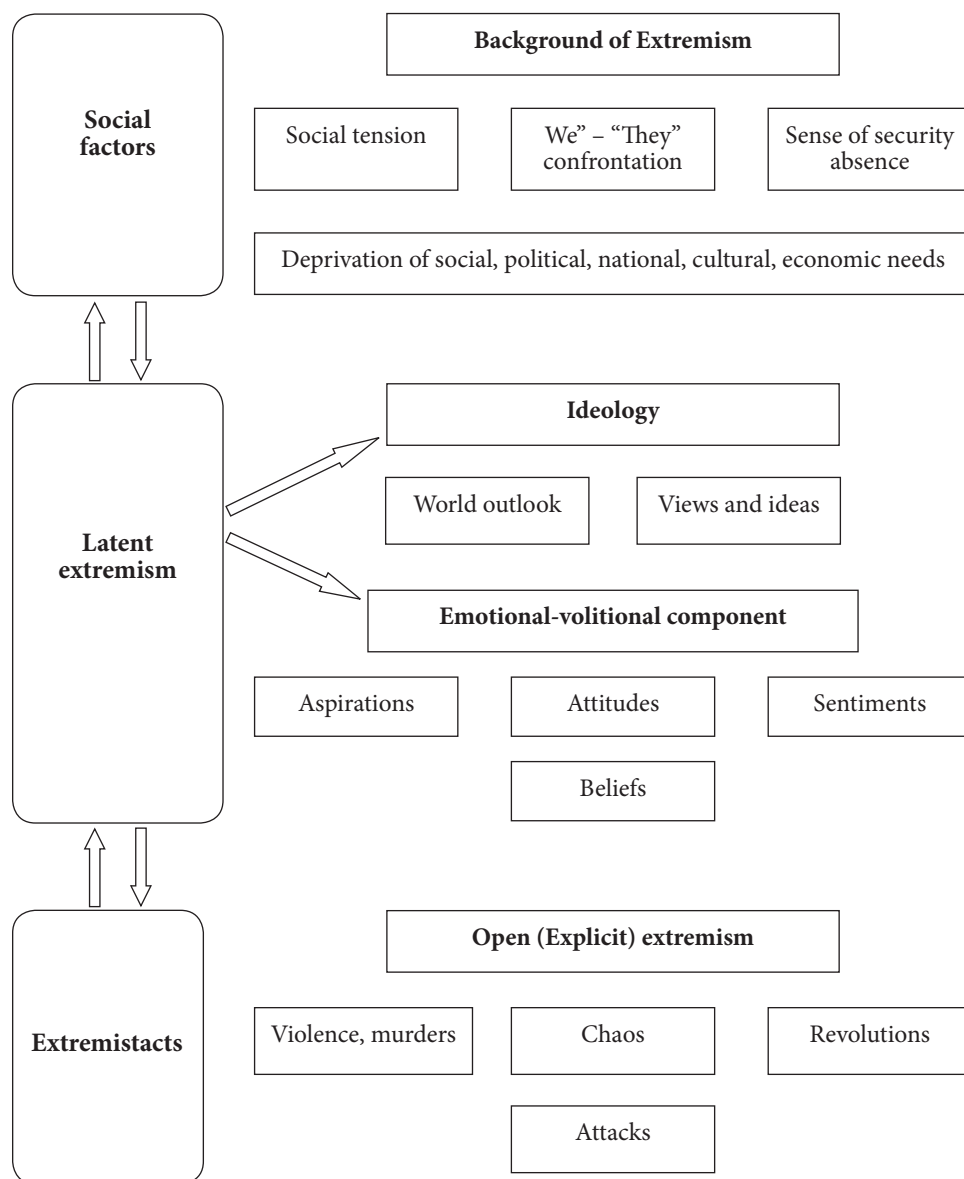
The psychological content of the extremism phenomenon cannot be reduced to a separate feature or characteristic; it is a complex, multilevel, and multicomponent phenomenon that possesses several "key dimensions." A system approach makes it possible to thoroughly explore the structure of such a phenomenon. As the author of the tensor theory of complex systems, G. Kron argues that "the object is cut into sections with the purpose only of finding out how to assemble them into one again" (1978, p. 177).

A system approach as a methodological principle for studying complex objects was formulated in the natural sciences in the 1960s–1970s (P.K. Anokhin, S. Beer, I.V. Blauberg, B.M. Kedrov, G. Klir, V.N. Sadovskiy, A.I. Uyomov, Y.A. Urmantsev, E.G. Yudin, L. von Bertalanffy); it later proved its fruitfulness both scientifically and practically in different areas. The general principles of the system approach were perceived by outstanding psychologists in this country, and they then demonstrated the biosocial essence and system character of the human mind (P.K. Anokhin, L.M. Bekker, B.F. Lomov, V. S. Lomov, V.S. Merlin, K.K. Platonov). In accordance with the system character of the human psyche, approaches to complex and system research were worked out.

Ideas about a complete understanding of the psyche in the unity of its biological, social, and strictly psychological manifestations were implicitly present throughout the formative stages of the domestic school of experimental and pathological psychology, in St. Petersburg in particular (V.M. Bekhterev, A.N. Bernstein, A.F. Lazurskiy, S.L. Frank, M.Y. Basov), but the methodological essence of this integrity could be fully realized only in connection with the development of the system approach in psychology. For this reason, a distinct methodological reflection



of system analysis applied to psychological problems and their handling through scientifically, not intuitively, substantiated methods of the system approach is becoming topical (Figure 1).



**Figure 1.** Extremism from the perspective of the system approach

Thus, on the basis of the work of foreign and domestic psychologists it is possible to identify and to group conventionally the following foundations of extremism.

## **Social factors**

### ***Security***

At the beginning of the third millennium the psychological understanding of security is being determined by global changes associated with the sophistication of social structures, the growth of uncertainty, and the unpredictability of the future of humankind. Modern society has entered a new era of “mega risks”; some researchers (U. Beck, A. Giddens, N. Luhmann, and others) classify it as the “risk society.” This classification is confirmed by Castells’s statement that the basic social structures in the age of information are social movements (Castells, 1999).

It may not be a coincidence that such a new category as security, which is closely tied up with the category of risk, found its place in psychology. In the post–Cold War period a bipolar world supported by superpowers — the USSR/USA equilibrium — disappeared, giving rise to totally new types of threats to security (Polikarpov, 2001). Nowadays scholars and policymakers are discussing issues of political, economic, military, informational, conceptual, psychological, and cultural security that should be addressed on the basis of the nonlinear nature of world-wholeness.

Security in modern daily life, which is interrupted by explosions, catastrophes, and terrorist acts, is becoming one of the scarce benefits of existence; security is the result of cooperative efforts involving authorities, intelligence services, and the rest of people who save society from terrorists and other robbers of security. “The attitude toward security can be mediated by the context a person reads into this notion and can differ in regard to ways of achieving it” (Dontsov, Zinchenko, & Zotova, 2013, p. 99). As a rule, we start to fight against a lack of security only after one more tragedy has happened. Measures to prevent and foresee this dreadful phenomenon still require great efforts on the part of psychologists, sociologists, ethnologists, and ethnopsychologists, who not only should find the answer to the problem and carry out monitoring but also should formulate concrete recommendations for state and nonstate organizations. People have a common interest at the least because they face global risks shared by the majority. Contingent worlds of interactions and communications are made up of events common for this or that group of people (Smirnov, 2003, pp. 29–30). If we comprehend reality in this way, we can assume that people’s striving for security not only is one of the conditions of coexistence but also indicates their readiness for co-being, meaning-making, and interaction. Zotova indicates that “it is in human nature to feel security/insecurity on the basis of alarming signals, the perception of sense organs, instinctive reactions, and intuition; that is, in this light security (insecurity) means an individual subjective idea of whether there are threats to existence or not” (Zotova, 2012, p. 111).

### ***Social tension***

Different factors provoke extremism: increasing social tension, socioeconomic crises, a drastic fall in the living standards of the majority of the population, deformation of political institutions and power structures, cross-ethnic conflicts, a desire of specific social groups to speed up the search for solutions to their problems, inadequate political ambitions, and so forth. The emergence of social tension is

enhanced largely by the inability to satisfy social, economic, political, national, cultural, and other vital human needs, interests, and rights.

Thus, in Ol'shanskii's words, "mass industrial production based on scientific and technical advancements fathered a particular life dynamism that is reflected in, among other things, a rapid increase in human needs" (Ol'shanskii, 2002, p. 151). The author remarks that this circumstance is seen both in the material and in the spiritual, social, and political spheres. At the end of the 1960s mass youth turbulence in the West demonstrated that the time was ripe for new desires. Later, the fact that all youth protest movements brought about new facets of the counterculture confirmed this conclusion. Ol'shanskii also emphasizes that not only have needs grown but so has the opportunity to meet them. Life dynamics, the deepening of integration processes, and the shortening of transportation and information distances generate both new demands and their seemingly easy supply. The modern world has at its disposal considerable riches and creates all of the new needs.

### ***The "we-they" dichotomy***

Extremism does not recognize dialogues, as in its essence it is a form of one-dimensional, "mono-hemispheric" thinking (the "we vs. they" principle).

The identity of extremism is based on the oppositions "our-others," "we-they." This "uniting" ideological factor encourages the creation of collectives of like-minded people who have a clear idea of an enemy to fight against using all available means and methods. This antagonistic image ensures a "blind" commitment to extremism and to what the foe personifies (Gritsenko & Lukyantsev, 2012).

Kozyrev believes that the search for an enemy can be treated as the intention to shift the blame to other shoulders, an aspiration to "attribute" one's own sins and selfish impulses to somebody else. "To justify their collaboration with fascist Germany and its crimes during World War II, pro-fascist forces in some Baltic countries made an attempt to cast the Red Army as a 'conqueror' instead of as a 'liberator,' i.e., making it a foe" (Kozyrev, 2008, p. 38). In fact, extremists' specific corporate identity is built on these principles. "The establishment of such a group, however, has the same principles and peculiarities as a classic organization; their characteristic corporate culture can be considered a set of attitudes maintained by its members with regard to the organization itself, the content of its activities, its external environment, its leadership and other members" (PereLygina, 2011, p. 352).

### **Latent extremism**

The above-mentioned factors act only as provoking ones; the probability of the emergence of actual extremist activities is determined by how their influence is deflected through the prism of sociopsychological features: value/meaning dominance, attitudes, social notions, stereotypes, need/motivation tendencies, and so forth. Irrespective of provoking factors different types of extremism can have similar psychological mechanisms.

### *Ideology*

The “inward” or subjective plan of what is seen from the outside as extremism can be characterized as glorification or messiahship. Extremists, guided by their ideas of the world and society, are convinced that these ideas have to be implemented. Because no one but they seem to be able to do so they think their intentions are a kind of mission to be realized at all costs.

Extremism is characterized by absolutism, negation of another point of view, and uncompromising stands. In this connection an appeal to feelings, emotions, beliefs, and convictions substitutes for an appeal to reason and common sense.

Extremists have specific personal forms of thinking: a craving for “principled” judgments at all times and in all places leads to completely abstract premises and conclusions that do not take into account the complexity of reality and thus relieve extremism-driven individuals of the special difficulty of assessing the real situation.

Krasikov speaks about a particular “extremist” world outlook. He considers extremism a set of worldviews, a specific form of consciousness. “Extremism is first and foremost a specific worldview or a coordinate system. It expresses the identity of certain groups of people who find themselves in direct disagreement with the norms and values of a dominating culture. Such an identity reveals itself in various ways: a defiant life style, different clothing, jargon, etc.” (Krasikov, 2006, p. 25).

### *Cognitive specifics*

Extremism is connected with a perception deficiency and with a conflicted world picture in particular. According to Afanas'ev (2001, p. 20), extremism “grows out of an excessive perception of social phenomena.” “Cognitive psychic functions provide information processing: its separate estimation parameters, selection of its most significant items, their retention and usage in generalized notions” (Dontsov & Zotova, 2013, p. 78).

Haslam and Turner (1995) believe that extremism is an autonomous category basis for alternative decisions. Extremists see the world as “black-and-white, without shades of grey” (p. 368). Therefore, the majority of extremists are marked by a bipolar view of the world and society, by their contrasting of, for example, “I-they,” “the reds–the whites.” This characteristic results in aggression toward and intolerance of those who oppose their opinions (Gayvoronskaya, 2012). This is the logic of emphasized conflict and a sharp dichotomous contrast of extremes: ours and others, truth and lie. Notably, everything that differs from extremist beliefs is indiscriminately declared a lie. Everyone who does not share extremist beliefs indiscriminately becomes an enemy (Yakh'ev, 2009, p. 396).

It is also worth noting that “schemes concerning the perception of different objects and phenomena are designed depending on the extent to which these objects are meaningful for this or that culture, thus attracting attention to essential information and influencing what first comes into the minds of representatives of different cultures” (Dontsov, Drozdova, & Gritskov, 2013, p. 71).

### Extremist activities (pronounced extremism)

The range of typical extremist activities is quite wide. The following acts are referred to in publications as illegitimate, aggressive, violent: creating chaos, sabotage, blackmail, hostage taking, murders, robberies, mass turbulence, vandalism, and others. In a word, all of them are various forms of terrorist, destructive acts. Acts of internal aggression include self-tormenting, fasting, hermitry, ritual suicide (more often, individual and group immolation) (Yakh'ev, 2010).

Thus, extremism is aggression aimed against the existing social order. It is a natural reaction of various social forces to critical social situations. In essence, extremism is the struggle of social groups for the survival of their physical existence and cultural identity when they are placed in critical situations by extraordinary means and methods. But this fight is destructive and illusory; it does not ease but dramatizes the critical situation of the given group even more.

Extremism is a complex, heterogeneous social and sociopsychological phenomenon that can be conceived exclusively through the concept of interdependence. A system approach allows us to formulate an idea of an object as a system, identify consistent patterns of its manifestation, and put it into practice. This approach is fully pertinent to extremism, with its variety, multifaceted nature, and polyphony. In order to gain insight into it, it is necessary to consider the unity of its components, properties, and relationships.

Because of its continuous development extremism cannot have a finite number of forms from the point of view of cognition; in the course of its study new features are detected and new notions are formed.

Scientific analysis, especially psychological analysis, of extremism provides an opportunity to work out principles for preventive measures directed toward the nonproliferation of this phenomenon. As shown by the results of sociopsychological activities, the prevention of extremism, in the youth environment primarily, can take several directions: strengthening the role of traditional institutions of socialization and promoting activities aimed at relieving the destructive tendencies typical of marginal groups and youth subcultures. Dontsov and Perelygina (2011) particularly point out that the stability of social space is provided by the effective social policy of a state as a subject of social sustainability.

The topicality of the study of extremism and of the development of scientifically substantiated methods of its prevention is determined, primarily, by the fact that extremism prevention enhances the reduction of the dissemination of destructive ideologies including that of terrorism-oriented ones.

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## Psychological aspects of the Aum Shinrikyo affair

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Terrorism has become a highly important problem for humanity, and psychology tries to make its contribution to the study of this complex phenomenon. In the current work we analyze not a typical terrorist case, but an unusual one: the sarin attack which took place in Japan in 1995. The current study combines the cultural-historic approach of L.S. Vygotsky, and research on Japanese mentality and collectivistic psychology. The results show the importance of several key factors that led a religious sect to become a terrorist organization. In spite of the uniqueness of the Japanese psychology, in the Aum Shinrikyo case we can see some common aspects of terrorist motivation and behavior.

**Keywords:** Japan, religious terrorism, religion, terrorism in Japan, Aum Shinrikyo, social behaviour, conformity

### Introduction

Japan is known as one of the safest countries in the world, but terrorism has become so global, that nowadays any country can suffer from terrorist attacks. The most famous (and to be accurate, one of the very few) acts of terrorism to have occurred in Japan was the sarin attack of 1995, perpetrated by Aum Shinrikyo. Terrorism in every region has its own typical features, as does Japanese terrorism. By analyzing the psychological aspect of the Aum Shinrikyo affair, we can learn more about the goals and motivation of terrorists in general.

Aum Shinrikyo is a Japanese religious organization, better known for its terrorist activity, mainly the for sarin attack in the Tokyo subway on March 1995. This act of terrorism came as a surprise to the whole world (for the first time in human history weapons of mass destruction were used by non-combatants, and it happened in Japan, which is known as one of the safest countries), but it was a much greater shock for Japan itself. Japanese society always had confidence in a perfectly organized social system, with no possibility of violence. The sarin attack showed that this was an illusion: Japanese people for a long time could not feel safe in their own country. It is what can be called an effective terrorist attack: 12 people killed, but with a great psychological impact on the whole country.

The most surprising fact for the Japanese people, after news of Aum had spread all over the country, was that most of the terrorists were graduates of famous universities: Tokyo, Waseda, Kyoto, etc. They were not uneducated misfits (from whom violence is more often expected), but qualified specialists, with good educations and with ambitions. This fact meant, in general terms, that in spite of career and other material opportunities provided by Japanese society, young people could choose anti-social forms of behavior. Moreover, they were not only anti-social, but they acted violently against their own country. Psychologists, sociologists, historians and journalists from Japan (and several specialists in other countries) tried to explore the Aum Shinrikyo phenomenon and came to the conclusion that Aum was a result of many factors, leading from religion to tragedy.

Terrorist motivation was always a great field for discussion between scientists; psychologists try to find the proper method to analyze the problem (Zinchenko, 2007, 2011). Terrorism in Japan is, of course, a special case (Raevskiy, 2012), but in this study we tend to use the achievements of the Soviet psychological school.

According to the Cultural-historic approach, introduced to psychology by L.S. Vygotskiy, every event should be analyzed not as a certain independent case, but in connection with the specific cultural features of the region and the time it took place. If we take a look at the situation in Japan in 1980s, when Aum Shinrikyo appeared, we can see that the social-cultural background can be definitely seen as one of the main factors of the Aum phenomenon.

First of all, we should not underestimate the role of Japan's defeat in World War II and the occupation of Japan by American soldiers. It was preceded by Emperor Hirohito's speech on the radio: for the first time in Japanese history, the emperor admitted that he was not a God (*kamisama*), but an ordinary man. Some historians argue that this had a greater psychological impact on people than the defeat itself (Mesheryakov, 2009). In any case, Japan had to build a new country under the supervision of the USA, and for post-war generations, work for the sake of their country was of the greatest value.

The next generation, born in the 1960s, was much less idealistic in its aims: money for them was not an ultimate goal, but merely a way to provide a living; young people were seeking spiritual enlightenment more than economical welfare. Some Japanese sociologists invented a new term for the post-war generation: they call them *shinjinrui*, meaning "New Generation" (Tanaka).

We must also remember that religion in Japan plays a role that is different from our culture. The indigenous faith of the ancient Japanese is called Shinto (神道, which can be translated as "the way of the gods") and it greatly influences modern-day culture and traditions in Japan. In the sixth century Buddhism was adopted, and the Japanese religion became more complicated, becoming more a set of practices and rituals than a belief. For centuries, the Japanese did not have a need for the spiritual functions of religion, but in the severe and hard post-war times there was a situation which was described by the American historian and religious scholar D. Metraux as a "religious vacuum", when people needed religion to recompose themselves, but could not find anything in their religion that could help them.

The religious situation in Japan in 1980s can be called an "occult boom", when people were looking for a religion, and many New religions (*shinshukyo*) appeared as a response to the needs of the Japanese (Metraux, 1999). Aum Shinrikyo was ini-

tially such a religion, and in its beginning there was nothing to show that it would later become a terrorist organization.

Another reason for Aum's popularity (especially among young Japanese) was that the founder of the cult, Shoko Asahara, understood what people needed at that moment, and used it in the promotion of his religion. Levitation and supernatural abilities were introduced in the form of manga and anime, beloved by all Japanese, so that people could quickly catch the main idea: living in society is boring, but joining Aum helps in making new friends, developing one's skills, and reaching enlightenment. The main targets for such propaganda were young graduates of the universities, and Asahara made every effort to invite them to Aum laboratories.

We should keep in mind that Shoko Asahara, according to the evidence, was a talented storyteller and a very charismatic person, which made Aum not a boring, one-among-many religion, but an attractive cult with bright visual advertisements and a smiling, understanding guru. Thus, we can come to a conclusion about the importance of Asahara's role in Aum activities, and the role of leader is definitely a second major factor which led Aum to tragedy.

Shoko Asahara (his real name is Chizuo Matsumoto) was born on Kyushu, in a poor family of tatami mat makers. Afflicted at birth with infantile glaucoma, he went blind at a young age in his left eye and was only partially sighted in his right. After he moved to Tokyo in 1978, he tried to enter Tokyo University, but failed the exams and started a new business in Chinese herbal medicine. Having an interest in religion, in 1984 he opened a small yoga club, which became more and more popular, perhaps to Asahara's own surprise.

Every guru should have his own legend, and Asahara created one after his trip to India in 1987. He told his disciples about a meeting with the god Shiva, that the Dalai Lama gave to him a special mission, and from now on he was guru (in Japanese - *sonshi*) Shoko Asahara. The Dalai Lama came to visit Japan in 1995, several months after the sarin attack. When asked about his meeting with Asahara, the Dalai Lama said that he remembered a strange Japanese man coming to visit him, but that he did not give any special mission to him.

After that group changed its name to Aum Shinrikyo and started an active PR-campaign, attracting many people who even left their houses to live in the Aum commune (this practice in traditional Japanese Buddhism is called *shukke*, but although it was popular in the 13th century, it appeared very strange in the end of the 20th). Many Japanese students became interested in reaching spiritual enlightenment with Aum.

It is even more surprising that another boom of interest in Aum Shinrikyo was after Aum manga "*Metsubo-no hi*" (1988), about the Armageddon. According to this comic book, everyone except Aum members would die during the destruction of this world by the Shiva deity. Speaking about the Armageddon was a good idea for Asahara: before the approaching millenium in 2000, many Japanese felt worried, and joining Aum was a solution to overcome those fears. This fact means that, no matter how strange this cult can appear from the present day, the social and psychological climate in the time of Aum's existence made it very popular among young Japanese.

It is possible to suppose that it was the popularity of Aum which led to the dramatic changes inside the organization and the tragedy in 1995. According to I.

Reader, intensive physical exercises and ascetic practices helped Asahara to suppress his “dark side” (such as his intentions to rule and manipulate people). But the larger and more powerful his cult became, the more Asahara distanced himself from religious practices and asked his closest disciples (*seitaishi*) to perform physical exercises. He became a real guru, saying wise things, seldom moving, and eating his favorite food (in contrast, Aum followers were to adopt severe ascetic practices). That made Asahara (initially a charismatic yoga teacher) more violent with his disciples: the first acts of violence inside the group occur in 1988 (Reader, 1999).

The same year, the first death occurred in Aum: 21-year-old disciple Majima Terayuki died from a heart-attack during a 24-hour meditation session in a dark room. That death was a great psychological blow to Asahara: it meant that his religion brought people not to salvation, but to death. It became necessary to change the Aum doctrine in such a way as to justify murder, and Asahara took from Vajrayana, a branch of Tibetan Buddhism, the idea of *poa*. *Poa* means sacred killing in the name of the guru: people can be killed, if they accumulate bad karma, and in this case *poa* helps them to be reborn with better karma in the next life.

From 1989, every person who did wrong from Asahara's point of view could be killed for their bad karma. Aum had planned several (both successful and unsuccessful) murders, and when in 1992 the Japanese people didn't vote for Aum Shin-rito (Aum's political party) in the parliamentary elections, Asahara announced that society (except Aum members) was filled with bad karma and needed *poa*. That meant that in the space of a few years Aum had changed its main aim – from salvation to destruction. And, as we can see, these changes happened with (and even in accordance with) Asahara's mental state and religious ideas.

One more important psychological aspect of this problem is: why did Aum's disciples, after having understood the criminal and violent tendency of the movement, not leave it? Moreover, they became terrorists and producers of weapons of mass destruction. It was a big surprise for the Japanese at that time, but the answer probably lies deep inside Japanese culture and psychology.

If we take a look at Japanese culture and social behavior, we can see two very important features. The first is that Japan is a collectivistic culture, in which group values are more important than individual ones. In such cultures, obedience and loyalty to the group are considered to be important qualities (Triandis, 1994). The second is that the Japanese, according to several studies in this field, have a high level of conformity: this means that a member of this group is more likely to agree with the group's decision (Matsuda, 1985).

We should also bear in mind so-called ‘conformist aggression’, which “comprises various acts of aggression that are performed not because the aggressor is driven by the desire to destroy, but because he is told to do so and considers it his duty to obey orders. In all hierarchically structured societies obedience is perhaps the most deeply ingrained trait” (Fromm; 1992). Such aggression can be seen, for example, in Milgram's obedience experiments, or in the Stanford prison experiment by Ph. Zimbardo. These experiments have shown that people do not need to be aggressive to commit violent acts; passively obeying orders can sometimes lead people to committing very cruel actions.

It is also important to keep in mind that we are speaking about group consciousness, and that any ideas shared by the group have a greater impact on the psychol-

ogy of the individual. An important feature of forming of a group consciousness is a division between “us” and “them”, and it can be used to provoke different feelings among the members of the group.

In the case of Aum Shinrikyo we can underline three main factors that influenced the cult’s popularity and its transformation into a terrorist group:

**The social and cultural background in Japan in the 1980s.** Religions were very popular among the Japanese at the time, and Asahara used his charisma to build a successful business. It is unlikely that without the unstable psychological climate that was felt in Japan in the eighties, a small religious cult, even one led by a charismatic person, could achieve such success and popularity as Aum did.

**The role of the leader.** The final results of Asahara’s psychiatric survey after his arrest have not been publicly revealed yet; however, there are some reasons to suppose psychological illnesses. Psychiatrist R.J. Lifton, for example, supposes megalomania (Asahara in his books compared himself with Napoleon and Christ).

**Conformity of the disciples.** It was Asahara’s disciples who committed the sarin attack, even though they understood that it was wrong by in the eyes of society. A group of devoted followers made violent ideas come true; and in this aspect their role in the tragedy is as important as Asahara’s.

The most important thing that the Aum story can teach us is that it takes many factors to coincide to make such acts of religious terrorism possible. But if it happens, with the possibilities and dangers of the modern world, the consequences are unpredictable.

## Conclusions

Among many other, not so well-known but very important aspects of the Japanese mentality, that the Aum affair has revealed, we can point out one important factor which is connected not only with Japanese traditions, but with the psychology of the individual in general. The most important thing for understanding the reasons of the sarin attack is that terrorists are not aggressive people who want to inflict harm and violence, but more often, are motivated to commit violent acts under certain circumstances. Aum followers were interested in religion and in reaching salvation, but due to certain factors, such as their strong commitment to the guru and the conformity among group members, they had to take part in terrorist activity. This means that in analyzing terrorism we should always keep in mind the social and psychological background of the act.

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## Interpersonal confidence as a factor in the prevention of disorganized interaction

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Human communities are based on a certain set of everyday attitudes, on the coordination of the actions of “the self” in a group, and on the regulation of social practices. The results of this study show that a number of factors act as determinants of trust/distrust ambivalence: the multidimensionality and the dynamics of interactions among people; the high level of subjectivity in evaluating risks resulting from openness and from confidence in partners involved in an interaction; and a subject’s contradictory attitude toward the personal traits of an interacting partner (power, activity, honesty, trustworthiness). Japanese scholars have proved the necessity of taking into account quality of life (QOL) as one of the determinants of the development of interpersonal confidence. The study demonstrates that people try to bring trust into their daily routines as a way of organizing conscientious, emotionally open interactions that take into account the interests of all parties. Mistrust blocks access to the emotional, intellectual, and activity-related resources supporting life and undermines faith in the possibility of virtue and morality. Yet a supplementary study (using instant diagnostics) indicates that in practice respondents did not demonstrate a high level of confidence (in two cities it was 0%; in one city, it was 4.6%). In spite of emotionally positive views regarding trust, as well as constructive estimates of its moral/behavioral potential, a considerable number of respondents were not open and oriented to the interests of others. A tendency toward caution, inwardness, and constrained sincerity leads to nonconformity in one’s actions in a group and to changes in the vector of social practices from socio-partner regulation to disorganized interaction.

**Keywords:** social interaction, disorganization, conscientiousness, psychological security, confidence

In addition to self-awareness, self-determination, “pre-behavior,” and other phenomena in the social-psychological field, modern psychological studies pay considerable attention to the phenomenon of interpersonal confidence; the authors of these studies consider confidence to be one of the foundations for a social subject’s

categorization of social space and for the interactional environment. In particular, “the discrepancy between the character of the organization of the subject-spatial environment and man’s nature primordially affects different structures of the psyche in a destructive manner and subsequently distorts and wrecks an individual’s personality” (Zinchenko & Perelygina, 2013, p. 104). Confidence is described in the context of theme-oriented and practical activities of individuals interacting in formats for social and economic behavior. It is conditioned by a set of previous behavior patterns embracing interaction with other social subjects, organizations, and social institutions; these patterns provide a basis for prognostic understanding of other subjects’ actions and their probable consequences. Behavioral events as a component of social interaction are determined not only by gaining insight into another person but also by the sacral status of the regulation of organized interaction.

The process of personalization associated with the development of the humanistic and moral foundations of life has made it possible to draw parallels between a number of dichotomies: trust expectations–mistrust expectations, condition of security–condition of insecurity. These parallels were methodically addressed by Zinchenko (2011b, p. 6): “The formation of life-purpose orientations and the systematization of information about the world in a definite way that affects the self-awareness of society and the dominating values in it depend on particular constructions of the subjective world and on the perception of the world through the lens of security/insecurity.”

In a book about “self” theories, Dweck (2002) focuses on the prognostic potential of trust in social interaction: “When we observe intricate shifts or situations fraught with failure we find out that confidence loses its potential of being predictable” (p. 52).

In the course of professional interaction another context emerges in which the level of the expectation and prediction of behavioral experience is connected with the criteria for personal values. So, the confidence in a firefighter when flames are rushing near can be interpreted as obligatory trust in a professional who is literally responsible for human lives. The same obligatory confidence in political institutions, banking and financial organizations, leaders, and others can (and has to!) be inspired. “Institutions, governmental structures, churches, division into classes exist only in a flow of links and matches that involve them in mutual relations. Everything is dependence, a link, a contact, a metamorphosis... It is no use looking here for the essence of collective and material phenomena without their interrelationships” (Moscovici, 1998, p. 462).

The confidence factor is a strong component in psychological interaction. In interpersonal relationships the role of an individual’s trust in a partner’s honesty and trustworthiness is great; sincerity and human decency in a social group are important factors for the security of intragroup interaction. At the level of a state and its institutions, relations are based on trustworthiness or its absence, and here evaluation of the reputations, relationships, and conscientiousness of officials can result in macro-effects. Garfinkel (2009) emphasizes that the assessment of individuals adds to the disorganization of social interaction: “We are able to remember how greatly people can be at risk, those people whose appearance disturbs the characteristic arrangement of everyday life; it is of no importance whether they do it

with experimental aims or, like a psychopath, demonstrate it as a customary behavior pattern. One's status of being perceived as a competent member both in one's own and in other people's eyes—that is, the status of a conscientious member—can change or can be changed by people for whom these attributions are still valid into any of the statuses a society ascribes to those 'who lack a rational mind'" (p. 20). The perceived competence and coordination of "self" actions generate the modern perspective of organized social interaction. So, for instance, "Lutheran dominance of the state over the church and a high level of public confidence resulted in the fact that in Sweden the state has become not a mechanism for the suppression of the individual but a vehicle for effective collective actions" (Zotin, 2013, p. 20).

As history has shown, human communities depend on mutual trust and they do not appear if this trust is lacking. "The security/insecurity of the surrounding reality facilitates the formation of everyone's own sets of opinions, views, and arrangements" (Zinchenko & Zotova, 2013, p. 111). Hierarchy is necessary because of the impracticability of a situation in which every person can be trusted at any time in accordance with secretly understood rules of ethics. If a member of the community breaks the established order, the community, at whose disposal there are adopted norms and sanctions, is forced to use coercion. In this sense, an individual becomes not only trustworthy but reveals dedication to the regulation of everyday practices, which shapes personality with confidence in and respect for the community. "Functional models of group interaction also assume the realization of perception functions that are connected with the processes of symbolization and thinking. They depend largely on group self-perception, which, in turn, is built on the basis of depictions of its spiritual arrangements in myths, fairy tales, ideologies, and utopias, which are widely used in advertising and which signify for the given group characteristics of the boundaries for the interpretation of reality" (Dontsov, Drozdova, & Gritskov, 2013, p. 81). In a vulnerable area such as economics these self-perceptions are highly appreciated.

Confidence in regard to economic behavior acts as a hierarchical phenomenon and includes confidence in the commercial interaction of individualized economic subjects, mutual trust between organizations as economic entities, and the establishment of "trusted partnerships" with international economic entities. Some foreign countries demonstrate the essential advantages of confidence in the entrepreneurial sector. For example, economists argue that the "mutual trust and honesty in economic affairs characteristic of Sweden create a favorable business climate" (Zotin, 2013, p. 20).

Because confidence acts as a prerequisite for joint activity, it is possible on these grounds to treat an act of confidence (the manifestation of trust, trust building, and so forth) as an activity that cannot be reduced to the initial goal but that serves as a condition facilitating a subject's interaction and interpersonal relationships in the social milieu.

Confidence deficit and mistrust in the system of intersubject interaction are linked with certain features of the situation, the context of the interaction, and other factors. In Yekaterinburg (2011–2012) data on conditions and factors that shape notions of confidence were specified in the course of the survey. The respondents' characterizations of the term *confidence* were processed via factor analysis, which allowed us to single out four significant factors.

The first factor accounts for 16.47% of the total variance and includes the following responses:

confidence in another person's readiness to selflessly mind one's affairs as if they were his/her own	.87
tendency to act in another person's interests	.76

Analysis of the first-factor scales enables one to interpret this factor as Interaction. The respondents associated this factor with mutual support.

The second factor explains 18.69% of the total variance and includes these responses:

emotional bond	.92
virtue	.41

The content of the features constituting this factor allows one to treat it as Personalization, which speaks of one's being ready to allow another person to enter into one's private zone, to share intimate information and important feelings.

The third factor is bipolar; it accounts for 19.49% of the total variance and includes the following response:

belief in one's conscientiousness	.83
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The opposite factor is represented by this response:

absolute openness toward another person	-.63
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This factor can be interpreted as Orientation to Decency; orderliness in one's historical and moral perspective has always been associated with conscience (conscientiousness).

As an extension of this position the respondents perceived confidence in light of the notion of "verification before ratification"; consequently, confidence does not always imply complete openness, perhaps because of the fact that in modern society one often experiences vulnerability and prefers shielding oneself from disorganized and radical contacts.

The fourth factor is bipolar; it accounts for 15.02% of the total variance and involves the following response:

moral attitude	.87
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The opposite factor is illustrated by the following response:

absolute openness toward another person	-.46
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This factor can be considered to be Humanism, which testifies to a humane component of trust-based relations and expectations of mutuality in ethical approaches.

Thus, one can say that the respondents of Yekaterinburg took confidence both, on the standard side, as openness toward another person, humaneness in relationships, and mutual aid, and, on the nonstandard side, caution, which allows one to avoid dangers that can arise in trusted interactions between people in the course of interpersonal relations.

In order to examine the confidence factor with more accuracy, express diagnostics (with the use of the Rosenberg Self-Esteem Scale) was conducted in Yekaterinburg in 2013. The sample characteristics were as follows:  $N=39$ , ages 18–31, 11 males and 28 females, education: final-year university students. Not a single respondent demonstrated a high level of confidence; 16 respondents demonstrated an average level (41%); and 23 respondents manifested a low level of confidence (58.97%). To gain an understanding of these insufficiently high rates, let us look at the essential characteristics of the Ural respondents.

