The article is devoted to the problem of future doctor’s attractiveness for interaction with patients. The results of empirical research are presented. The formation of practical skills (professional competences) in educational institutions implements mainly with simulation technologies. However, all abstract scenarios used in programming of electronic robots-simulators are not able to reproduce all palette of interaction with a real patient. Probably in the medical training a trend to form primarily professional (instrumental) competences will lead and leads to decreasing doctor’s attractiveness for a patient in the form of mutual depersonalization and, respectively, this has a negative effect on the recovery process. Comparative analysis of medical students’ psychological potential showed that future doctors have predominance of competencies hindering effective interaction with patients. These are competitive spirit, selfishness, sarcasm, impulsivity. Our findings indicate that it is necessary to implement special programmes of psychoprophylaxis of being uninvolved in the system of integration with patients for medical students.

Keywords: attractiveness, interaction, accordance, psychological unreadiness, clinical affairs, psychological potential, relational competences

Relevance

The actual shortage of medical personnel with the trend of growing deficit in practical health protection might be conditioned by psychological unreadiness of medical graduates to interact with patients.
Except specific for medical activity competences medical students should form a certain kind of attractiveness for interaction with patients and their families, colleagues and nurses.

Since in this case a phenomenon of high level of psychological self-organization is discussed, manifestations of this quality should be determined by the general psychological categories. A meaning of attractiveness as orientation towards values that form medical ethics: altruism, empathy, mercy, unselfishness is proposed to define, in contrast to orientation to the values that form other types of ethics (management ethics, entrepreneurship and so on): competition, power, selfishness, dominance.

Doctor meets patient in a special state (fatigue, physical pain, anxiety) and in this state the patient is very sensible to his attitude. Efficiency of any medical interaction in such conditions depends on psychological connections, which appear in the systems “doctor-patient”, “patient-doctor-nurse” and so on. These connections are conditioned by doctor’s relational competences that may be called the competences of accordance (Haws, Rannelli, Schaefer, Zarnke, Coderre, Ravani, & Mc Laughlin, 2016; Winter, & Thaler, 2016).

The process of forming relational competencies (competencies that ensure stable in time interactions of a doctor and a patient) oversteps far the limits of period of direct contact and includes the period of teaching the student, the period of his involvement in the professional division of labor, forming a personal style of interaction and so on. Therefore, the study of risks in forming relational competences and accordance of personal features to social demands and expectations is a relevant objective of solving the problem of medical graduates involvement in the organization of medical care (Hoffmann, Dell-Kuster, & Rosenthal, 2014; Hegele, Heers, Brüning, Klapp, Schönbauer, Hofmann, & Stibane, 2014).

At present the priority direction of practical health protection of the Russian Federation is reducing shortage of medical personnel and minimizing outflow of young medical specialists from their profession (About approval of the state programme of Russia “Development of Health Protection”, 2014).

Comparative analysis of Russia’s rates on the basis of calculations made in the regions of the country revealed a shortage of doctors and nurses in the amount from 30% to
40% depending on the location of the subject of Russia. To the end of the first year of work in the profession, only 20% of young doctors remain in the healthcare system (from the report of V.I. Skvortsova, Minister of Healthcare of the Russian Federation, May 24, 2014).

Global statistics indicate that a shortage of health workers will reach 12.9 million people by 2035 (Wu et al., 2015).

Along with that, there are quite enough medical educational institutions in Russia (and in developed countries) and a number of students is large enough. A shortage of doctors is likely to be associated with psychological reasons and indicates a high amount of young uninvolved professionals. When they enter the profession, they may face situations of discrepancy of their competences and reality of medical practice as personal insolvency, inability or unwillingness to interact with patients or health protection system.

**State of the problem**

This research is aimed at solving problems of lack of attractiveness (areas and aspects) in the interaction between doctors and patients within the learning process of medical students. The trend of increasing mediated interaction “doctor-patient” with technical means is likely to continue growing in accordance with the development of scientific and technical component of medicine, thus “freeing” a doctor, a nurse and a patient from “the surplus” of all that humane, individual, creative.

However, it should be recognized that actually it is not “freeing” from all that humane, it is a shift of psychological efforts (and potential) from the sphere of direct interaction to the sphere of interpersonal interaction, that is, to the sphere of personal (existential) competencies. Accordance of personal characteristics and expectations is probable due to the growth of technical mediated interaction; it means that relations of doctors and patients will be increasingly conditioned by basal correspondences and by psychological, personal and sense grounds (Klochko et al., 2015).

As materials of the research, a number of psychological correspondences/mismatches in the interaction of a doctor and a patient was used; they are indicated by the various data: normative documents and educational standards, textbooks on ethics and empirical data.

