COGNITIVE CORRELATES OF DECEPTION RECOGNITION IN THE ELDERLY AND SENIORS

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The relevance of the proposed study is due to the need to find solutions in reducing the vulnerability of elderly and seniors to deception and fraudulent actions. The purpose of the study is to assess the cognitive correlates of deception recognition in the elderly and seniors. The sample size was 87 elderly and senile subjects (60–89 years old) — 38 men and 49 women. Research methods: MoCA (Montreal Cognitive Assessment); Sally–Anne test; Pragmatic intervention short stories Winner's Task; experimental method Read the Mind in the eye (RMET); Dembo–Rubinstein self-esteem scale; trust self-esteem scale. Based on the findings of the study, the cognitive correlates of deception recognition in the elderly and seniors were identified. It is reliably found that with age, as ageing progresses regardless of education level, there is a decline in cognitive level, which, in general, is natural in the process of normative ageing. These changes lead to a decrease in the level of understanding of the mental model, which in turn makes it more difficult to recognise emotions and increase trust. The empirical study supported the hypothesis that there is a correlation between cognitive level and the ability to recognise deception. The lower the general cognitive level, the worse the deception is recognised and the more trusting a person becomes.

Keywords: elderly age, senior age, mental model, deception recognition, cognitive level

Compliance with ethical standards: the study was approved by the Ethical Committee of the N.I. Pirogov RNIMU (protocol No. 239 of 15 April 2024); all participants signed voluntary informed consent for the study.

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КОГНИТИВНЫЕ КОРРЕЛЯТЫ РАСПОЗНАВАНИЯ ОБМАНА В ПОЖИЛОМ И СТАРЧЕСКОМ ВОЗРАСТЕ

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Актуальность предлагаемого исследования обусловлена необходимостью поиска путей снижения уязвимости лиц пожилого и старческого возраста к обману и мошенническим действиям. Целью исследования было оценить когнитивные корреляты распознавания обмана в пожилом и старческом возрасте. Объем выборки составил 87 испытуемых пожилого и старческого возраста (60–89 лет) — 38 мужчин и 49 женщин. Использовали методику MoCA (Montreal Cognitive Assessment); тест Салли–Энн; Pragmatic intervention short stories Winner's Task; экспериментальную методику Read the Mind in the eye (RMET); шкалу самооценки Дембо–Рубинштейн; шкалу самооценки доверия. На основании полученных результатов исследования выявлены когнитивные корреляты распознавания обмана в пожилом и старческом возрасте. Достоверно установлено, что с возрастом, по мере старения вне зависимости от уровня образования происходит снижение когнитивного уровня, что, в целом, является закономерным в процессе нормативного старения. Эти изменения приводят к снижению уровня понимания модели психического, что, в свою очередь, затрудняет распознавание эмоций и повышает уровень доверия. Эмпирическое исследование подтвердило гипотезу о наличии корреляции между когнитивным уровнем и способностью распознавать обман. Чем ниже общий когнитивный уровень, тем хуже распознается обман и тем более доверчивым становится человек.

Ключевые слова: пожилой возраст, старческий возраст, модель психического, распознавание обмана, когнитивный уровень

Соблюдение этических стандартов: исследование одобрено этическим комитетом РНИМУ им. Н. И. Пирогова (протокол № 239 от 15 апреля 2024 г.); все участники подписали добровольное информированное согласие на обследование.

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According to statistics from the Unified Center of Legal Defense, between 2014 and 2024, the number of people deceived by phone frauds increased by 72%, with more than 79% of victims being elderly people. According to the FBI Elder Fraud Report for 2023, the total amount of money lost as a result of financial crimes against the elderly was approximately $3.4 billion. This age group is characterized by cognitive changes with a tendency to a decrease in cognitive abilities, which increases the risk of being deceived.

The formation of functional systems, as well as their differentiation during the ontogenetic development of elderly people, occurred under conditions of lesser technological influence, rather than in the context of total digitalization. Accordingly, in today's realities in the conditions of intensive digitalization and technological changes, deception in most cases is carried out through means of technical mediation (phone calls, instant messengers), which, in turn, along with the naturally occurring decrease in neuroplasticity of the brain as normative aging occurs, complicates their resistance to fraud.