The study of the phenomenon of confidence involving Yekaterinburg residents (2011–2012) resulted in a semantic field formed by the two leading factors combined. The semantic-field analysis showed that “moral attitude” is located in the same semantic zone as the notions “absolute openness toward another person,” “belief in one’s conscientiousness,” “emotional bond,” and “tendency to act in another person’s interests,” which form the scales Interaction and Personalization. One might say that in the respondents’ consciousness confidence was strongly associated with the conviction that their communication partners were honest, sincere, decent, and trustworthy.

Such notions as “incidental relationship caused by common achievement” and “human naïveté” entered the zone made up of the negative poles of the Inwardness and Detachment factors. It may be concluded that the respondents likely perceived lack of trust as weakness.

Contradicting zones formed by the factors Personalization–Inwardness and Interaction–Detachment involved notions of “virtue,” “illusory feature having an incidental character in a lifetime of rationality,” and “confidence in another person’s readiness to selflessly mind one’s affairs as if they were his/her own.”

It may be no accident that the notion of confidence is situated in both positively and negatively charged factors.

An analysis of the conditions in which confidence and mistrust coexist in interpersonal and organizational relationships shows the ambivalence of trust and mistrust. Subjects can both believe and distrust each other at the same time. The reasons for this ambivalence are, first, the multiaspectual nature and dynamics of people’s relationships; second, the contradictory personality traits of a partner; third, the high level of risk assessment that emerges as a result of openness and high confidence in a partner; finally, the conflicting attitude of a subject toward the personal traits of a partner (power, activity, honesty, conscientiousness, weakness).

In 2008, Japanese researchers explored the interrelationship between interpersonal confidence and subjective well-being. Tokuda and his co-thinkers state: “Quality of life (QOL), or subjective well-being, is a critical aspect of individual welfare and is a worthy goal for societies. . . . Thus, we aimed to evaluate the association between interpersonal trust and the QOL among Japanese adults. If this association can be confirmed in this population, controlled interventional studies

should be conducted to confirm its causal relationship and then a policy could be instituted to enhance people's QOL in Japan. Furthermore, these findings might be generalizable to populations in other countries" (Tokuda, Jimba, Yahnai, Fujii, & Inoguchi, 2008). The respondents were grouped according to age (six groups: 20–29, 30–39, etc.), family status, family annual income (up to ¥5 million, equal to US \$50,000; from ¥5 million to ¥8 million; more than ¥8 million). Quality of life was measured on the basis of the WHOQOL personal questionnaire. The survey gave grounds to conclude that interpersonal trust and quality of life have a close relationship: the higher the QOL level, the higher the level of interpersonal trust among respondents. These researchers also obtained the following results: "Based on the between-group comparisons, women were more likely to report a greater trust in all three scales than men. Compared to other age groups, persons aged 60 years or older reported a greater trust in human fairness and nature, while those 20–29 years old reported a lower trust in human nature. There was no significant difference in these trust scales by size of residence. Compared to other income groups, persons with  $\geq 8$  million JY reported a greater trust in people and human fairness. There was no significant difference in these trust scales by educational attainment. For occupational status, compared to the employed groups, homemakers reported a greater trust in human nature" (Tokuda et. al., 2008).

Coming back to Russian reality, the study into the content of notions of the confidence phenomenon shared by residents of Krasnoyarsk (2012) and its subsequent factor-analytical processing made it possible to mark four significant factors.

The first marked factor accounts for 21.12% of the total variance and involves the following responses:

confidence in another person's readiness to selflessly mind one's affairs as if they were his/her own	.79
absolute openness toward another person	.72
emotional bond	.70

Scales analysis gives grounds for interpreting this factor as Mutual Openness. People's readiness to be mutually open to each other is closely linked to the level of trust of each of them based on preparedness to sacrifice time and to make an effort to resolve each other's problems, on emotional and spiritual bonds, and on the possibility of experiencing "togetherness" in the course of interaction and trust reinforcement.

The second factor explains 16.05% of the total variance and is represented by the following responses:

emotional bond	.46
tendency to act in another person's interests	.92
human naïveté	.46

The content of the properties involved in the factor allows one to treat it as Subject-to-Subject Attitude, which speaks to one's readiness to alter one's opinion

by taking into account the stance of another person, naïve openness, and willingness to be close emotionally and actively to an object of trust.

The third factor accounts for 19.64% of the total variance and includes these responses:

moral attitude	.92
virtue	.50

This factor can be taken as Nobleness, which testifies to the fact that the respondents tended to trust people with high moral standards.

The fourth factor accounts for 19.72% of the total variance and includes the following response:

belief in one's conscientiousness	.98
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Therefore, the Krasnoyarsk respondents perceived confidence as openness and trust in a situation of interpersonal interaction as well as concern about the interests of another person.

When we take a step forward and shift from the study of notions of confidence and the characteristics of trusted relationships to the study of the practice of confidence in the respondents' lives, we see that not all the residents of Krasnoyarsk believed that other people can be trusted. By carrying out express diagnostics (Rosenberg scale variant), we found that 2 people exhibited a high level of confidence (4.6% of the respondents), 22 interviewees exhibited an average level (51%), and 19 respondents demonstrated a low level (44%). Thus, for 44% of the respondents notions of a moral, emotional, and activity-based orientation to the interests of another person remained in the realm of hope.

However, it is important with regard to the purposes of our survey to examine the semantic field formed by the combination of the two leading factors; this field determines how confidence was perceived by the Krasnoyarsk respondents. In the semantic zone shaped by positive poles of the intensively charged factors Mutual Openness and Subject-to-Subject Attitude, we find the notions of "virtue" and "emotional bond." In Krasnoyarsk residents' consciousness, confidence should necessarily have been linked to emotional rapport and the readiness and ability to be and to do good (to cast their bread upon the waters) and to coordinate their actions with their partners' interests.

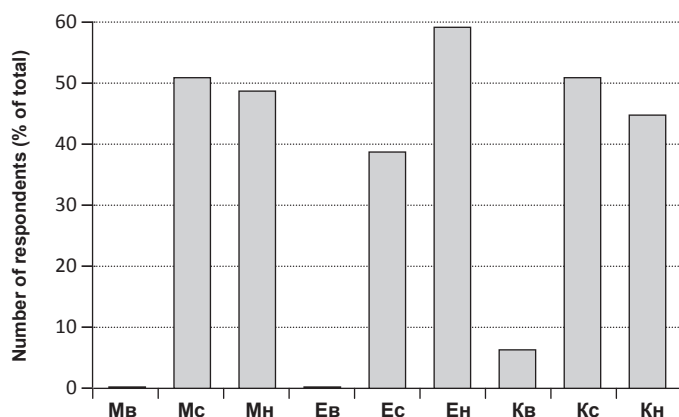
Such notions as "belief in one's conscientiousness," "illusory feature having an incidental character in a lifetime of rationality," "an incidental relationship caused by common achievement" entered the zone made up of negative poles of the Inwardness and Nonconformity factors. It can imply that the respondents could not trust without emotional openness, without being convinced of human conscientiousness.

The following notions filled the contradictory zones formed by the factors Conformity-Nonconformity and Mutual Openness-Inwardness: "moral attitude," human naïveté, "tendency to act in another person's interests," "absolute openness toward another person," "confidence in another person's readiness to selflessly mind one's affaires as if they were his/her own."



The respondents tried to add confidence to their everydayness as a way to organize conscientious, emotionally open interactions in which the interests of all parties are taken into account. Mistrust blocks access to emotional, activity-based, intellectual resources of subjects' life support, hinders their self-realization in the course of communication, and undermines their belief in virtue and morality. Busygina and Zotova (2010, p. 378) draw our attention to the fact that "the rapid advancement of information technologies, the ecological threat exacerbation, and other challenges of modernity generate new types of dangers and threats and, consequently, enhance the necessity to work out strategic measures for their prevention".

It goes without saying that these factors do not univocally determine an individual's dissatisfaction with life or the interpersonal relationships that in their extreme variants can provoke a suicide. Nowadays the number of suicides, as Russian anthropologists argue, "considerably exceeds the number of fratricides: according to the World Health Organization, for example, in 2000 about 199,000 domestic murders were committed, 310,000 people died from injuries and traumas due to military conflicts, and 815,000 committed suicide" (Nazaretyan, 2012, p. 374). Confidence contributes a moral-psychological component to intersubject relations at all levels of human activity. Zinchenko (2011a, p. 13) emphasizes the fact that, with regard to "each of the 'subjacent' levels, a 'superjacent' level is supra-subject. The subject performs a certain activity that provides individual security, and [the subject] acts simultaneously with regard to the superjacent level as an object that accomplishes activities with specific goals, motives, objectives." And confidence can act as a component of psychological mediation in different forms at all levels of human activities.



**Figure 1.** Degree of confidence (express diagnostics data)

MB — high degree of confidence in Moscow; Mc — average degree of confidence in Moscow; MH — low degree of confidence in Moscow; EB — high degree of confidence in Yekaterinburg; Ec — average degree of confidence in Yekaterinburg; EH — low degree of confidence in Yekaterinburg; KB — high degree of confidence in Krasnoyarsk; Kc — average degree of confidence in Krasnoyarsk; KH — low degree of confidence in Krasnoyarsk.

Because uniting people depends on mutual trust, and trust, in its turn, is determined by existing culture, there are grounds to conclude that in different coun-

tries voluntary communities will develop to different degrees; appeal to universal cultural models is fading, and, as a result, the role of transpersonal confidence is increasing. At present public polls show that the level of confidence in socioeconomic institutions is quite low; individuals, in their interpersonal contacts, prefer caution. The results of express diagnostics carried out in Moscow (N = 35, age 18–36, complete and incomplete higher education, 16 males, 19 females) indicate no respondents with a high level of trust, 18 respondents with an average level of confidence (51.4% of the respondents), and 17 respondents with a low degree of confidence (49.6%). The data obtained for Moscow, Yekaterinburg, and Krasnoyarsk are presented in Figure 1.

Social capital is the potential of a society or its parts; this potential emerges as a result of its members' trust in each other. It differs from other forms of human capital in that it is created and communicated through cultural mechanisms such as religion, traditions, customs. Accordingly, not excluding the significance of transpersonal confidence between individuals and selfish interests as constructive foundations of interaction, it should be emphasized that the most effective organizations are united by common ethical values, and the existing moral consensus serves as a basis of mutual trust (Fukuyama, 2008, pp. 48–52).

Through distinguishing cultural patterns and ethical values, different mechanisms of social organization are formed, and, as a negative aspect, so are mechanisms of communicative disorganization. In Great Britain, famous for preserving and respecting conventions, there exist traditional models of an extreme nature: "In London a law hindering a man from beating his wife after 9 p.m. so that the woman's wail cannot disturb their neighbors is still in effect" (Nazaretyan, 2012, p. 186).

Given the globalization of development and the fact that international political and economic relations are generating new threats and risks for the growth of people, societies, and states, the policy of providing social security by systemically creating conditions for personal psychological security and by developing a trusting attitude toward others seems topical and urgent. "The lack of security takes the lead, starts to determine motives for an individual's social behavior through rebuilding and rearranging this motivation and specifically transforming other groups of his basic needs, psychic characteristics, and personal traits" (Dontsov & Zotova, 2013, p. 81).

The surveys we conducted give grounds to argue that trust in others and confidence in social institutions manifest themselves when the gap between the self and the secure self is bridged. Mistrust in social interaction distorts these bases and provokes the establishment of another way of interacting.

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## Security in the worldview of Russians

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This article deals with the role of security in shaping an individual's standpoints, opinions, attitudes, and unique world picture. It is argued that security/insecurity is a subjective notion of individuals about the absence/presence of threats to their existence. The results of a study of the security notions maintained by Russians are described. The data obtained give grounds to suggest that the following characteristics exist in the ordinary consciousness of Russians: security is perceived as a state associated with inactivity; security is seen as the basis of harmonious interpersonal relations; security is considered a kind of "ideal world" and is understood as powerful. A typology of Russians based on the specifics of these security notions is presented.

**Keywords:** security, world picture, ordinary consciousness, typology, security factors

### Introduction

In the Russian language the word *security* is formed by simply adding a prefix (*bez*, without) to *opasnost'* (danger), which thus turns danger into an ideal state of reliability, safekeeping, and the absence of insecurity. However, this interpretation of the word *security* restricts the meaning of the concept. In English *security* and *danger* are derived from different stems and have different semantics. In this light it seems important not to reduce an understanding of security to protection against dangers exclusively but instead to deepen and widen the conceptual semantics of security.

Rothschild (1995) notes that over the last few centuries the concept of security has been interpreted in different ways and has been evolving, together with the transformation of Western society, from weakly perceived notions in which it acts as an inner sensation of a person to increased rationalism and definiteness. In the course of this evolution the concept of security has been verbalized, fixed, and used to denote a right of an individual and the condition of one's individual freedom as set forth in legal regulations adopted in the days of bourgeois revolutions in Western Europe and the United States.

A constant state of flux can be seen in modern society: the rapid tempo of reforms, the development of means of mass communication, changes in social structures and people's relationships. "Sociopsychological parameters of social interaction depend largely on the type of culture as well as on certain strategies of behavior associated with national, mental features" (Dontsov & Pereyagina, 2011b, p. 232).

Radical changes in the world destroy an individual's orientation toward social reality. People find themselves lost in a vortex of events, feel pressured by the surrounding world, and are unsure of their future and the safety of their lives. They face a discrepancy between old and new views, values, and traditions. Motivational factors and basic needs also change regularly. Kozyrev (2008, p. 34) states, "The traditional Russian method of negative mobilization, actualizing the image of the «enemy», is nearly the only way of consolidating society in the face of external threats and internal disorganization".

"Security is a condition of a person according to which he/she can satisfy basic needs for self-preservation and [can have a] perception of being secure (psychologically) in society" (Dontsov, Zinchenko, & Zotova, 2013, p. 99). Security creates conditions for knowledge, exchange, and interaction within one's sociopsychological space. A condition of danger enhances preservation and one's detachment from one's sociopsychological space; in these circumstances a protective function is manifested. A lack of security conditions leads to a defensive stance and generates resistance that can be outward or inward: outward when conventional norms are broken, when so-called discipline infringement and acts of "civil disobedience" take place; inward when there is a flight from social contacts, self-accusation, negative self-attitude, and auto-aggression. Such resistance complicates the system of interpersonal relations and devastates every participant in this process. A long period of emotional tension provokes a search for destructive ways out of a mentally traumatic situation. "It is the deprivation element that determines social behavior by its integral influence" (Dontsov & Zotova, 2013, p. 81).

The security/insecurity of reality facilitates the formation by every person of a specific set of beliefs, opinions, and attitudes — a unique picture of the world. Guided by personal views on security people live and envisage events, build up behavior patterns, evaluate the results of their actions, and modify their interpretations of the world. A constant need to act in a condition of uncertainty, including those in which there is a lack of time for decision making and a lack of information, results in risk becoming an essential signifying element in every person's life.

Analysis of modern views on security shows that the problem of the essence of security and, correspondingly, of its definition still remains unresolved; an understanding of security that reveals the essence of the phenomenon is still being worked out.

The theoretical and methodological foundations of security were properly addressed by the scientific community in the last decade of the 20th century. The following lines of security research are of particular interest:

- The theory and practice of risk management as a basis for the provision of security (T.A. Balabanov, P.G. Grabovoy, I.S. Komin, A.A. Kudryavtsev)

- Social studies of security (U. Beck, E. Giddens, N. Luhmann, V.N. Kuznetsov, P. Sztompka, and others)
- Philosophical and methodological works that consider the problem of security as a whole (G.V. Bro, M.U. Zakharov, N.M. Pozhitnoy, V.S. Polikarpov, A.I. Subetto, and others)
- Security in the context of co-evolutionary and sustainable development (E.I. Glushenkova, V.I. Danilov-Danil'yan, S.I. Doroguntsov, A.V. Ij'ichev, V.V. Mantatov, L.V. Mantatova, N.N. Moiseev, U.V. Oleynikov, A.N. Pal'chuk, A.L. Romanovich, A.D. Ursul, and others).

Thus, scholars and practitioners in Russia have contributed greatly to the investigations of different aspects of security. However, some issues require further exploration in social psychology — namely, notions of security.

In the ordinary consciousness of the people of each nation views on security exist that are typical of their particular culture, history of development, and ethnically colored value system.

The Russian intellectual tradition paid strikingly little attention to security issues in spite of the state's permanently being at war and experiencing several peasant rebellions and local riots. Security in Russia used to be a focus of the state, policymaking, and diplomacy.

Social and economic reforms of the late 1980s and the early 1990s substantially shifted the official “coordinate system” of social space. Today the majority of people have to alter their behavioral, practical, everyday views of the world. Some do it in order to survive; others, to enlarge their opportunities. With the change of perceptions, behavioral strategies providing group affiliation and support also are modified (Klimova, 2002). In addition, stereotypes and attitudes, myths and prejudices add to Russians' chronic lack of security. In the popular mind a sense of danger is growing together with mutual hostility.

Modern times pose new challenges for a person as a member of society. The period during which a new world outlook is being shaped, old stereotypes are being destroyed, and old traditions are being replaced by new ones stirs interest in security issues and notions. New challenges and requirements generated by the modern conditions of human existence, along with emerging types of risk, cannot help influencing the nature of one's perception and view of oneself (Soboleva, 2001). Dontsov and Perelygina (2011a) emphasize that the “security of communications depends mainly both on the level of coordination of the actions of participants in an interaction and on the degree of dedication and social support that encourage the psychological resistance of actors in a social interaction” (p. 30).

In the system of humanitarian thought this interest in security issues and notions has been a lasting one. Scientists have been trying to broaden their ideas of the essence of this phenomenon. However, there are still “blind spots,” and the problem of Russian views regarding security is one of them.

The theoretical corpus of knowledge collected over the history of civilization testifies to the fact that security is an extremely broad phenomenon. So far three basic aspects of the study of security have been marked out. One approach treats security as multidimensional; the second considers security as a multifaceted representation of the optimal condition and the actual condition of security; the third



one considers security as an objective. The condition of security can be of a lesser or a greater extent, or it may not exist at all. The objective can be precisely realized or vague, half-conscious. The security idea can be either true — for instance, when it reflects the security condition in the right way — or distorted — for example, when it underestimates or exaggerates the real degree of danger or safety. In any case the idea takes a dominating position with regard to conditions and goals because one cannot estimate conditions without the notion, and any goal is set according to the estimates obtained.

It has been intrinsic to human beings to value a feeling of security. The world around us was and is still hostile: pitfalls beset us everywhere. That is why danger in ordinary consciousness has been shaped as a complex concept, as a certain composite image, as a mandatory element, as every person's world picture.

A developing world picture of a subject is commonly seen as a dynamic set of individually significant content areas (K. Jaspers), which one possesses at a certain time and which define the internal logic of the construction of one's behavior and life, one's life creation (S.V. Lur'ie, R. Redfield, and others). It is an integrated, multilevel system of human notions of the world, of other people, of oneself and one's activities, a system that "mediates and interprets through itself any external impact" (Smirnov, 1985, p. 142). Content structures of this phenomenal psychic construct can be adequately expressed by the words *picture* or *image* (A.N. Leon-tiev), as they emphasize its key aspects: diversity integrated into its components, constancy and subjective marking of these components, structural wholeness, and dynamics "as a potential possibility embedded in [its] composition" (Aksyonova, 2000, p. 3).

Aksyonova argues that the subjective world picture (individual or universal) that a person has is a specific "way to describe the world" (Aksyonova, 2000, p. 5). Although, according to Hirsh (1988), approximately 80% of background information has a universal character, it is centered on the subject's "self," and its basis traditionally consists of an individual history in the context of which all other events and acquired ideas are collected and interpreted. Choosing or creating this image one manifests oneself by structuring, noticing, identifying, placing, defining, or confirming certain concepts of the world order in one's mind. For this reason, individual self-expression, subjective partiality, the buildup of oneself, the creation of human life cannot be separated from a way of describing the world. The different subsystems constituting a world picture participate in intricate dynamic relations of mutual conditioning: they are being folded, symbolized, shifted from the focus of consciousness to the periphery; they form temporary situation-charged models, frames, and so forth. Any world picture represents an ensemble of mutually interrelated, multimodel notions of the world and of the self. This world picture is maintained by the subject; it is confusing for an observer but is internally logical.

Therefore, one's emotional state, attitude, and perception of the world are altered depending on the absence or presence of security at any given moment. The wider and more multifaceted one's world picture is, the more necessary it is to design orientation tools; for this reason at every new turn of the picture's enlargement a form of its representation (a special interface) already accumulated in its materials is especially crucial. Because of age, individual peculiarities, upbringing, educa-



tion, line of work, abilities, and so on, the picture of “a secure world” can combine predominantly sensitive-spatial, spiritual-cultural, metaphysical, philosophical, ethical, physical, and other elements and can be introduced to each owner with a different degree of integrity. Consequently, the study into personal security should include all the above-mentioned factors.

The range of problems involving social and subject notions constitutes a relatively developed field of psychology. The data documented by a number of researchers characterize sets of different notions: moral (Y. H. Anishcenkova, V. I. Rublik), pertaining to world outlook (G.N. Malyuchenko, V.M. Smirnov), temporal and spatial (S.Y.Pankova), affected by gender roles (T.N. Arkantseva, O.B. Otvechalina), and professional (E.L. Kasyanik, I.V. Makarovskaya, G.S. Pomaz, E.A. Semyonova). Scientists’ interests also involve notions of success (Y.V.Artamoshina), subjective well-being and happiness (H.V.Vinichuk, S.V.Zhubarkin), freedom (V.I.Atagunov), AIDS and cancer (I.B.Bovina, E.V.Vlasova), festive events (S.V.Tichomirova), and communicative qualities (S.S Kostyrya). Similar studies have identified peculiarities of projections of the objective world in an individual’s consciousness, which define to a great degree a subject’s value priorities and life orientations.

It is intrinsic to human beings to feel secure or insecure as a response to alarming signals and sense perceptions, instinctive reactions of organism, and intuition; in other words, a sense of security (insecurity) involves the subjective views of individuals about whether there are any or no threats to their existence. These views help one to modify behavior patterns and to avoid danger. “The ‘social taboo’ situation as well as the situation of a subject’s encounter with a natural object perceived as potentially threatening can cause intensification of a pre-existing itch for action or provoke forbidden actions” (Zinchenko & Zotova, 2013, p. 111).

The restriction of possibilities for personal self-realization that arises from an absence of security conditions leads to specific personality changes that encourage one to work out a set of attitudes toward the surrounding world and one’s place in it based on one’s experiencing a break of meaningful ties and relationships and a feeling that one lacks protection.

Moreover, some researchers are convinced that inaccurate security notions could have a worldwide disastrous outcome. A Japanese expert, K. Mushakoji, in particular, arrived at the conclusion that “the core of a worldwide extreme situation that would make life in its present form highly problematic lies in the crisis of our idea of security and its definition” (Mushakoji, 1991, p. 5).

A subjective interpretation of this phenomenon is largely the result of a person’s attitude to it, and to a high degree it determines corresponding behavior (D.A. Leontiev, H.C. Pryazhnikov, V.I.Pyslar, N.V.Rodionova, A.N.Slavskaya, G.C.Dickson, K.P.Krishna, K.Schneider, N.Posse, N.D.Weinstein). This interpretation is not only the guideline for evaluating one’s own behavior, but, most important, it defines “standards” for such an assessment. In terms of reflexive status personal security is not so much a factual position of individuals as it is a reflection of their subjective views on security. An individual’s state of being secure is more likely to be determined by subjective psychological criteria than by an objective, factual position.

A highly productive method for exploring security is to study a person’s worldview in the framework of the psychosemantic approach (V.F. Petrenko, A.G. Shmelyov, and others). In psychosemantics a paradigm of constructivism is realized in

which the world picture is interpreted not as a mirror reflection of reality but as one of the possibly “biased” cultural and historic models of the world created by a single or a collective subject. “In this sense psychosemantics upholds the position that impliesthe diversity of world models, the idea of the pluralism of truth, and, as a result, the idea of multiple lines of development of an individual, a community, a country, the whole of humankind” (Petrenko, 2010, p. 9). In the context of the psychosemantic approach, personality is defined as a holder of a unique world picture, as a “microcosm of individual meanings and connotations” (Petrenko, 2010, p. 9).Psychosemantic methods were further elaborated in the works of V.V. Stolin, M. Calvinjo on self-awareness, V.K. Manerov on the psychodiagnostics of personal speech, and L.A. Korostylyova on subjective life experience in the context of an individual’s self-realization.

## Methodology

The *aim of the research* was to study the security notions of residents of Russia.

The research consisted of *two tasks*:

1. To analyze associations connected to the concept of security
2. To create a typology of the behavior of Russians in regard to their perception and evaluation of security

The researchers used *two methods*:

1. A survey identifying at least three associative links to the word *security*
2. The “semantic differential” method with the D. Peabody / A.G. Shmelyov modification

*Processing of the results* was done through correlation (Spearman’s rank correlation coefficient) and factor analysis via the “SPSS11.0” package. The processing also included group-data matrix formation by the summation of individual protocols. Factor analysis was carried out with the use of principal components and varimax rotation. To single out types of respondents, cluster analysis (Ward’s Distance Metric: Squared Euclidean) was applied.

*The sample* (650 respondents) was balanced according to gender and education level (48% males and 52% females, 53% with a diploma of higher education and 47% with a secondary level of education).

## Analysis of the results

### *Notions of security*

The most frequent associations with the word *security* were as follows:

“stability” (25.3% of the respondents)	“comfort” (14.4%)
“calmness” (20.2%)	“pleasure” (13.7%)
“defensibleness” (18.1%)	“trust” (12.3%)
“harmony” (17.3%)	“confidence” (10.1%)
“threat” (16.6%)	“friendliness” (9.4%)

A supplementary examination of the associations formulated by the respondents gave the opportunity to identify groups of notions linked with security. The following associations are the key ones:

- Emotional states that can be designated as Inactivity and Passivity (stability, passivity, calmness, defensibleness, vivacity, inspiration, light-heartedness, relaxation, confidence, laziness) — 40% of all associations
- Openness as an attitude toward people (trust, harmony, friendliness, care, openness) — 16% of all associations
- Ideal World, which includes both values (beauty, peace, freedom, happiness, health) — 11% of all associations, and needs (self-preservation, protection, sex, reliability, food, warmth) — 12% of all associations
- Outward Defensibleness (safeguarding, FSS (Federal Security Service), contraception, protection, dogs, police, army, Ministry for Emergencies, armed forces, body armor) — 8%
- Threat (threat, hurricane, fear, risk) — 5%

These results allow us to suppose that in Russians' everyday consciousness there exist the following views on security.

1. Security is a condition linked to inactivity.
2. Security is the basis for harmonious interpersonal relations of trust and friendliness.
3. Security is a kind of "ideal world" with the nonstop satisfaction of needs and the realization of dominating values.
4. Security is power that can protect one in case of danger.

**Table 1.** Results of the factor analysis of Russians' security notions

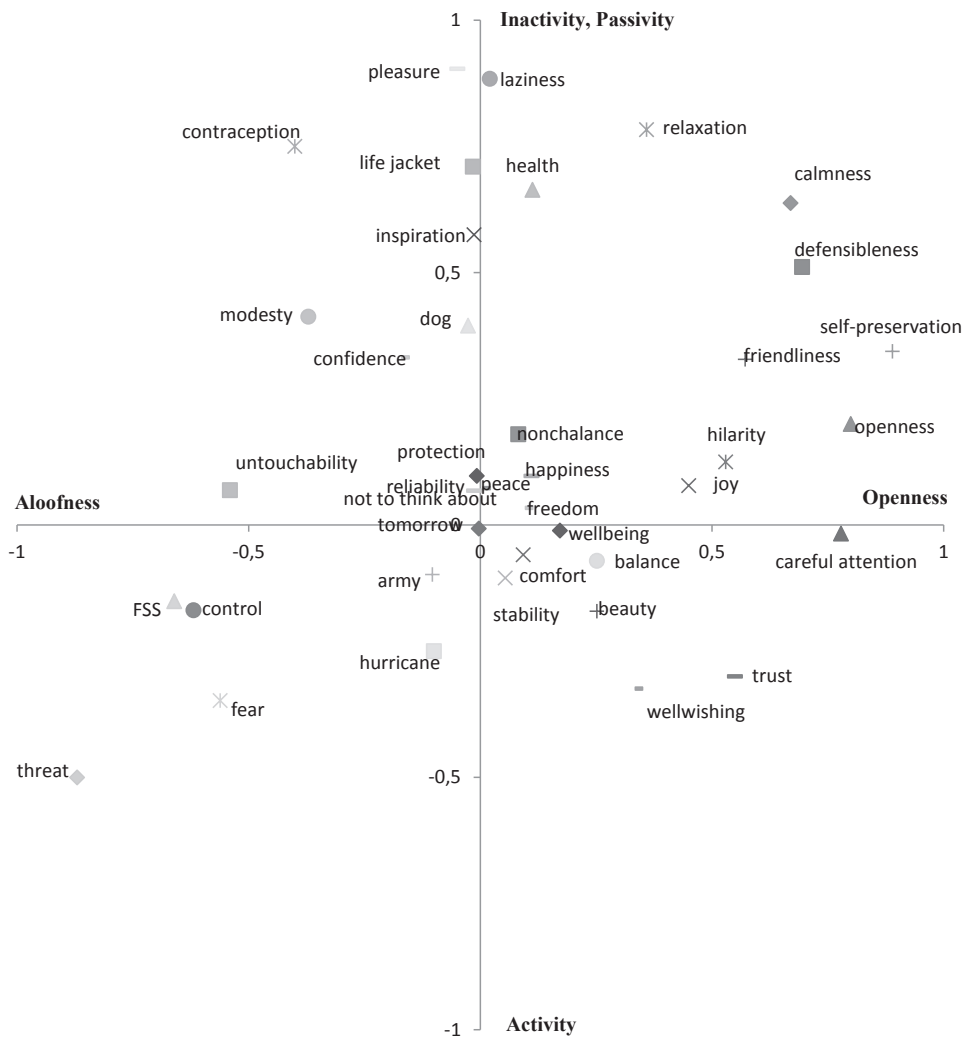
Factor number	%of total variance	Factor content	Name
1	20.8	Openness .89, hilarity .88, friendliness .92	Openness
2	11.5	Pleasure 0.90, laziness .86, inspiration .75	Inactivity/Passivity
3	9.01	Hurricane .72, modesty .58, contraception .42	Protection
4	8.76	Protection.65,nonchalance.59,untouchability.58	Nonaggression
5	7.49	Calmness .77, joy .62, balance .44	"Security is harmony"
6	5.15	Peace .77, relaxation .61, friendliness .44	"Security is calmness"
7	5.0	Threat .90, dog .65	"Security is safeguarding"
8	4.84	Beauty .83, no thoughts of tomorrow .53	"Security is pleasure"
9	3.24	Trust .91	"Security is faith"
10	3.18	Self-preservation .72, friendliness .58.	"Security is communion"
11	2.52	Comfort .87, freedom .50	"Security is democracy"
12	2.16	Harmony .97	"Security is balance"
13	2.05	Stability .93	"Security is constancy"
14	2.32	Defensibleness .96	"Security is legitimacy"

The average-value analysis of Russians' security notions based on score average was later extended by factor analysis because it was also necessary to define not only dominant hierarchical ties between the associations presented and their distribution according to their level of significance (vertical slice) but also semantic, content-related ties classifying the associations collected into separate blocks and factors.

The factoring out of associations allowed us to denote the inner differentiation and semantic structure of the notion of security in the respondents' consciousness.

Factor-analytic processing resulted in singling out 14 factors constituting 63% of the total variance (Table 1). This number of factors testifies to the fact that this notion is cognitively complex and has semantic indeterminacy for the respondents.

The semantic field of the respondents' views on security is formed by combining the two leading factors: Openness, Inactivity/Passivity (Figure 1).



**Figure 1.** Semantic field of Russians' notions of security

Analysis of the semantic field shows that “relaxation” is situated in the same semantic zone as “nonchalance,” “joy,” “happiness,” “hilarity,” “self-preservation,” “freedom,” and “friendliness.” The union of the leading factors creates a “safe-world” zone, a community where the respondents feel secure and protected, not expecting any harm from the people around. As a result they experience positive emotions and find themselves carefree and relaxed.

It should be stressed that there are no state enforcement services — police, the FSS, army, etc. — in the security zone, which speaks to the fact that mass consciousness is forced to consider safety an individual’s challenge, which well-off people, for instance, can resolve by hiring bodyguards. However, among all the associations to the word *security* one cannot find words denoting some actions. There is no “work” or “service”; even the most frequent association is not “protection,” which supposes taking some measures for providing personal security, but “defensibleness,” a state provided by others.

Conversely, a “danger” zone formed by negative factors consists of such associations as “control,” “FSS,” “army,” “hurricane,” “fear,” “threat.” Ordinary consciousness does not see professional security agents as protectors but as a threat and reason for fear. “Current authorities remain a source of threat to citizens not in a political sense but in an economic one. If earlier they used to unite roles of an unprecedented liar and a trustee, now they have freed themselves from such duality: custodian care has become symbolic whereas untrustworthiness of promises and liabilities has considerably grown. . . . In response to it the concept “security” starts altering again most visibly when it concerns private life. It is increasingly limited to notorious ‘personal immunity’ — this time people need protection rather from the underworld than from the state” (Panarin, 1998, p. 14).

### ***A typology of russians based on their security notions***

The aim of our study of security notions was to assess the possibility of dividing the respondents into groups according to the correlation of estimates of the concepts under study. Six months later a second study was conducted in order to check the stability of the results. It showed that the characteristics found applied to a number of stable personality parameters (intergroup movement of the respondents constituted 10%).

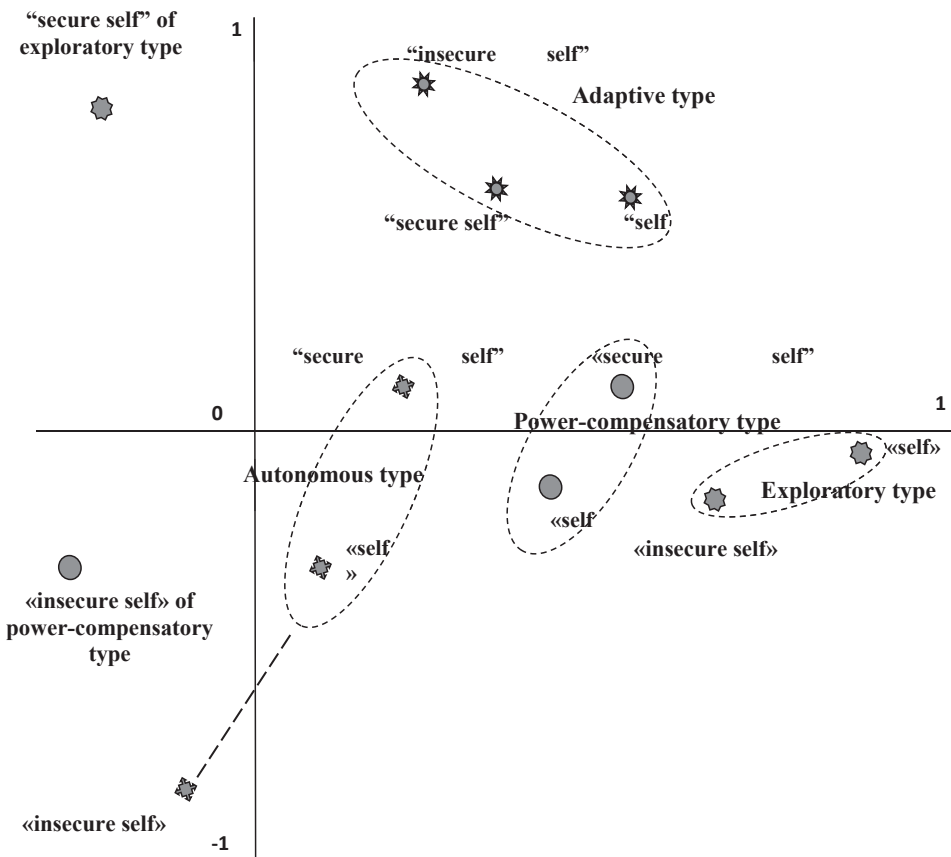
The first group is represented by those respondents with a high degree of similarity in assessing the images “secure self” and “self” ( $r=0.72$ , where  $p<0.01$ ) with the opposite estimate of the image “insecure self.” The second group is characterized by the same high degree of similarity while evaluating all three images; that is, it demonstrates poor differentiation of features belonging to the images “secure self,” “insecure self,” and “self” ( $r=0.912$  and  $r=0.79$ , where  $p<0.01$ ). The third group shows similar estimates of the images “secure self” and “self” ( $r=0.515$ , where  $p<0.01$ ) according to some scales, while their assessments of the images “insecure self” and “self” are less similar ( $r=0.363$ , where  $p<0.05$ ). The fourth group is distinguished by a high degree of similarity between the images “insecure self” and “self” ( $r=0.600$ , where  $p<0.01$ ).