Importance of attractiveness for interaction with patients and relational competences is as follows.
Evidences of relational competences importance can be found in the Hippocratic Oath. Medical ethics and deontology, medical and professional psychology, describing relational competence, manifested by the doctor behavior in relationships with patients, agree that the fundamental qualities of a doctor are altruism, mercy, empathy, friendliness, disinterestedness, tact, optimism and diligence. Examples of unformed attractiveness, that is a manifestation of mutual unattractiveness and misunderstanding of the doctor and his patient, are selfishness, cruelty, manipulation, alienation, prudence, categoricalness, sarcasm, and laziness.

At present the priority direction of medical training is the formation of his professional competence. The formation of practical skills (without risk to the health and life of the patient) in educational institutions is conducted mainly with the help of simulation technologies (Hirao, 2014; Galaktionova, Maiseenko, & Taptygina, 2015; Komova, Zukov, Turchina, Cherdantsev, Prikhodko, Ivanova, & Petrova, 2013; Gusarenko, & Tyazhelnikova, 2009).

The research of scientific works (Delaryu et. al., 2015; Gritsan et. al., 2014) devoted to the introduction of simulation technologies in the learning process of doctors revealed that these methods may not reproduce the whole range of interactions (utterances, complaints, questions and answers, reactions to the interaction) with a real patient. Therefore, the priority formation of professional (instrumental) competencies in medical training is connected with the risk of depersonalization of a patient, a doctor and a nurse, and interpersonal relationships problematization and higher levels of psychological regulation as well.

**Materials and methods**

Empirical data were received due to the developed by the author (Tolstoles E.S.) unified diagnostic programme on the bases of medical institutions of Tomsk. These are Siberian State Medical University (SSMU) and Tomsk Basic Medical College (TBMC). The respondents were 262 medical students, including 73 students of the medical faculty (SMF) of SSMU, 114 students of the pediatric faculty (SPF) of SSMU, and 75 students of the nursing department (SND) of TBMC.

The following methods were used: questionnaire EP1 developed by G. Aisenk; characterological questionnaire by K. Leongard – N. Shmishek; the questionnaire of professional
preferences by D. Holland in the modification of E.P. Ilyin; the author’s Method of semantic
differential “Method of personal qualities assessment of a medical student” by E.S. Tolstoles.

Statistical processing of the result was conducted using software package
STATISTIKA 8.0. The critical level of significance when testing statistical hypotheses in this
research was equal to 0.05 (p-the achieved level of significance).

Due to the fact that the results of psychometric methods are ranking, mathematical
processing of results was conducted using the median (Me) and interquartile range (in
the form of 25 and 75 percentile, Q1-Q3); Mann-Whitney U-test for comparison of two
independent samples; Kruskal-Wallis criterion for comparison of several independent
samples; Spearman’s criterion of rank correlation.

The respondents were in the same stages of the educational process – a middle of the
teaching and a middle of the semester.

Results and their discussion

The research found that the attractiveness to interaction with patients (altruism, mercy,
empathy, disinterestedness and diligence when pairwise comparison is statistically significant
not different (p>0.05)) of future doctors is formed in equal measure.

First, listed competencies (on all selection) are determined by the values (Me) 6
and more (according to the Method of semantic differential “Method of personal qualities
assessment of a medical student” the minimum value is 0, maximum - 10).

Second, these competencies in any ratio among themselves are correlated significantly
(where, p<0.005).

Third, these competencies are relational, and this indicates a sufficient level of
development of social responsibility among future doctors.

The received data indicate that the attractiveness of all medical students has been
formed at more than 60.0% to the middle of training.

However, the results of psychometric methods defined a number of specific
accordance (zone of relevance) and psychological mismatches of attractiveness among
students of different training areas in comparison with the forthcoming clinical affairs (at
paired comparison the results of SMF and SPF do not differ significantly, where p>0.2).
Zones of accordance:

1. “Zone of relevance 1” is revealed in SMF and SPF. Attractiveness to the doctor’s activity is expressed in the form of high research potential, which is used in the diagnostic activity of future doctors. The research type of professional preferences of SMF and SPF is statistically significant higher in comparison to SND (p<0.001).

2. “Zone of relevance 2” is revealed in SND. Attractiveness to the activity defines by the tuning to collectivism, democracy, friendliness, that are positively correlated among themselves and statistically higher significantly in comparison with the results of SMF and SPF (in all cases, p<0.05). These competences are significantly positively correlated at SND with tact, empathy and compassion (where, p<0.01), which confirms that future nurses are humane and merciful. They are those competencies that are expected from nurses, whose activity to the greatest extent is connected with the implementation of a doctor’s appointments and a predominance of interaction with a patient in the treatment process.