Conducting a theoretical and methodological analysis of the scientific elaboration of the issues under consideration, a bibliometric analysis of publication activity was carried out (according to the scientific database "The Lens"). It is worth noting that in the foreign literature in the chronological range

of the last 14 years (2010–2025), searching for scientific publications by keywords — scholarly search "lie detection" an increase in research interest is recorded. This is evidenced by a steady increase in publication activity in the specified period. The total number of publications in the specified period from 01.01.2010 to 14.01.2025 is 1830 scientific papers. At least 100 works are published annually, therefore a steady interest in the chosen topic can be noted, however, since 2017 there has been an increase in publication activity by 30% (from 102 works in 2017 to 143 in 2025). Then, specifying our request in accordance with the age category of the carrier, namely elderly and old people. By request — scholarly search — elderly, field of study — lie detection, only 4 publications were found, which is less than 3% of the total share of publications on the specified topic. Based on the conducted analysis of the studies, two research vectors are formed — the vector of research on the recognition of deception and the vector of research on the process of deceptive actions.

Analyzing the deception recognition methods used in existing studies, two main directions are clearly visible: the subjective assessment of the verifier and the objective assessment of deception using specialized auxiliary tools. Subjective assessment of the verifier is based on parameters that are considered to be signs of a lie based on observation — facial expression, gestures, postures, change in voice, frequency of eye contact and other telltale signs; or based on linguo semantic analysis — change in intonation, speech rate, change in voice timbre and the appearance of a tremor in the voice). Objective assessment methods of deception include hardware methods (EEG, PET, MRI, non-verbal behavior scanning method and psychophysiological changes using a polygraph). Objective methods allow us to record changes in the brain activity of the cerebral cortex, as well as the structures of the limbic system.

A content analysis of scientific publications indicates that the most active researcher in the field of detection is Aldert Vrij. The author has published more than 300 papers on the subject matter, 108 for the period from 2010 to 2025. The author's most focused attention is on the topic of the relationship between verbal and non-verbal behavior and deception, and he also addresses issues of speech content and deception. A. Vrij identified 17 non-verbal parameters of lies, dividing them into vocal and non-vocal non-verbal behavior [1–10].

Also, in the works of one of the leading experts in the field of lie detection by recording facial micro expressions is Paul Ekman. The author uses the concepts of lies and deception as synonyms: “I define a lie or a deception as an act that is intended to foster in another person a belief or understanding that the deceiver considers false. It is done intentionally, without prior notification of the intent to deceive, and without having been explicitly asked to do so by the target” [6–10]. At the same time, for the identification of deception, tools related to verbal (semantic meaning of the word, characteristics of the tempo and prosody of speech, grammatical structure of statements) and non-verbal (micro expressions, facial expressions, gestures, posture, visual contact) manifestations of the participant in communication are used. Some of the listed parameters are also used by A. Vrij.

In Russian science, understanding deception is a less studied and relatively new area of research. One of the authors studying a similar topic is the Soviet and Russian scientist, a specialist in the field of psychology of understanding, V.V. Znakov [11], thanks to whose works it is possible to differentiate the terms lie, untruth and deception. On the one hand, any judgment supplied with distorted facts should be considered false, regardless of the speaker’s intention to lie or the lack of it. On the other hand, when classifying a lie within the framework of psychology, in order to classify a judgment as false, it is enough for one of the participants in communication to believe that he is lying. That is, the determining factor is precisely the intention to distort the facts. The main similarity between deception and lies is the conscious, purposeful intention of the participant in communication to distort the truth. But still, these semantically similar concepts have a key aspect that will allow us to draw a line in their differentiation. Deception is a half-truth communicated to a partner with the expectation that he will draw erroneous conclusions from it that do not correspond to the intentions of the deceiver [11]. In this case, the concept of "half-truth" implies a partial communication of true facts and details with the conscious concealment of others necessary for a complete understanding. Thus, deception aims to direct the movement of the participant's thoughts "along the path of actualizing frequently encountered familiar situations" [11]. The deceived person, against his will, becomes an accomplice to the deceptive act, because he becomes a victim of biased knowledge.

Recognizing deception is a complex process that involves several aspects at once — cognitive, emotional, social. To understand deception, a necessary condition is the ability to understand and interpret one’s own mental state and the mental state of another. “Representations of mental states allow us to predict and explain human behavior, i.e. the conceptual system underlying such representations has explanatory power…” [12].

Mental models (in foreign literature the definition Theory of mind is used), representing a metacognitive ability, provide a person with the opportunity to form an idea of the intentions, desires, sincerity of another person in the context of a changing social context in order to make an appropriate decision.

One of the most crucial elements of the theory of mind is the understanding that one's own mental state differs significantly from another's state, it is not identical to another's state. Since mental states are not directly observable, the assumption that other people have them becomes a tool that helps make predictions and interpret the behavior of others.

The theory of mind begins its development in early childhood and undergoes certain changes throughout life, moving along a U-shaped trajectory. The phenomenon of understanding deception, which is subject to change, shows that as people approach elderly and old age, they make more mistakes in understanding the hidden intentions of others and become less sensitive to signals that warn of the unsafety of the current situation.