Taking into account the peculiarities of security perception in the four subgroups of respondents, it is possible to classify them into four types: power-com-

pensatory (subgroup 1); adaptive (subgroup 2); autonomous (subgroup 3); and exploratory (subgroup 4) (Figure 2).

The *power-compensatory type* is characterized by defensive behavior, which allows these people to create and retain a positive self-image, positive self-esteem. They strive to “protect” themselves from real or seemingly “negative living conditions” (to preserve the stability of their inner emotional state by pursuing security).

The *adaptive type* is marked by a desire to cope with information overload at the expense of perceptive categorization. The result is that the diversity of influential information is classified and simplified; this process can either help achieve a clearer understanding of things under evaluation or provoke the loss of significant data (apperception blindness) in the interest of retaining stable high self-esteem, the reproduction of which is a key regulator of everyday social behavior.



**Figure 2.** Specifics of Russians’ perceptions of “self” positions in different situations of security

The *autonomous type* is characterized by self-perceiving and self-evaluating on the basis of interpretations of one’s own actions. Any situation is seen as potentially possible. This sense of free choice encourages people’s readiness to overcome all barriers to achieving goals; such people consider themselves active “doers.”

The *exploratory type* can be recognized by their craving for a novel physical and social environment, by their acute sensations, risk seeking, desire to escape from security, readiness to endure information indefiniteness, and striving for “self-testing,” which results in risky behavior and the pursuit of danger.

## Conclusions

The study conducted demonstrates that security is a principal component affecting the social perception of personality. Security is a complex, well-structured formation that depends on individuals' psychological perceptions of their defensibility, steadiness, and the confidence that they do or do not experience in a concrete situation.

Security acts as a substantive line of social cognition, a factor of social cognition, and a sociopsychological format of social cognition.

Therefore, security is a psychological formation that depends on one's personal perception of the specifics of subjective reality. The results of the research make it possible to speak about consistent patterns in placing the images of the “secure self,” “the insecure self,” and the “now self” in a semantic field. Based on an analysis of the data on the semantic differential of each group of respondents, a semantic field illustrating a model of ordinary consciousness and including “secure” and “insecure” world images was completed. The location of objects in the semantic field corresponds to values embedded in images of a safe and dangerous world that are characteristic of power-compensatory, adaptive, autonomous, and exploratory types.

The research conducted allows us to interpret security as an intricate, contradictory phenomenon combining a striving for changes and a fear of them. New and set-in-advance states provide information charged by sociohistoric experience, stereotypes, and ideas of the “right” world.

This research has realized just one aspect of the study of security, a multidimensional phenomenon. Further research is required to confirm the preliminary conclusions reached in this work and to single out new aspects for analysis.

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## DEVELOPMENTAL PSYCHOLOGY

### Psychological boundaries of “I” in the role play of peer-unaccepted children

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This article examines the psychological peculiarities of children who are not accepted by their peers in the course of play. Problems in peer communication are analyzed in respect to the violation of “I” psychological boundaries. The phenomenology of the psychological boundaries of “I” and their violation in the course of play are investigated. New data are provided on the peculiarities of play (mainly its subject matter, including also specific plots, roles, and the organization of play space) in children who are not accepted by their peers; differences between children with low sociometric status and children from a control group were ascertained. Projective methods and observations of children’s play and communicative behavior in different situations were used. The sample included 140 children from 5 to 6 years old, 70 of whom were not accepted by their peers. Additionally 80 mothers (40 of them mothers of children who were not accepted by their peers) participated in the research. The link between the peculiarities of the children’s play, their peer relations, and violations of the psychological boundaries of “I” is described. The work provides elaboration of the notions of play developed within the framework of L. Vygotsky’s cultural-historical approach.

**Keywords:** psychological boundaries of “I”, role play, role, subject matter, play contact, acceptance by peers

### Introduction

The experience of peer relationships in childhood and adolescence is the ground for the development of self-consciousness and personality, one’s attitudes toward the world, and the search for one’s place in society; it affects notions of one’s future and one’s life perspectives. Peer acceptance and support are profoundly connected with a child’s psychological well-being, self-realization, and life satisfaction. It is difficult to overestimate the gravity of the consequences of violations in peer re-

relationships and rejection by peers. It is known that children who are not accepted by their peers belong to the group at risk for the development of different affective disorders, low academic achievement, and suicidal behavior.

Obvious differences among children according to their sociometric position occur already at preschool age. Rejection by a peer group is usually a tough experience for children. An alarming fact is that the number of such children is increasing.

The issue of peer relationships has been the object of research for several decades. Investigations of children who are not accepted by their peers have focused on different factors. Researchers have studied the links between sociometric status and social competence; predictors of high sociometric status; peculiarities of popular and rejected children; possible criteria for uniting isolated pupils into groups; perceived social competence; perception of self and relationship with parents in rejected children; and reasons for the popularity of children among their peers (Boivin & Hymel, 1997; Deković & Gerris, 1994; Kolominsky, 1976; Lisina, 2001; Ommundsen, Gundersen, & Mjaavatn, 2010; Pijl, Frostad, & Mjaavatn, 2011; Vol-ling, Mackinnon-Lewis, Rabiner, & Baradaran, 1993; Verschueren, K., Marcoen, A. 2002; Zakriski & Coie, 1996). The wide scope of the issues investigated within the research field of children and adolescents' social status and relationships demonstrates both the significance of the problem and its insufficient comprehension.

There are different approaches to the notion of the essence of peer preferences in young children. Thus Kolominsky (1976) argues that a child prefers a peer who fits his/her social ideal. According to another approach (Ruzskaya and colleagues, 1989), a young child's popularity depends on his/her ability to fulfill the leading needs of a peer—needs for a benevolent attitude, play cooperation, empathy. The lack of consensus on the core reasons for unpopularity and rejection by peers leaves this issue open to further investigation.

## **Methods**

Because play is the leading activity and one of the most important forms of communication in young children and also the most authentic context for the manifestation of a child's self, the aim of the present research was to study play in communication-challenged children.

Taking into consideration the fact that "communication-challenged children" constitute a vague category that merges problems of different etiology, the children were included in the sample according to one formal criterion — their low sociometric status in the group.

The research was done in a Moscow kindergarten. Sociometric data were used to select children with low sociometric status. This group included children who were rejected by their peers — that is, those who received a large number of negative selections with no joint selections and ignored children who were not selected by anybody.

The study involved 140 kindergarten-age children; 70 of them were children with low sociometric status (nonaccepted children). This group comprised two subgroups: ignored children and rejected children. The control group included 70

children with high sociometric status (peer-accepted children). The study also involved 80 mothers: 40 mothers of children in the control group and 40 mothers of children in the study group. Data were collected in the course of 4.5 years.

The results were processed with the SPSS statistical application; the significance of variation was checked with  $\chi^2$  and Mann-Whitney criteria; correlation, factorial, and cluster analyses were also performed.

### ***Observation of children's play***

Observation of the free play of children (collective and individual) was the main method of investigation. The following parameters were recorded: subject matter; roles; the organization of the play space; the type of toys a child selected; and the type of play, individual or collective, a child preferred. We also tried to identify the main conflicts and relationships reproduced by a child in play—that is, the content of play (Filippova & Pivnenko, 2008).

Observation of play revealed some specific features demonstrated by children with low sociometric status, features that made their play different from that of peer-accepted children. The differences are given below in detail.

### ***Subject matter***

According to Elkonin's (1978) definition, subject matter is the area of a social situation that is reproduced in play. It was found that the subject matter of only 16% of the nonaccepted children was socially significant "adult" activity, such as "At the doctor's," "On the train," "School." Family narratives (for example, "Mother-daughter" or household play, "Family dinner") were the subject matter in both groups, but nonaccepted children reproduced personally significant, affectively tainted aspects of family relationships—for example, family conflicts—rather than standard role relations. Variations between the groups are statistically significant at  $p < 0.01$ .

In the control group, 73% of the peer-accepted children reproduced the plots of classic fairy tales and popular TV series compared with 25.7% of the nonaccepted children group. In nonaccepted children's play, the plots of fairy tales and shows deviated from the traditional ones: they were predominantly related to fighting (40% of the children) or to caregiving and helplessness (50% of the children). Battle narratives were also encountered in peer-accepted children's play but only in a broad context, while with the nonaccepted children's fighting was the essence of play; the narrative did not go further than that.

It turned out that nonaccepted children cannot stay long within the selected subject matter and thus destroy play.

### ***Roles***

Nonaccepted children, unlike the peer-accepted children group, almost never assumed professional roles such as "doctor," "construction worker," "salesperson" (84.2% of nonaccepted children never assumed such roles at  $p < 0.01$ ). In "household" play they seldom took the role of parents (31.5% of the children) but rather played young children; when they did play the roles of adults, the roles acquired a negative affective aspect. The nonaccepted children group showed a preference for

roles related to the "strength-weakness" theme: rejected children usually played aggressive fighters; ignored children played weak characters in need of care — for example, a younger child (80% of the ignored children). Interestingly, in collective play the ignored children, as a rule, played only secondary roles (80% of the children); even the main roles they played got transformed into secondary ones. For instance, Cinderella never became a princess; in the course of play everybody ill-treated her and the prince never found her.

Nonaccepted children cannot stay long within a role, disrupt the role action, and exit into real relationships ( $p < 0.01$ ).

### ***Organization of play space***

Differences between the groups became even more pronounced in the organization of play space. Nonaccepted children, as a rule, tried to fence off their space from the space of others: they would crawl into a toy house, build a border wall, place weapons at the border or dig a ditch, or mark up the border of play (64% of nonaccepted children). They occupied an inappropriately sized space for their play: rejected children took up a huge space and carried as many toys there as they could; ignored children, on the contrary, took up a small corner and almost never left it (the difference between nonaccepted and peer-accepted children is significant at  $p < 0.01$ ).

### ***Toys***

Nonaccepted children more often than not selected multifunctional objects—for example, parts of a construction set not used for intended purposes, nonstructured play materials such as sand and play dough (76% of nonaccepted children); very often they (particularly rejected children) selected aggressive toys. Control-group children more often selected substantive toys — copies of household objects, toy cars, Barbie dolls ( $p < 0.01$ ).

### **Investigation of the extent of "I" psychological boundaries**

The results of the first stage of our study for nonaccepted children — namely, the detected violations of subject matter, the exit from roles, and the inappropriateness of play space — gave us ground to assume that nonaccepted children have unformed or distorted psychological boundaries of "I" (or the boundaries of "I" psychological space). In this article "I" stands for integrated whole personality.

Psychological space is understood as the space of "I" that is expressed in physical phenomenology (bodily or territorial), in social interaction, or in preferred values. Psychological space is inseparably connected with the concept of boundaries; psychological boundaries of "I" represent a border, a dividing line between "I" and non-"I," between the things that a child identifies with him/herself and his/her belongings and those things he/she does not identify with him/herself. The boundary of "I" has a dual function: isolation of "I" from the Other and from the outer world, and unification with them, which ensures contact and interaction between "I" and the Other, "I" and the world. We identify the following types of psychological boundaries: bodily, territorial, and social ("I"—the Other, mine—not mine, "I"—

society”), as well as value-based boundaries (“I”–the Other “I”, “I” real–“I” ideal,” “good–bad,” “kind–evil”).

In young children it is through play, through assuming a role, that “I” is differentiated and a basis for decentration is formed; in play young children learn how to identify with the Other, to differentiate and coordinate positions. It is not surprising, therefore, that it was in play that the disruption of boundaries was so clearly observed.

The second stage of our study investigated to what extent “I” psychological boundaries were formed in nonaccepted children. The concept of boundaries was first introduced and studied in psychoanalysis and was further developed in object-relations theory, where the shaping of psychological boundaries is viewed as a child’s separation from the mother in early childhood (Mahler, Pine, & Bergman, 1975; Spitz, 1965; Winnicott, 1971; and others). If interaction between a child and the mother plays the main role in separating “I” and not “I” in early childhood, the father becomes a no less significant figure in this process: he destroys the symbiotic connection between mother and child and introduces new forms of interaction.

The concept of boundaries is a central feature of gestalt therapy, in etiological and existential/phenomenological approaches. Only in recent decades have psychological boundaries come into the focus of research by Russian psychologists (Arina & Nikolayeva, 2005; Nartova-Bochaver, 2008; Petrovsky, 2010; Tkhostov, 2002; and others). Space limits preclude a full analysis of how the problem of psychological boundaries is approached by these authors.

The term *boundary* had not previously been used by classical Russian psychologists, although their works implicitly contain this concept. The process of child mental development (the neonatal crisis, the isolation of “I” from “proto-we” the 3-year-old crisis, the emergence of voluntary action and personal consciousness, the differentiation of external and internal life, decentration, peer interaction) is, in its essence, the process of building boundaries between “I” and the Other. According to Elkonin, “I” always contains the Other “I” — in other words, there is always an interaction between “I” and the Other “I”, where “the Other” is an example to follow. Decentration, a child’s attitude toward him/herself through the Other and toward the Other as if to “I”, develops, primarily, in the process of a narrative role play through which a child assumes a role and develops role-based and real relationships with play partners (Elkonin, 1989).

Despite the fundamental differences between cultural-historical and psychoanalytical approaches, they correlate in their understanding of how the boundaries and psychological space of “I” develop: from the initial feeling of inseparable “I” and non-“I” and mother-child symbiosis toward a gradual separation of “I” from non-“I” and further individualization and differentiation of “I”.

Because the play characteristics of nonaccepted children gave us ground to assume that they do not have well-formed psychological boundaries of “I”, it is worth looking into the role of play in the formation of these boundaries. Erikson (1996) views play as an important element in the formation of early childhood identity, which is, in essence, the building of “I” boundaries. Winnicott (1971) sees play as a kind of a creative process that takes place in a safe, potential space between “I” and non-“I”, between a child and the Other, where “I” boundaries are formed. The



proponents of a client-centered approach (Landreth, 1998) believe that play content represents structuring of the inner world and the experience of a child per se. In play a child experiences a feeling of getting the situation under control—that is, the child streamlines a process and state by building boundaries, structuring them in time and space.

Psychological borders are explicitly present in the concepts of play developed in the cultural-historical paradigm (Elkonin, 1978, 1989; Leontyev, 1983; Vygotsky, 1966, 1978). In regard to boundaries, not only do players exceed boundaries of reality (play necessarily contains an imaginary situation; Vygotsky, 1966), but a child exists simultaneously in two affective spaces: "a child cries as a patient and rejoices as a player" (Vygotsky, 1978, p. 290); in other words, a child constantly resides at a boundary of two worlds: imaginary and real. Boundaries in play, as Elkonin (1989) stressed, lie not only between role-based and real space but also between roles (between role spaces) and between real positions of players; boundaries in play define, we can thus say, three spaces. Here we should mention a study by Elkoninova (2004): her concept of play is based on Lotman's idea (1970) that a boundary is a borderline between semantic spaces; by crossing this borderline a person acquires his/her own essence.

Thus, a conclusion can be drawn that role play facilitates decentration, the differentiation of "I" and non-"I", and, consequently, the formation of "I"–Other and "I"–Other "I" boundaries; in addition, play is the space where boundaries related to the ability to obey a rule and the boundaries of child self-limitation are built—that is, the boundaries between a child and the society. Crossing the boundary between real and play space is a precondition for acquiring a sense of human actions.

The second stage of our study tested the assumption that nonaccepted children do not have well-formed "I" boundaries. A battery of techniques was developed to study the characteristics of the psychological boundaries of "I", the personal characteristics and peer relationships of nonaccepted children. The battery comprised the following techniques: Kingdom-State (Gromova, 2003), Geometric Shapes Test (Beskova & Tkhostov, 2005), Homunculus (Semenovich, 2002), modified Metamorphoses and Family Picture, talks "about myself" and "my peer," and a "picture of a nonexistent animal." (Self-evaluation, aggressiveness, and anxiety were also investigated.) Additionally, real mother-child interaction was investigated in 80 mother-child pairs (joint action and joint drawing tests). The results obtained from studies of psychological boundaries using these different techniques are briefly described here.

The *Geometric Shapes Test* showed that, in most nonaccepted children, psychological boundaries are unformed and unstable; their integrity is compromised. Differences between groups were also found in how they build their contacts with the world. Nonaccepted children exhibit a one-way strategy of building contact with the world; among them, ignored children mostly avoid contact, and rejected children predominantly show self-presentation and aggressive-defensive forms of contact.

*Kingdom-State* results confirmed the data obtained through play observation. Nonaccepted children often did not recognize the boundaries of other children but were very sensitive to violation of their own borders and tirelessly strengthened them. Children either drew passive defenses on borders (ditches, flying bridges,



fences) or placed aggressive defenses there (mine fields, armies of soldiers with cannons) at  $p < 0.01$ .

The *Metamorphoses technique* was used to evaluate the level of the barrier presented and the permeability of boundaries of “I” and to analyze the self-images of children and their attitudes toward themselves. In a play environment, a child was asked what animal or plant he/she looks like, wants to look like, and does not want to look like. To evaluate the quality of the child’s “I” boundaries (the level of barrier strength and permeability), Fischer’s pattern (1986) was used. It was found that nonaccepted children rejected animals and plants that have high permeability of boundaries (49%, 66%); moreover, they preferred those, like a turtle or a cactus, with a high boundary function (51%, 28%). These findings substantiate the assumption that nonaccepted children put a clear emphasis on the permeability and barrier strength of “I” boundaries ( $p < 0.01$ ).

The *mother-and-child joint action test (Joint Drawing and Joint Play)* evaluated the number of initiatives, responses to initiatives, and conflicts. It showed a disrupted interaction with the mother in 42.5% of nonaccepted children ( $p < 0.01$ ).

*Observation of children’s behavior and attitudes toward norms and rules* during classes and in a group revealed frequent violations by nonaccepted children of adult-set boundaries—regulations, requirements, general rules. Observation of the children in play with rules showed that nonaccepted children significantly more often than peer-accepted children violated the rules ( $p < 0.01$ ). Probably children try to prove the real existence of their own “I” by violating others’ boundaries. In the context of the issue of developmental crises, Elkonin (1989) argued that it is necessary for a child to overcome the resistance of adults in order to experience and recognize the child’s own “I”. The research by Nikolskaya has shed some light on the reasons for such behaviors. Transferring her ideas about the levels of affective-sphere development to the issue of nonaccepted children’s behavior allows us to explain their motivation for breaking boundaries. In the process of actual collisions with obstacles-boundaries that arise in children’s lives as norms and rules, children strive to obtain some information about potential boundaries and the possibilities for their own influence. Having overcome an obstacle, children increase their “I” level, transforming the negative energy of a barrier into their own positive potential (Nikolskaya, 2008).

Other techniques mentioned above also identified significant differences between nonaccepted and peer-accepted children in how well the boundaries were formed. Personality characteristics of nonaccepted children were also identified: increased anxiety, aggression, no positive-behavior skills in conflict situations, low self-esteem, nonacceptance of self. It was also found that the majority of these children have a negative peer image. These children feel emotional discomfort in their families: the boundaries between family members are disrupted; interaction with the mother is disrupted too. (In all the characteristics mentioned above, nonaccepted children significantly differ from the peer-accepted children group,  $p < 0.01$ .)

Factor analysis of these data revealed three significant factors that cover 65% of the entire sample: F1—“nonnormative play”; F2—disruption of “I” boundaries; F3—aggressive violation of rules (limitations). Nonnormative play is, in our terms, play where mastering adult social relationships does not happen. Differences be-

tween nonaccepted and peer-accepted children in factors F1 and F2 are significant (at  $p < 0.01$ ).

Correlation analysis per *r*-Spearman revealed a significant positive correlation between "unfavorable psychological climate in the family" and "violation of role boundaries in play" ( $r = 0.456^{**}$ ); between low self-esteem and "disruption of "I" psychological boundaries" ( $r = 0.406^{**}$ ); and between "disruption of "I" psychological boundaries" and "unfavorable psychological climate in the family" ( $r = 0.543^{**}$ ).

Observation of play revealed disruption of psychological boundaries in non-accepted children's play. Disruption was shown in subject matter, roles, the organization of the play space, and play content. Nonaccepted children often trespassed the real boundaries of peers (took away toys, intruded into play, destroyed structures built by others) and did not maintain role boundaries by mixing play and reality. For instance, a boy in the role of the Gingerbread Boy resisted being eaten by the fox, in accordance with the play narrative, and fought the fox and offended the girl who was playing the role of the fox. Nonaccepted children cannot play for a long time within the subject matter and destroy play by their transition from play to reality relationships. They take up too small or too big a space and do not share toys. Nonaccepted children play plots often deal with trespassing boundaries, with fighting or helplessness. The significance of a boundary is often stressed by fencing it with walls and ditches and by hiding oneself in the fenced space.

Almost all nonaccepted children have a conflict between their needs and the requirements of the environment as well as an unsatisfied need for emotional closeness and support. These conflicts and needs come to the forefront in play and shut off the social relationships of the adult world. These children need most of all to work through these inner conflicts, and this work may consume a part of the developmental and cognitive resource of play. As a result, normative, "adult" relationships, which constitute the content of the role play of young children, remain untapped. A gap between "I" and the real social world remains open, and these children always have to "catch up" with peers; at the same time, play fails to fulfill its "therapeutic" function because the children get stuck in their conflict.

Vygotsky and then Elkonin demonstrated that play's constitutive element lies in transitioning from the existing space into a different one, from a real to an imaginary space, and in maintaining this dual plane of existence. This simultaneous existence in two spaces on their borderline constitutes play (Elkonin, 1978; Vygotsky, 1966, 1978). Such play did not occur with the children in the study group. They either exited play (started to take offence or to squabble or simply left) or they turned the play situation and play relationships into reality. They demonstrated a "naturalistic" attitude toward play. Strictly speaking their play was not play; they continued to be in the real world all the time. Their play did not cross the border from reality into a different space as they stayed on one side of the borderline; the transition did not happen.

In Vygotsky's words, "Play ... tries to leap into the sophisticated world of higher forms of human activity contained in the environment as a source of development" (1978, p. 290); in other words, play is a movement toward the ideal form. If this "leap" into the world of human activity does not take place, then the present state

cannot be surmounted and there is no development. This is what we see in nonaccepted children play: they remain within the sphere of their affect.

## Conclusions

We assume that the nonacceptance of children by their peers is connected with violations of the psychological boundaries of "I". The research results revealed interesting intergroup differences between ignored children and rejected children: in their ways of violating play roles and plot, in their ways of organizing play space, and so forth. We suggest that this study proves that any form of violation of psychological boundaries of "I" (expanded or narrowed boundaries, permeability or barrier-function distortions) cause peer rejection irrespective of the forms of the behavioral manifestations of such violations. The heterogeneous nature of nonaccepted children is proved by the foreign research carried out on different samples (Crosby, Fireman, & Clopton, 2011; Rubin, Hymel, LeMare, & Rowden, 1989; Verschuere & Marcoen, 2002; Zakriski & Coie, 1996.).

Thus we have argued that psychological boundaries of "I" in nonaccepted children are unstable and highly permeable and often lead to protective activation of the barrier function. The integrity of the boundaries is violated, and they are distorted and underdeveloped. Insufficient development of boundaries manifests in the children's actual behavior—the violation of social norms and rules. Those violations are especially dramatic in role play as violations of the boundaries of role, plot, and play space. Probably such low role-play competence becomes one of the reasons for nonacceptance by peers. Again, age of 5-6 years is the sensitive period for development of the psychological boundaries of "I". When children adhere to a role, relationships between the role and actual play interactions as well as correlations between the role and actual internal positions are the conditions for boundary formation. A vicious circle emerges: play is the condition for boundary formation, and, simultaneously, psychological boundaries are the condition for successful play.

One should not expect that a child can overcome such a contradiction on his/her own without any psychological intervention; the problem is aggravated with the empirical finding that the families of most of the nonaccepted children are not able to provide them with an adequate environment for the formation of psychological boundaries. Those children perceive their family situations as adverse and uncomfortable; mother-child interactions are distorted. Therefore, nonaccepted children need specially organized play activities aimed at the development of psychological boundaries of "I". The links among violations of the psychological boundaries of "I" and peer relationships and the data on subject matter, roles, and the other peculiarities of the play of nonaccepted children revealed in the study provide a range of new opportunities for approaching therapeutic and psychocorrectional work with this category of children.

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## Social anxiety in children

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Results of research on social anxiety in orphaned children are presented in this article. The goal of this study was to identify the relationship between depressive states, anxiety states, characteristics of the situation at school, and fear of social evaluation in orphaned children. The differences in these parameters between orphaned children and children living with their families were also studied. The sample consisted of 123 teenagers. The main group comprised 57 orphans from an orphanage near the Moscow region, aged 10 to 16 years old. The control group comprised 66 students from a general school, aged 10 to 15 years old, and all living with their families. Differences were found in the parameters studied. The orphans were characterized by higher levels of social and general anxiety. On the one hand, they strove for the attention and approval of adults, but, on the other hand, they were more worried than their peers who lived with their families about the impression they made on others. They were afraid of receiving a negative evaluation.

**Keywords:** orphaned children, anxiety, social anxiety, fear of social evaluation, depressiveness, situation at school

Orphanhood is one of the major problems in Russia. According to 2010 data there are about 700 thousand orphaned children in Russia (Rudov, Mityasova, & Katyushkina, 2011). The majority of them live in various kinds of orphanages. This experience has a negative influence on children's development. The emotional sphere is the first to suffer in children living in orphanages (Avdeeva, 2009; Bowlby, 2004; Chuprova, 2007; Lisina, 2009). For a long time it was thought that psychological disorders identified in orphans were connected with bad social conditions (such as insufficient medical care or a limited-information environment). These factors are of course important to the development of a child; however the main reason for psychological problems in orphans is not the quality of their living conditions. J. Bowlby and R. A. Spitz showed the importance of maternal care for the child's development. Based on their work it was possible to establish the importance of a close emotional connection with the mother (or the significant adult figure) (Bowlby, 2004; Spitz, 2001). If this connection is missing, maternal deprivation occurs. This is one of the factors that lead to the development of emotional disorders. Orphans have difficulty identifying and understanding emotions and expressing their



own emotions; they are characterized by lack of a clearly formed self-image and low self-esteem (Avdeeva, 2009; Chuprova, 2007; Prihozhan & Tolstyh, 2007; Zalygina & Smirnova, 1985). Living outside a family and having a deficit in communication with significant adult figures lead to scarceness of communication skills, difficulties in social-role identification, problems in gender-identity formation, and distorted images of parent-child relationships (Chuprova, 2007; Prihozhan & Tolstyh, 2007; Romanovskiy, 2009; Zalygina & Smirnova, 1985). Many researchers have identified a deficit in creative activities and cognitive motivation (Bozhovich, 2008; Prihozhan & Tolstyh, 2007).

Thus, living in orphanages decreases the ability of orphans to adapt to and interact with the world and other people. A deficit of behavior strategies that help adaptation may lead to social anxiety in orphaned children. Studying the characteristics of emotional development of orphaned children and teenagers — for example, the display of social anxiety — will allow us to find ways of adapting them to society.

### **Social anxiety**

Up to the present time the social-anxiety phenomenon has rarely been studied in Russia. Among studies dedicated to this topic one can highlight the research of I.V. Nikitina and A.B. Kholmogorova (Nikitina & Kholmogorova, 2010) and of V.V. Krasnova (Krasnova & Kholmogorova, 2011). “The term social anxiety is understood as a type of anxiety which is triggered by various kinds of situations involving social interactions” (Nikitina & Kholmogorova, 2010, 80). When people with a high level of social anxiety connect with other people, they experience emotional discomfort and feel anxious about the impression they are making and about how they look in the eyes of others. The mildest form of social anxiety is shyness (Zimbardo, 1991). The most severe form of social anxiety is social phobia, which is identified as a separate diagnostic category in DSM-IV and ICD-10.

Research has shown that social anxiety in teenagers and adults may be connected to suicidal ideation, substance abuse aimed at alleviating the psychological state, and depressive states (Beidel & Turner, 1998, in Nikitina & Kholmogorova, 2011, 82.). A tendency to decrease the frequency of social contacts may lead to a decrease in educational and professional activities and to the deterioration of the quality of interpersonal relationships, sometimes even to social isolation. Research done by Zimbardo (1991) shows that shy children and students are less likely than children and students who are not shy to initiate a conversation, more likely to experience difficulties in ambiguous social situations (where there are no regulations, instructions, or rules), and more likely to be unable to ask for help. The inability to address others leads to worsening of the student-teacher contact and, in turn, may lead to difficulties in school and may impair academic progress. Research conducted by Belyakova (2011) shows that there is a connection between social anxiety, markers of emotional troubles, and perfectionism.

The consequence of social anxiety in orphans may be even more disadaptation than in nonorphans because of the structure of their social communication. The need for acknowledgement and support prevails in orphans; their leading motive



in communication is personal (Lisina, 2009). The main factors motivating children to communicate are attention and anticipation of an adult's evaluation. In their interactions with adults children living in orphanages are more concentrated on obtaining support from the adult than on engaging in joint activities with the adult (Zalysina & Smirnova, 1985). When meeting new people orphans are drawn toward adults: they try to obtain their attention and at the same time to steer them away from their peers. Their communication skills are insufficient for establishing adequate interactions with both adults and peers. All these problems can further increase anxiety and make the emotional disturbances chronic. To summarize, social anxiety is closely connected with indexes of anxiety and depression and lead to the worsening of a child's quality of life. It follows that research in this field is extremely important and timely.

## **Organization of the research**

### ***The surveyed group***

The goal of this study was to identify the connection between depressive states, anxiety, school conditions, and the fear of social evaluation in orphaned children. The authors also examined the differences in these parameters between a group of orphaned children and a group of children living in families.

A total of 123 children and teenagers were studied. The main group consisted of 57 children from an orphanage near Moscow; they were 10 to 16 years old. The control group comprised 66 students of a Moscow school; they 10 to 15 years old. The groups were matched by sex and age.

All children who took part in the study (both orphans and children living with their families) obtained permission from their parents or official guardians to participate in psychological research. SPSS for Windows, Standard Version 17.0, was used to process data.

### ***The methodological complex***

The methodological complex included the following questionnaires:

- Personality Anxiety Scale (developed by A. M. Prihozhan in 1980–1983)
- Children's Depression Inventory (CDI; developed by M. Kovacs in 1992, adapted by A. B. Kholmogorova, S. V. Volikova, and O. G. Kalina in 2011)
- Fear of Negative Evaluation (FNE) Scale (fear of social evaluation; developed by D. Watson and R. Friend in 1969)
- Situation at School Questionnaire (developed by V. K. Zaretskiy and A. B. Kholmogorova in 2006)

## ***Results and discussion***

The orphans and children living in families were compared according to their levels of depression, anxiety, and fear of social evaluation. As can be seen in Table 1, the percentage of children with high levels of depression, anxiety, and social anxiety was higher in the group of orphaned children than in the group of children living in families. For example, a high level of depressiveness was identified in 17.5% of

orphans and in 9.1% of children in families; a high level of anxiety, in 17.5% and 6.0%, respectively. A high level of social anxiety was seen in 35.1% of orphans and in 19.7% of children in families.

**Table 1.** distribution of orphans and children living in families based on degree of depression (CDI), anxiety (Personality Anxiety Scale), and fear of social evaluation (FNE Scale), in percent

	Low level		Medium level		High level	
	Orphanage	Family	Orphanage	Family	Orphanage	Family
Depressiveness	57.8% (N=33)	71.2% (N=47)	24.5% (N=14)	19.7% (N=13)	17.5% (N=10)	9.1% (N=6)
Anxiousness	70.2% (N=40)	78.8% (N=52)	12.3% (N=7)	15.2% (N=10)	17.5% (N=10)	6.0% (N=4)
Fear of social evaluation	12.3% (N=7)	31.8% (N=21)	52.6% (N=30)	48.5% (N=32)	35.1% (N=20)	19.7% (N=13)

Table 2 compares levels of social anxiety in the main and control groups. Means of fear of social anxiety in orphans were higher than the means of their peers who lived with their families. The results confirm the assumption that orphans are geared more toward the evaluation of others and experience anxiety in situations that involve social contacts; these results correspond with the results of studies that were mentioned in the analytical section (Prihozhan & Tolstyh, 2007).

**Table 2.** Comparison of social-evaluation indexes of orphans and children living in families (FNE Scale)

	Orphanage (N = 57) <i>M</i> ( <i>SD</i> )	Family (N = 66) <i>M</i> ( <i>SD</i> )	Mann-Whitney U criteria	<i>p</i> significance level
Fear of social evaluation	16.6 (5.8)	13.7 (6.7)	1376.500	.010*

\* $p < .05$ .

As seen in Table 3, all anxiety indexes were higher in orphans than in children who live in families. Significant differences were found in the self-evaluation, magical, and general-anxiety indexes. Thus, one can say that orphans have higher levels of anxiety and stress than do children living in families. They are most often worried about not meeting demands and are unhappy with themselves. In addition, orphans are suspicious more often than their peers who live in families: they connect various problems with external, even supernatural, factors they cannot influence. Such perceptions can originate in and be supported by the special characteristics of the secluded environment they live in.

Significant differences in levels of depression were not found. However, qualitative and quantitative analyses show that virtually all markers were higher in the orphans than in the children living in families. Analysis of the answers given by children from the orphan group to the separate questions of the CDI shows that they evaluated themselves negatively more often than did their peers from families.

**Table 3.** Comparison of anxiety levels of orphans and children living in families (Personality Anxiety Scale)

Scales	Orphanage (N = 57) M (SD)	Family (N = 66) M (SD)	Mann-Whitney U criteria	p significance level
School anxiety	13.0 (7.5)	11.8 (6.6)	1784.000	.622
Self-evaluation anxiety	15.0 (6.5)	11.3 (7.2)	1254.500	.001**
Interpersonal anxiety	13.9 (7.8)	11.9 (7.5)	1594.500	.146
Magical anxiety	12.7 (8.5)	9.0 (7.5)	1404.500	.016*
General anxiety	54.5 (24.1)	43.8 (24.0)	1443.000	.026*

\* $p < .05$ . \*\* $p < .01$ .

School problems and characteristics of the situation at school were also compared for the two groups. The Situation at School Questionnaire aims at evaluating the favorability of the conditions at school in general and also evaluates parameters such as the attitude of the child to education, educational difficulties, relationships with teachers and classmates (the Friends Scale), presence of and tendency toward truant behavior, and spending of in-school free time.

**Table 4.** Comparison of indexes of the school problems of orphans and children living in families (Situation at School Questionnaire)

Scales	Orphanage (N = 57) M (SD)	Family (N = 66) M (SD)	Mann-Whitney U criteria	p significance level
Attitude toward school	12.8 (1.7)	13.0 (1.7)	1684.500	.293
Problems in education	11.6 (2.9)	11.9 (2.8)	1720.000	.411
Teachers	14.1 (2.0)	13.2 (2.2)	1437.500	.022*
Truancy	13.7 (2.5)	12.6 (2.7)	1397.500	.013*
Friends	10.8 (2.6)	10.8 (2.6)	1866.000	.939
Free time	13.7 (2.7)	9.7 (3.4)	678.500	.000**
General index of school conditions	77.0 (9.2)	71.1 (9.3)	1217.500	.001**

\* $p < .05$ . \*\* $p < .01$ .