Risk zones of mismatch included:

3. “Phantom of power”. A complex of characteristics, including competences, which does not meet the expectations to the psychological potential of a doctor. It is expressed by the high results of measurements at the SMF and SPF on signs of competitive spirit, selfishness and sarcasm. These competencies of future doctor’s are statistically higher significantly in comparison with the results of the SND (where, p<0.005), and positively correlated with cruelty and manipulation (where, p<0.05). Demonstration of doctor’s superiority is inadmissible in relations with patients and therefore may indicate a lack of attractiveness.

4. “Complex of infantilism”. A complex of characteristics that was revealed at future doctors in the form of strongly pronounced impulsiveness. Exalted type of accentuation of SMF and SPF (statistically significantly higher in comparison with the results of SND, where p<0.05) is positively correlated with excitable accentuation and neuroticism (in both cases, p<0.005). Impulsiveness, or an extreme manifestation of it – panic, prevents from the efficient provision of emergency medical care when mass destruction, it may lead to the death of large numbers of victims.
5. “Zone of alienation” for SND is manifested in emotional instability, since emotive type of accentuation among future nurses is significantly higher (in comparison with the results of SMF and SPF (where, \(p<0.05\)) and is positively correlated with neuroticism and alienation (in both cases, \(p<0.005\)). The alienation of nurses in the process of the therapeutic interaction can lead to errors when implementation of a doctor’s appointments and to anomalous relationships with patients.

The results of the research are presented as a model of accordance/mismatches in interaction Doctor-Nurse-Patient in Figure 1. The descriptions of relational competences and psychometric results of the subjects were used when creating the model: psychological potential of a doctor corresponds with psychometric results of SMF and SPF; psychological potential of a nurse corresponds with psychometric results of SND.

Our findings make it possible to determine the most risky mismatches of psychological potential of SLF and SPF. These mismatches seem to make a significant contribution to the level of alienation of graduates in the forthcoming medical activity. The SND have the most developed relational competences; it indicates that their potential is above the average.

![Figure 1. The model of accordance/mismatches in interaction Doctor-Nurse-Patient](image_url)

Where,

ZA – zone of accordance of medical students psychological potential to clinical affairs. All medical students have a level of social responsibility at more than 60.0%, which manifests in altruism, mercy, empathy, unselfishness and diligence.
Zones of accordance/mismatches of psychological potential of a doctor:

- “zone of relevance 1” for SMF and SPF is determined by diagnostic orientation of future doctors.
- “phantom of power” for SMF and SPF contains competences, which does not meet the expectations to the psychological potential of a doctor (competitive spirit, selfishness and sarcasm).
- “complex of infantilism” manifests at future doctors in the form of strongly pronounced impulsiveness.

Zones of accordance/mismatches of nurse’s psychological potential:

- “zone of relevance 2” for SND is determined by the competences (collectivism, democracy, friendliness).
- “zone of alienation” for SND is manifested in the emotional imbalance and in the alienation of nurses in the process of the therapeutic interaction.

**Conclusion**

An assumption that a high degree of alienation of graduates in the professional activity caused by the minimal conditions in educational system for acquiring the interaction experience of a medical specialist and a patient is, partly, confirmed by the fact that there is a risk of information gaps on relational competences and personal properties expected from a future doctor in the educational process.

Empirical data obtained in the presented research allow identifying a number of psychological accordance/mismatches affecting the efficiency of practical medical activities:

The medical students initially have high enough psychological potential as evidenced by the data of psychometrics about the level of social responsibility of the students: there are no statistically significant pairwise differences in relational competences (altruism, mercy, empathy, selflessness, and diligence) in the studied groups (where, p<0.05). It is possible to note the probability of the dominant of research orientation in SMF and SPF.

An “isolation complex” is formed among SLF and SPF during the process of professional training. This complex is manifested in competition, selfishness, sarcasm,
impulsiveness. These competences hinder interaction efficiency with the patient and are not acceptable in the professional affairs of a doctor.

Students of ND have such features as friendliness, the principle of community in activities, compassion and humanity. They are the qualities that are expected from them in the process of professional activities. But this accordance demands further research and clarification, because it contains a reference to other types of psychological deficits in the form of emotional imbalance.

Based on the research results, specialized programmes for future doctors can be recommended for implementation in the educational process as they provide interaction experience with patients, and psychopreventive practices on alienation in interaction with a patient for medical students, probably in the form of training and group experience.

**References**