According to studies on the influence of age on the functioning of the mental model, changes can be observed as early as 60 years of age [13], while other authors indicate that changes begin at the age of 50 [14]. Although time frames may vary, most studies contain similar conclusions, according to which elderly and senior people make more errors in interpreting false beliefs than young adults.

The present study aims to shift the focus from the liar's influence and its characteristics to the methods and features of processing verified information, as well as the cognitive characteristics of the verifier.

The theoretical and methodological foundations were based on the provisions of the theory of the mental model (theory of mind) developed by G. Woodruff and D. Premack [15], further developed by E.A. Sergienko [12,16,17]; the provisions of the emotional theory of P. Ekman [6–10]; the provisions of the theory of A. Vrij on the model of truthfulness assessment [1–5].

David Premack and Guy Woodruff were the first to propose the concept of a theory of mind and emphasized that understanding the mental states of others has a significant impact on everyday life and affects the quality of life. Later studies conducted with patients with mental disorders and local brain lesions [15] showed that the theory of mind should be divided into two structural components. The cognitive or "cold" component includes cognitive processing of thoughts, beliefs, and intentions of other people, and understanding of non-literal statements. Within the cognitive component, first- and second-order representations are distinguished. First-order representations are representations of an individual's own thoughts that arise through the formation of one's own point of view ("I think she thinks that…"). Thus, we have the ability to understand that others have their own consciousness and perception, which differs from ours. Second-order representations are more complex constructions of deep ideas about oneself and involve the simultaneous acceptance of two points of view ("he thinks she thinks that…"). In this case, first-order representations develop first in ontogenesis.

The emotional "hot" component of the mental model includes understanding of feelings, emotions, and affective states of other people. It is necessary to differentiate between the similar at first glance concepts of empathy and the emotional component. Empathy implies the ability to feel and experience emotions, feelings of another person, without necessarily understanding the reason that caused them. While the emotional component assumes the ability to accept the point of view of another ("to step into his shoes.") with a true understanding of his mental state without the need to feel his emotions, feelings.

Moreover, the behavior of other people is not completely predictable, and therefore the success of interaction with the social environment correlates with the ability to decipher the mental states and intentions of others. The presence of changes in the components of the mental model (theory of mind) leads to a decrease in susceptibility and assessment of those signals that would warn of possible negative, dangerous actions on the part of other people. This is what allows us to classify older people as a more vulnerable category of the population, which exposes them to the risk of becoming victims of social exploitation, fraud and deception. This, in turn, leads to an increased level of stress, empathic distress, and, consequently, to difficulties in establishing friendly and family relationships [18].

As E.A. Sergienko points out in his works, age-related changes in social contacts and their emotional accompaniment, occurring with age, lead to the manifestation of selective motivation in relation to various forms of social activity. The main manifestation of this is the voluntary structuring of one's social space: protecting oneself from negative and traumatic experiences while focusing primarily on trusting relationships. However, even with such socio-emotional selectivity, in old age, when interacting with other people, a person needs to understand the intentions and their truthfulness, beliefs, and emotions of other people. And such an ability to understand the mental world of the Other is not limited to either intellectual or cognitive abilities [12].

The theory of mind, which is a cognitive mechanism that ensures successful interaction with another person, allows one to understand not only emotions, but also to perceive multilayered structures (the so-called first-, second-, and third-order representations). The theory of mind is a natural human ability, but its full development requires many years of experience in social interaction. Different people can develop more or less effective models of mind [15]. Examples of the emotion category are expressed using facial movements that vary to some extent around a typical set (prototype). The "skeleton" of each emotion prototype can also be variable, but within certain limits [6–8]. According to A. Vrij's truthfulness assessment model, those who tell the truth provide more details that can be verified and receive a higher coefficient of such details (verifiable details/total number of details) than liars. Moreover, these details are manifested precisely in behavior [4–5].

As a result of conceptual modeling, a model of cognitive markers in the process of deception recognition was formed, including the stages of implicit recognition (the stage of the first impression and putting forward two alternative hypotheses about truth/falsity; the stage of obtaining information through special signal systems that confirm or refute hypotheses; the stage of assessing information and drawing conclusions about the degree of sincerity/insincerity of the interlocutor) and explicit recognition (the stage of emotional response in the form of conscious experiences; the stage of using certain information/abilities/skills in detecting lies). At the same time, in implicit recognition, cognitive markers are implemented in the recognition of emotions and the formation of a mental model; in explicit recognition, cognitive markers are realized in the level of self-esteem and behavioral strategies (Fig. 1).

The aim of the study was to investigate cognitive markers of deception recognition in old and senile age.