Comparison of the results of both groups on the Situation at School Questionnaire (Table 4) shows that, in comparison with the children living in families, the orphans evaluated their school situation as being safer and were more satisfied with it. Orphans believed that their relationships with teachers were better and that their free time was better organized. According to self-reports the orphans were less truant. Relationships with teachers can be the result of the initial attitude of the children toward teachers in general: orphans often perceive teachers as significant adults, with whom they find it easier to communicate than with peers (Prihozhan & Tolstyh, 2007). The better attendance of orphans can be explained by the difficulty of skipping classes in a closed facility. It is obvious that the conditions for spending

free time are also different for orphans and for children who live in families. Children and teenagers who live in orphanages communicate mainly with each other and are used to taking part in common events and extracurricular activities. The school was located in the orphanage so it may have been more difficult for children to separate school and nonschool free time. By summarizing the data obtained in the comparison of the two groups, one can conclude that the hypothesis about the differences in fear of social evaluation, depressiveness, anxiety, and situation at school has been almost fully confirmed.

The results of the correlation analysis should also be considered (Table 5). In both analyzed groups (orphans and students from families) a positive correlation was found between fear of social evaluation and anxiety. As the fear of social evaluation increases so does anxiety in all areas under investigation: in-school free time, self-evaluation, interpersonal contacts, belief in the supernatural, and general level of anxiety. Thus, we can conclude that social anxiety is connected with an increase in pressure and stress in all the other activities of the child.

**Table 5.** Correlation between fear of social evaluation (FNE Scale) and anxiety level (Personality Anxiety Scale) in orphaned children and children living in families, r-spearman correlation coefficient

Scales	Fear of social evaluation	
	Orphanage	Family
In-school free time anxiety	.306*	.365**
Self-evaluation anxiety	.381**	.471**
Interpersonal anxiety	.445**	.487**
Magical anxiety	.314*	.383*
General anxiety index	.421**	.507**

\* $p < .05$ . \*\* $p < .01$ .

Fear of social evaluation was connected with the general depression index in orphans (Table 6). Across the sample, fear of social evaluation was also connected with manifestations of depression (such as negative mood, school problems, negative self-appraisal, and the opinion that there is very little one can deal with successfully). These results correspond to those of earlier studies (Krasnova & Kholmogorova, 2011).

**Table 6.** Correlation between fear of social evaluation (FNE Scale) and level of depressiveness (CDI) in orphaned children and children living in families, r-spearman correlation coefficient

	Fear of social evaluation	
	Orphanage	Family
General depression index	.388*	.352*

\* $p < .05$ . \*\* $p < .01$ .

Fear of social evaluation in the orphans was connected with such parameters of the situation at school as relationships with teachers, truancy tendency, satisfaction with the use of free time, as well as with the general index of school conditions (Table 7). At first glance a seemingly paradoxical result is seen: the higher the fear of social evaluation, the fewer school problems a child had. Many of the reasons for this paradox were explained above. In addition, there are further reasons for the connection between fear of social evaluation and fewer absences. Orphans believe that being truant can lead to conflicts with and the disapproval of teachers; they are anxious about these consequences and thus try not to be absent from their lessons. Correspondingly, as the level of social anxiety increases, so does anxiety about being negatively evaluated and about disapproval and punishment, all of which increase the tendency to be less truant. According to research done by Prihozhan, orphans have become accustomed to obeying rules and desire to be externally controlled (Prihozhan & Tolstyh, 2007). The habit of living according to a routine, with strict discipline, as well as the organization of the orphans' lives and the characteristics of their environment (a confined facility) all contributed to the fact that the number of absences among orphans was not that high.

**Table 7.** Correlation between fear of social evaluation (FNE Scale) and school problems (Situation at School Questionnaire) in orphaned children and children living in families, r-spearman correlation coefficient

Scales	Fear of social evaluation	
	Orphanage	Family
Attitude toward education	.122	-.053
Difficulties in education	.168	.076
Teachers	.346**	.048
Truancy	.303*	.117
Friends	.219	.008
Free time	.464**	.260*
General index of school conditions	.410**	.180

\* $p < .05$ . \*\* $p < .01$ .

Some correlations within the group of orphaned children can at first sight seem paradoxical. An example is the connection between an increase in social anxiety and improvement in relationships with teachers. But, as mentioned above, an understanding of the teachers' role in the life of such children explains this relationship. In children without family experiences an increase in anxiety about social situations makes them more likely to consult a teacher, and they will try to improve the relationship with the teacher because they see the teacher as a person who is able to help them overcome fears and anxieties.

In regard to the connection of fear of social evaluation and satisfaction with spending free time, free time is a habitual activity for a child and is a source of pleasure. Fear of social evaluation does not spread to this area because here the child

feels confident and safe. If there is fear of social evaluation, the child tries to avoid unusual situations or unfamiliar people.

Correlation analysis showed individual connections between depression and school difficulties. It should be noted that in the group of children living in families these connections were seen more often than in the group of orphaned children. For instance, in students who lived in families a negative evaluation of themselves and of their educational abilities was connected with the worsening of relationships with teachers and friends ( $p = .460^*$ ;  $p = .406^*$ ). Difficulties at school turned out to be connected with communication: an increase in school problems was connected with worsening relationships with friends ( $p = .327^*$ ) and the emergence of the feeling of being excluded from the peer environment ( $p = .420^*$ ). In general the worsening of the situation at school was connected with an increase in depressive symptoms ( $p = .409^*$ ). In summary the differences between the main and control groups should be highlighted. Social interaction is very important both for orphaned children and for children living in families. However, contacts with adults are more important for orphans, while contacts with peers are more important for children who live in families. These data correspond with the results of the research reviewed in the theoretical section of this article. Difficulties in contacts with others, especially peers, and relying on external evaluation are both also characteristic of children from orphanages (Zalysina & Smirnova, 1985; Prihozhan & Tolstyh, 2007).

## Conclusions

Two groups of children were studied: orphans and children living with their families. Based on the results of the study the authors conclude that there are differences between these groups in their anxiety indexes, in their level of fear of social evaluation, and in their situation at school. Orphans are characterized by a higher anxiety levels than children from families. For example, statistically significant differences in self-evaluation anxiety and magical anxiety were found. The level of fear of social evaluation is also higher in orphans than in their peers who live in families. Thus, orphans are geared more toward external evaluation, are more anxious about it, and experience more stress when interacting with others. Children who live in orphanages see their situation at school as being more favorable than do children who live in families. For instance, differences in attitudes toward teachers, truancy, and free time within the school should be noted. Orphans are more satisfied with their relationships with teachers. They skip classes less often, a fact that can be explained largely by living conditions: orphans have fewer opportunities for unexcused absences from lessons. Orphans are also more satisfied with their in-school free time, as opposed to children with families, who evaluate this parameter as less satisfying. There were no significant differences in levels of depressiveness; we assume this finding is connected with the quantitative composition of both samples. Correlations were discovered between anxiety, fear of social evaluation, situation at school, and depressiveness both for each group separately and for the sample as a whole.

Based on the results of this study we can conclude that, compared with children from families, orphans are characterized more by problems in interpersonal com-

munication. This characterization is the result of the specific structure of communication in children from orphanages. Children who live in orphanages are characterized by higher levels of social anxiety. On the one hand, they strive for attention from and approval by adults, and, on the other hand, they are more worried than their peers living in families about the impression they will make on others, and they are afraid to get a negative evaluation. The obtained data suggest that orphans need psychological training programs that will help them adapt, form and develop social competencies, and improve their communication skills. These skills will help decrease the level of social anxiety and will ease the process of socialization, which is important for them when they leave the orphanage.

### Study limitations

All answers on the questionnaires are self-reports. These questionnaires didn't take into account the level of social desirability of the options presented. Also important to note is the fact that self-understanding, self-awareness, and reflection in orphaned children can be poorly developed, as is supported by a number of previous studies (Prihozhan & Tolstyh, 2007). This limitation should also be considered when interpreting results. Another limitation is the small sample size. Because of these limitations, the conclusions of this study are preliminary. All the mentioned limitations will be taken into account in future research on the topic.

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## **Representations of happiness and life satisfaction in the group of educated and socially active young people**

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The paper examines the differences in the social representations of happiness among optimists and pessimists in the group of socially active, educated young members of the international youth organization Association Internationale des Etudiants en Sciences Economiques et Commerciales. To assess the degree of optimism and pessimism we used the Satisfaction With Life Scale (SWLS) developed by E. Diener, while social representation, divided into the nucleus and peripheral zones, were examined using Verges' technique within the framework of the concept of social mindsets offered by S. Moskovichi.

It has been shown that, irrespective of the optimism or pessimism of the participants, the nucleus of their representations of happiness contains such a value as love. However, only in optimists' representations is this value combined in the nucleus with the values of family and friendship. In the pessimists' nucleus zone of the representation of happiness, love is presented as an independent value, primarily associated with striking emotional experiences, which has aspects of psychological addiction. Considerable differences between optimists and pessimists have also been found in the peripheral zone of the representation of happiness. Only optimists have such associations as "knowledge", "children", and "faith" in their peripheral area. In our opinion, the major scale of differences between optimists and pessimists is formed by the factor of sociocentricity and egocentricity.

**Keywords:** life satisfaction, optimism, pessimism, social representations of happiness, socially active educated young people, social and economic crisis

### **Introduction**

In many countries and regions, the current economic crisis and the great uncertainty over its events and effects has turned young people, who have received excellent modern educations and are only starting their adult life, into one of the most vulnerable social groups. They are not responsible for the emergence and development of the crisis, but they will soon have to shoulder the hard work to overcome its consequences.

Modern social psychology, represented by Seligman & K, appears to be most sensitive to the public demands, attitudes and feelings of the people affected by this crisis. It announces and formulates a special direction in the science under the name of “positive psychology”, based on the search for and study of internal, psychological personality resources, the influence of the optimistic way of thinking, of one’s belief that he or she is able to live through and cope with the most difficult circumstances of their life. In the opinion of experts, a positive mindset causes people to choose more promising adaptation strategies that allow them to cope with stress in their lives and lead to higher achievements and a better perception of their prospects (Taylor, 1989, Zeligman, 1997, Aranson, 1998, Stefanenko, 2002). These considerations served as a starting point in our empirical research. The representative of the “positive psychology” school, Diener, created a compact test for the assessment of life satisfaction. The test was unique in that it did not simply assess “life satisfaction” as a current emotional state, but measured the individual’s cognitive mindset, including a general assessment of his or her past and present life as well as future prospects. The high level of life satisfaction in Diener’s test suggested inner harmony, and acceptance of one’s self, one’s destiny and life in general (Diener, Emmons, Larsen & Griffin, 1985).

The test’s extreme scores, i.e. the highest and lowest, correspond to the respondents’ optimistic and pessimistic mindsets, which relate to their satisfaction with life as a whole. The assessment of inner resources (optimism or pessimism) of people living under a large degree of uncertainty about processes in advanced and emerging economies, is particularly interesting for social psychologists wishing to find out how these mindsets are linked with the individuals’ representations of happiness. Our goal was to understand how these individual representations of happiness are developing into phenomena of collective consciousness, how they turn into social attitudes, into mindsets of large social groups.

Research into the pessimistic or optimistic mindsets of socially active groups of educated young people presents considerable interest not only for academics, but also for representatives of political elites in any society. In the study of such groups, analysis of social attitudes is of special importance. This is where American “positive psychology” combines and intersects with the European approach, which is called “the theory of social mindsets” (Moskovich, 1992).

Moskovich’s concept of social mindsets is based on the ideas of Durkheim, in whose sociology collective representations are regarded as an element of the “collective consciousness”. Emelyanova correctly emphasizes that the reality of social mindsets, according to Moskovich, is not individual and psychological, but a social reality constructed in micro- and macro-social interactions (Emelyanova, 2006, p. 34). Consequently, the appropriate object of study of the “production and formation” process is a social group (community), in which discussion and discourse are an essential condition, and also a tool in the work of this group.

For the purposes of this research we have chosen the social idea, or *representation*, of *happiness*. “*Happiness*”, along with “*success*” has always been the most important value in the ideology of the modern market economy, which is based on the philosophy of hedonism and pragmatism. According to the theory of psychoanalysis, whose mythology has become part of Western society’s public consciousness, the idea of happiness is inherent in the principle of pleasure as a basic

regulator of a person's behavior. During periods of social and economic crises or disintegration of economies, the idea of happiness is subject to inflation, deflation and other deformations. It rises to the surface of consciousness more frequently, becomes a significant and relevant topic of discussion, initiates discourse, and eventually acquires a new system of meanings in the social world of large groups (Wagner, 1996). We are convinced that the international youth organization Association Internationale des Etudiants en Sciences Economiques et Commerciales (AIESEC), chosen for this research, is a group whose individual but at the same time highly concurrent ideas about happiness are likely to become collective *representations* of the new generation of managers in many countries' economic and political spheres in the nearest future. This concurrency of individual ideas and their transformation into social *representations* are measured on the basis of the ideas and methods suggested by Moskovichi's disciples and followers: Abric and Verges.

According to Abric (1993), in a social *representation* there is a central *nucleus* linked to collective memory and the group's history; it ensures the homogeneous quality of the group through consensus; it is stable, coherent and sustainable, and not oversensitive to the current environment; its function is to generate the meaning of the social representation and determine its organization. The peripheral system in its turn provides for the integration of every group member's history and personal experience, and maintains the group's heterogeneity; it is dynamic, includes contradictions, and protects the central nucleus.

## Methods

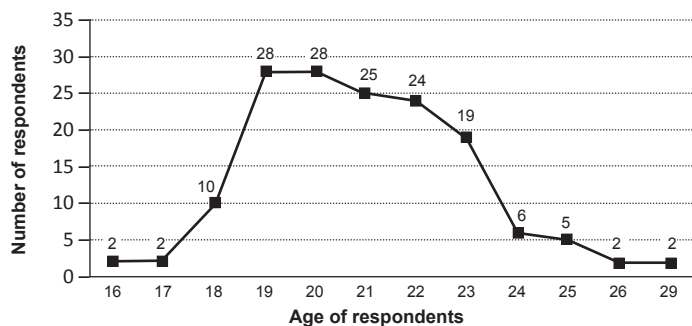
The purpose of the research is to study representations of happiness of young optimists and pessimists belonging to the international youth organization AIESEC.

The object of the research is the structure and content of *representations of happiness* among socially active, educated young people living in different countries and belonging to different national cultures who participate in the work of the international youth organization AIESEC.

The research is focused on the relationship between the content and structure of the representations of happiness on the one hand, and life satisfaction (pessimism-optimism) of the socially active young people on the other.

## Characteristics of the sample

The participants were young, socially active people from different countries. The majority (over 90%) of respondents are members of the international youth association AIESEC, whose objectives include the development of young people's leadership potential to ensure their positive contribution to society. The association brings together students and recent alumni of higher education institutions who share the ideas of the AIESEC Charter, have a good command of English, and take a socially active position. They work on a permanent basis on projects, and participate in national and international conferences and seminars. There were 153 respondents aged 16–29, with a median age of 21, mode of 19–20; there were 81 women and 72 men. The respondents' age distribution is shown in Figure 1.



**Figure 1.** Distribution of respondents by age

People from 34 countries participated in the research: Britain (1 person), Afghanistan (1 person), Bangladesh (3 persons), Bahrain (2 persons), Bulgaria (6 persons), Ghana (1 person), Germany (2 persons), Hong-Kong (4 persons), Egypt (1 person), India (26 persons), Indonesia (3 persons), Iraqi (1 person), Iran (2 persons), Italy (3 persons), Kazakhstan (1 person), Cameroon (1 person), China (2 persons), Malaysia (7 persons), Mexico (3 persons), Moldova (1 person), Morocco (1 person), Oman (1 person), Pakistan (1 person), Russia (47 persons), Serbia (14 persons), Singapore (1 person), Taiwan (5 persons), Tunisia (2 persons), Turkey (3 persons), Ukraine (1 person), Philippines (1 person), France (1 person), Croatia (1 person), Japan (2 persons).

### ***Tasks of empirical research***

1. Carry out empirical research in groups of respondents belonging to different countries and cultures, whose joint activity presupposes the generating of common solutions to urgent problems in the lives of young people and society on the basis of talks and discussions.
2. Divide representatives of different countries into three groups: optimists, pessimists and intermediate.
3. Describe the content and structure of the representations of happiness in each group.
4. Compare the structures of the representations of happiness in these three groups (optimists, pessimists and intermediate) and isolate the sequence of change in the representations in the extreme groups, monitoring for these changes in the intermediate group.
5. Describe the obtained results and draw conclusions.

### ***Stages of conducting the empirical research***

1. Compiling a set of research techniques in the English language (common for all participants)
2. Agreeing on the rules of the research procedure.
3. Conducting distant research.
4. Collecting and processing the data.

### **Data collection procedure**

The survey was conducted during AIESEC conferences in Taiwan (March 2010), India (August 2010), and Austria (October 2010). All the questions were presented in the form of an online electronic questionnaire via the Google platform. Respondents received an electronic link to the questionnaire with the request to participate in an interesting research study. After the respondents answered all the questions, their answers were automatically shown in the electronic data summary table (like a Microsoft Office Excel table, but online).

Data collection was carried out from August 2010 to March 2011. When there were over 150 people in the data bank, we decided to stop collecting data and move on to the next stage of research, the processing of data. The data were exported from the Internet to the Excel Microsoft Office program, in which all further analysis was conducted.

### **Research techniques**

1. The polling technique of explicit life satisfaction, *Satisfaction with Life Scale* (SWLS), developed by Diener and his colleagues (Diener, Emmons, Larsen & Griffin, 1985). It aims to collect data on the cognitive assessment of subjective well-being, and consists of five statements. Respondents are asked to assess the level of their agreement with these statements. Vittersø and Røysamb with factor analysis confirmed that SWLS measures a single construct and that the concept of life satisfaction can be applied to a wide range of cultures (Diener Vittersø, Røysamb, & Diener, 2002) — hence our decision to use it.
2. Association test of the type of incomplete sentence: “Happiness is ...”. We offered this test to obtain information on the representations of happiness among people belonging to different nationalities and cultures. Respondents were asked to give 10 word associations in order of preference on the sentence “Happiness is ...”. We chose the association method because it is simple and can be used with people from different countries and cultures.
3. Verges’ technique. The method of associations allowed us to use Verges’ technique (Verges 1992 — from research by I.V. Bovina “Social Psychology of Health and Illness” (Bovina, 2007), where representations are subjected to prototypical and categorical analysis using two parameters: the frequency of a concept’s occurrence in the answers of respondents, and the rank of its occurrence. Verges’ idea is based on the consensus principle, its empirical criterion being the frequency of the concepts’ occurrence. The rank of the answer is an empirical criterion of the concepts’ importance for the respondents. In our research we slightly modified Verges’ method, retaining its main principles. Thus, we did not calculate the average rank of the concept, but counted the frequency of its occurrence in the group of the first five out of a total of ten associations in the test “Happiness is ...” for each respondent. Further, if the number of association occurrences in the group of the first five associations exceeded half of the total number of its occurrences in the lists of associations, we considered the rank of the

association to be high. If this number was smaller than half, we considered it to be low. Having obtained two parameters for each concept — the frequency median and the rank (high or low) — we placed the concept in one of the four areas in the results' presentation scheme of Verges' technique (Table 1).

**Table 1.** Verges' Technique's results presentation scheme (1992)

Group of concepts X	High rank of concept (over 50% of occurrences are in the group of high rank)	Low rank of concept (less than 50% occurrences are in the group of high rank)
<i>High frequency of concept</i> (occurrence over 50% subjects)	area 1	area 3
<i>Low frequency of concept</i> (occurrence below 50% subjects)	area 2	area 4

Thus, the structure of social representations divides into the central nucleus and peripheral system.

Area 1 — The nucleus as the stable part is linked with the history and collective memory; it leads the group to homogeneity through consensus and allows us to determine the organization and meaning of the social representation.

Areas 2, 3 and 4 — the peripheral system (2, 3 — primary; 4 — secondary; the difference lies in the degree of priority of the area components and their proximity to the nucleus). This system has greater mobility; it ensures integration of individual experience, includes contradictions, and allows people to adapt to reality (Abric, 1993).

The elements of the notion nucleus perform the organizing and meaning-forming (semantic) function, while the elements of periphery add meaning to the nucleus, linked with it directly, but more susceptible to change. We analyzed only the elements registered by 20% and more of the subjects, what means that we built a representation structure that includes only the answers of highest consistency.

## Results

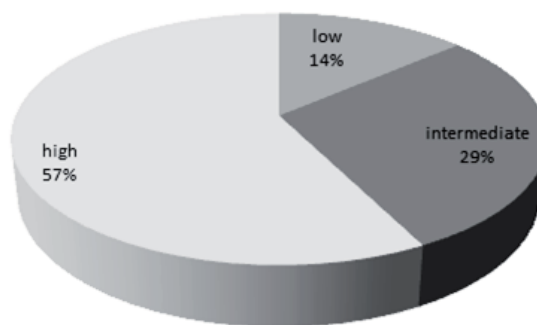
### *Distribution of participants from different countries and cultures according to Diener's technique "Assessment of life satisfaction"*

In this research we will use a division into three groups, according to level of life satisfaction:

1. Pessimists group (the low level) unites those totally dissatisfied, dissatisfied and less satisfied than average by Diener;
2. Intermediate — intermediate level of satisfaction by Diener;
3. Optimists — high and very high level of satisfaction by Diener.

The participants of our research were distributed in the following way (Figure 2).

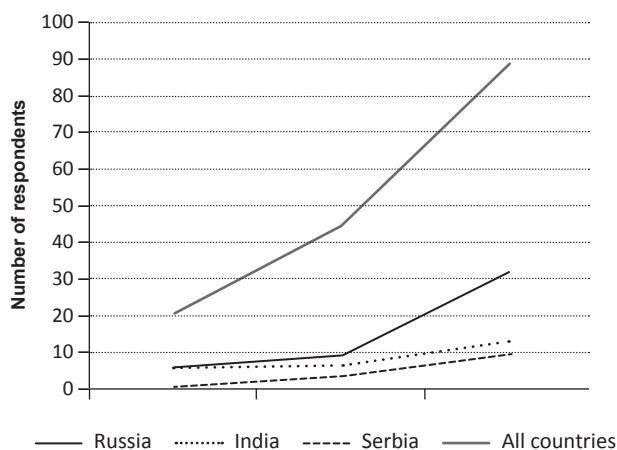




**Figure 2.** Distribution of respondents by level of life satisfaction

The group with a low level of life satisfaction comprises 21 persons (14%), the group with intermediate level — 44 persons (29%), the group with high level — 88 persons (57%).

Persons from countries with the greatest numbers of participants (Russia — 47, India — 26, Serbia — 14) are distributed in three groups in accordance with the general distribution of all participants, which allows us to assume in this research that the young people's levels of life satisfaction do not depend on the country of residence.



**Figure 3.** Results of distribution by life satisfaction level of the three most widely represented groups in the total sample.

In Figure 3 the horizontal axis represents three levels of life satisfaction: “low”, “intermediate” and “high”; along the vertical axis we measure the number of respondents from Serbia, Russia and India in these groups, against the overall distribution by country.

***The content and structure of the social representation of happiness in the three groups of respondents, who differ by level of “life satisfaction” (pessimists — intermediate — optimists): analysis results.***

To analyze the structure of the representations, we collected **1530** association-concepts about happiness: **210** in the group with a low level of life satisfaction, **440** in

the group with an intermediate level, and **880** in the group with a high level of life satisfaction.

**Pessimists.** The main result we obtained from pessimists (respondents with a low level of life satisfaction) is that in their nucleus zone there is only one concept: “love”.

The first peripheral system comprises the following elements: emotions, family, friends, and relationships. The second peripheral system is made up by the concepts: hobby, dream, harmony, nature, success, way of life, transience (Table 2).

**Table 2.** The structure of happiness representation in the group of respondents with a low level of life satisfaction (pessimists)

<b>Low life satisfaction</b>	<i>High rank of the concept (over 50% of cases occur in the high rank group)</i>	<i>Low rank of the concept (less than in 50% of cases occur in the high rank group)</i>
<i>High frequency of the concept (occurs in over 50% of subjects)</i>	love	emotions
<i>Low frequency of the concept (occurs in less than 50% of subjects)</i>	family friendship relationships	dream, aim, hobby, nature peacefulness, harmony, satisfaction, success, achievements transience, way of life

As we can see, this group’s respondents have a low consistency of associations and the concept “love” became a semantic core of the notion of happiness (which can be explained by the age graph, showing the majority of the respondents to be at the age of obtaining experience of building deep personal relationships). It is possible that pessimists see love as the only meaningful kernel in the idea of happiness, while emotions are connected to love as the most “desirable” sensation. “Emotions” were not in the nucleus, although the frequency of occurrence of “emotions” is even higher than that of “love” (14 compared to 11).

Further, we turn our attention to the associations that are part only of the second peripheral system. “Success” and “fleeting” occur there most frequently, and they establish connections with the nucleus and confirm our inference about the understanding of happiness as experiencing emotions in the state of falling in love. A hobby implies the opportunity to experience pleasant emotions similar to love again and again. The word “fleeting” here points to the idea of the instability of happiness, to the belief that happiness is beyond people’s control because the state of being in love may be fleeting and transient. Very close to this are such concepts as “nature” (gives power and energy) or “serenity, harmony” (something that can be easily broken), and “dream, target” (being somewhere far away).

Thus we can see that in this group, the representation structure is formed solely around the emotional experience of love.

**Intermediate group.** The structural elements of representation of happiness in the group with an intermediate level of life satisfaction are presented in the following Table 3.

**Table 3.** The structure of the representation of happiness in the group of respondents with intermediate life satisfaction levels

<b>Intermediate life satisfaction</b>	<i>High rank of the concept (occurs in the high rank group in over 50% of cases)</i>	<i>Low rank of the concept (occurs in the high rank group in less than 50% of cases)</i>
<i>High frequency of the concept (occurs in over 50% of subjects)</i>	love, emotions, family	achievements, relationships
<i>Low frequency of the concept (occurs in less than 50% of subjects)</i>	peace, harmony satisfaction	Depends on you, well-being, health, helping others, impor- tant, life, nature, way of life

As we can see, in this group the nucleus of the representation is formed by three elements: Emotions, Family and Love. Emotions (we mean positive emotions, as there were no negative emotions) were stated by the majority (80% respondents in this group). The word “emotions” is as frequent as “family”; “love” is the most frequent of all. Here we also see that in the first peripheral area there appear the concepts “relationships” and “achievements”, which implies that happiness is perceived as something attained by one’s personal efforts, possibly by building relationships, and by personal contribution to them. The first peripheral area also includes “serenity, harmony” and “satisfaction”, which may show the significance of these feelings. In the second peripheral area we see the concepts “depends on yourself”, “important”; this signals the priority of the internal control locus.

On the whole, the intermediate group’s structure of the representation of happiness is formed around experiencing positive emotions, coming from communication and relationships with close people within the family, and happiness is associated with personal achievements, with the attained serenity, harmony, nature, with the value of life itself, of well-being and freedom.

**Optimists.** To describe the structure of the representation of happiness in the group with high levels of life satisfaction we will also use a summary Table 4.

**Table 4.** The structure of the representation of happiness in the group of respondents with high levels of life satisfaction

<b>High levels of life satisfaction</b>	<i>high rank of the concept (occurs in the high rank group in over 50% of cases)</i>	<i>low rank of the concept (occurs in the high rank group in less than 50% of cases)</i>
<i>high frequency of the concept (occurs in over 50% of subjects)</i>	Love, family, friendship emotions	None
<i>Low frequency of the concept (occurs in less than 50% of subjects)</i>	Success, achievement, serenity, harmony, satis- faction, relationships, life, important, valuable, hobby	Depends on yourself, children, communication, freedom, faith, God, helping others, knowledge way of life

In this group the representation nucleus is made up of the elements *love, family, emotions and friendship*. As we can see, respondents with high levels of life satisfaction understand happiness as the establishment of deep and lasting personal relationships (family, friendship). In the peripheral zone, we come across such ideas as “achievement”, “harmony”, “relationships”, and “satisfaction”; these indicate a willingness to make a personal contribution to the building of relationships and to their harmony (this is probably considered to be the same as achievement). There are also links with the concepts “life”, “valuable”, “hobby”, giving the representation structure a shade of light-heartedness, as if about something enjoyable.

We note that one part of the primary periphery remains unfilled. This means that if the concept is of low priority, it cannot have a high frequency of reference in this group. It is possible, however, for a high-priority concept to have low frequency of reference. This testifies to the priority of rank over frequency. High consistency in the frequency of occurrence went with a consistently high priority ranking. We can see that in this group, the zone of the nucleus has significantly expanded. In the secondary zone of the periphery the presence of ideas like “depends on yourself”, “helping others”, “way of life” indicates that the personality is active. Only here, in this group’s periphery zone, appear the words “children”, “knowledge”, “freedom”, “faith” and “God”.

To analyze the differences and commonalities in the groups with varying life satisfaction levels we will use the following Table 5.

**Table 5.** Representation of happiness in groups of respondents with low, intermediate and high levels of life satisfaction

	<i>Nucleus</i>	<i>Primary periphery</i>	<i>Secondary periphery</i>
<b>Low life satisfaction</b>	Love	Emotions, family, friends, relationships	Dream, aim, hobby, nature, serenity, harmony, satisfaction, success, victory, fleeting, way of life
<b>Intermediate life satisfaction</b>	Love Emotions Family	Achievements, relationships, serenity, harmony, satisfaction, enjoyment	Depends on yourself, well-being, health, helping others, important, life, nature, way of life
<b>High life satisfaction</b>	Love Friendship Family Emotions	Success, achievements, serenity, harmony, satisfaction, relationships, life, important, valuable, hobby	Depends on yourself, children, companionship, freedom, faith, helping others, knowledge, way of life

As we can judge from the data, the meaning-forming nucleus in the structures of happiness representation differs across the groups with different life satisfaction levels: the higher the level of life satisfaction, the broader the representation and the closer its links to the respondents’ deep personal relationships with significant others (love, friendship).

Comparing the peripheral parts of the representation, we can see that, although all respondents correlate happiness with “serenity, harmony”, “satisfaction”, “success”, “relationships”, “way of life”, there are quite a number of differences: for the pessimist group happiness is “a dream”, and is “fleeting”. For the optimists happiness is associated with “knowledge”, “faith” and “freedom”, and also with “children”, which is not observed in the other two groups.

In the intermediate group, the representation structure contains references characteristic of both high and low levels of life satisfaction, representing associations of internal and external locus of control. However, this group has its own specifics: in the periphery appear such concepts as “well-being” and “health”, indicating links to the benefits of a more material character, in comparison with the high-satisfaction group.

## **Discussion**

The data we have obtained show that the structure and content of representations of happiness vary depending on whether people are optimists or pessimists. We can state that:

- A) All the groups, regardless of their life satisfaction level, have the human value of love in the nucleus of their happiness representation.
- B) In the group of pessimists (people with the lowest life satisfaction levels) the representation of happiness includes associations with the “fleeting” character of happiness.
- C) In the group of young pessimists, the representation nucleus consists of only one concept, “love”, which is primarily associated with the need for striking emotions and experiences.
- D) The young optimists’ representation of happiness shows their certainty that happiness depends on themselves. Only in the optimists’ periphery are there ideas of “faith”, “knowledge”, “freedom”, and “children”.
- E) The group with intermediate level of life satisfaction occupies a similar position in terms of the rank and frequency of representation elements, which confirms the non-random nature of the differences in young people’s representations of happiness.
- F) In the optimists group, a part of the representation periphery was missing: if a concept had low rank of association, the likelihood of this association’s high frequency occurrence was nil. This phenomenon probably reflects some peculiarities of optimists’ thinking and logic.

## **Conclusion**

The results of our empirical research allow us to conclude that the major differences in the representations of happiness lie along a continuum that could be labeled “egocentricity — socio-centricity”.

According to our research, the social representations of happiness of all young respondents in our sample have a fundamental common element: love and positive

emotions linked to it. However, both the nucleus and periphery of the representation clearly demonstrate the differences in the understanding and interpretation of the value of love across the groups with varying levels of life satisfaction. For the pessimists, the energy of love is focused on the emotional state of being in love, rather than on the other person; here love is an insatiable thirst for striking emotions, and a constant pursuit of euphoria generated by falling in love. It is different with optimists: their representation nucleus includes not only emotions, but also relationships with the loved ones in which love, together with the values of family and friendship, form a bundle of concepts. These results suggest that optimists' representation of happiness is socio-centric, and is not confined solely to the inner, essentially physiological states but has a clear focus on the relationships with other people. Our findings are consistent with the results of research into labor motivation carried out in groups of people of different ages, professions and education, who were statistically assembled by the criterion of satisfaction or dissatisfaction with their work. The research was conducted in the USSR in the 1980–1985 (Kokurina, 1987).

Moreover, only optimists have the word associations from the spiritual sphere, such as “children”, “knowledge”, “freedom”, “faith”, “God”.

The results obtained in the research confirmed our belief that optimism is an important personality resource of young people, which is based on lasting friendly relationships with others, first and foremost in the family.

We can therefore conclude that the institution of family and the development of the ability to build and sustain friendship are powerful socio-psychological resources of today's socially active and educated young people. These resources will help them cope with the numerous difficulties and problems they are likely to face in the nearest future.

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## PSYCHOLOGICAL DIAGNOSTICS

### The psychometric properties of the Russian version of the Empathy Quotient

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The aim of the work was to develop and prove a Russian version of the Empathy Quotient, a new tool to measure empathy. A sample of 221 volunteers from the general population filled this questionnaire, the Questionnaire Measure of Emotional Empathy and the Quotient of Empathic Abilities. The coefficients of test-retest reliability, internal consistency and validity were high. In a factor analysis three factors were found that correspond to cognitive, emotional and social skills subscales. A short version with seven questions in each subscale was elaborated and it had acceptable psychometric properties as well.

**Keywords:** empathy, questionnaire, psychometrics, empathy quotient, adaptation

### Introduction

Empathy has many definitions. It can be defined as the ability “to perceive the internal frame of reference of another with accuracy and with the emotional components and meanings which pertain thereto as if one were the person, but without ever losing the ‘as if’ condition” (Rogers, 1975, p. 3) or “our ability to identify what someone else is thinking and feeling, and to respond to their thoughts and feelings with an appropriate emotion” (Baron-Cohen, 2011, p. 11). There are three elements of empathy: 1) a cognitive capacity to take the perspective of the other person; 2) an affective response to another person that entails sharing that person’s emotional state; and 3) certain regulatory mechanisms that keep track of the origins of self- and other-feelings (Kim & Lee, 2010). Empathy is a necessary capacity in daily and professional life. It is of great importance for teachers, psychologists and medical staff. It is a cornerstone of some psychiatric diseases. It has been shown that patients with autism and Asperger’s syndrome (Baron-Cohen & Wheelwright, 2004) and schizophrenics (Lee, Zaki, Harvey, Ochsner, & Green, 2011) demonstrate a low level of empathy development.

Nowadays psychologists use several questionnaires of empathy. The Interpersonal Reactivity Index (Davis, 1983) has only seven questions on empathy concern and seven on perspective-taking that can be considered as a cognitive element of empathy. The Questionnaire Measure of Emotional Empathy (QMEE, Mehrabian & Epstein, 1972) evaluates only the emotional aspect of empathy. One of the newest instruments is the Empathy Quotient (EQ, Baron-Cohen & Wheelwright, 2004). Its creators tried to take into account all aspects of empathy which were not presented in other questionnaires. It consists of 60 questions, of which 40 are related to empathy (1, 4, 6, 8, 10, 11, 12, 14, 15, 18, 19, 21, 22, 25, 26, 27, 28, 29, 32, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 46, 48, 49, 50, 52, 54, 55, 57, 58, 59, and 60), and 20 relate to distraction and do not count (2, 3, 5, 7, 9, 13, 16, 17, 20, 23, 24, 30, 31, 33, 40, 45, 47, 51, 53, and 56). The possible answers to every question are as follows: “strongly agree”, “slightly agree”, “slightly disagree”, and “strongly disagree”. For every question, either 0, 1, or 2 points can be given. In some questions 2 points are given for “strongly agree”, and 1 point for “slightly agree”; in some questions, 2 points are given for “strongly disagree” and 1 point for “slightly disagree”. Therefore, a minimum of 0 and a maximum of 80 points can be obtained. Its reliability and validity was proved on British (English language, Baron-Cohen & Wheelwright, 2004), Japanese (Wakabayashi, Baron-Cohen, Uchiyama, Yoshida, Kuroda, et al., 2007), Canadian (French language, Berthoz, Wessa, Kedia, Wicker, & Grezes, 2008), Turkish (Bora & Baysan, 2009), South Korean (Kim & Lee, 2010), Italian (Preti, Vellante, Baron-Cohen, Zucca, Petretto, 2011), Serbian (Dimitrijević, Hanak, Vukosavljević-Gvozden, & Opačić, 2012), and Brazilian (Portuguese language, Gouveia, Milfont, Gouveia, Rique, & Galvão, 2012) samples. In addition, several factor studies showed that questions of EQ can be divided into at least three groups: cognitive empathy, emotional reactivity and social skills (Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004; Muncer & Ling, 2006). The aim of this study was to prove its reliability and validity on a Russian sample, and to conduct factor analysis to explore possible elements of empathy.

## **Methods**

### ***Participants***

A total of 221 volunteers (121 females and 100 males) took part in the study. They were recruited in public places in several cities of Russia. All were native Russian speakers. Their mean age was 24.9 years ( $SD = 7.7$ , range was 18-59). There was no difference in age between men and women ( $p = .8$ ). 8% had completed only secondary education, 26% vocational education, 33% university education, and 33% were students of vocational schools or universities. As regards the occupation of the participants, 14% worked in industry as engineers or workers, 12% worked in the arts, 9% worked in medicine or education, 33% were university students of various specialties, 15% were office employees, 10% were unemployed or on parental leave, 7% were soldiers or athletes.

### Procedure

The participants fulfilled three self-assessment questionnaires: the Russian translation\* of the Empathy Quotient (which was the result of a consensus between two independent translators), the Russian version (Stoliarenko, 1999) of the Questionnaire Measure of Emotional Empathy (Mehrabian and Epstein, 1972) and the Quotient of Empathic Abilities (QEA, Boiko, 1996), a test made for Russian samples which comprises of 36 questions. The last two tests were used to prove the validity of the EQ. Twenty participants fulfilled the EQ for a second time 2 weeks later, as a test of its retest reliability.

### Data analysis

Unpaired *t*-tests were applied to compare the means of men and women. For these tests, the level of significance was set at .05. Internal consistency was measured by Cronbach's  $\alpha$  coefficient. The Kaiser-Meyer-Olkin test of sampling adequacy (a value of .5 is an acceptable minimum, Cureton & D'Agostino, 1983) and the Bartlett's test of sphericity were applied to demonstrate whether the data were appropriate in explanatory factor analysis. The Varimax method of rotation was used. The cut-off for factor loadings was set at .4. In the comparative factor analysis the values of the RMSEA below .08 (Browne & Cudek, 1993),  $\chi^2/df$  below 2, and *GFI* above .8 (Bentler & Wu, 1993) were considered as indicators of a good fit. All statistical calculations were realised in SPSS 19 (IBM, USA), except for comparative factor analysis, which was performed in Statistica 8 (Statsoft, USA).

## Results

### Descriptive statistics

The descriptive statistics are shown in Table 1. In all three questionnaires, the mean values for men and women were significantly different.

**Table 1.** Descriptive statistics of the obtained data

	Means (SD)			<i>t</i> -value	<i>p</i>
	Total	Male	Female		
EQ	42.03 (11.08)	40.22 (10.71)	43.52 (11.20)	2.2	.027
QMEE	23.00 (5.10)	21.32 (4.91)	24.82 (4.74)	4.4	.001
QEA	22.20 (5.21)	20.43 (5.20)	22.77 (5.23)	2.2	.030

Shapiro–Wilk's test showed that the EQ data were distributed normally ( $W = .99$ ,  $p = .4$ , skewness = 0.18, kurtosis = -0.11, see Figure 1). The men and women data distributions were also normal ( $W = .98$ ,  $p = .1$ , skewness = 0.43, kurtosis = 0.71 for men;  $W = .99$ ,  $p = .5$ , skewness = -0.02, kurtosis = -0.42 for women)

\* The Russian version of the EQ is available here: <http://psylab.info/images/4/47/YC.pdf>

The internal consistency of EQ measured by Cronbach's  $\alpha$  was .85. The test-retest reliability was excellent ( $r=.94, p=.002$ ). There were moderate correlations between EQ and QMEE ( $r=.34, p=.001$ ), and between EQ and QEA ( $r=.48, p=.001$ )

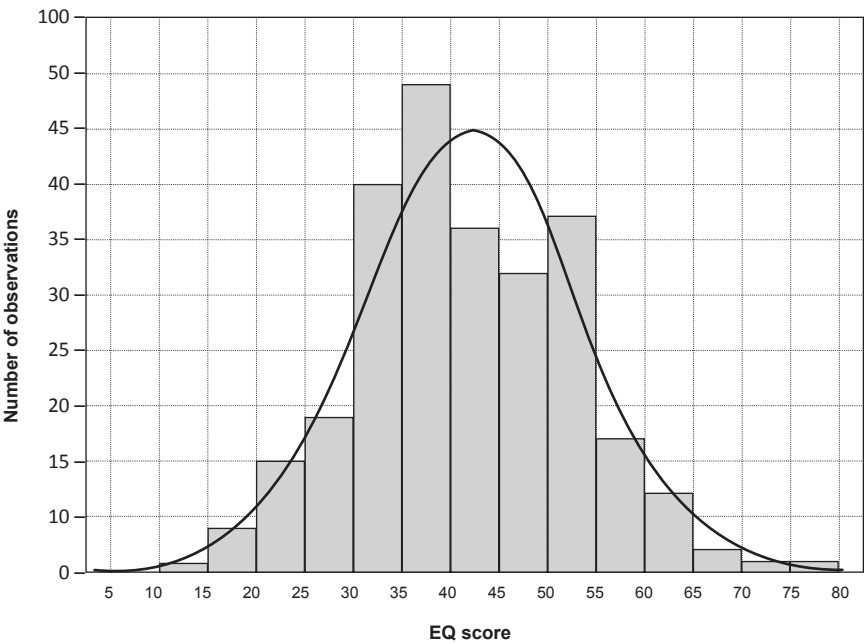


Figure 1. The distribution of the EQ data.

**Factor analysis**

The measure of sampling adequacy ( $KMO = .8$ ) and Bartlett's test of sphericity (approximated  $\chi^2=2530, df=780, p=.001$ ) showed that the data are adequate for a factor analysis procedure.

Factor analysis found a three-factor solution which included 29 questions and accounted for 32.33% of explained variance. The factors loadings are presented in Table 2.

Table 2. Results of Explanatory Factor Analysis of the Empathy Quotient.

Questions of the EQ	Factor 1	Factor 2	Factor 3
54	.736		
55	.735		
25	.722		
58	.710		
19	.682		
26	.645		
43	.587		
36	.577		
41	.566		
52	.551		

Questions of the EQ	Factor 1	Factor 2	Factor 3
1	.540		
22	.498		
21	.471		
44	.409		
32		.579	
42		.496	
6		.480	
27		.476	
49		.465	
39		.445	
38		.440	
14			.582
4			.558
48			.521
8			.481
12			.470
29			.467
46			.464
10			.435
Eigenvalue	6.84	3.71	2.55
Explained variance, %	16.10	9.27	7.38

### *Confirmatory analysis*

Several factor models were proved by confirmatory analysis (Table 3). First, the model with all questions and one-factor model were studied. Then, 29 factors obtained in the explanatory factor analysis were introduced as manifest variables and three found factors were presumed as latent variables. It showed a mediocre fit for this model. The model of Lawrence et al. (28 factors) was also applied to the data, but did not fit better (Table 3). Three short versions of the EQ were then proved. The first one (15 questions) contained 5 questions with the highest loadings from

**Table 3.** Comparison of confirmatory factor analysis of different factor solutions of the empathy quotient

Model	$\chi^2$	$\chi^2/df$	RMSEA	GFI	CFI
All questions	1531.3	2.07	.092	.68	.59
One factor (14 questions)	171.4	2.23	.076	.90	.90
Three factors (29 questions)	681.6	1.65	.064	.82	.80
Short version (15 questions)	175.3	2.40	.077	.90	.83
Short version (21 questions)	353.3	1.89	.064	.86	.83
Lawrence et al. (28 questions)	706.5	2.04	.073	.80	.76
Muncer & Ling (15 questions)	162.2	1.86	.065	.91	.84

each factor, the second one (21 questions) contained 7 questions with the highest loadings from each factor (although in Factor 3, Question 29 was replaced by Question 10 on theoretical grounds; see Discussion), and the third one was of Muncer and Ling. The two last models turned out to provide the best fit. Additionally, in all models Cronbach's  $\alpha$ s for each factor were calculated (Table 4).

**Table 4.** The internal consistency (cronbach's  $\alpha$ ) of all solutions applied to the obtained data

Model	Total	Factor 1	Factor 2	Factor 3
One factor (14 questions)	.88			
Three factors (29 questions)	.85	.88	.67	.66
Short version (15 questions)	.75	.71	.62	.61
Short version (21 questions)	.78	.85	.67	.63
Lawrence et al. (28 questions)	.85	.86	.72	.54
Muncer & Ling, (15 questions)	.72	.70	.58	.55

### *Descriptive statistics of short versions*

As the 29-question and 21-question models had the best fit and internal consistency values, the descriptive statistics were calculated only for those models.

#### *29-question model*

The Shapiro–Wilk test showed that the EQ data were distributed normally ( $W = .99$ ,  $p = .4$ , skewness = 0.11, kurtosis = -0.28). The men and women data distributions were normal as well ( $W = .98$ ,  $p = .3$ , skewness = 0.29, kurtosis = 0.34 for men;  $W = .99$ ,  $p = .4$ , skewness = -0.05, kurtosis = -0.52 for women)

There were correlations between Factor 1 and Factor 2 ( $r = .2$ ,  $p = .003$ , discriminant validity = 0.26), between Factor 1 and Factor 3 ( $r = .36$ ,  $p = .001$ , discriminant validity = 0.47), and between Factor 2 and Factor 3 ( $r = .37$ ,  $p = .001$ , discriminant validity = 0.56).

Women scored higher than men ( $M_w = 33.01$ ,  $M_m = 30.28$ ,  $t = 2.24$ ,  $p = .026$ ). There were differences between men and women only in Factor 2 ( $M_w = 7.41$ ,  $M_m = 6.12$ ,  $p = .001$ ).

#### *21-question model*

The Shapiro–Wilk test showed that EQ data were distributed normally ( $W = .99$ ,  $p = .2$ , skewness = 0.11, kurtosis = -0.38). The men and women data distributions were also normal ( $W = .99$ ,  $p = .4$ , skewness = 0.26, kurtosis = 0.22 for men;  $W = .98$ ,  $p = .1$ , skewness = -0.02, kurtosis = -0.66 for women)

There were correlations between Factor 1 and Factor 3 ( $r = .34$ ,  $p = .001$ , discriminant validity = 0.46), and between Factor 2 and Factor 3 ( $r = .37$ ,  $p = .001$ , discriminant validity = 0.57).

Women scored higher than men ( $M_w = 23.55$ ,  $M_m = 21.44$ ,  $t = 2.32$ ,  $p = .001$ ). Factor 2 scores were higher in women ( $M_w = 7.41$ ,  $M_m = 6.12$ ,  $t = 3.46$ ,  $p = .001$ ).

## Discussion

The aim of the work was to prove the Empathy Quotient in a Russian sample. In general, it turned out to be acceptable. The internal consistency and test-retest validity of the Russian version was good. The validity of the Russian version was acceptable as well, because it showed moderate correlations with two other empathy tests: the Questionnaire Measure of Emotional Empathy and the Quotient of Empathic Abilities.

Factor analysis revealed 3 factors comprising 29 questions. Factor 1 comprised 14 questions, Factor 2 comprised 7, and Factor 3 comprised 8. This solution explained 32.33% of the total variance, which is less than in the works of Lawrence et al. (41.4%) and Dimitrijević et al. (32.62%).

This factor model differs from that found in the study of Lawrence et al. However, the names of factors proposed by Lawrence et al. (Factor 1 = “cognitive empathy”, Factor 2 = “emotional reactivity”, and Factor 3 = “social skills”) are suitable for factors found in the Russian sample. Almost all the questions corresponded well to its categories. The only doubtful question is 29: “I can’t always see why someone should have felt offended by a remark”, which fits into the social skills subscale in this study and into emotional reactivity subscale in the study of Lawrence et al., and theoretically can be fitted into cognitive empathy subscale. That is why it was replaced by Question 10 in the short version with seven questions in each factor. It should be noted that some questions from the emotional subscale in the study of Lawrence et al. do not fit into this subscale: Questions 21, 22, 29 seem to be related not to the emotional subscale, but rather to the cognitive subscale.

Confirmatory factor analysis and internal consistency calculation applied to different models did not reveal the best one. The one-factor model had the best *GFI*, *CFI* and Cronbach’s  $\alpha$ , but its  $\chi^2/df$  was more than 2. Moreover, from the theoretical point of view the questionnaire has more than one dimension. Within the three-factor models the Muncer and Ling one had the best confirmatory analysis values, but the worst Cronbach’s  $\alpha$ s. Two three-factor models obtained in this study (29 questions and 21 questions) had good internal consistency and acceptable confirmatory factor values. Furthermore, their Cronbach’s  $\alpha$ s were greater than in the British study of Muncer and Ling (.74, .63, and .57), in the Brazilian study (.72, .45, and .50), in the Korean study (.85, .65, .55), and in the Serbian study (.82, .67, and .32).

As correlations and discriminant validity between obtained factors were low, it can be concluded that the factors reflect different elements of one phenomenon.

Differences between scores of men and women were found in the original set of questions and in the short version, and the same result was obtained by all the investigators. Considering each subscale separately showed a difference only in emotional subscale. The same pattern was observed only in the Canadian study. In the Italian study there were differences only in cognitive subscale, in the study of Lawrence et al. in cognitive and emotional subscales, in the Korean study in emotional and social-skills subscales. Therefore, the gender differences may reflect cultural peculiarities.

In conclusion, the Russian version of the Empathy Quotient showed acceptable psychometric properties and can be used in scientific studies. It is recommended to use the original version or the 21-question version elaborated here (Questions 19,



25, 26, 43, 54, 55, 58 measure the cognitive component, Questions 6, 27, 32, 38, 39, 42, 49 emotional component, and Questions 4, 8, 10, 12, 14, 46, 48 the social skills component).

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## **A substantial psychometric analysis of the scales of the Minnesota Multiphasic Personality Inventory: F. B. Berezin's version, the MMIL**

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In our research we made a substantial psychometric analysis of the scales of F. B. Berezin's version of the Minnesota Multiphasic Personality Inventory (MMPI), the MMIL, which is widely used in various spheres of psychological practice. Since the mid-1990s in Russia there have been many essential transformations in thinking and values that have been caused by changes in social and economic reality. For this reason, we need to continue our work on specifying the meaning of the MMIL tasks and, then, on updating the test norms and keys. Such psychometric updating is necessary for maintaining the efficiency of the method. For our update, we constructed linear norms for the test; we tested the questionnaire for the normality of the distribution of points; and we checked the validity (including external validity), the reliability coherence of the scales, and the variability of the points. The necessity of readapting the MMIL was thus demonstrated. Questions that display low variability and that are not significantly correlated with the scale they belong to, which reduces their differentiating potential, may be excluded from the test or reformulated.

**Keywords:** psychometric analysis, test norms, validity, reliability coherence, representativeness, the Minnesota Multiphasic Personality Questionnaire (MMPI), the MMIL, factor analysis

The MMPI is a test questionnaire that is extremely popular among not only domestic but also foreign experts. The classic version of the MMPI questionnaire was offered by S. Hathaway and J. McKinley in 1940. Since then reworked and reduced versions of the questionnaire have been repeatedly offered. In 1989 the questionnaire was considerably redesigned (the restandardization project began in 1982) and was published under the name MMPI-2 (J. Butcher et al., 1989).

Adaptation of the questionnaire in our country began in the 1960s. The first MMIL version consisted of 384 statements by Berezin & Miroshnikov in 1967. Berezin and his colleagues developed an original interpretation of the MMPI scales

and carried out a careful standardization and adaptation, taking into account the specifics of sociocultural conditions, the possibilities of applying the test to mentally healthy people, and also the use of the reduced version of the test. As a result, the MMIL was created (Berezin, Miroshnikov, & Rozhanec, 1976, 1994). The MMIL was used in this research.

Today there is wide circulation of other domestic versions of the questionnaire: the Standardized Method for the Multivariate Study of Personality (SMIL) (Sobchik, 2007), the Standardized Clinical Personal Questionnaire (SKLO) (M. Bekhterev Psychoneurological Institute in St. Petersburg), and Mini-Mult, which consists of 71 statements selected on the basis of factorial analysis, created by Zaytsev and his colleagues (Zaytsev, 1981).

Since the standardization and adaptation of the MMIL there have been significant changes in the political, economic, and spiritual spheres of the Russian-speaking culture; these alterations have caused extensive changes in the personal, axiological, semantic, motivational, and behavioral spheres of the Russian people. Therefore, the relevance of the present research is explained by the necessity of reassessing the psychometric indicators of the MMPI to reflect precisely the actual semantic structures of people surveyed in specific sociocultural conditions. The question of how test points are structured is also important as features of this structure reflect the psychological reality that the test is expected to measure. Attempts to apply factor and cluster analyses of MMIL points have been undertaken previously. From our point of view, these methods look most suitable for modeling the psychological reality measured by the MMPI. In particular, one of the most convincing studies was carried out by Shmelev in 2000 (Shmelev, 2002) on a sample of 766 people (students of Moscow colleges and universities). So we were curious to find out what our results in 2009 would be. One of our objectives was to compare the results of the above-mentioned study with those obtained almost 10 years later.

### **Experiment 1. Psychometric analysis of the MMPI**

It was necessary to carry out a psychometric analysis of the questionnaire in order to check the reliability, coherence, and internal and external validity of the technique. For that reason we examined the following psychometric indicators of the MMPI test: medians of root-mean-square deviations on each of the test scales and on female and male samples separately, indicators on the one-sample Kolmogorov-Smirnov criterion, correlations between answers to questions and the total points on a scale, and Cronbach's alpha coefficient values.

### ***Methodology***

- 1. Creation of linear norms for the test.** Medians and root-mean-square deviations were calculated for each of the test scales, for female and male samples separately. Medians and root-mean-square deviations obtained in 1977 for each of the test scales for female and male samples by Berezin, were compared with our 2009 results.

2. **Check on normality and the assessment of the distribution of points.** A check of the sample and the distribution of test points were estimated visually according to the charts of distribution and analytically considering the results of the one-sample Kolmogorov-Smirnov criterion.
3. **Validity check.** A check of validity was carried out in the traditional way—by calculating correlations between answers to questions and the total points on a scale (the bivariate coefficient of correlation).
4. **Reliability coherence check.** Assessment of the internal coherence of the test was made by calculating Cronbach's alpha coefficient. This coefficient represents the assessment of reliability based on the homogeneity of a scale or the sum of correlations between answers of examinees on the same test form.
5. **Analysis of variability of points.** This analysis reveals the questions for which the diagnostic potential is limited, not least because the majority of examinees give the same answers to them. The variability of points was defined by calculating a portion of affirmative and negative answers on the basis of the binary system of answers (true or false).
6. **Check of the external validity of the MMIL.** To this end, a measurement of the convergent validity of MMIL scales and of 16-PF questionnaire scales, which are defined to measure similar psychological reality, was carried out.

### *Sample*

The sample consisted of 548 people aged 19 to 40 (210 men and 338 women).

### **Time of the experiment**

The experiment was carried out in 2009.

### *Procedure*

All examinees filled out the MMIL test questionnaire; their sex, age, and educational background were taken into consideration. The research was carried out during a course of psychodiagnostic methods of university undergraduates. Because participation was voluntary and anonymous, examinees were interested in receiving the most complete feedback on the results of the diagnostics. Therefore, it was necessary to ensure that the testing procedure minimized the influence of the social-desirability factor.

### *Analysis of the data*

The statistical analysis was carried out using Microsoft Excel 2007 and SPSS 15 software.

#### *1. Creation of linear norms for the test-*

In order to identify possible changes we counted up the linear norms of the MMPI test by calculating the medians and root-mean-square deviations for each of the

test scales for female and male samples separately. We compared these 2009 results with the results obtained in 1977 (see Berezin et al., 1994) (Table 1).

**Table 1.** Linear standards of the MMPI test

No.	Scales	Men, 2009		Men, 1977		Women, 2009		Women, 1977	
		N=210		N=250		N=338		N=250	
		m	$\sigma$	m	$\sigma$	m	$\sigma$	m	$\sigma$
1	L	2	1.7	4	2.23	3	2.19	4	2.43
2	F	8	4.42	5	2.91	9	4.3	7	3.18
3	K	16	3.96	15	3.88	15	4.1	15	4.14
4	Hs	12	3.31	12	3.28	14	4.1	14	4.37
5	D	19	5.27	20	4.14	20	5.47	20	5.03
6	Hy	20	4.37	18	4.43	22	4.76	20	5.17
7	Pd	23	3.58	21	4.17	22	4.45	22	4.11
8	Mf	23	3.81	22	3.91	30	4.47	32	3.82
9	Pa	10	3.46	9	2.77	12	3.7	10	3.29
10	Pt	33	5.23	27	4.79	33	4.8	32	4.77
11	Sc	31	5.66	27	2.46	31	5.73	29	5.25
12	Ma	23	4.04	19	4	24	3.78	19	3.81
13	Si	21	8.11	27	7.03	22	7.54	30	7.74

*Note.* m: median, the average norm;  $\sigma$ : root-mean-square deviation

Let's consider separately for the samples those scales that underwent the most essential changes.

For the female sample, the most significant changes (shifts of about 10 to 13 T-points) were on scale 0 "social contacts" and scale 9 "anxiety denial, hypomania tendencies." Such an essential shift toward an increase in the average value on the scale of hypomania tendencies allows us to conclude that the former top border of the mental norm (70 T-points) cannot be considered as a symptom of the corresponding mental disorder but rather reflects an expansion of the range of acceptability corresponding to this scale of behavior. In other words, young females became on average more active and spontaneous. The norm on the scale of social introversion (scale 0) essentially went down. This change indicates a more courageous and open attitude to society and the social mobility of modern youth.

Less considerable changes occurred on the "female and male character traits" scale (scale 5): the norm moved 6 T-points up, a change that indicates an increase in masculinization in modern young women. This finding testifies to the fact that women increasingly prefer men's occupations (in particular, they prefer office work

to housework), and it shows a strengthening of the tendency toward domination and independence.

We also found a median increase of 6 T-points on the frustration scale (F scale); this escalation signifies an increase in unusual thoughts, desires, and feelings that, in turn, testifies to an expansion of the admissibility framework for those mental manifestations that were perceived earlier as disadaptation signs. Minor changes of the median toward an increase (of 4 to 6 T-points) also were found on scales 6 and 8 ("rigidity of affect" and "autization"); these changes can be interpreted as an increase in emotional coldness and affect emasculation, combined with affective rigidity, egocentrism, ambition, a tendency to self-affirmation, suspiciousness, and an increase in rancor.

For the men, as well as for the women, we discovered an increase in the norm on the hypomania scale (scale 9) of 11 T-points, a decrease on the social introversion-extroversion scale (scale 0) of 9 T-points, and an increase on the frustration scale (F scale) of 9 T-points.

Unlike women, men demonstrated a decrease in the L scale "lie" of 10 T-points; this decrease indicates an expansion of their outlook and more spontaneity in their behavior.

Also, the men's sample differs from the female sample in having a 12 T-point increase on the scale of "anxiety fixing" (scale 7) and a 9 T-point increase in the "autization" scale (scale 8). This result says to us that the modern young man has become more distanced; his behavior is emotionally cold, and he is more uncertain because of his feeling of exclusiveness, of the originality of his personality, and his feeling of insufficient recognition of his personality by the people around him. These changes are probably connected with growing uncertainty and a blurring of traditional men's roles in modern society and with the strengthening of modern man's anxiety about the choice of adequate means of socialization.

So, looking at the medians and the root-mean-square deviations used in the linear standardization of crude points, we can consider the medians out-of-date and not operating in current sociocultural conditions. Carrying out linear standardization using the factors calculated in our research essentially corrects the profile of a respondent on separate clinical scales.

As a whole, it is obvious that it is necessary to readapt the technique so that the MMPI fulfills the requirements of the times. This task demands creation of a sample population and a check on the representativeness of the technique.

## *2. Check on normality and assessment of the distribution of points*

A check of the sample and the distribution of test points was estimated visually according to distribution charts and also analytically by the results of the one-sample Kolmogorov-Smirnov criterion. See Table 2.

We found that none of the MMPI scales is normal. See distribution charts.

Analysis of the distribution of test points on the MMPI scales allowed us to make the following assumptions concerning the determinants of similar configurations of schedules of distribution.



Scales L, F, and 1 («lie,» «reliability,» and «somatization of anxiety») are characterized by a right-hand asymmetry; thus, we can say that in these scales there are questions with which the majority of respondents are inclined to disagree. Therefore, these scales are not capable of differentiating examinees.

**Table 2.** One-sample Kolmogorov-Smirnov criterion

	Kolmogorov-Smirnov Z	Asymp. sig. (2-tailed)
Age	3.09	0.00
L Scale	3.32	0.00
F Scale	1.84	0.00
K Scale	1.69	0.01
Scale 1	3.00	0.00
Scale 2	1.82	0.00
Scale 3	1.69	0.01
Scale 4	1.86	0.00
Scale 5	1.59	0.01
Scale 6	1.76	0.00
Scale 7	1.89	0.00
Scale 8	1.63	0.01
Scale 9	1.60	0.01
Scale 0	1.98	0.00

Scale 4 «realization of emotional intensity in direct behavior» and scale 7 «fixing of anxiety and restrictive behavior» have a bimodal distribution of points that allows us to assume that there is some factor or sign that influences the answers of the examinees: if it is present, the examinees agree with the statement; if it is not present, they disagree.

The distribution of scale 9 «anxiety denial, hypomaniacal tendencies» has a negative excess that allows to assume a significant connection between the points of the questionnaire belonging to this scale.

For all scales of the MMPI in which the distribution of points is not normal, it is necessary to estimate separately the validity and diagnostic ability of each point constituting a scale.

### 3. Validity check

A check of validity was carried out in the traditional way—by calculating correlations (the bivariate coefficient of correlation) between answers to questions and the total points on a scale.

The received correlation parameters calculated to check test validity make it possible to draw a conclusion about the average level of communication. Aver-

age factors of correlations were obtained on the following scales: 3 “repression of the factors causing anxiety” (0.28), 5 “female and male character traits” (0.24 for men and 0.22 for women), and 9 “anxiety denial, hypomania tendencies” (0.27), at  $p < 0.05$ . These results demand a further substantial analysis of points of the questionnaire in order to withdraw points that do not correlate significantly with the scales they belong to.

#### 4. Assessment of the internal coherence of the test

The internal coherence of the test was assessed by calculating Cronbach's alpha coefficient. This coefficient represents the assessment of reliability, which is based on the homogeneity of a scale or the sum of correlations between answers of examinees to questions in the same test form. See Table 3.

**Table 3.** Cronbach's alpha coefficients

Scale	Cronbach's alpha coefficients
L	0.49
F	0.62
K	0.65
Scale 1	0.78
Scale 2	0.63
Scale 3	0.53
Scale 4	0.53
Scale 5	0.45 for men, 0.38 for women
Scale 6	0.47
Scale 7	0.82
Scale 8	0.82
Scale 9	0.49
Scale 0	0.80

The assessment of the internal coherence of the scales of the MMPI shows that these scales are coordinated: F “reliability,” K “correction,” 1 “somatization of anxiety,” 2 “anxiety and depressive tendencies,” 7 “psychasthenia, or the fixing of anxiety and restrictive behavior,” 8 “autization,” and 0 “social contacts.”

The following scales are not internally coordinated: L “lie,” 3 “hysteria or repression of the factors causing anxiety,” 4 “psychopathic deviation or realization of emotional tension in direct behavior,” 5 “male and female character traits,” 6 “paranoia or rigidity of affect,” 9 “hypomania or anxiety denial.” It can be determined by the substantial dimensions of the scales of the questionnaire that each scale consists of more than 40 versatile questions that allow the expansion of the area of coverage of the studied factors but, at the same time, reduce the level of internal coherence. Theoretically and methodologically the questionnaire points do not assume ho-

mogeneity; they reflect an extensive area of possible somatic, behavioral, and other features of the people belonging to a certain disadaptation group.

#### 5. Analysis of the variability of points

We found 12 points that have less than 10% of negative answers in the sample. We also found 45 points that have less than 10% of positive answers.

So, 57 out of 377 points of the MMIL possess low variability and thus have reduced differentiating potential. It's expedient to exclude them from the test to decrease the number of points or to reformulate the statements on the questionnaire.

#### 6. Check of the external validity of the MMIL

In order to check the external validity of the MMIL, a correlation analysis was carried out on the data files of the standardized points of the MMPI test, Cattell's 16PF test, and also coded biographical data of the respondents (sex, age, education level, occupation, having a family and children). Results of the correlation analysis (the Spearman coefficient of correlation at a significance level of  $p < 0.01$ ) reflect a connection between points of the MMPI questionnaire and points of the 16-factorial personality questionnaire that are designed to diagnose the same psychological reality.

Results are presented in Table 4.

**Table 4.** Results of the correlation analysis of the standardized points of the MMPI and the 16-PF

MMPI 16 PF		Correlation coefficients
Scale 0 "social contacts"	H-factor: "courage — shyness"	-0.71
Scale 5 "female and male character traits"	I-factor: "rigidity — sensitivity"	0.57
K scale "correction"	Q4-factor: «tension — slackness»	-0.53

On a number of indicators the MMPI and the 16-PF questionnaires have significant correlation coefficients, which are easily explainable.

The highest correlation score (-0.71 at a significance level of  $p < 0.01$ ) was for the H-factor "courage — shyness" of Cattell's test and scale 0 "social contacts" of the MMPI test.

The contents of these indicators are the following. High scores on the H-factor indicate immunity to threat, courage, determination, craving for risks and thrills. People with high scores on this factor freely makes interpersonal contacts, do not experience difficulty in communication, speak willingly and a lot, are not at a loss when facing unexpected circumstances, quickly forget about failures, do not make appropriate conclusions after being punished. A decrease in the level of a profile on the 0 scale of the MMPI test also reflects a desire to make interpersonal contacts and an interest in people. Examinees with such a profile are sociable, emotionally sympathetic; they have well-developed communication

skills. Persons of this type willingly take up public duties, have a large number of interpersonal contacts in various spheres, and get great pleasure from making use of these contacts.

The I-factor “rigidity — sensitivity” on Cattell’s 16-PF test correlates with scale 5 of the MMPI “female and male character traits” (correlation coefficient 0.57 at a significance level of  $p < 0.01$ ). High scores on the I-factor indicate softness, refinement, and a figurative, artistic perception of the world. Persons with high indicators on this factor possess rich imaginations and esthetic taste; works of art influence their life more than real events. They are inclined toward artistic activity. Low scores are characteristic of courageous, severe, practical, and realistic persons. They approach life from a logical perspective, trust their minds more than their feelings, substitute calculation for intuition, and get rid of psychological traumas at the expense of rationalization. In the MMPI test the substantial rise of a profile on scale 5 reflects the decrease or absence of identification with the traditional cultural and social roles of men and women, while an obvious decrease in a profile on this scale testifies to a high level of identification with traditional gender roles. A profile decrease on this scale for men means higher selectivity and a limited scope of interests, resourcefulness, an expressed desire to overcome obstacles, lower sensitivity to esthetic subtleties and shades of human relations. The higher the score on scale 5 for men, the more they pay attention to emotional nuances and shades of relationships, possess sentimentality, and have a broad range of interests, and they are less gauche and have less of a tendency to dominate. An increase on scale 5 for women reflects an increase of those tendencies that are for men accompanied by a decrease on this scale. The higher the score on scale 5 for women, the more they express confidence, initiative, consistency of behavior, dominance, and heteroaggressive trends.

The “validity” scale, K, has a significant factor of correlation (-0.53 at a significance level of  $p < 0.01$ ) with the Q4-factor “tension — slackness.”

Persons with high scores on scale K generally behave according to socially accepted norms, are anxious about their social status, and abstain from criticism of the people around them as long as the behavior of those people is within accepted norms. Thus people with high K scores are inclined to deny any difficulties in interpersonal relationships or in the control of their own behavior. Low marks on the Q4-factor indicate approximately the same characteristics—denial of internal tension and also of unfilled aspirations.

**Table 5.** Results of the internal correlation analysis of the standardized points of the MMPI scales

MMPI scales	MMPI scales	Correlation coefficients
Scale 7 “fixing of anxiety and restrictive behavior”	Scale 8 “autization»	0.69
Scale 3 “hysteria or repression of the factors causing anxiety”	Scale 1 “hypochondriasis or somatization of anxiety”	0.63
Scale 2 “anxiety and depressive tendencies”	Scale 7 “fixing of anxiety and restrictive behavior”	0.62

Scale 2 "anxiety and depressive tendencies"	Scale 0 "social contacts"	0.6
F scale "reliability"	Scale 8 "autization"	0.56
Scale 6 "paranoia or rigidity of affect"	Scale 8 "autization"	0.53

Besides correlations with the 16PF questionnaire, there are internal correlations of scales of the MMPI that show the most frequent combinations of the scales. See Table 5.

Analysis of these correlations, which reveal steady personal and behavioral patterns (or well-known options for disadaptation if it is a question of the clinical expressiveness of these patterns), indirectly testifies to the internal validity of the questionnaire.

In this way correlations scale 1 "hypochondriasis or somatization of anxiety" and scale 3 "hysteria or repression of the factors causing anxiety" with factor 0.63 at a significance level of  $p < 0.01$  have been found. It reveals a tendency toward repression, which is shown in an inclination to deny problems and difficulties, combined with a desire to emphasize somatic trouble and/or the declaration of hypersocial installations masking egocentricity. Such a constellation of scales characterizes persons with more or less expressed hysterical phenomena.

Another steady combination is reflected by correlations between the scales of hyposthenia\* (scale 2 "anxiety and depressive tendencies," scale 7 "psychasthenia, or fixing of anxiety and restrictive behavior," and scale 0 "social contacts") with factors from 0.6 to 0.63 at a significance level of  $p < 0.01$ . This combination indicates the prevalence of inhibitive features, which testify to an individual's uneasiness, internal tension, conformity, social pliability, and refusal of self-realization.

There is also a correlation between the F scale and scale 8 "autization" (0.56 at a significance level of  $p < 0.01$ ) that can be determined by a general tendency of respondents to attribute to themselves abnormal behavioral manifestations, which is a strategy for moving away from testing.

Scale 8 "autization" of the MMPI correlates significantly with scale 6 "paranoia or rigidity of affect" (0.53 at a significance level of  $p < 0.01$ ). This correlation also reflects a certain personal pattern: a combination of autization and distancing with rigidity and a desire to lay the blame for violations of interpersonal relations and life difficulties on others. When these scales are clinically apparent, the growing autization is accompanied by the formation of affectively charged and hard-to-correct concepts connected with the idea of the hostility of other people.