METHODS

The study involved 87 elderly and senior subjects (60–89 years old) — 38 men and 49 women. Inclusion criteria for the study: elderly and senior ages; absence of cognitive impairments, implying loss of orientation in place, time and one's own personality (MoCA range from 17 to 30 points). Exclusion criteria were the presence of diagnosed mental and behavioral disorders; history of acute circulatory disorders; severe impairments of motor functions, as well as impairments of gnostic functions. The subjects were divided into study groups based on age: the first study group consisted of 42 elderly people, which corresponds to 60–75 years (according to WHO). The second study group consisted of 45 people aged 75–89 years, which corresponds to senior age.

The study was conducted at the Russian Gerontological Scientific and Clinical Center under the conditions of written voluntary informed consent.

The study was conducted using the following methods: the MoCA (Montreal Cognitive Assessment) technique for assessing neurocognitive status [19]; the Sally-Ann Test for assessing the integrity of the mental model [18, 20]; the Pragmatic intervention short stories Winner's Task, which allows assessing a person's ability to understand false statements and differentiate them from humorous statements (which also allows assessing the integrity of the mental model) (6 stories out of 10 were used: stories No. 1, No. 2, No. 3, No. 6, No. 7, No. 8) [21]; the experimental Read the Mind in the eye (RMET) technique, which allows assessing the ability to non-verbally recognize the internal states of other people [18, 22]; the Dembo-Rubinstein self-esteem scale (based on indicators of health, ability, beauty, intelligence, authority, confidence, character); a trust scale that allows you to subjectively assess your own level of trust (how trusting am I in relation to other people).

Among the research methods, a clinical interview with audio recording was also conducted, including three main questions:

- Can you remember a situation when someone tried to deceive you and how you behaved at that moment?

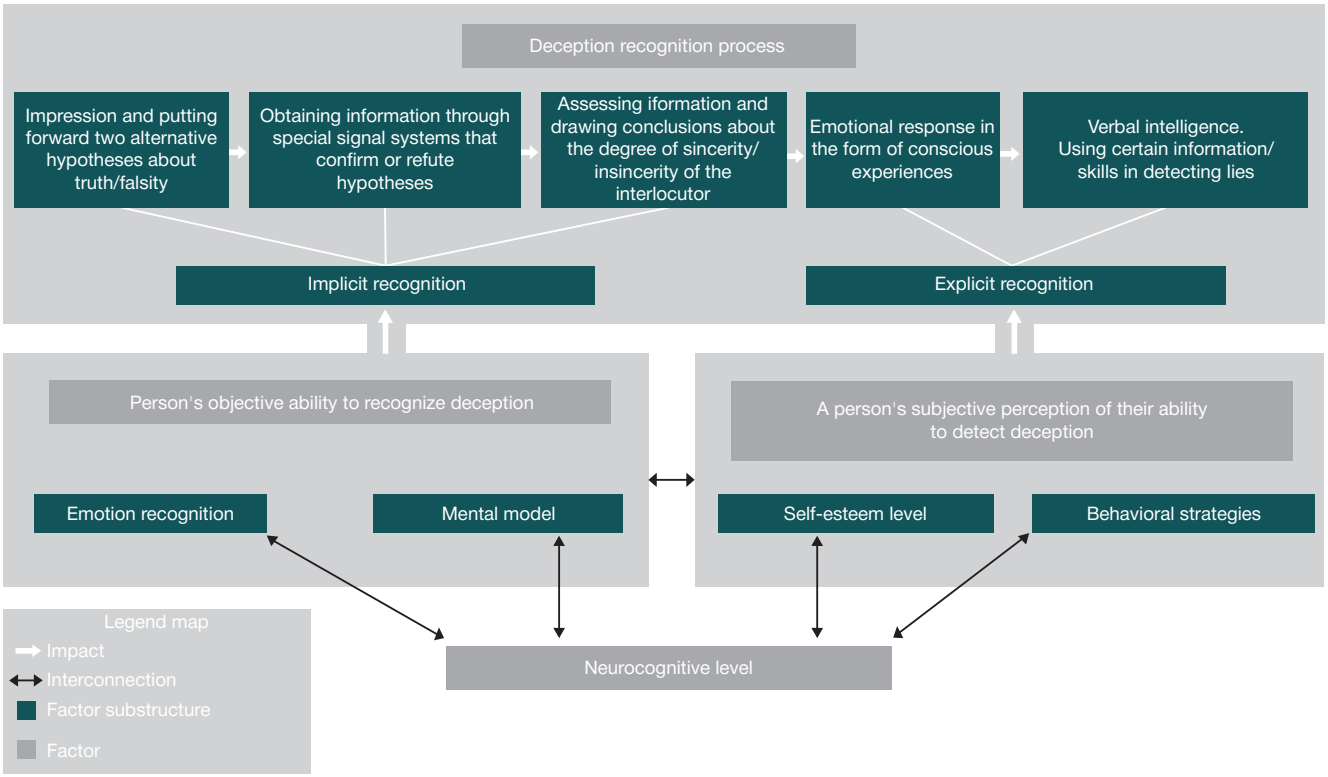

Fig. 1. Schematic diagram of the conceptual model of cognitive markers of deception recognition in elderly and senior age

• By what signs would you determine that your interlocutor is lying?

• How many friends and close relatives do you have and how often do you communicate with them?

The primary processing of the research results was represented by quantitative data processing and included the compilation of a final diagnostic card with coding of nominative data, compilation of a general data table with calculation of the mean value, mean deviation, minimum and maximum value, and median.

Secondary processing was carried out using mathematical processing methods: correlation analysis within each group (Fisher criterion), Mann–Whitney criterion and Wald–Wolfowitz criterion to identify differences between groups. Spearman's r-rank correlation criterion was used to assess the relationships of the parameters under study.

RESULTS

The study revealed significant differences in the assessment of the neurocognitive level (p = 0.027), emotion recognition (p = 0.034) and the integrity of the mental model (p = 0.022) in elderly and senior age (Fig. 2).

More pronounced mild cognitive decline at a senior age compared to the elderly leads to a lower level of understanding of the theory of mind, which in turn leads to difficulty understanding the emotions and intentions of others in the process of interaction.

Carrying out a comparative analysis of first- and second-order representations, which characterize the level of understanding of the mental model, as a general trend, one should note isolated difficulties in representing one's own thoughts (first-order representations), as well as the deficiency of second-order representations both in elderly and senior age. As a result of assessing the significance of differences between the groups of elderly and senior subjects in terms of correct answers when assessing the level of understanding of the mental model, statistically significant differences were revealed both in first-order representations (p = 0.022) and in second-order representations (p = 0.024). It is necessary to note that at senior age isolated errors in first-order representations and a deficit in second-order representations are more significant in comparison with elderly age. Both elderly and senior people experience significant difficulties in accepting two points of view simultaneously, which characterizes second-order representations ("he thinks that she thinks that…"). Isolated errors in first-order representations, which characterize the representation of one's own thoughts and are manifested through the formation of one's own point of view ("I think that she thinks…"), generally indicate the preservation of this level of representation.

Analyzing the self-assessment scales, it was also established that both elderly and seniors at the level of self-assessment record a decrease in their intelligence and abilities indicators with an increase in trustfulness (Fig. 2). Moreover, the specified intelligence and abilities indicators at senior age are significantly lower than in elderly age (p = 0.021 and p = 0.024, respectively), and the indicators on the trust scale are significantly higher — p = 0.034.

Next, each research group was divided into two by the level of education in order to assess the significance of differences in the level of expression of cognitive correlates of deception recognition in elderly and senior age. The comparison was carried out within the boundaries of each of the time frames under consideration — separately in elderly and senior age — in groups with higher and secondary specialized education. It was reliably established that in both elderly and senior individuals with higher education, the integrity of the mental model and the cognitive level are significantly higher in comparison with individuals of a senior age. At the same time, the level of trust in these groups is significantly lower than in groups with secondary specialized education (Fig. 3).