\* Scales 2, 7, and 0 reflect properties of a hyposthenic type of reaction and testify to the prevalence of inhibitive characteristics. A profile with leading scales of the hyposthenic register reveals the neurotic option of disadaptation or a personality decompensation toward the strengthening of inhibitive reactions.

The correlation of MMPI scales 8 “autization” and 7 (“psychasthenia, or fixing of anxiety and restrictive behavior”) (0.69 at a significance level of  $p < 0.01$ ) reveals one more steady personal pattern: a combination of autization and difficulties in interpersonal communication with the uneasiness caused by these difficulties. When the specified tendencies are expressed, this pattern is revealed in internal tension, a tendency toward fruitless introspection, and a chronic feeling of embarrassment.

## **Experiment 2. Comparison of two independent samples**

Within this research we also wanted to uncover the differences in the average total points on the MMPI scales obtained in our own studies in different time periods—in particular, changes that occurred over 10 years in the use of the MMIL on a youth sample and how those changes are reflected in the perception of the statements on the test questionnaire.

### ***Sample***

In the research of 2009 the sample contained 548 people aged 19–40 (210 men and 338 women). The sample in 1999 contained 220 people (110 men and 110 women).

### ***Time of the experiments***

The experiments took place in 1999 and in 2009.

### ***Procedure***

All examinees filled out the MMIL test questionnaire; their sex, age, and educational background were taken into consideration. The research was carried out during a course of psychodiagnostic methods. Participation was voluntary and anonymous, and the examinees were interested in receiving the most complete feedback about the results of the diagnostics. So the way the testing was carried out had to contribute to minimizing the influence of the social-desirability factor.

The statistical analysis was carried out using Microsoft Excel 2007 and SPSS 15 software.

For verification of the assumption that there were different average total points on the MMPI scales investigated during the different time periods, a comparison was made of the results for two independent samples; the results consisted of the standardized points on 13 scales of the MMIL test. Because none of the test scales in 2009 were distributed under the normal law (as we found in the previous experiment), we used the Mann-Whitney nonparametric criterion to compare the samples. The comparison was made for female and male samples separately.

Thus, considerable changes were found in the responses of the examinees to the points of the K scale “correction,” scale 7 “fixing of anxiety and restrictive behavior,” and scale 8 “autization” for men, and the L scale “lie,” scale 2 “anxiety and depressive tendencies,” and scale 5 “female and male character traits” for women.

Comparison of average values allows us to track which particular tendency is being observed. See Table 6.

**Table 6.** Comparison of average values in T-points

	Men			Women		
	K scale	Scale 7	Scale 8	Scale L	Scale 2	Scale 5
1999	47.28	55.86	56.52	41.96	45.69	55.6
2009	52.27	61.51	68.93	47.49	52.14	43.77

### *Analysis of the data*

In comparison with the 1999 sample, in the 2009 sample there was a tendency toward an increase of average values on the K scale and scale 7 for men and on the L scale and scale 2 for women, whereas values on scale 5 for women demonstrated a tendency to fall.

Thus, men's anxiety level, readiness for the emergence of uneasy reactions, autization, and also conformism rose. As for women, we can see the growth of depressive tendencies, a desire to put themselves in a favorable light, and strict adherence to social norms. The most surprising dynamic was the fall in 2009 indicators on scale 5; this decline can be interpreted as follows: women in 1999 on average showed greater ease and self-confidence, initiative, internally motivated consistent behavior, domination, and heteroaggression. Possibly, similar shifts can reflect real changes in the gender stereotypes of the population—namely, the feminization of women in 2009 in comparison with former sociohistorical realities. However, if we recall the results obtained in 1977, scale 5 for women on average had values lower than in 2009. Also in 2009 the average values for activity, extroversion, unusual thoughts, autization, and affect rigidity increased.

### **Experiment 3. Analysis of the factor structure of the MMPI**

In the present research we did not receive enough satisfactory data (at least on some scales) for checking the calculation of correlations between answers and the total score of a scale. For this reason we thought that a factor analysis of points would allow us to discover how MMIL points are grouped in factors and which of the factors really work.

### *Sample*

The experiment was carried out on the same sample as in 2009.

### *Procedure*

All examinees filled out the MMIL questionnaire; their sex, age, and educational background were taken into consideration.

The statistical analysis was carried out using Microsoft Excel 2007 and SPSS 15 software.



The factor analysis was carried out on the basis of a matrix of intercorrelation 377\*377 with measure application "4 dot  $\mu$ -correlation," with subsequent varimax rotation. The results are presented in Tables 7 and 8.

**Table 7.** Results of the factor analysis of MMPI points

Component	Initial eigenvalues			Rotation sum-squared loadings		
	Total	% of variance	% cumulative	Total	% of variance	% cumulative
1	90.947	24.124	24.124	70.491	18.698	18.698
2	25.679	6.811	30.935	30.555	8.105	26.803
3	24.789	6.575	37.510	24.262	6.435	33.238
4	9.899	2.626	40.136	21.265	5.640	38.879
5	9.053	2.401	42.538	12.652	3.356	42.235

**Table 8.** Five leading varimax factors, explaining 42.2% of the general dispersion (points that received the highest loadings on each factor are given)

<i>Factor 1. 18.69% of the variance explained. Neurotism (distress) includes 122 points with significant loadings.</i>		
21	0.84	You are very excited approximately once a week or more often.
257	0.83	You consider yourself a nervous person.
106	0.82	You have periods of such anxiety that you find it hard to sit still.
51	0.76	From time to time you have attacks of uncontrollable laughter or crying.
141	0.76	Sometimes you are afraid of some objects or people, although you know that they do not threaten you.
16	- 0.76	You rarely have any pain (or nothing hurts you at all).
259	0.76	You can easily begin to cry.
290	0.76	Sometimes all of a sudden some bad words, often swear words, come to your mind, and you cannot get rid of them.
314	0.75	You very easily get tired.
154	0.74	You often worry about something.
80	0.73	Almost always you are anxious about something.
251	0.73	You often have a feeling that you made something incorrectly or did something bad.
129	0.71	You get irritated easily while communicating with people.
191	0.71	The most difficult problem for you is to cope with yourself.
19	0.70	Usually at night you can't get to sleep because thoughts fill your mind.
<i>Factor 2. 8.10% of the variance explained. "Introversion — extroversion" includes 33 points with significant loadings.</i>		
96	- 0.88	You like public entertainment because you love to be in society.

363	- 0.87	You like to visit somebody or visit places that are noisy and cheerful.
185	- 0.85	You willingly get acquainted with people.
246	- 0.87	You like to take part in parties and meetings.
6	0.83	At parties you sit alone most often or talk to one of the guests instead of joining a group.
156	- 0.78	You feel good in a crowd of people having fun.
368	- 0.74	You easily meet people and feel good in society.
198	- 0.75	You love different games and entertainments.
273	- 0.73	You would like to perform on stage.
38	- 0.64	It is difficult for you to keep up the conversation with a person with whom you just got acquainted.
309	0.70	It is more difficult for you than for others to get acquainted with people.
172	0.76	You do not like to be among people.
299	- 0.74	When a situation is boring for you, you try to arrange something cheerful.
36	- 0.79	You like to dance.
217	0.65	In cheerful company you find it difficult to fool around with the others.
248	0.63	You prefer not to talk to people when they do not address you.
8	0.66	When you are in society, it is difficult for you to find a suitable subject for conversation.
216	- 0.63	When you find yourself in the company of cheerful friends, your worries disappear.
171	0.63	Even being in society, you usually feel alone.

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*Factor 3. 6.43% of the variance explained. "Self-control — impulsiveness» (estheticism, sensitivity — roughness, impulsiveness) includes 23 points with significant loadings.*

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78	0.79	Sometimes you would like to start a fight.
302	- 0.66	You often would like to be a woman, and if you are a woman, you are never sorry about it.
332	- 0.64	If you were an artist, you would willingly draw flowers.
331	- 0.61	If you were a journalist, you would willingly write about the theater.
127	- 0.69	You are embarrassed when somebody tells indecent jokes in your presence.
87	- 0.54	You believe that observance of laws is obligatory for all.
181	- 0.70	You like to collect flowers or to grow them at home.
192	0.63	You have had trouble because of a violation of the law.
213	- 0.70	You would like to work as a flower grower.
244	0.56	Sometimes you tease animals.
72	0.61	You have abused alcohol.

91	0.62	If you are treated unfairly, you feel you must pay back for it.
212	0.53	If you argue, you argue for anything.
70	0.63	Sometimes you were called to the principal's office for bad behavior at school.
50	0.63	Sometimes you listen to indecent jokes with pleasure.
319	– 0.59	Sometimes you do not give in to people, not because it is really important but just out of principle.
59	– 0.56	At times you have liked the quick thinking of a criminal so much that you hoped he would not be caught.
339	0.54	Sometimes you have subjected yourself to danger because of a love of taking risks.

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*Factor 4. 5.64% of the variance explained. Depression (disadaptation) — adaptation includes 15 points with significant loadings.*

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42	0.75	You definitely are not lucky in life.
101	– 0.68	You believe that your family life is not worse than that of the majority of your acquaintances.
369	0.68	You are dissatisfied with how your life is going.
370	– 0.63	Usually you are satisfied with your destiny.
41	– 0.63	There is a lot that is interesting in your everyday life.
145	0.61	Your destiny is not of special interest to anybody.
132	0.61	Your parents and other members of the family often pick up for you.
367	0.61	The majority of people are happier with their life than you are.
40	0.60	Now you do not hope any more to achieve desirable circumstances in your life.
138	– 0.56	Usually you believe that living is not in vain.
215	0.40	If conditions allowed, you could bring big benefits to people.

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*Factor 5. 3.35% of the variance explained. Paranoia (negativity, suspiciousness, malevolence) includes only 8 points with significant loadings.*

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186	0.606	You often meet people who envy you for your successful ideas because they could not come up with them themselves.
208	0.571	You have ill-wishers who try to cause trouble for you.
295	0.550	There are people who try to steal your ideas and thoughts.
312	0.550	You often meet people who are considered experts, but actually they know no more than you.
218	0.548	Most people are capable of gaining a benefit in a not absolutely honest way.
162	0.531	You are sure that somebody talks about you behind your back.

252	0.527	Someone bore malice toward you.
226	0.514	You think that the majority of people can't help lying when it is to their advantage.
164	0.498	It is safer to trust no one.
12	0.496	You would have attained much more in life if people were not biased against you.
239	0.485	You planned a life program for yourself based on a sense of duty, and you try to adhere to that plan.
343	0.479	If somebody acts pleasantly toward you, you usually are interested in what the motivation is behind it.

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### ***Analysis of the data***

As can be seen, the specified factors bear a strong resemblance to "The Big Five". But the MMIL material adds some specific features.

It is interesting that in research by Shmelev (2002) the five-factorial space was also obtained as a result of factorization of the intercorrelation matrix of 377 MMIL points. However, the structure of factors differed a little. So in Shmelev's research the first factor was "general adaptation" (social desirability); the second factor, as in our research, was "introversion-extroversion"; the third factor was "emotional stability"; the fourth was "self-control — impulsiveness," which in our research was the third factor. The fifth factor was "friendliness — negativism," which resembles the fifth factor in our research "paranoia (negativism, suspiciousness, malevolence)." These results convince us that the multidimensionality of the MMIL is exaggerated, at least in this edition of the test. Marked differences in the factor structure of the questionnaire can be explained by the peculiarities of semantic links that reflect a specific-to-each-sample image of the world. However, such a result also testifies to the insufficient reliability of the MMIL.

### **Conclusions**

First, the creation of linear norms of the test demonstrates that it is necessary to readapt the technique so that the MMPI meets the requirements of the times. This task demands the creation of a sample population and a check on the representativeness of the technique.

Second, for all scales of the MMPI in which the distribution of points is not normal, it is necessary to estimate separately the validity and diagnostic ability of each point of a scale.

Third, the check of validity, the assessment of the internal coherence of the test, and the analysis of the variability of points demonstrate that many points have reduced differentiating potential. It's expedient to exclude them from the test to decrease the number of points or to reformulate the statements of the questionnaire.

Fourth, the differences in average total points on the MMPI scales reveal the changes that occurred over 10 years of use of the MMIL (1999–2009). Considerable changes occurred in the responses of the examinees to the points of the K scale "correction," scale 7 "fixing of anxiety and restrictive behavior," and scale 8 "autiza-

tion” for men, and the L scale “lie,” scale 2 “anxiety and depressive tendencies,” and scale 5 “female and male character traits” for women.

Fifth, in general, our study shows that the present version of the questionnaire does not meet all psychometric requirements and needs a substantial revision, which we plan in the near future.

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## Stimulus determinants of the phenomenon of change blindness

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This article describes techniques and procedures that are used to research the change-blindness phenomenon. The role of stimulus parameters in completing a visual task (detecting changes) was investigated. The following parameters of visual stimuli varied in a chronometric experiment: the number of objects, their location in the stimulus space, and the shape of the objects (including a new object that attracts attention as well as various changes of single objects, such as appearance/disappearance, location shifts, changes of color and shape). The results of this study indicate that change blindness can have a different intensity (the time of detecting changes in flickering images) depending on the number of objects, their location in the stimulus space (structured or randomized), and the type of change (the most complicated one was a change of color):

1. The number of objects has considerable influence on the intensity of change blindness and is the most powerful parameter.
2. The shape of the objects within the image is not crucial for change-detection time.
3. The spatial organization of the objects is important for the successful detection of changes. The changes are detected quicker in images with regular rather than random organization.
4. A distraction (in this case, a word that was substituted for an object) doesn't have any considerable influence on change detection.
5. Change-detection time increases as the interstimulus interval increases from 200 to 400 ms.
6. The detection of shifts and of appearance/disappearance is quicker than the detection of color change.

These results let us create stimulus patterns for change-blindness experiments that differ in complexity, and thus we could examine a wide range of hypotheses about the function of the psychological mechanisms of spatial attention that are used to explain this phenomenon.

**Keywords:** spatial attention, change blindness, stimulus determinants

Change blindness is defined as the persistent inability to notice changes in a perceived scene because of a short disruption in perception (Falikman, 2006; Rensink, O'Regan, & Clark, 1997; Utochkin, 2011). Research of spatial attention with the use of change-detection tasks (involving "global disruption") has been developing for over 40 years, starting with George McConkie's research in the 1970s (Falikman, 2006). The most common experiments are those in which image changes are presented during saccadic eye movements or which involve an image shift or flickering. The flicker paradigm was introduced by Rensink et al. (1997). Two images (the original one and an altered one) are repeatedly alternated with a gray background; this procedure creates the special effect of flickering images. This type of image presentation doesn't allow the observer to automatically notice even major changes. In the case of uninterrupted perception, any local change in the object is automatically registered by movement detectors and attracts involuntary attention. However, global disruption masks this local change, and the observer can't pay attention to the changes automatically. Research shows that when a blank screen is presented between the original and the altered images, perception deteriorates. It becomes increasingly difficult to notice the changes even when they're significant, repeated, and expected (Rensink et al., 1997; Simons & Chabris, 1999).

Simons and Levin (1998) deliberately included goofs\* in short videos and found that observers experienced change blindness while watching them: they never noticed important changes, like a change in the lead actor. Even professional editors, despite their huge experience in working with video material, weren't able to detect significant errors in the montage. Change blindness is particularly evident when the observer is not expecting any changes. In this case many observers are not able to notice that the man they had been talking to was secretly exchanged with another person. This research indicates that change blindness occurs because of different distractions, such as flickering, random noise, or flashes.

Modern scientists who study change blindness usually use different materials and traditionally present complex visual scenes to the observers (Gusev, Mikhailova, & Utochkin, 2012; Rensink et al., 1997; Simons & Levin, 1998; Utochkin, 2011). Only a small number of studies are based on simple stimuli (Goddard & Clifford, 2013; Irwin & Andrews, 1996).

## Hypotheses

The first hypothesis of this study is that the intensity of change blindness depends on the physical characteristics of a visual pattern such as the number and location of objects (simple figures) within the pattern, their shape, distractions or the absence of distractions, and the interstimulus interval.

The second hypothesis is that the intensity of change blindness depends on the type of changes that occur within the image (appearance or disappearance of objects, change of color, or shifted location in the stimulus space).

\* Goofs are montage mistakes that connect to each other fragments of the shots of slightly different scenes. In the experiments of Levin and Simons (1997), they were made deliberately.



## Methods

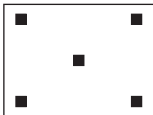
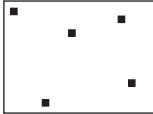
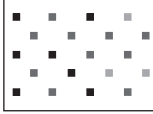

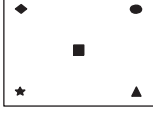
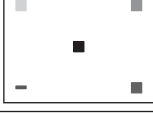
### *Subjects (Observers)*

Seventy-eight people aged 14 to 35 (average age, 21) with normal (or corrected-to-normal) vision participated in the empirical part of this study.

### *Stimuli and equipment*

For the study of change blindness we created special stimulus material that allowed us to trace the connection of change blindness with memory and attention. The stimulus patterns consisted of several simple shapes — squares, triangles, circles, stars, diamonds, or their combinations (see Table 1). The shapes had either regular organization (structured images) or random organization (unstructured images). Four stimuli (numbers 1, 2, 5, and 6) each consisted of 5 simple shapes of different colors; 2 stimuli (3 and 4) each consisted of 20 shapes. In addition, the square shape was replaced with the word дом (house) in one of the stimuli. The size of a square shape on a 17-inch screen (as well as the maximum size of other shapes) was  $0,0012 \times 0,0012$  m.

**Table 1.** Stimulus material

No.	Image description	Image
1	5 regular squares	
2	5 random squares	
3	20 regular squares	
4	20 random squares	
5	5 regular shapes	
6	5 regular objects—4 squares and a word	

*Note.* Stimulus material can be found on the website of the UMK “Psychology” company: <http://psychosoft.ru>.

The colors of the stimuli were chosen according to a standard 256-color palette. The stimuli with 5 squares had yellow, green, blue, brown, and red shapes. For the stimuli with 20 squares we used the same colors along with 15 extra colors (3 extras for each basic color) that were as close as possible in brightness to the original colors with equally different shades from the original.

In order to study change blindness, many researchers use such types of change as appearance and disappearance or a location shift or color change in one of the objects (see Simons & Rensink, 2005a, 2005b). In this study we used all these types of changes.

Each stimulus had to undergo three types of changes—appearance/disappearance, change of color, and shift of an object (see Table 2). Each type of change had 5 variations: different trials included different objects within each stimulus. For appearance/disappearance, the following changes occurred in different trials: (1) disappearance of an object (2 variations); (2) appearance of an object (3 variations). The location of the appearance and the disappearance was controlled; it was closer to either the central or the peripheral area. Change of color was applied to 5 objects; each difference from the original in shades and altered objects was controlled and was labeled as “a slight difference,” “a medium difference,” or “a strong difference.” For shifting the location of 5 objects, we controlled their new location (central or peripheral) and the direction of change (toward or away from the center).

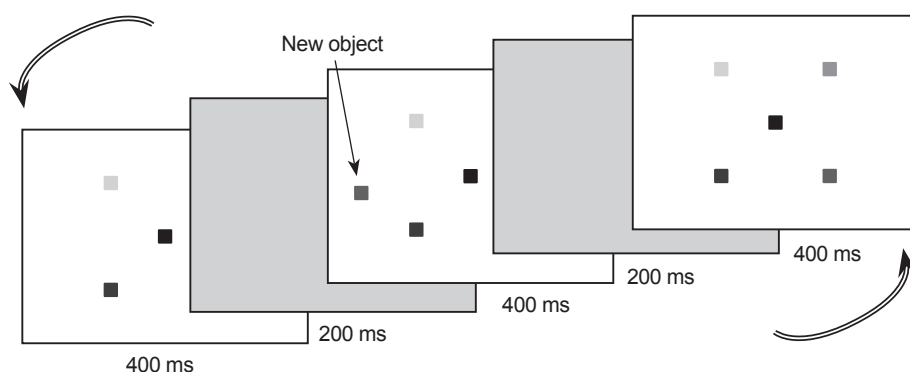
**Table 2.** Types of changes within stimulus material

Nº	Description of changes	Image
1	Original image	
2	Disappearance of an object	
3	Appearance of an object	
4	Change of color of an object	
5	Shift of an object	

In addition to trials with changes, some trials were run without changes (30% of the trials were without changes). The total number of sessions in this study was 120.

All types of sessions were randomized.

Using the flicker paradigm we made changes during the interstimulus interval, while a gray screen was being shown. Each trial cycle included successively a demonstration of the original image (400 ms), the interstimulus interval (200 ms), a demonstration of the altered image (400 ms), and the interstimulus interval (200 ms) (see Figure 1). Thus, each trial cycle lasted 1200 ms. In order to assess the influence of the interstimulus span we extended the interstimulus interval to 400 ms. The experimental plan was prepared and executed in a program called StimMake (by A. N. Gusev and A. E. Kremlev). The stimuli were demonstrated on a 17-inch PC screen and the whole screen was used for their presentation. The distance between the observer's eyes and the screen was 0,6 m, approximately 54°. The cycle of stimuli demonstration within each trial was repeated until the observer stopped it by pressing one of the keys. Thus, the time for each trial and for the whole session was not limited. Observers' answers and reaction times were recorded.



**Figure 1.** The cycle of successive image demonstrations in each trial

## Procedure

Before the start of the session we informed each observer that he (she) was going to participate in an experiment related to visual attention and the task was to detect the element that changed in two successive demonstrations as soon as possible. The observer was to press the “left shift” key if he (she) detected a change and the “right shift” key if he (she) did not detect a change and to hold the key for 1 sec. As soon as the key was pressed, the trial cycle stopped and the original image appeared on the screen. After that the observer had to report the change that had been detected and point to its location.

Collected data were analyzed using the StimMake program, which allowed us to estimate the time of change detection for each trial and to assess the accuracy of the answers. Statistical analysis was performed in the IBM SPSS Statistic, version 19.0.

## Results

### *Time of Change detection for different images*

The results indicate that the easiest change for detection is appearance or disappearance of an object in a matrix with 5 regular shapes, while the most difficult change for detection is color in a matrix with 20 random shapes (see Table 3).

**Table 3.** Average time of change detection (number of cycles) and its dependence on the number of objects and their location

Type of stimulus material		Average change-detection time, cycles
5	regular shapes	2.39
4	regular squares and a word	2.54
5	regular squares	2.61
5	random squares	2.66
5	regular squares, interstimulus interval 400 ms	3.11
20	regular squares	5.01
20	random squares	5.31

There were no statistically significant differences in time of average change detection between stimulus material with regular and random square shapes for the stimuli with both 5 ( $t(19)=0.85$ ,  $p=0.41$ ) and 20 ( $t(19)=1.19$ ,  $p=0.25$ ) objects.

Change detection times for the stimuli with 5 and 20 squares for both regular ( $t(19)=7.87$ ,  $p<0.001$ ) and random ( $t(19)=7.46$ ,  $p<0.001$ ) organization were compared to examine statistical significance: increasing the number of shapes from 5 to 20 approximately doubled the increase in change-detection time (see Table 3).

Change-detection time was significantly lower for the stimuli with regular shapes compared with the stimuli that included only squares ( $t(19)=3.34$ ,  $p=0.003$ ).

Changing one of the squares to the word *дом* did not cause a significant increase in detection for any type of change ( $t(19)=0.52$ ,  $p=0.61$ ).

Increasing the interstimulus interval from 200 to 400 ms significantly increased the time of change detection by almost 20%. The difference was statistically significant ( $t(19)=2.52$ ,  $p=0.02$ ).

Thus, we can conclude that the most significant differences were found for the stimuli with 5 and 20 squares. Further analysis will focus on these particular stimuli.

### *Types of changes and their influence on time of change detection*

The factor of image organization (regular or random squares) didn't have any influence on change-detection time for the appearance/disappearance of objects and for a change in color. The results showed that the factor of image organization didn't have any influence for the stimuli with 20 squares (appearance/disappearance:  $t(58)=-0.291$ ,  $p=0.772$ ; color change:  $t(37)=0.796$ ,  $p=0.431$ ) and for the stimuli with 5 squares (appearance/disappearance:  $t(58)=-1.337$ ,  $p=0.186$ ; change

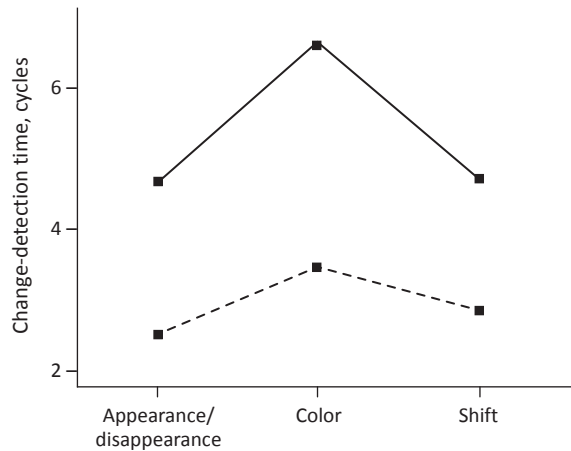
of color:  $t(58) = 0.297$ ,  $p = 0.767$ ). However, there were statistically significant differences for this factor when 1 of the 20 objects was shifted ( $t(57) = 4.785$ ,  $p < 0.001$ ) and quasi-significant differences when we shifted 1 out of 5 objects ( $t(58) = -1.781$ ,  $p = 0.08$ ).

**Table 4.** Average time of change detection in cycles (T) and percentage (%) of correct answers for different types of stimuli and different types of changes

Type of change Type of stimulus		Appearance/ disappearance		Color		Shift	
		T	%	T	%	T	%
5 squares	Regular	2.48	97.08	3.33	85.42	2.82	96.0
	Random	2.57	98.0	3.32	86.25	3.00	92.0
20 squares	Regular	4.50	80.67	6.64	38.33	4.47	80.0
	Random	4.41	76.0	6.97	37.0	5.57	67.0

In general, irrespective of the type of changes, the factor of image organization did not significantly affect change-detection time for images with 5 and 20 squares. The results of a 2-way ANOVA (analysis of variance) did not show any significant interaction between “organization” and “number of squares” ( $F = 2.819(1.37)$ ,  $p = 0.102$ ). Irrespective of the number of squares (5 or 20), there were no significant differences in change-detection time for both regular and random stimuli ( $t(37) = 1.660$ ,  $p = 0.105$ ;  $t(58) = -1.288$ ,  $p = 0.203$ ).

The time required for correct answers in trials with no changes was also analyzed. The results showed that change-detection time was longer for random objects compared with regular ones for stimuli with both 5 and 20 squares ( $t(59) = 3.165$ ,  $p = 0.002$ ;  $t(59) = 3.022$ ,  $p = 0.004$ , respectively).



**Figure 2.** Dependence of the change-detection time on the number of squares and the types of change for stimuli with regular squares. The solid line shows stimuli with 20 squares; the dotted line shows stimuli with 5 squares.

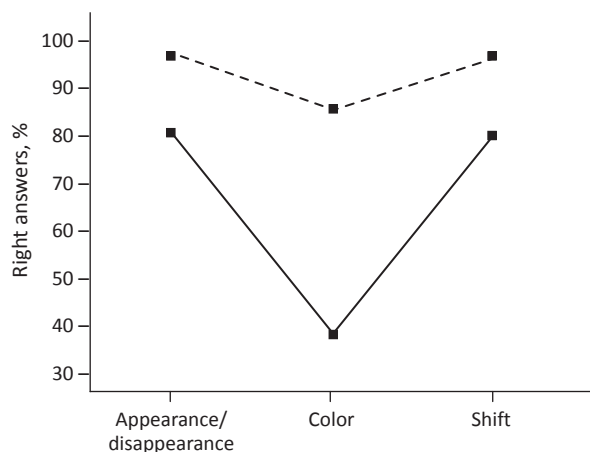
Data for regular and random square shapes were analyzed separately. A 2-way ANOVA (Figure 2) demonstrated the high validity of the interaction effect for the following factors: "type of change" and "number of squares" ( $F=7.585(2, 64.601)$ ,  $p=0.003$ ); we used the Greenhouse-Geisser correction while computing the  $F$ -statistic.

The most difficult task for change detection was change of color. Change-detection time for shifts was significantly shorter than for changing color for stimuli with both 5 and 20 squares ( $t(59)=4.150$ ,  $p<0.001$ ;  $t(45)=-5.656$ ,  $p<0.001$  respectively).

The results for appearance/disappearance of squares were similar ( $t(58)=-6.359$ ,  $p<0.001$ ;  $t(45)=-5.860$ ,  $p<0.001$  respectively).

A comparison of change-detection time for appearance/disappearance and shifts showed significant differences for stimuli with 5 squares ( $t(58)=-4.445$ ,  $p<0.001$ ). However, the differences were not significant for stimuli with 20 squares ( $t(58)=0.162$ ,  $p=0.872$ ).

Furthermore, a highly valid dependence of the accuracy of answers on the number of squares and the type of stimuli changes with regular organization was found (see Figure 3):  $F=33.025(2, 108.722)$ ,  $p<0.001$ ; the Greenhouse-Geisser correction was used while computing the  $F$ -statistic.



**Figure 3.** Dependence of the right answers (%) on the number of squares and the type of change for stimuli with regular organization. The solid line is for stimuli with 20 squares; the dotted line is for stimuli with 5 squares.

It is obvious that the most difficult task was the detection of color change. There were more correct answers for shifts than for color change for both 5 and 20 squares ( $t(59)=3.797$ ,  $p<0.001$ ;  $t(59)=11.383$ ,  $p<0.001$ , respectively). Similar results were found for the appearance/disappearance of squares ( $t(59)=3.50$ ,  $p=0.001$ ;  $t(59)=11.684$ ,  $p<0.001$ ). There were no significant differences in correct answers for shifts and appearance/disappearance for either the 5 or the 20 squares ( $t(59)=-0.489$ ,  $p=0.627$ ,  $t(59)=-0.244$ ,  $p=0.808$ , respectively).

Results of the interaction between the type of change and the number of squares for stimuli with random squares were similar ( $F=11.304(2, 71.912)$ ,  $p<0.001$ ; the

Greenhouse-Geisser correction was used for computing the  $F$ -statistic). Moreover, the parameters of the change-detection time for stimuli with 20 squares in the case of shifts and appearance/disappearance demonstrated statistically significant differences ( $t(58)=4.575$ ,  $p<0.001$ ).

The results for regular squares were similar. The analysis of correct answers has proved its dependence on two factors: the number of squares and the type of change ( $F=23.691(2, 102.525)$ ,  $p<0.001$ ; the Greenhouse-Geisser correction was used for computing the  $F$ -statistic).

Color-change detection in 1 of 5 (or 20) squares with random images was compared with shifts ( $t(59)=-2.261$ ,  $p=0.027$ ;  $t(59)=-8.396$ ,  $p<0.001$ , respectively) and appearance/disappearance ( $t(59)=-3.971$ ,  $p<0.001$ ;  $t(59)=-11.120$ ,  $p<0.001$ , respectively). In contrast to regular shapes, the random ones showed significant differences for shifts and appearance/disappearance for both 5 and 20 squares ( $t(59)=2.735$ ,  $p=0.008$ ;  $t(59)=3.137$ ,  $p=0.003$ , respectively).

**Table 5.** Effectiveness of visual detection for different degrees of color change

	Type of color change	Image organization	Average time of detection, cycles	% of errors
5 squares	Blue to yellow	Regular	2.31	0
	Blue to yellow	Random	2.80	3
	Green to red	Random	2.94	23
	Red to brown	Regular	3.18	13
	Red to yellow	Regular	3.22	10
	Purple to red	Random	3.28	8
	Green to blue	Regular	3.44	15
	Brown to green	Regular	3.89	22
	Green to yellow	Random	4.28	15
20 squares	Green to red	Random	5.48	53
	Black to light gray	Regular	5.91	45
	Black to dark gray	Regular	6.14	55
	Red to blue	Random	6.60	68
	Pink to turquoise	Random	6.88	68
	Orange to gray	Random	7.38	62
	Turquoise to greenish-blue	Regular	7.41	68
	Greenish-yellow to purple	Regular	7.58	57
	Purple to yellow	Random	8.97	63
	Orange to brown	Regular	10.34	80

Note. Lines are sorted according to increasing average time of change detection.



Changes occurring within the condition of color change varied and thus were examined separately. For example, stimuli with 20 regular or random squares were subject to 5 types of shading changes. The degree of shading change (e.g., from orange to brown or from red to green) influenced the effectiveness of change detection and its speed and accuracy (Table 5). In stimuli with 5 squares some of the color changes could be detected quicker and with greater accuracy (corresponding parameters were below average for this group of stimuli): blue to yellow and red to yellow. Color change for another group of stimuli (corresponding parameters were above average for this group of stimuli) was detected with greater difficulty: green to blue, brown to green, green to yellow.

A similar trend was observed among stimuli with 20 squares. We can select a group of stimuli in which color change was detected more effectively—green to red, black to light gray, red to blue—and a group in which change detection was less effective: orange to brown, purple to yellow, turquoise to greenish-blue, and orange to gray.

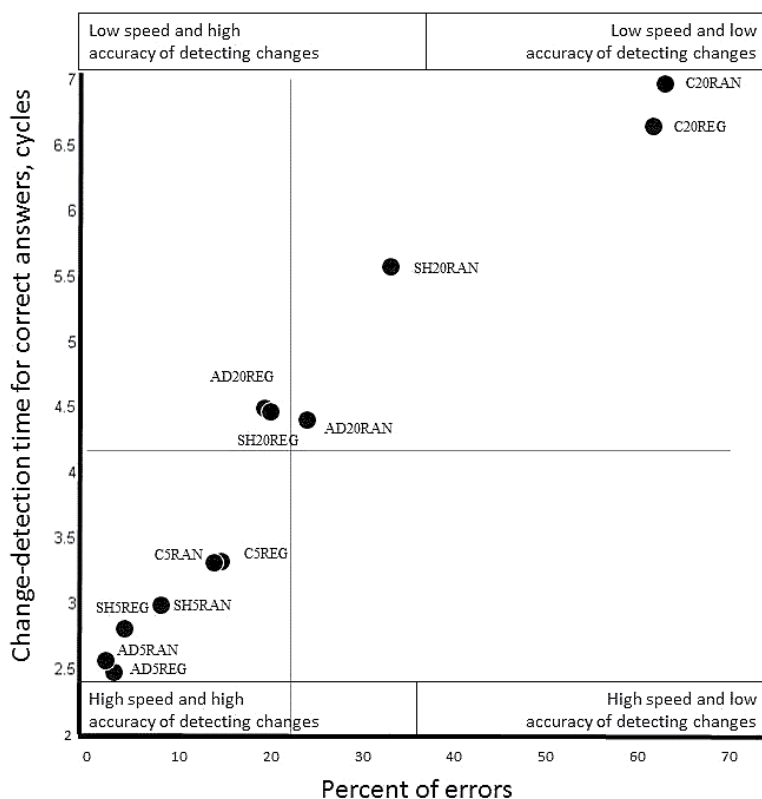
## Discussion

Significant differences were found in the intensity of change blindness for different types of changes. In accordance with typical findings in cognitive psychology (Gegenfurtner & Sperling, 1993), Figure 4 demonstrates the distribution of stimuli as an operational characteristic of an average observer. It reflects the difficulty of a change-detection task on two dimensions, speed and accuracy. The results indicate that the intensity of this phenomenon depends on the conditions of detection, such as the number of objects, their organization, and the type of change. The most difficult condition for detection was color change within an image with many objects (C20RAN, C20REG), while the easiest was appearance/disappearance of an object in an image with a small number of objects (AD5REG, AD5RAN). Change detection of shifts (SH5RAN, SH5REG, SH20REG, SH20RAN) was in its complexity closer to appearance/disappearance detection than to change-of-color detection.

The number of objects in an image is another key factor affecting the degree of difficulty of a change-detection task. Similar effects were discovered in a study done by S. Luck and E. Vogel. Their study was based on similar stimulation and was focused on the analysis of color-change detection and its dependence on the number of square objects: increasing the number of colored squares from 4 to 12 decreased the percentage of correct answers from approximately 95% to 65% (Luck & Vogel, 1997). The main difference between their study and ours is that the accuracy of color-change detection in their study was much higher than the accuracy of detecting changes in location.

Regular organization of objects reduces the difficulty of change detection. This finding was especially explicit in the images with 20 squares. For example, AD20REG and SH20REG are located on the graph above the average level of correct change detection, while AD20RAN and SH20RAN are below.

Perhaps color change has no priority during processing because the changes occur within the object's parameters, while appearance/disappearance and shifting change the object's location and thus transform the whole visual scene.



**Figure 4.** Operational characteristic of the accomplishment of a change-detection task by an average observer. The Y axis shows the time of giving correct answers to a change-detection task; the X axis shows the probability of correct answers. Stimulation codes: AD — appearance/disappearance of one of the squares, C — change of color, SH — shift, 5 and 20 — number of squares, REG — regular organization of shapes, RAN — random organization of shapes.

Perception of the location and color of objects by the human visual system is executed by channels consisting of different types of retinal ganglion cells (Muravyova, 2013). Retinal ganglion cells have been separated into two groups, magnocells and parvocells, according to their morphology and functions. The magnocellular system has optimal sensitivity to low-contrast and low-spatial frequency, and thus it can detect the direction of movement and can identify the parameters that are important for spatial orientation.

The distinguishing feature of the parvocellular system is its optimal sensitivity to high-contrast and high-spatial frequencies (Muravyova, 2013). This system provides color-change detection during visual analysis.

In order to prove the special role of color in the change-blindness phenomenon, irrespective of the number of shades that were subject to change in the stimuli with 20 squares (and thus separating the role of attention itself and the difficulty of discerning colors), we should pay special attention to the data received from stimuli with 5 squares. Although the factor of discerning difficulty has great importance, its influence on the stimuli with 5 squares is reduced.

Such cognitive processes as attention and memory are, undoubtedly, connected with change blindness (Hollingworth, Williams, & Henderson, 2001; O'Regan & Noë, 2001). In our opinion, the presence of a multitude of factors is evidence of a connection among memory, attention, and change-detection time. Further studies will focus on examination of this connection.

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## CLINICAL PSYCHOLOGY

### **Higher mental functions and time perception in internet-addicted teenagers**

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Statistical data about Internet users indicates that Russia ranks first in Europe in terms of its number of Internet users. Young people prevail among Russia's Internet users. Internet dependence behaviour is given a definition. The behavioural peculiarities of Internet addicts are considered. Time perception is a background for psychical processes. The time focus of the human psyche reveals itself in the speed and duration of perception, impression, memory, thought and emotions peculiar to people with a certain temperament and of a certain age, sex and group. Time perception is an integral part of our mental processes. A human being is inclined to consider all events and processes taking place around him as a process which takes time. The time perception of every person is always specific, and it is reflected in his or her thought and behaviour. The results of studying higher mental functions and time perception in internet-addicted teenagers are given. The obtained results have revealed distraction at the end of the study due to the high exhaustiveness of the neuro-dynamic component of mental activity, as well as the poorer ability of Internet addicts to be conscious of themselves in time. Given the absence of a clear pattern of their roles in real life, Internet addicts may often find that their addiction results in mental conflicts and self-aggression. In turn, it may result in impulsions, confusion, certain problems with explaining personal actions, wishes and motives. Internet-addicted teenagers have a more pessimistic attitude towards their time and life activity. When running into hardship, their behavioural performance and incentives to overcome barriers may be limited.

**Keywords:** Internet addiction, time perception, higher mental functions

The problem of dependence (addictive) behaviour has been considered urgent by psychology for the past several decades. Addiction development mechanisms were first described by classic psychoanalytic literature in the early 20th century. Forms of dependent behaviour alter, depending directly on the scientific and technical development of society. A low level of tolerance for real-life hardship results in the

desire to escape from reality, which is the basis of dependent behaviour. However, the forms and ways of escaping from reality vary considerably and are very often pathological in their nature. Internet addiction is one such form.

The number of Internet users is growing quickly all over the world. In terms of its total number of Internet users, Russia ranks first in Europe, now outranking Germany, the former leader; its number of users ranked sixth in the world in 2012. According to February 2013 data from by the analytic company TNS\*, 76.5 mln Russians (or 53% of the country's total population) go on-line at least once a month. The number of mobile Internet users is growing exponentially. It grew by 48% in 2013 alone. According to RIA Novosti, about 95% of smartphone owners in Russia use them for sending SMS messages, 66% use their phones to surf the Internet and work with applications and more than 50% use them for communicating via social networks and checking their e-mail. Games, social networks and maps remain the most popular applications in Russia. Moreover, social networks have roped in 80% of Russia's daytime audience\*\*.

Nowadays, young people (age 18 to 24) account for 37–38% of all Russian Internet users. Additionally, it may be noted that the number of young people that use the Internet is growing faster than in other age cohorts. The fact that the number of social network users is growing among schoolchildren who are as young as nine years old is worth taking note of.

Internet addiction is defined as an obsessive desire to connect to the Internet and a morbid inability to remain disconnected from it for a period of time. Internet addiction reveals itself in situations where people are so engrossed in their Internet lives that they begin to forsake their “real” lives, avoiding face-to-face contacts within their social environment. As a result, their communication skills and ability to adapt begin to worsen. These Internet addicts begin to find it more and more difficult to establish contacts with their environment and to suffer stress when communicating with strangers.

Time perception is a background for all mental processes. It makes it possible not only to actively perceive the world and pattern behaviour, but also build up relationships with other people. We can't abandon the notion of time; whether it is in everyday life or when describing most scientific phenomena. Time affects all mental processes, penetrating and uniting them. The time focus of the human psyche reveals itself in the speed and duration of perception, impression, memory, thought and emotions peculiar to people with a certain temperament and of a certain age, sex and group (Mikadze, 2008). Time perception is an integral part of our psychical processes. A human being is inclined to consider all events and processes taking place around him as lasting in time. The individual peculiarities of time perception are directly reflected in the thought patterns and behaviour of every person (Bolotova, 2006).

We have carried out an empiric study of time perception in Internet-addicted teenagers.

\* TNS (TaylorNelsonSofres) calculates the number of Internet users older than 12 years old living in cities with a population of 100,000 and more.

\*\* Data from the 17th RIF+IBC 2013 Conference (RIF — Russian Internet Forum, IBC — Internet and Business Conference) held near Moscow on 17–19 April.

## **Research material and methods**

Sixty people between the ages of 17 and 22 participated in the study, including 26 women and 34 men. The empirical group (EG) was formed after a pilot study was carried out on the basis of G.V. Lozovaya's Diagnostic technique of proneness to different types of addiction and Kimberly Young's Internet Addiction Test. The above-mentioned techniques allow Internet significance level to be evaluated for the people in the study. This is achieved by revealing the high-priority needs of the people in the study with regard to perception — both objective and subjective — of time spent on computer activity.

According to the test results, 19 young men and 11 girls with a high level of Internet addiction were included into the empirical group (EG). The group was distributed as follows: eight people under the study were high-school students, 15 were college and university students, and seven worked from home providing freelance services. All of the groups included in the study, to a great extent, substituted real communication with social network activities and chatting. This group was also characterized by the fact that the amount of time they spent on computer activity outweighed the time they spent on household and day-to-day activities.

The control group (CG) consisted of 15 girls and 15 young men who didn't demonstrate signs of Internet addiction. The group was distributed as follows: six were high school graduates, 19 were college and university students, and five were young men who worked in commerce and management. The subjects in the control group preferred "live" to virtual communication and used social networks primarily to communicate with geographically remote persons. The people in the study from this group are characterized by having the ability to set priorities when planning their days.

When developing a set of methodological material, we assumed that time perception is a process which depends immediately on other intellectual activity areas. That is why any neuropsychological factor's loss or distortion causes qualitative changes in time perception structure, which is the reason for studying higher mental functions in Internet-addicted teenagers. During the course of the study, we used the neuropsychological album for diagnosing higher mental functions under the editorship of E.D. Khomskaya and the time semantic differential method. In addition to conducting a qualitative analysis of the defect, we used a quantitative analysis based on the four-score task performance evaluation system developed by A.R. Luriya.

Score 0 — substantially correct performance of tasks without errors;

Score 1 — 75% of tests correctly performed, 25% errors;

Score 2 — 50% of tests correctly performed, 50% errors;

Score 3 — 100% of tests performed in error.

The calculation of error percentage in each test enables us to make a curve which reflects the symptom distribution within the syndrome and its nucleus as of the time of examination.

We estimated the obtained results by means of calculating the Mann — Whitney U-test.



## Research results analysis and discussion

Our neuropsychological test analysis has revealed the following general characteristics of higher mental functions in Internet-addicted youths: they were distracted by the end of the test, and they had problems with spatio-temporal gnosis and intellectual activity. The significantly relevant differences ( $p \leq 0.05$ ) obtained are presented in table 1.

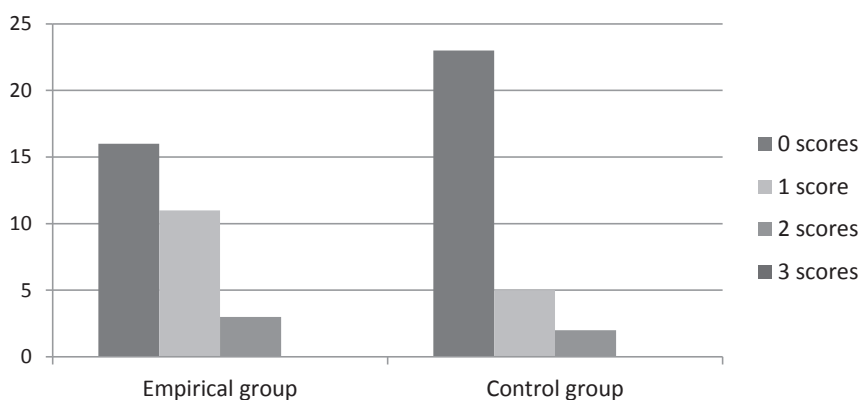
**Table 1.** Checking the homogeneity of intellectual features: levels in empirical and control groups

No. in sequence	Parameter of intellectual feature	Volumes of compared samples	Mann–Whitney U-test	Significance value of hypothesis rejection $\alpha$ (one-sided test)
1	Attention (beginning of study)	30/30	494.0000	0.452
2	Attention (end of study)	30/30	<b>579.0000</b>	<b>0.026</b>
3	“Fist–sharp of hand–palm” test	30/30	515.0000	0.192
4	Reciprocal coordination	30/30	466.0000	0.782
5	Visuospatial gnosis	30/30	<b>561.0000</b>	<b>0.045</b>
6	Mnestic activity	30/30	543.0000	0.084
7	Understanding essence of stories	30/30	457.0000	0.906
8	Counting operations	30/30	<b>327.0000</b>	<b>0.042</b>
9	Understanding logical and grammatical structures	<b>30/30</b>	<b>576.0000</b>	<b>0.029</b>
10	Emotional-volitional area	30/30	<b>474.0000</b>	<b>0.045</b>

Attention is the most important mental process closely associated with general and channelled activity, intentions and motivation. During the course of our research, we evaluated voluntary and involuntary attention, the ability to focus and refocus attention, attention allocation ability, and range of attention. The attention of the subjects in the study was evaluated during the course of conversation with them and in all further studies. In order to identify the peculiarities of attention, we also used Schulte table. In this test, the subjects were required to find and to name all numbers from 1 to 25 in the right order. The test was performed against time, and both total time and the time it took a subject to find the first 5, 10, 15, 20, and 25 were recorded. The standard time it takes to perform this test is 40 sec. The ability to distribute and control attention is one of the most important components of time perception; it is reflected in one’s subjective estimation of the stream of time. Moreover, the level of attention control is directly connected with the ability to plan activities and use time efficiently.

The attention test, according to the Schulte tables carried out at the end of the study, has shown the difference between the empirical and control groups, which were expressed both quantitatively and qualitatively. Figure 1 presents the test results. According to these results, 11 subjects from the empirical group have shown

apparent fluctuations of time intervals when looking for numbers in the tables, as well as the irregularity of time intervals. Three of the subjects needed long time intervals (more than 40 seconds) to find numbers. Therefore statistical analysis has found that Internet-addicted young men are significantly more likely to have apparent time fluctuations when looking for numbers in Schulte tables ( $p \leq 0.05$ ), and that there is an increase of time required to perform the test at the end of the study because of problems with refocusing, focusing and scope of attention. That allows us to conclude that the function of controlling frontal areas has worsened and that mental activity is characterised by a higher level of exhaustiveness. These brain area disturbances or decline in activity may bring about a short attention span, impulsivity and a lack of clarity in aims, causing mistakes in future planning. As a result, the brain's executive functions fail to manage time, propositions, impulses, or organisation efficiently and they fail to provide a sufficient level of critical thinking.



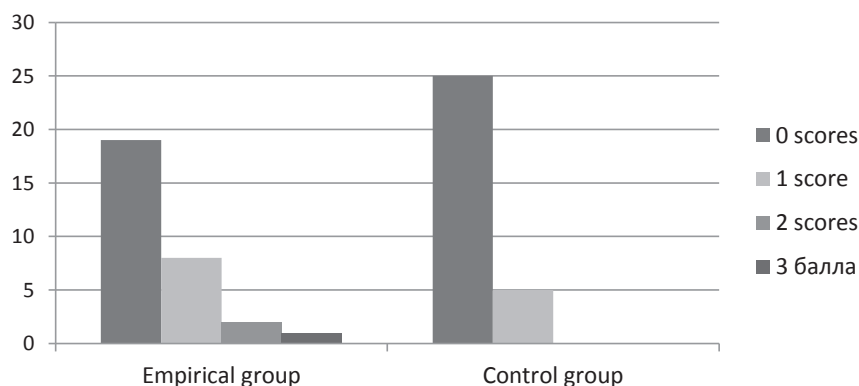
**Figure 1.** Results of attention test performance by the empirical group and control group at the end of the study

The exhaustion of the brain's attention span revealed during the course of the research may be accounted for by the fact that the human brain is not meant to spend long periods of time detecting information that comes from different sources. A long and deep immersion in the digital world results in a particular overstrain. Most respondents from the empirical group who spent numerous hours at a time working on the Internet admit that at one time or another they begin to make many mistakes. Before logging off, they felt spent; they were fatigued, irritated and upset.

In the course of the spatio-temporal gnosis study, we have found that the Internet-addicted youths showed worsened spatial orientation significantly more commonly ( $p \leq 0.05$ ).

Tests for letter and number recognition and choice, "blind clock" were carried out to study visual-spatial perception. Eight people involved in the study from the empirical group found it difficult to perform tasks, and two made mistakes which were corrected only after the experimenter had indicated them. Also, one person from the group undergoing the study refused to perform the test in a timely manner. Figure 2 shows the study results.

Clock hands mirroring, mistakes in perception of the movement of clock hands, may indicate certain problems of spatial orientation. Some persons in the study from the control group (four people) declared they had difficulties perceiving surrounding objects following periods of exposure to virtual reality. Moreover, when moving in space, their motion coordination worsened and resulted in involuntary interference with objects. Consequently, such peculiarities imply a reduced ability to remain aware of spatial relationships, which are tightly connected with time perception. Within this test, time perception evaluation meant the discovery of a socially-accepted standards-forming structure which allows one to interact and orient oneself in social activities. The problems associated with how one perceives live day-to-day affect adaptive capacity and personal performance. Accurate time evaluation allows for communicating, cooperating, and interacting in society. That is why a failure of synchrony influences any collective activity. This in turn may result in mal-adaptation and intrapersonal conflicts.

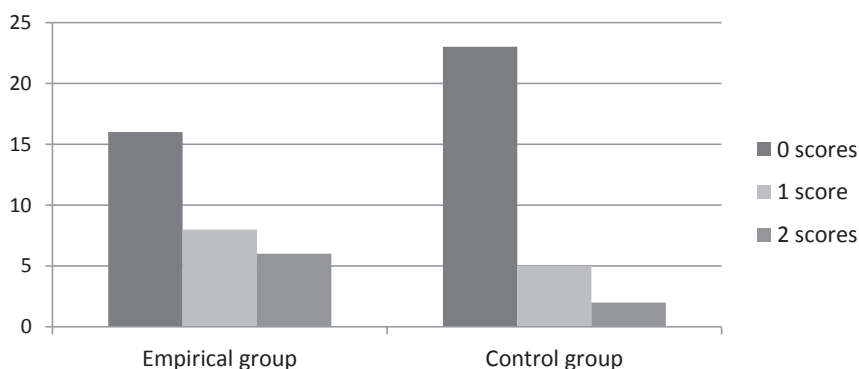


**Figure 2.** Results of gnosis test performance

Yu.V. Mikadze, N.K. Korsakova (2002) and A.V. Semenovich (2002, 2007) noted that spatio-temporal ideas are derivative of one's body image and can transform as independent only "on the ground of ideas about one's own body image and motion activity in a given real living space". Therefore, we suppose that the detected worsening of spatial awareness influences emotional adaptation and behavioural reactions, as well as communication, cognitive activity and motion. Most respondents were observed to have a lower level of educational motivation, lack any need for self-improvement, were indifferent to what was going on around them and lacked motion in reality.

When estimating the level of speech development during the course of the study, we found that Internet addicts have some speech development peculiarities. The young people from the empirical group were the only ones to use clichéd speech; their vocabularies were poorer than those of the CG respondents. It has also been noted that they have problems creating and maintaining interpersonal contact due to the difficulties they had finding words. Their speech was emotionally inexpressive, monotonous and wasn't accompanied with corresponding facial expression and gestures.

The analysis of the test results with respect to Internet addicts has shown that they coped with tasks involving the understanding of logical and grammatical structures worse. The data obtained are shown in Table 3. During the course of the study, we evaluated the ability to understand prepositional structures with the help of illustrations, as well as grammatical structures (such as *Point to the pencil with your copybook*, vs. *to the key with your pencil*), and comparative structures (which of the following sentences is correct: *A fly is bigger than an elephant. An elephant is bigger than a fly*), as well as the understanding of inversions (*Kolya was struck by Vanya — who is the hot-head?*) Understanding logical and grammatical structures is a hard process of analysis and synthesis. A person's activities and motivating area of consciousness including needs, interests and emotions is a necessary condition for the full understanding of speech (Semenovich, 2007).



**Figure 3.** Results of performance of test for understanding logical and grammatical structures

In the course of this technique performance, the empirical group showed certain problems with the explanation and/or verbalization of the observed data. Within the empirical group, six persons only performed the task correctly with the experimenter's help and after mistakes were indicated. An additional eight people were registered to make single errors with subsequent self-correction at the beginning of this task's performance. In general, the empirical group can be characterized as needing more latent time for understanding inverted structures (the oilcloth is covered with a tablecloth, the boy is saved by a girl — who saved whom?; the car is transported by the tractor, etc.). Semantically simple structures and one-word sentences prevailed in their speech. They often use slang. When they face problems with verbalization, the persons in the study actively use gestures to help themselves. They often say it would be easier for them to write it than to say it aloud.

An understanding of the statistically significant data obtained regarding differences in logical-grammatical structures leads to the conclusion that a reduction of communication activities in real life (which is substituted with Internet communication) results in a loss of non-verbal elements of communication perception and a general worsening of communicative skills. Since virtual reality distances an Internet-addicted person from his/her friends and relatives, over the course of time it impedes professional activity and gradually starts imposing its requirements and 'standards of behaviour'.

Such standards emerge from the peculiarities of the Internet: its extremely expressed dynamic properties. The Internet is subject to quick changes and constant progress and it provides people with a diverse means of communication. Furthermore, its range of informational tools is rather wide and it may cover not only professional activity but also interpersonal relations, which are separate from work-related relationships.

It is rather difficult to imagine modern society without technical devices in its constant pursuit of higher efficiency. Besides, the need for information stimulates the creation of new interpersonal ties. However, the rapid accumulation of information may result in a loss of its reliability as well as its value. The great demand for multimedia technologies may be related to this fact. They are aimed at the creation of emotionally rich products which are capable of attracting the customer's interest. All of this in turn finds its reflection on a psycho-physiological level. People absorb information holistically and accept it at face value without understanding and analysing it or verifying its timeliness and whether or not it's up to date (this applies especially to reference literature). It leaves one with the feeling that many command information while remaining more or less unknowledgeable. From this point of view, dextro-cerebral thinking starts to dominate, which is prone to engaging in a sensorial perception of reality and interaction with it but pushes objective facts to the background. Consequences can be obviously seen in modern Russian society, where the perceived trustworthiness of religious dogmata is increasing day to day. All of the information stated above is confirmed by the results obtained when using the time semantic differential technique. Such results clearly indicate a prevailing pessimistic and apathetic attitude to the present time. It expresses itself not only in addicts' reduced ability to manage their time but also in a general de-prioritization of any attempt to re-organize their lives or improve them in any way. The only way which allows Internet addicts to accept the imperceptible course of time is their hope for a bright and well-ordered future. But, unfortunately, "tomorrow never comes" and a positive attitude to their future time transforms into blind faith.

However, resources which can assist in professional activity and relieve "stress" in spare time require a significant energy cost. An Internet surfer is engaged in a multitasking mode which gradually drains the user. Additionally, information obtained in such a mode is often simplified. This is rather obviously reflected in Internet communication. Active Internet users are inclined to shorten their words and expressions or substitute them with special slang when trying to convey information to their "conversation partners". Moreover, a significant number of their thoughts are conveyed visually through symbols and represented with pre-established graphical elements or patterns. Therefore, Internet-based communication is filled with special signs and symbolic forms.

When a person is excessively engrossed in the Internet, this form of communication becomes "natural" and socially accepted; speech lacking such auxiliary means is pushed out to the background. As a result, such persons gradually lose their communication skills and may have significant difficulties when facing real conditions where they have to convey meaning. Such activity may have very diverse consequences and maladaptive forms of interpersonal behaviour may manifest themselves as artificial autism (Kerdellant & Gresillon, 2006). These communication problems could disturb the functioning of the tertiary parietal-temporal-

occipital area on the right hemisphere of the brain, which is responsible for one's awareness of spatial variations and reflects "the time perspective principle".

Our statistically reliable data on our subjects' differences in understanding logic and grammatical structures leads us to conclude that the replacement of real-life communication activity with Internet communication results in a poor understanding of nonverbal speech and a general worsening of communication skills. Additionally, researchers note that "Internet-dwellers" are inclined to simplify their language and have artificial autism (Kerdellant & Gresillon, 2006). The whole scope of these factors could cause certain deviations of the TPO area on the right, which is responsible for the ability to feel spatial variations and reflects "the principle of time perspective".

The analysis of tests for arithmetic operations has shown that the EG respondents have significantly better results ( $P < 0.05$ ). The better results obtained by Internet addicts when carrying out arithmetic operations prove that they have well-formed symbolic images, controlled by intra-parietal sulcus.

The analysis of the results of time perception study using semantic differentials has shown that there are statistically significant differences in present time perception. Internet addicts have poorer present time evaluation results with respect to its emotional colouring and sense ( $p < 0.05$ ). The lower figures (as compared with the CG respondents) may indicate that Internet-addicted teenagers have a more pessimistic attitude towards their time and life activity. When they encounter obstacles, their behavioural performance and incentives to overcome barriers may be limited. Moreover, we have found significantly lower figures with respect to time sense in the EG respondents, indicating their poorer ability to be conscious of self in time, or be able to feel events taking place around them and feel involved in them. This description also implies the ability to manage time in accordance with socially established standards. The absence of a clear pattern of their roles in real life may often result in internal psychological conflict and self-aggression. In turn, it may result in impulsion, confusion, and certain problems in explaining their personal actions, wishes and motives. We have not found any significant differences between the respondents in the sample when evaluating their perceptions regarding the future. That allows us to suppose that the future is perceived by both groups as a resource. And while there is a negative component in perceiving the present by Internet addicts, accompanied with a loss of sensing what is going on, they are hopeful that they will overcome their negative feelings in future.

As a whole, the past is perceived by Internet addicts more positively than the present. However, as compared with the CG respondents, significant differences have been found ( $p < 0.05$ ) in time-sensing figures. Difficulties in organising their own behaviour and awareness of roles in the present events may result in dissatisfaction with their lives that is reflected in a negative emotional colouring of the present.

Thus, in the course of the study, we have found the following peculiarities of higher mental functions in Internet-addicted teenagers:

1. Shorter attention span, manifesting in a longer period of time needed for performing a test at the end of the research;
2. Impaired spatial awareness;

3. A poorer understanding of logical and grammatical structures;
4. Better mathematical computational abilities.

Also, time perception in Internet addicts has certain peculiarities:

1. A poorer ability to be conscious of themselves in time, or be able to feel attached to events taking place around them and feel involved in them.
2. As a whole, the past is perceived by Internet addicts more positively than the present.
3. Perception of the present has a more negative colouring.

The results obtained are preliminary and the peculiarities of time perception and higher mental functions in Internet-addicted teenagers require extensive further study. Such a study must be based on a broader sample, which will allow us to improve our understanding of how the excessive use of information technology warps one's perception of reality in the mind and reduces adaptive skills. Additionally, the obtained results indicate that internet addicts suffer certain difficulties perceiving space and "body image". The details of this problem could be illuminated through further research. A qualitative analysis of this fact will make it possible to detect an underlying neuropsychological factor behind the defect and determine primary and secondary disturbances. That will facilitate understanding if somatognosis and space perception disturbances result in reduction of spatial awareness and, consequently, a worsening ability to immerse one's self in the digital world, or if Internet addiction changes space perception.

Moreover, it is necessary to differentiate specific types of network activities and the personality and psychophysiological changes associated with them.

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## **Sense of humor disorders in patients with schizophrenia and affective disorders**

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The article presents an empirical study of sense of humor disorders in patients with schizophrenia and affective disorders. Several parameters of analysis are distinguished: humor recognition, humor preferences and the level of laughing activity. It is showed that patients with schizophrenia are characterized by inability to recognize humor. As soon as patients with schizotypal disorder do recognize humor, this may be used as a diagnostic criterion in clinical practice. Sense of humor in patients with schizophrenia and affective disorders acquires peculiarities which are defined here as preferences of certain cognitive mechanisms and topics of jokes.

**Keywords:** sense of humor, humor recognition, schizophrenia, schizotypal disorder, affective disorder

### **Introduction**

Nowadays humor research in psychology becomes more and more popular. Humor is a kind of universal phenomenon and is connected with all spheres of human being and social functioning (Ivanova, Enikolopov, 2006; Martin, 2007). Many clinicians suggest sense of humor disorder to be an important diagnostic criterion. Thus Arieti (1950, as cited in Forabosco, 2007) called schizotypal intellectual disorder “paleological thinking” and supposed it to be connected with humor impairment. The similar idea was declared by Levin (1957, as cited in Forabosco, 2007). That’s why sense of humor study in psychiatric patients is of present interest. Sense of humor is such a unique psychic phenomenon that reveals the unit of intellect and affect. So, some clinicians suppose its disorder to appear even earlier than more severe intellectual or emotional disorders (Luk, 1977). If to confirm this, the possibility of early diagnostics would exist. Despite of its practical meaning, there is quite a few empirical data on humor in clinical context. So, this study becomes one of the first steps on the way to overcome this gap.

The existing studies on sense of humor disorders may be combined into two main approaches: quantitative and qualitative (Ivanova, Enikolopov, 2009; For-

bosco, 2007). The quantitative one supposes sense of humor “decrease” in psychiatric patients (e.g., Levine, Abelson, 1969; Levine, Redlich, 1955). The approach doesn’t give convincing explanation of such kind of deficit and doesn’t allow to distinguish patients with different diagnoses. Moreover, sense of humor is a complex multidimensional phenomenon (see Martin, 2007; Ruch, 2007) and includes a list of parameters: intellectual understanding of punch line, emotional involvement, disposition to laughter etc. Evidently, sense of humor disorder also includes different components.

The second, qualitative approach is connected with analysis of sense of humor peculiarities in patients with different psychiatric syndromes (Polimeni, Reiss, 2006; Polimeni et al., 2010; Werth, Perkins, Boucher, 2001). Forabosco (2007) supposes that psychopathology doesn’t simply decrease humor but rather various diagnostic categories may be accompanied by a specific picture of humor alteration. This approach gives much more possibilities for conceptualizing, but it hasn’t gone further than description of the specifics yet. This study is made mostly in the flow of qualitative approach but at the same time includes the analysis of sense of humor components that may decrease.

The main hypothesis is that sense of humor disorders have nosological specifics in patients with schizophrenia and affective disorders. For affective disorders we suggest to reveal the decrease of emotional and behavioral response (laughter) while intact intellectual understanding of punch line. As for schizophrenic patients the stress was done more to a cognitive deficit in humor recognition and revealing specific “schizotypal” humor preferences. So, the two mental deceases were taken as characterized with the opposite sense of humor disorders.

## Method

### *Research participants*

The four groups of subjects took part in the study. All of them were young males from 17 to 32 years old (mean age of 22), totally 101 subjects. The first group contains patients with affective disorders such as manic-depressive syndrome and cyclothymia — F-31, F-33, F-34 according to ICD-10 (18 subjects). It includes both depressive and manic ones. The second group is composed of patients with **schizotypal disorder** — F-21.0 (23 subjects). These subjects are characterized by schizotypal intellectual disorders without psychotic symptoms. The third group includes patients with schizophrenia and schizoaffective disorders which are characterized by such psychotic symptoms as delusions and hallucinations — F-20, F-25 (30 subjects). And the fourth is control group of healthy people (30 subjects).

### *Instruments*

Several levels of analysis were distinguished for sense of humor disorder: 1) humor recognition, 2) subjective assessment of jokes — humor preferences and 3) the degree of behavioral response (laughter).

*The method of humorous phrases distinguishing* was elaborated to study an ability to recognize humor among serious information (Ivanova et al., 2008a). It includes 17 phrases presented on separate sheets of paper and mixed: humorous,

nonhumorous and witty aphorisms. The subjects were to distinguish humorous phrases. The deviation from assessments of the control group was taken as a disorder of humor recognition. Taking into account an earlier study (Ivanova et al., 2005) it was hypothesized that the ability to recognize humor decreases in patients with schizophrenia.

*The assessing of humor preferences method* was designed to study preferable cognitive mechanisms of jokes (Ivanova et al., 2008b). It includes 36 verbal jokes each based on one of the 12 cognitive mechanisms defined by Russian psychologist Luk: false opposition (pseudocontrast), false intensifying, absurd, nonsense, mixing of different styles or combining different plans, hint, ambiguity, irony, metaphor literalization (reversed comparison), comparison on unimportant attribute, repetition, paradox (Luk, 1968; 1977). The subjects were to divide jokes into 4 categories: 1) the worst, 2) not funny, 3) funny, 4) the best. Thus each joke got a score from 1 to 4.

While a subject was doing the task, an experimenter noted the jokes familiar to the subject and his laughing response: 0 — no reaction, 1 — smile, 2 — sneering, 3 — laughter, 4 — burst of laughter. Subjects were also to choose the 2 worst and the 2 best jokes which were discussed then. In the discussion a subject was asked which character of the joke he tended to identify with reading the joke. In the early study it was revealed that patients with schizophrenia and affective disorders tend to identify with the mocked character of a joke, and do it twice more often than healthy people (Ivanova et al., 2005).

In this study it was suggested to confirm the previous data. The identifications with the mocked character were assessed from 0 — not a single in 4 jokes to 4 — in all 4 jokes.

A number of standard methods were used to assess cognitive and emotional disorders in the patients. Schizotypal intellectual disorder such as inability to filter out irrelevant stimuli was revealed with such tests as objects classification and excluding irrelevant object (Zeigarnik, 1972). The degree of intellectual disorder was assessed as 0 — no disorder, 1 — light disorder (single mistakes), 2 — severe disorder (inability to filter out irrelevant stimuli). Depressive syndrome was measured by the Beck Depression Inventory (BDI) (Beck et al., 1961; Beck, Steer, Garbin, 1988). Projective draw of unreal animal was used to reveal aggression and paranoiac tendencies.

## Results

### *Humor recognition*

The T-criterion analysis was done to reveal which phrases of the set were taken as humorous, nonhumorous and differently.

Table 1 demonstrates that all subjects assessed phrases the same way with high significance except the patients with schizophrenia. So, the ability to distinguish humor decreases under this mental disease. The disorder may be presented either as an inability to recognize humor (the patients didn't feel humor in phrases № 1 and 7), or as a tendency to inject humorous sense into nonhumorous text (they suppose serious aphorism №16 to be a joke) ( $p < 0.001$ ).

**Table 1.** Group assessments of phrases as humorous/nonhumorous/differently

Group	N	Phrases assessed as humorous	Phrases assessed as nonhumorous	Phrases assessed differently
Control	30	1, 3, 5, 7, 11, 12	2, 4, 8, 13, 14, 15, 16, 17	6, 9, 10
Affective dis.	18	1, 3, 5, 7, 11, 12	2, 4, 8, 13, 14, 15, 16, 17	6, 9, 10
Schizotypal dis.	23	1, 3, 5, 7, 11, 12	2, 4, 8, 13, 14, 15, 16, 17	6, 9, 10
Schizophrenia	30	3, 5, 11, 12	2, 4, 8, 13, 14, 15, 17	1, 6, 7, 9, 10, 16

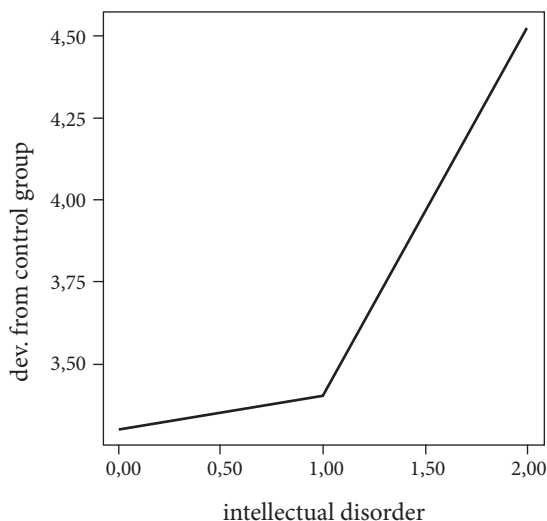
$p < 0.001$ .

In order to connect the deviation of phrases assessments (in comparison to the control group) and intellectual disorder the oneway ANOVA was used. Intellectual disorder (0 — no disorder, 1 — light disorder, 2 — severe disorder as inability to filter out irrelevant stimuli) was taken as an independent variable. As a dependent variable the deviation of phrases assessments was taken, which was counted by the following formula:

$$D_a = \sqrt{\sum [(a_i - n_i)^2 w_i]^2},$$

$n_i$  — mean assessment of the phrase  $i$  in the control group (humorous/nonhumorous),  $a_i$  — assessment of the phrase  $i$  by subject  $a$ ,  $w_i = 1/\sigma_i$ ,  $i$  varies from 1 to 17.

The results demonstrate that the more degree of intellectual disorder has a subject the more his assessments deviate from the control group ones (Figure 1,  $p < 0.05$ ).