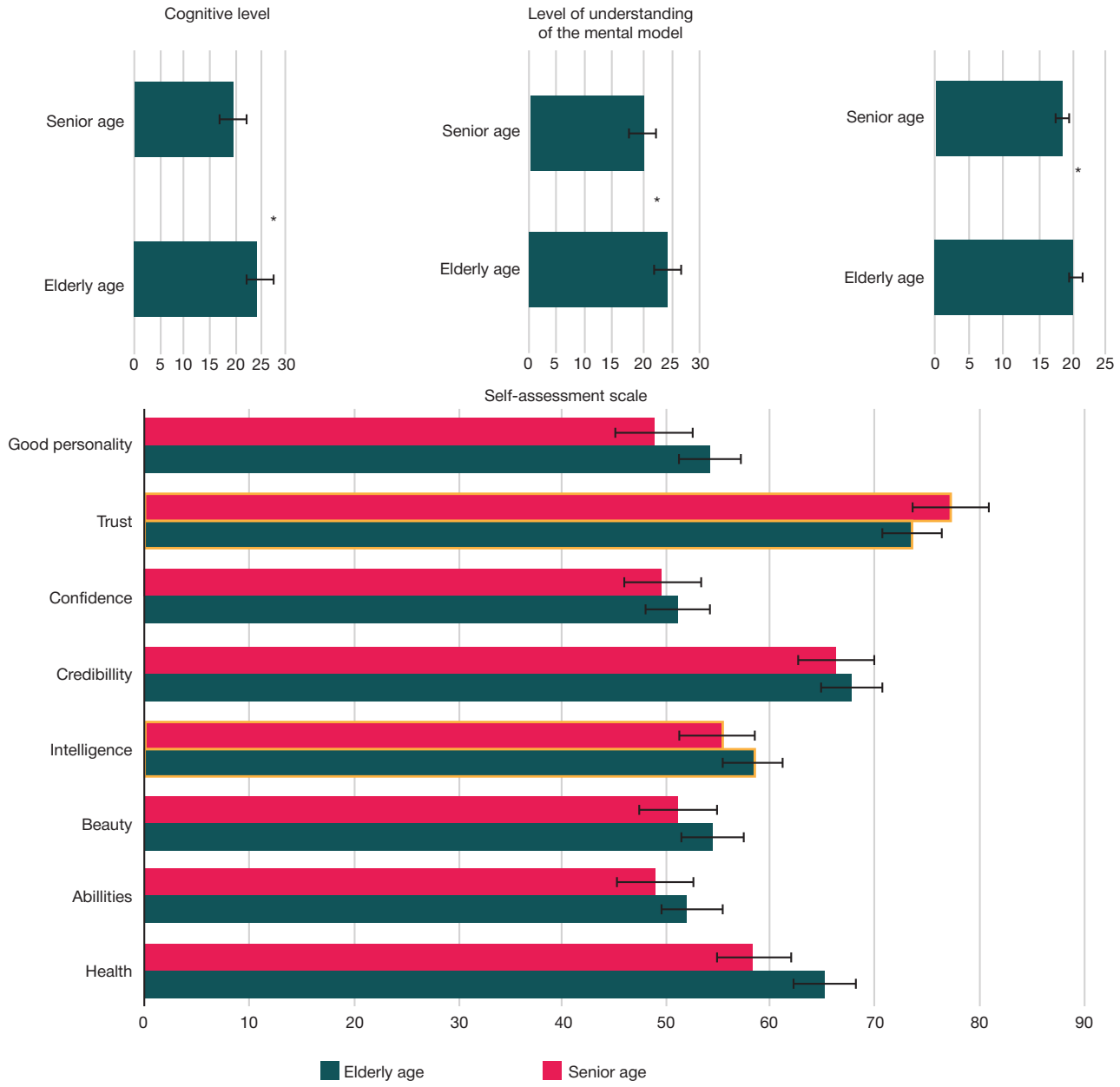

Fig. 2. Indicators of average trends of the studied indicators by groups of subjects in elderly and senior age

To establish the relationships between the studied indicators characterizing explicit and implicit recognition of deception, a correlation analysis procedure was carried out for the studied age groups (Table 1–2).

As a result, in the group of elderly subjects, directly proportional statistically significant correlations were found between the indicators of the cognitive level with the level of understanding of the mental model (r = 0.64) and recognition of emotions (r = 0.49) with inversely proportional statistically significant correlations with the trust scale (r = –0.27). Also, statistically significant correlations were found between the indicator of the level of understanding of the mental model with recognition of emotions (r = 0.45) and the trust scale (r = –0.31). Analyzing the obtained system of correlations, we can state that the cognitive level acts as the leading correlate in the recognition of deception in elderly age.

Similar results were obtained in the group of people of senior age. Directly proportional statistically significant correlations between the indicators of the cognitive level with the level of understanding of the mental model (r = 0.57) and emotion recognition (r = 0.51) with inversely proportional statistically significant relationships with the trust scale (r = –0.32). The trust scale is also characterized by a statistically significant inversely proportional correlation with the level of understanding of the mental model (r = –0.48). In turn, the level of understanding of the mental model is characterized by a statistically significant directly proportional correlation with emotion recognition (r = 0.44) (Table 2).

However, statistically significant inversely proportional correlations between age and cognitive level (r = –0.37) and level of understanding of the mental model (r = –0.32) were also found in the group of senior people. Such relationships were not found in the group of elderly people.

Based on the data of the clinical interview with audio recording, the following conclusions can be made, which are mostly subjective assessments. Almost all participants responded to the question about their level of gullibility by saying, 'Yes, I am very trusting!" According to the trust scale values distribution, it can be seen that most of the subjects either gave half/slightly more than half, or almost the maximum