**Figure 1.** Connection between the degree of intellectual disorder and assessments' deviation of phrases from the control group

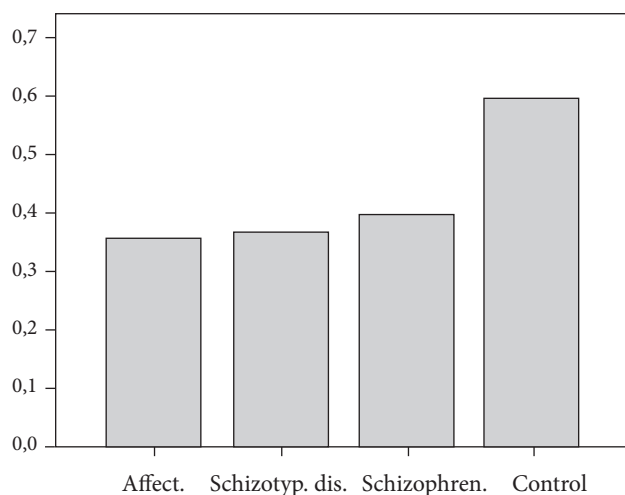
Interestingly the deviation is low for the subjects with light intellectual disorder and high in patients with severe cognitive deficit. So, the difference of phrases as-

assessments between the patients with schizophrenia and the other subjects may be explained by schizotypal inability to filter out irrelevant stimuli.

As expected, there is no significant correlation between depressive syndrome and deviation of phrases assessments. This fact is consistent to clinical observations. Depressive patients do not feel like to joke, although having no cognitive impairments they easily recognize humor and sometimes appreciate it (for ex. Forabosco, 2007).

### ***Laughing activity***

The analysis of behavioral responses to the jokes shows group differences on laughing activity (Figure 2).



**Figure 2.** Group differences in laughing activity

The laughing activity is significantly higher in the control group than in all others (T-criterion,  $p < 0.001$ ). The differences between the groups of patients are nonsignificant. Nonetheless laughing activity is the lowest in patients with affective disorders, almost equal in patients with schizotypal disorder and higher in the patients with schizophrenia. This tendency may be explained by emotional disorder. The more depressive component defines the mental state the lower the degree of laughing activity is. The statement is confirmed by negative correlation between laughing activity and the degree of depression according to BDI ( $r = -0.22$ ,  $p < 0.05$ ).

The covariance between jokes assessments and laughing responses is significantly higher in the control group in comparison to all others (T-criterion,  $p < 0.001$ ). It shows natural response of healthy people to good humor — laughter, in comparison with more disconnected activity of patients. The differences in the three experimental groups are not significant.

### ***Preferable cognitive mechanisms***

Humor based on mixing different styles, which is putting the situation into unrel-  
evant context, arouse higher laughing response in patients with affective disorders

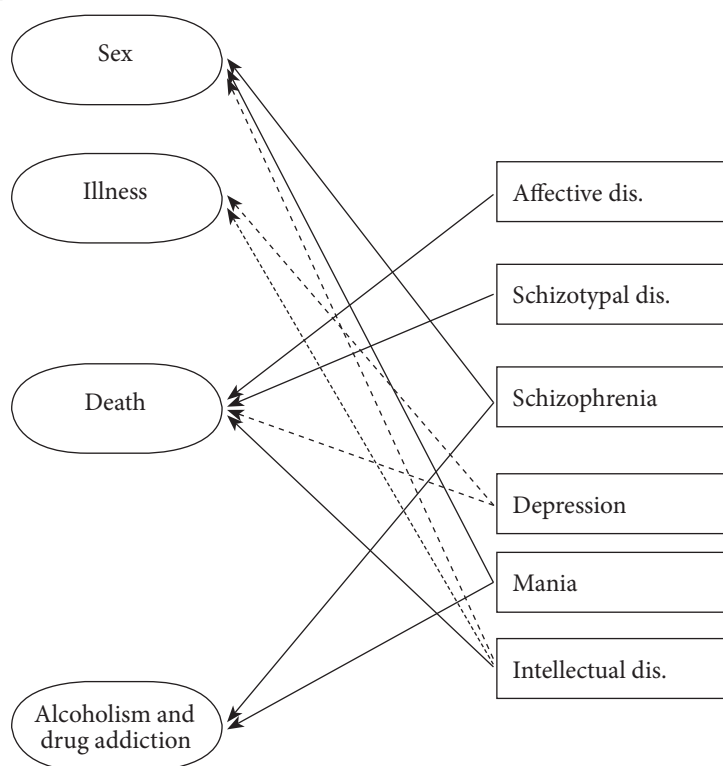
(means comparison by T-criterion,  $p \leq 0.01$ ). For example: “Vasilisa the Beautiful got married with Ivan the Fool and became Vasilisa the Fool”, “50 grammes of investments and I’m immovable”.

Patients with schizophrenia, in comparison with the others, expressed higher laughing response to the jokes based on paradox ( $p \leq 0.01$ ) when some deep meaning is found in seemingly meaningless words. For example: “The closer you make the acquaintance of a person the farther you wish to send him away”.

The analysis of jokes assessments shows that patients with schizophrenia also tend to prefer humor based on comparison by latent attribute ( $p \leq 0.1$ ). For example: “— What is the difference between women and mosquitoes? — Mosquitoes only bother you in the summertime”.

### *The analysis of topics*

Besides cognitive mechanisms, the topics of jokes were taken into account. The following topics were supposed to have an influence on jokes assessments: 1) sex, 2) illness, 3) death, 4) alcoholism and drug addiction. The method of structural equation modeling (Bentler, 1995) allowed to establish statistical significance of the topics and their preferences in the groups of subjects. 17 jokes from the general set that contained the topics (latent factors) were taken as measured variables. Nosological groups and psychiatric syndromes were seen as determinants of the topics’ preferences/rejections. The data was analyzed using EQS software.  $\chi^2 = 191$ ,  $df = 198$ ,  $p = 0.623$ , CFI = 1, RMSEA = 0.



**Figure 3.** Preferences and rejections of humor topics



The meanings demonstrate accordance between the model and the experimental data. Figure 3 shows the obtained determinations. Correlations between residuals (E) and correlations between predictors (independent observed variables) are missed on the schema. Solid arrows present positive determinations, dotted — negative. Bold arrows are used for connections with significance  $H_0 < 0.05$  two-tailed criterion, ordinary arrows are used for connections with significance  $H_0 < 0.05$  one-tailed criterion.

The following tendencies may be noted. Patients with depressive syndrome reject jokes about illness and death. For example: “Vovochka, don’t hit the boy on his head with a spade, otherwise you may sweat and catch a cold”, “Doctor to his patient:

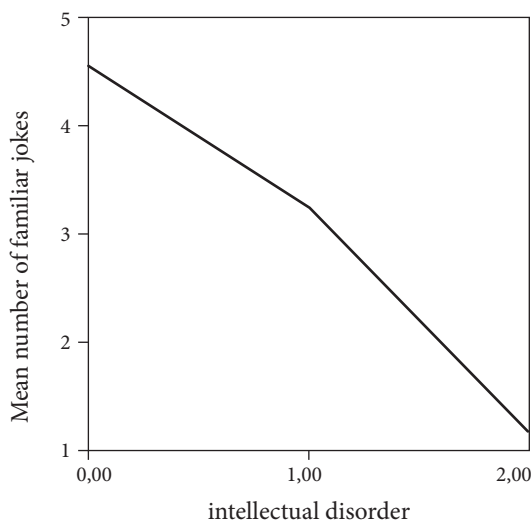
— I have bad news for you... — Doctor, will I die? — No, we are going to treat you.”, “She was very well put together, although her right hand was sticking out of the suitcase”.

On the contrary, patients with intellectual disorder prefer these jokes but reject sexual humor. For example: “Two condoms talking: — I’ve heard they want to use us... — Come on! We’ll break through”.

Patients with schizophrenia and manic syndrome prefer sexual humor and jokes about alcoholism and drug addiction. For example: “— Say “No” to drugs! — “No” say to drugs! — And stop talking to drugs at all!”, “50 grammes of investments and I’m immovable”.

### ***Familiar jokes***

During the experimental procedure the number of jokes familiar to the subject was noted. It was hypothesized that patients with schizophrenia like humor less and use it rarely, so know less jokes than healthy people. To verify the suggestion we compared means for two independent samples by T-criterion. The results confirm the



**Figure 4.** Connection between the degree of intellectual disorder and mean number of jokes familiar to subjects

hypothesis. The number of familiar jokes from the given set was higher for subjects of the control group than for the patients with schizotypal disorder and schizophrenia ( $p < 0.001$ ). The difference between patients with affective disorder and healthy subjects was nonsignificant.

Oneway ANOVA gave negative connection between the mean number of jokes familiar to a subject and the degree of his intellectual disorder (Figure 4,  $p \leq 0.001$ ).

### ***Identification with the mocked character***

The data obtained in our early study showed that one of the mechanisms of sense of humor disorder is a tendency to identify with the mocked character of a joke (Ivanova et al., 2005). In this study it was planned to make more detailed analysis of the phenomenon. The discussion of the 2 worst and the 2 best jokes included such a question as which character's point of view a subject takes while reading jokes. The number of identifications with the mocked character varied from 0 to 4 (0 — not a single joke from the four, 4 — all 4 jokes). Surprisingly, the results don't confirm the early data. The mean number of such identifications was higher for experimental groups than for the control but nonsignificantly.

## **Discussion**

The study demonstrates that sense of humor is a complex, multidimensional function. So, sense of humor disorder may also touch different levels. The most severe one is inability to recognize humor. Then we described a decrease of laughing response and pathological changes in types of humor preferences revealed by preferable cognitive mechanism and topic.

The difficulties in humor recognition characterize patients with schizophrenia and this is consistent to the data of the early study (Ivanova et al., 2005). The inability to recognize humor in these patients is connected with schizotypal intellectual disorder that is impossibility to filter out irrelevant stimuli. It's important that light intellectual disorder revealed as making single mistakes in diagnostic tests don't lead to such inability. That is why humor recognition may be seen as a useful diagnostic tool to divide schizotypal disorder and schizophrenia in clinical practice.

Affective disorders lead to decrease of general laughing activity. Nonetheless the group differences are not so clear. This may be interpreted several ways. First of all, depressive syndrome was observed not only in affective disorder group but also in some patients with schizophrenia. Second, the decrease of laughing response in all patients in comparison with the control group may be connected with the very fact of illness and being in hospital. The negative emotions may not reach the degree of clinical depression, but still may have an influence.

Observing the way how patients behave during the procedure led to the following hypothesis. Healthy people usually assess positively the jokes they laugh at and vice versa. Whereas patients with mental disorders often assess jokes independently on their laughing response. The group differences in covariances between jokes assessments and laughing responses confirm the clinical observations.

The covariance between jokes assessments and laughing responses is significantly higher in the control group in comparison to all others. The differences in the three experimental groups are not significant. Speaking about depressive patients, the dissociation may be explained by the decrease of laughing activity. On the other hand, schizophrenic patients may hide their positive assessment of jokes with some topics because of paranoiac tendencies.

The analysis of sense of humor nosological specifics based on cognitive mechanisms allows to reveal only some tendencies which demand further confirmation. This may be connected either with lack of strictness of the typology, or difficulty to define cognitive mechanism of concrete jokes, or co-existing of several cognitive mechanisms in one joke. Nonetheless, it may be said definitely that Luk's cognitive mechanisms don't have equal meaning for describing pathological sense of humor.

The jokes based on mixing different styles increase laughing activity in patients with affective disorders. The essence of the cognitive mechanism is the opposition between the style and the content of joke and it may be associated with clinical symptom of affective disorders that is easy shift from one polar state to another.

Patients with schizophrenia prefer humor based on comparison by latent attribute. The essence of the cognitive mechanism is taking together things which are absolutely heterogeneous. This is also known as overinclusiveness and defines schizotypal inability to filter out irrelevant stimuli. Interestingly, jokes based on comparison by latent attribute don't increase laughing response in these patients. So, it seems to be more of aesthetical delight.

Patients with schizophrenia express higher laughing response to the jokes based on paradox. When distinguishing humorous phrases these patients often took humorously the serious aphorism also based on paradox. Luk describes the essence of the cognitive mechanism the following way. The usual expressions seem to be replaced insignificantly. As a result the meaning changes to the opposite and the whole becomes to be nonsense. But it is still possible to make sense of this nonsense, find new deep meaning (Luk, 1968). It is important to note that the tendency to "make sense of nonsense" is one of the main characteristics of schizotypal speech. Apparently, comparison by latent attribute and paradox are the cognitive mechanisms that show schizotypal sense of humor described by clinicians.

The assessment of a joke depends also on its topic. The results of this analysis are discussible. There's a need to confirm them in further research with a specially elaborated method. Nonetheless, several connections seem to be clear. Patients with depressive syndrome reject jokes about illness and death which may be too painful for them. This contradicts to the data of Goldsmith (1984) who obtained positive correlation between the suicidal severity and preference of humor about death (as cited in Forabosco, 2007). Patients with schizophrenia and manic syndrome prefer sexual humor and jokes about alcoholism and drug addiction. This may be referred to decrease of criticism in these patients which may lead to deviant psychopathic behavior.

The data obtained on the number of jokes familiar to subjects also shows group differences. Healthy people, as well as patients with affective disorders, know and

remember much more jokes than patients with schizophrenia. In case of “pure” depression sense of humor changes temporarily. During remission stage positive attitude to humor recovers. On the contrary, sense of humor in schizophrenia reveals more stable pathological features.

The number of familiar jokes significantly correlates with intellectual disorder. The more the degree of intellectual disorder the more difficult for the patient is to understand humor. This leads to negative attitude to humor in general, increase of autism and decrease of motivation to remember jokes.

The data obtained on the tendency to identify with the mocked character is not clear. No significant group differences were obtained what contradicts to the early data (Ivanova et al., 2005). In comparison with this study, the previous one had smaller sample of subjects, but larger set of jokes (10 jokes instead of 4 in this study). That could give higher reliability of the measure. Also it is possible that patients with paranoiac syndrome avoid extreme assessments of jokes provoking identifications with the mocked character.

Here’s an example of such identification. Patient with schizophrenia discusses the joke №31 (*Workers are needed to work on a work. The salary is money*). The subject says he reads it as if he was a person who gives the announcement. Then he explains that he could give such an announcement “only if he was an idiot”. That’s why the joke annoyed him and he chose it as one of the worst.

The phenomenon of identification with the mocked character is close to the syndrome of gelotophobia or pathological fear to be laughed at described by Titzel and Ruch. (Ruch, 2009; Ruch, Proyer, 2008a,b). According to Ruch and Proyer (2008a,b), patients with this syndrome tend to interpret uncertain situations of laughter as mockery.

## Conclusion

To conclude, psychiatric patients do have sense of humor, but it may be altered in comparison with the controls on different parameters such as humor recognition, humor preferences (cognitive mechanisms and topics of jokes), laughing activity and may be others. Such a sense of humor alteration depends on nosology and may be used in clinical diagnostics. Thus patients with schizophrenia have humor recognition disorder in comparison with the controls.

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## **Social representations of drugs among young Russians: shared common views and social positions**

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The official statistics reveal a steady growth of drug use in Russia and epidemiological estimations indicate that the real prevalence of intravenous drug users may be 4-5 times higher than the official figure. This fact highlights the importance of effective preventive programmes for young people. Each preventive programme in the field of public health should be based on the results of socio-psychological studies on a given problem (Gurvich, 1999). In this paper, we discuss the results of a two-stage study based on the ideas presented by social representations theory (Moscovici, 1961). Our purpose was to analyze the lay thinking about drugs among different groups of young Russians. A total of 257 respondents (162 males and 95 females) aged 16 to 35 participated in the study (the median age was 24 years). At the first stage, the 'map' of shared common views about drugs was revealed. At the second stage, different social positions (as a function of different experience with drugs) on this 'map' were analyzed. The reported results give support to our predictions.

**Keywords:** drugs, young Russians, social representations theory, experience of drug consumption, experience of imprisonment related to drugs

### **Introduction**

Fundamental ideas about human life are inevitably related to health and illness. In the modern world, health is an important social value. On one hand health could be defined in terms of absolute values: it is important to be in good health. On the other hand, good health and a long lifespan are not the only objectives of human activity. Very often, people face situations where they completely ignore grave risks to their health because they are interested in achieving other goals, and a paradoxical situation appears: while people highly value their health, their behaviour does not correspond to this value. In order to overcome this contradiction, people develop some explanations of their behaviour which defy formal logic. This argu-



ment is in favour of theoretical models that allow for the analysis of commonsense knowledge in the domain of health and illness. The contradictions can coexist perfectly with this kind of knowledge.

Health also could be defined in terms of instrumental values, because good health affords people many opportunities; for example, to be included in society, to work, to have family and friends etc., in other words to have a full and varied life.

As paradoxical as it may seem, illness could be also seen as a kind of value. Of course, absolute or instrumental aspects could not be distinguished in this case, illness has another signification. An ill person has the right to not work temporarily and still receive a salary (albeit in a reduced form), as well as to obtain care from others and social security from society. Thus, illness indicates the relationship between a person and society; it reveals the quality of life in society and it underlines the importance of a person to society.

From the macro-psychological point of view on health and illness, it was shown that when the psychological state of society lowers, people adopt a more reckless attitude towards their health. This has been clearly demonstrated in the case of alcohol and drug consumption (Makropsihhologicheskoe..., 2009).

A. V. Yurevich followed this line of analysis, which he applied to the actual state of Russian society. He pointed out that “anomie plays an important role among the motives of suicide and also has direct relation to the depressing statistics of drug addiction, alcoholism, and accidents...” (Yurevich, 2009, p. 76). According to statistics for 2011, the groups of registered drug addicts include the following: 1) the lion's share of addicts have an opioid dependence, and account for almost 85.6% of addicts; 2) people with a cannabis dependency account for 6.8%; 3) people who use other kinds of drugs in different combinations account for only 6.2%.

At the same time, there are some indications which enable us to conclude that there has been an increase in overall cannabinoid addiction during the past six years. In 2005, cannabinoid addicts accounted for 15.4 out of every 100,000 people; by 2011 this number had risen to 16.1. It represents 4.5% growth in six years (Osnovnye..., 2012). At the same time, it should be taken into consideration that the past statistics on drug users are only the iceberg, because epidemiological estimates for the real prevalence of IDUs may be 4–5 times higher than the official ones. Moreover, in some regions of Russia, the number of drug addicts may be as high as 1–3% of the total population (Kirzhanova, 2009).

The current situation highlights the importance of further scientific activity in order to create effective preventive measures that will target young people. Preventive programmes in the field of public health should be based on the results of socio-psychological studies on the problem (Gurvich, 1999). In this paper we propose that effective measures could be based on the results of studies which explore the social representations theory (Moscovici, 1961). According to one of many definitions of this concept, theoretically “social representations could be defined as commonsense knowledge about general topics (e.g., AIDS, computers, gender, health, intelligence, psychoanalysis, work) that are the focus of everyday conversation” (Lorenzi-Cioldi, Clémence, 2003, p. 311). Drugs definitely belong to this list of everyday conversation topics in different social groups. In other words, social representations is a form of commonsense knowledge that is developed by people in everyday communication in order to give meaning to different objects, phe-

nomena, events, and so on, that are new, strange, unknown, or threatening. As S. Moscovici describes it: "...the purpose of all representations is to make something unfamiliar, or unfamiliarity itself, familiar. What I mean is that consensual universes are places where everybody wants to feel at home and secure from any risk..." (Moscovici, 2000, p. 37). Social representations transform the strangeness of such objects, phenomena, etc., by putting them into an existing frame of reference. It is obvious that this transformation is defensive. Other functions of social representations include the following: communication facilitation, the regulation of social behaviour and practice, social identity construction and support, and justification of social relations (Abric, 1994, Breakwell, 2001, Doise, 1986, Moscovici, 1973).

Following the ideas proposed by W. Doise and his colleagues (Doise, 2001, Doise et al., 1999) three main assumptions of the social representations theory can be briefed here:

- 1) Social representations are seen "as organizing principles of symbolic relationships between individuals and groups" (Doise, 2001, p.97), hence we need to reveal their shared, common views about the given social issue. It was noted by W. Doise and his colleagues that the fact that there are shared common views concerning the given issue does lead to a consensus among individuals (in contrast to the approach of J. C. Abric (2001)). As social representations are worked out through communication, the participants of these discussions need to have common frames of reference in order to communicate. Thus the first stage of any study on social representations; according to the approach proposed by W. Doise and his colleagues, one should search for these shared common views about the given issue, "in Moscovici's (1961) terms, this aspect of the study of social representations deals with objectification" (Doise et al., 1999, p. 2).
- 2) The individuals may have different positions regarding a given issue as result of variations in their adherence to different aspects of social representations. These differences in position are organised; consequently we need to search for these organizing principles.
- 3) The systematic variations in individual positions should be anchored in collective symbolic realities, thus the researchers need to analyze this process of anchoring.

These three assumptions correspond to the three stages of the study of social representations.

In order to apply the concept of social representations theory to the problem of drug use, we conducted a study. We were interested in finding out how young Russians discussed the problems of drugs and explained the meaning of drugs and drug addiction. We have taken into consideration the fact that there are some reasons to think that the history of drugs and their consumption is as old as the history of mankind (Grigorets, 2012). Early in mankind's evolution, drugs were used mostly for rituals. In modern society, the use of these substances has other motivations (for example, the recreational use of heroin among young Russians was revealed by Pilkington in his study (Pilkington, 2006)). Drugs and their use are socially, culturally and historically localised phenomena (Hadley, Stockdale, 1996) which do not exist outside of a social and cultural context. This context includes drug users as

well as those who do not use drugs (Dany & Apostolidis, 2002). It may be deduced from these facts that young Russians should be analysed as heterogeneous with respect to their attitudes toward drugs, and several categories need to be distinguished which reflect their respective experiences with drugs.

The *main objective* of the presented study was to reveal how different experiences with drugs (namely, presence or lack of drug experience of drug consumption) relate to social representations about drugs.

Here we note that according to the model proposed by W. Doise, the study consists of three stages. In the present paper, we will only discuss the first two stages, i.e. at the first stage our objective is to identify the 'map' of shared common views used by young Russians in their discourse about drugs, and at the second stage, where our objective is to reveal different social positions within this 'map' of shared common views held by people with different experiences with drugs.

It is worth noting that the problem of drugs and drug addiction was analysed in different studies based on the ideas of the tradition of the social representations theory. The obtained results show: 1) the dynamic of social representations of drugs in groups of children from 5 to 11 years old (Hadle & Stockdale, 1996), 2) the effect of such factors as experiences with drugs and social representations about drugs on the processes of social perception and causal attribution (Echebarria-Echabe et al., 1992), 3) the effect of such factors as practices of consummation and the influence of acquaintances on social representations of drugs (Galand & Salès-Wuillemin, 2009) etc.

The dynamic of social representations of drugs as a function of practices (consumers vs. non-consumers vs. ex-consumers) and as a function of the influence of acquaintances (there are acquaintances among consumers of drugs vs. there are no acquaintances among consumers of drugs) was already shown (Dany & Apostolidis, 2002, Echebarria-Echabe et al., 1992, Galand & Salès-Wuillemin, 2009). For example, a stronger association of drugs with death, illness and AIDS was observed for non-consumers than for consumers, which justifies their avoidance (Dany & Apostolidis, 2002), but there are some other factors that influence social representations of drugs. Among these factors, we propose to study here the experience of imprisonment, as related to drug consumption.

## Stage 1

### *Hypothesis*

As noted above, people develop explanations of abstract topics in everyday conversations, and social representations are created as a result. In our case, following the ideas of L. Dany and T. Apostolidis, we can say that drugs could be seen as a complex and multifaceted object. This complexity is defined by different aspects of the discourse about drugs. Firstly, when talking about drugs, one can appeal to *public* and *private* spheres of life (Dany & Apostolidis, 2002). Then, in the public sphere, medical and legal aspects appear. On one hand, drug addiction is a serious illness: it is associated with different diseases such as hepatitis and HIV and can lead to a premature death, either as the result of one of these illnesses or as the result of an overdose. On the other hand, the consumption of drugs is related to deviant behaviour and illegal activity.

From our point of view, the social context can be also distinguished in the public sphere, and it appeals to the fact that the consumption of drugs is associated with the dissolution of morals and with the reaction of the society towards this process (Yurevich, 2009).

The private sphere of drug consumption is related to the life style of certain groups of people.

Thus, people can refer to different categories from any on these spheres or contexts in their everyday conversations about drugs in order to define the meaning of drugs, drug addiction and drug addicts themselves.

At the first stage, it's necessary for us to reveal the shared common views about drugs among young Russians.

*Hypothesis:* the 'map' of shared common views about drugs among young Russians will be correlated to the aforementioned public and private spheres. References to all three contexts (medical, legal and social) in the public sphere will be found.

### **Method**

The main method used to conduct the study was a questionnaire. It consisted of several parts, which included a 'free associations' technique and open-ended questions concerning drugs and drug addicts.

This questionnaire helps reveal the vocabulary used by young Russians in their everyday conversations about drugs. Socio-demographic questions were also asked.

### **Sample**

A total of 257 young Russians aged 16-35 years old participated in our study (162 males and 95 females). Following A. Clémence (Clémence, 2003), we emphasize that at the first stage we did not pay attention to the characteristics of the subjects, because we focused on the shared common views held by those people and on their vocabulary.

### **Results and analysis**

A total of 1,188 associations were revealed as a result of the free associations technique. Among the most frequently used terms were the following: death — 72 mentions, dependence — 55 mentions, heroin — 46 mentions, syringe — 40 mentions, euphoria — 39 mentions, illness and withdrawal pains — 27 and 25 mentions, respectively (it should be noted that here we discussed associations that had been mentioned by 10 % or more of our respondents ). Interestingly, even from this handful of reactions from our subjects, it is possible to say that drugs are commonly seen as a substance used intravenously (heroin and syringe). The comparison of these facts with the results obtained by E. B. Berezina in her PhD dissertation on representations of socially significant diseases (Berezina, 2011) shows that the central system of the social representation of drug addiction is comprised of three elements: addiction, syringe, and illness. This result confirms that the concept "drugs" is strongly associated with substances which are injected. The association of drugs

with other psychoactive substances is less common, such substances which are recalled most often are: marijuana, cocaine, and hashish: 21, 13 and 6 mentions. It would be interesting to find out in further studies whether this fact illustrates that there is a *dividing line* between psychoactive substances in terms of which are seen as drugs and which aren't from the point of view of young people, where they are divided in two groups: heroin users and others, where only heroin is seen as drug. Other frequently mentioned concepts referred to in a medical context were dependence and illness.

The content analysis was used in order to categorize all of the associations created by our subjects. The following categories were revealed: *the negative effects of using drugs* (death, HIV/AIDS, diseases, etc.) — 196 mentions, *drugs* (heroin, marijuana, cocaine, hashish, LSD, etc.) — 170 mentions, *states associated with drugs use* (kef, withdrawal pains, etc.) — 139 mentions, *moral and evaluative aspects of using drugs* (degradation of an individual or society, dirt, immorality, trash, disgusting things, etc.) — 102 mentions, *medical context* (illness, dependence, addiction) — 83 mentions, *emotional reactions* (in this category positive and negative reactions associated with drug use were combined: fun, happiness, good mood, anxiety, fear, grief, horror, etc.) — 71 mentions (28 of them reflect the affective-emotional reaction to people who use drugs - fear, horror, grief, hatred), *characteristics of the individual who uses drugs, his behaviour* (the psychological and behavioural characteristics, the addict's appearance: weak-willed, alienated, unaccomplished, lacking self-control, thin, listless look, etc.) — 66 mentions; *intention to use drugs* (smoking, injecting\*, etc.) — 48 mentions, *equipment for using drugs* (syringes, needles, piles, etc.) — 47 mentions, *the legal context* (crime, illegal, problems with law enforcement, arrest, jail, etc.) — 34 mentions, *financial aspects of drug use* (money, sources of money, steal, borrow, raise money, debts, etc.) — 26 mentions.

The remaining categories include: *places for drug use* (club, yard, porch, basement, etc.) — 15 mentions; *concepts, indicating a desire to use drugs* (craving) — 11 mentions, *a positive assessment of drug use* (pleasant pastime, etc.) — 11 mentions, *feelings of addict's relatives* (pain of relatives, the tragedy in a family, etc.) — 9 mentions, *social status of drug users* (young people, hippies, party, etc.) — 9 mentions; *use of drugs for medical purposes* (anesthesia, etc.) — 6 mentions.

In general, these categories covered 88% of all expressed concepts. The remaining responses consisted of single concepts that were put in the category "other".

After appropriate transformations, we find that the ratio of public and private spheres is about the same — 43.6% and 43.7% of the responses. The medical, social and legal contexts of the public sphere, respectively, are: 53.86%, 39.58%, and 6.56%. Thus, our initial assumption about receive empirical support are that drugs are a complex and multiple-aspect phenomenon, discussions about them relate to two frames of reference among young people (public and private), and in the public sphere, a variety of context are appealed to: health, social and legal. Note that the script of a drug user's actions is revealed in the private sector, including: the type of drug used, the desire to use it, the search for money to purchase drugs, intention to act, and states associated with using drugs.

\* In Russian respondents use slang words (such as "spike up" in English)

## Stage 2

### *Hypotheses*

According to the model of research proposed by W. Doise (Doise, 2001) our purpose at the second stage of the study is to reveal different social positions in this 'map' of shared common views which are held by people with different experiences with drugs. We expected that a proximity to drugs (via different experiences) would be accompanied by a shift of positions in the 'map' of shared common views on drugs from the dominance of the public sphere to dominance of private sphere on the one hand, and on the other, the importance of the social context would also decrease. In other words:

*Hypothesis 1:* The subjects in Group 3 and Group 4 will appeal to the private sphere in their explanations about drugs more often than the subjects in Group 1 and Group 2.

*Hypothesis 2:* The subjects in Group 1 and Group 2 will appeal to the social context or public sphere in their explanations about drugs more often than the subjects in Group 3 and Group 4.

*Hypothesis 3:* The legal context will be used less than the other contexts in all groups of subjects.

### *Sample*

At the second stage, a total of 257 participants from the first stage were categorized as a matter of several factors: 1) experience with drugs (consumers vs. non-consumers), 2) acquaintances' influence (there are acquaintances among consumers of drugs vs. there are no acquaintances among consumers of drugs), 3) experience of imprisonment related to consumption of drugs (have experienced imprisonment vs. haven't experienced imprisonment). Four groups of subjects were formed: 1) non-consumers who weren't knowingly acquainted with any consumers of drugs — 71 people (54 males and 17 females), 2) non-consumers who had acquaintances who consumed drugs — 51 people (20 males and 31 females), 3) drug consumers who had acquaintances who were consumers of drugs — 71 people (48 males and 23 females), and finally, 4) consumers whose acquaintances had consumed drugs, who had been imprisoned for drug-related reason — 52 people (32 males and 20 females). The subjects from Group 1 and Group 2 were interviewed at several Universities in Moscow. The subjects from Group 3 were interviewed on the streets of Moscow with the support of members of the Rylkov Foundation, as well as in two clinics in Moscow and the Moscow region. Finally, subjects from Group 4 were interviewed in prisons. They were convicted under Article 228 of the Criminal Code of the Russian Federation (which refers to the "Illegal purchase, storage, transportation, manufacturing and processing of narcotic drugs, psychotropic substances or their analogues"), Article 158 ("Theft"), Article 161 ("Heist") and Article 162 ("Robbery"). The subjects convicted under the latter three articles of the Criminal Code of the Russian Federation committed crimes in order to get money to purchase drugs.

Twelve subjects who participated in the first stage were dropped from the further analysis because of incomplete data concerning their experiences with drugs.



### Results and analysis

In order to test our hypotheses, the data were analyzed in each group separately. In Group 1 — 319 associations were obtained, in Group 2 — 247 associations, in Group 3 — 337 associations, in Group 4 — 230 associations. The same categories of content-analysis were used in order to analyze the associations proposed by subjects in each group.

**Table 1.** Categories of private and public spheres in shared common views about drugs in four groups of subjects

Sphere	Percentages of categories (%)			
	Group 1	Group 2	Group 3	Group 4
private	30,72a	32,79a	66,17b	47,39c
public	62,07d	50,61e	20,47f	40,43 <sup>e</sup>

Meanings with different indexes differ at least at  $p < 0.05$ .

When the categories of public and private spheres are compared using  $\phi$ -criteria in between groups of respondents, the following differences are revealed: the subjects from Group 1 and Group 2 reflect more heavily upon the public sphere in their explanation of drugs (Group 1 and Group 2: 62,07%, and 50,61%, respectively, in public; 30,72% and 32,79%, respectively, in private); whereas the subjects from Group 3 and Group 4 perceive drugs in terms of the private sphere (Group 3 and Group 4: 20,47%, and 40,43%, respectively, in public; 66,17% and 47,39%, respectively, in private). The results are summarized in Table 1.

The position of subjects from Group 1 and Group 2 could be identified as 'external' with respect to drugs. The position of subjects from Group 3 and Group 4 could be identified as 'internal' with respect to drugs. These results lend support to Hypothesis 1.

The comparisons of the categories of social, medical, and legal contexts using  $\phi$ -criteria in between groups of subjects show the following differences: the subjects from Group 1 and Group 2 appeal more to social context categories in their explanations of drugs (Group 1 and Group 2: 24,45%, and 22,67% -correspondingly); whereas the subjects from Group 3 and Group 4 appeal less to this social context (Group 3 and Group 4: 10,03%, and 14,73%). The results are summarized in Table 2:

**Table 2.** Categories of social, medical, and legal contexts in shared common views about drugs in four groups of subjects

Context	Percentages of categories (%)			
	Group 1	Group 2	Group 3	Group 4
social	24,45a	22,67a	8,90b	14,35b
medical	34,48c	19,75d	10,03e	14,73e
legal	3,13	1,88	2,19	4,08

Meanings with different indexes differ at least at  $p < 0.05$ .



The fact that the subjects from Group 1 and Group 2 use these social context categories more often in their explanations of drugs than the subjects from Group 3 and Group 4 can be interpreted as a manifestation of the defensive function of the social representations that protect people from the danger of drugs and drug addiction, even at the symbolic level.

These results give support to our Hypothesis 2.

According to the obtained results, the categories from the legal context (the bearing that legality and fear of punishment have on one's attitude towards drug use) are used the least. Even the subjects from Group 4 do not differ from other subjects in their appeal to these categories. This context is secondary in the discussion on drugs and does not change from group to group. Hypothesis 3 also got its empirical support.

It was also noticed that the categories from the medical context were used more often in Group 1 and Group 2 than in other groups.

Subjects from Group 3 and Group 4 actively use slang in order to refer to kinds of drugs as well as to indicate their intention to consume the drugs. This fact differentiates the subjects which have used drugs from the ones who haven't. It could be interpreted as a manifestation of a function of the social representations — they provide the participants of the discussion with codes to enable communication.

Also a script of drug user's actions was found: the type of drug, the desire to use it, the search for money to purchase drugs, intention to act, and states associated with using drugs. The search for money to purchase drugs was not mentioned in the discussion on drugs among those that were in prison for using them.

## **Conclusions**

We conducted two stages of the study, based on ideas regarding the social representations theory.

At the first stage, it was revealed that there are two conceptual spheres - public and private — into which we could group themes used by respondents when discussing the drug problem. The public sphere incorporates three contexts - social, medical and legal aspects of drug use, which are used in various degrees by the respondents in this discussion. These categories, in fact, reflect a “map” of shared beliefs which are known to the respondents; however, this does not imply consensus.

At the second stage, the positions of the subjects on the “map” of these shared common views were analyzed. As expected, groups who had a history of drug use differ from groups without experience via the position which they hold in the discussion on problems related to drugs.

Additionally, the drug users' personal ‘stories’ regarding their actions were revealed. They consisted of following items: the type of drug, the desire to use it, the search for money to purchase drugs, intention to act, and states associated with using drugs. In the case of the subjects who had also experienced imprisonment due to drug use, one item — the search for money to purchase drugs — was not mentioned in the discussion on drugs. Different functions of social representations were demonstrated in groups of subjects with different drug-related experiences.

Our hypotheses obtained empirical support. On the basis of the obtained results, the final stage of the study of social representations following the model developed by W. Doise will be carried out in our next study.

Further studies in this domain would be interesting from both a theoretical and an 'empirical points' of view. Firstly, it would reveal the transformation of social representations as a matter of experience with drugs; secondly, it would provide us with empirical results needed for recommending preventative measures.

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