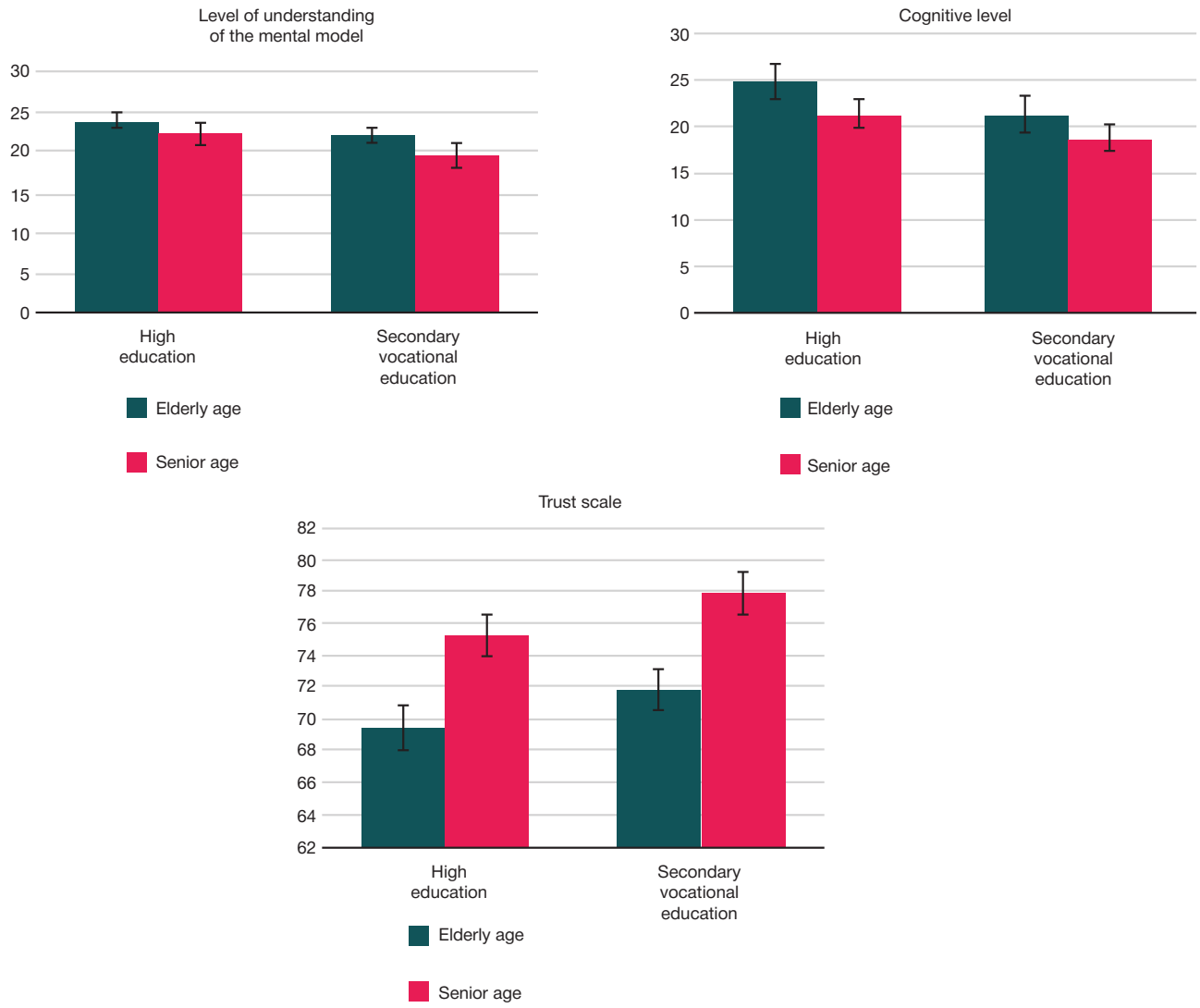

Fig. 3. Indicators of average trends in the level of understanding of the mental model, cognitive level and level of trust in elderly and senior age, considering the level of education

value. This confirms the fact that most subjects consider themselves gullible. When asked about the rationality of such high trust, the subjects give extremely idealistic answers. Many believe that the people around them, for the most part, do not have evil intent upon them and the chance of running into a liar is extremely small. If this does happen, then "God will forgive." This belief is a form of compensatory mechanism that helps to justify the decrease in the ability to recognize one's worldview.

Among the subjects, regardless of age group, 30% do not make any attempts to recognize lies. Therefore, it is not difficult to deceive this group. Noting a high level of trust, 46% cannot remember being deceived at least once. When asked how they were able to determine that they are gullible if they have not been lied to, patients find it difficult to answer. This fact also speaks in favor of the emergence of a special compensation mechanism due to a decrease in criticism. An explicit strategy for recognizing deception prevails in 48% of the subjects. At the same time, each from this group notes the importance of eye movements during deception. This understanding of the signs of a lie is very formulaic, but even such simple knowledge can be useful.

Most subjects, when recalling a situation of deception, first of all talk about phone fraud. At the same time, elderly people are quite resistant to this particular type of scam. Theses were often heard about the fact that one should not say the word "yes" in a conversation, disclose personal data and the need to verify any incoming information. Nevertheless, several patients talked about situations of successful deception by phone. When asked about the reason for the success of the fraud, the victims noted the fast pace of speech, the abundance of information and its substantive aspect, which concerned the health of the victim or close circle. Based on the obtained data, it is possible to conclude about the relative success of counteracting phone fraud but also note the serious vulnerability in this regard in case of exposure to a topic that is emotionally significant for the recipient.

As an additional observation, it should also be noted that only a few subjects actually read the voluntary informed consent. The rest signed the document without reading it in full and without any questions. This allows us to conclude that the job status of the interlocutor has a high influence on behavior. The patients were reassured by the fact that the papers for signature were given to them by a person who introduced himself as an employee of the clinic. This may indicate the effectiveness of deceptive actions in relation to the elderly using "authority" (for instance, introducing himself as an employee of law enforcement or health care). 75% of the subjects do not feel lonely. Most patients have hobbies and an extensive social circle. Although many claim that at this age they have fewer friends and relatives, and it is increasingly

Table 1. Results of the correlation analysis of the studied parameters in the group of elderly subjects (Spearman's r-rank correlation coefficient, $p < 0.05$)

Parameters	Age	Cognitive level	Level of understanding of the mental model	Emotion recognition	Trust scale
Age	1				
Cognitive level	–0.23	1			
Level of understanding of the mental model	–0.21	0.64*	1		
Emotion recognition	–0.09	0.49*	0.45*	1	
Trust scale	0.09	–0.27*	–0.31*	–0.15	1

Note: * — statistically significant correlation.

difficult to make new acquaintances, they do not experience a lack of communication. Some of the interviewees noted the effectiveness of the "Moscow Longevity" program as a way to maintain stable interpersonal communication.

DISCUSSION

Based on the results obtained, cognitive correlates of deception recognition in elderly and senior age were identified. It has been reliably established that with age, as people get older, regardless of the level of education, there is a decrease in the cognitive level, which, in general, is natural in the process of normative aging. These changes lead to a decline in the comprehension of the theory of mind, which in turn complicates emotion recognition and increases trust levels.

The results obtained correspond to the data of earlier studies. Sergienko E.A. (2020) with co-authors points out that after 60 years, elderly people arbitrarily structure their social space and focus on trusting relationships, thereby trying to minimize negative experiences [12, 16–17]. However, even with such socio-emotional selectivity, it is impossible to completely exclude interaction with other people, in which there is a need to understand the intentions, truthfulness, beliefs, emotions of other people. Such understanding is provided precisely due to the theory of mind, which is understood as a cognitive mechanism that ensures successful interaction with another person. Violation of the integrity of the mental model, caused by cognitive changes, just leads to an increase in the vulnerability of elderly and senior people to deception.

However, unlike the results of the study presented in the works of A.I. Milekhin (2019), which points to the phenomenon of denial of sociocognitive changes or specific cognitive anosognosia [23]; the majority of subjects who took part in our study, both in elderly (76%) and in senior age (82%), subjectively noted that they had become more trusting. At the same time, our results are consistent with the results of A.I. Milekhin in terms of the deficit of second-order representations in determining the mental model with the relative preservation of first-order representations.

CONCLUSIONS

An empirical study confirmed the hypothesis of a correlation between cognitive level and the ability to recognize deception. The lower the overall cognitive level, the worse the ability to recognize deception and the more trusting a person becomes.

During the clinical interview with audio recording, the most common compensatory strategies were identified: idealism, "biased optimism", "halo effect", positive bias. In addition, patients demonstrated vulnerability to sensory overload due to short-term memory impairment, observed in 46% of subjects.

Thus, based on the obtained results from empirical study, it has been reliably established that the cognitive correlates of implicit deception recognition in elderly and senior age are emotion recognition and the level of understanding of the mental model. The correlates of explicit deception recognition in elderly and senior age are self-assessment of the level of one's own credulity and behavioral strategies. The success of deception recognition is lower with increasing age. With age, there is a decrease in the level of the mental model, which is manifested in the difficulty of simultaneously understanding two points of view (second-order representations), which, in turn, leads to an increase in the level of trust.

Table 2. Results of the correlation analysis of the studied parameters in the group of senior subjects (Spearman's r-rank correlation coefficient, $p < 0.05$)

Parameters	Age	Cognitive level	Level of understanding of the mental model	Emotion recognition	Trust scale
Age	1				
Cognitive level	–0.37*	1			
Level of understanding of the mental model	–0.32*	0.57*	1		
Emotion recognition	–0.09	0.51*	0.44*	1	
Trust scale	0,09	–0,32*	–0,48*	–0,15	1

Note: * — statistically significant correlation.

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