

## SOCIO-PSYCHOLOGICAL CHARACTERISTICS OF GROUP RELIABILITY OF PHYSICIANS IN EMERGENCIES COVID-19 PANDEMIC

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### **Abstract**

This article presents the scientific hypothesis that the socio-psychological profile of group reliability of physicians in emergencies is formed mainly by active professional-personal qualities of group members, such as sincerity, personal responsibility and awareness and work efficiency. To prove the presented hypothesis, we studied the peculiarities of demonstrating the group reliability of physicians and the features forming the concept of their group reliability – a comparative empirical analysis of the medical support group's reliability criteria was conducted.

The practical value of the research presented in this article lies in the fact that the ideas about group reliability gained during empirical-theoretical research are a methodological basis for developing social-psychological programs and training aimed at increasing the effectiveness of physicians' activities. This may be done by bettering group cohesion, improving the staff's communicative qualities, and harmoniously developing human resources.

This research also reveals an essential aspect of professional reliability that relates to the psychological effects of teamwork while working in a group, which tends to reduce team stress and aid in personal job functions. In this regard, let's note such aspects as:

- Psychological features of persons engaged in joint professional activities.
- Mechanisms of organizing work in a single psychological field take into account the different professional functions and individual characteristics of employees.

## **Keywords and phrases**

Group reliability, sincerity, personal responsibility, awareness, work efficiency, emergencies.

## **ԲԺԻՇԿՆԵՐԻ ՀՈՒՍԱԼԻՈՒԹՅԱՆ ՍՈՑԻԱԼ-ՀՈԳԵՔԱՆԱԿԱՆ ԲՆՈՒԹԱԳՐԱԿԱՆԸ COVID-19 ՀԱՄԱՎԱՐԱԿԻ ԱՐՏԱԿԱՐԳ ԻՐԱՎԻՃԱԿՈՒՄ**

### **ՆԱԻՐԱ ՀԱԿՈԲՅԱՆ**

ՀՀ ԳԱԱ ԳԿՄԿ գիտահետազոտական աշխատանքների գծով փոխտնօրեն  
հոգեբանական գիտությունների դոկտոր, պրոֆեսոր  
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### **ԱՆՆԱ ԽԱՉԱՏՐՅԱՆ**

դասախոս  
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## **Համառոտագիր**

Այս հոդվածը ներկայացնում է գիտական վարկածն առ այն, որ COVID-19 համավարակի արտակարգ իրավիճակի պայմաններում բժիշկների խմբում հուսալիության սոցիալ-հոգեբանական պրոֆիլը ձևավորվում է հիմնականում խմբի անդամների ակտիվ մասնագիտական և անձնային հատկությունների՝ անկեղծության, պատասխանատվության, տեղեկացվածության և աշխատանքի արդյունավետության միջոցով: Ներկայացված վարկածը հաստատելու համար մենք ուսումնասիրել ենք բժիշկների խմբի հուսալիության դրսևորման առանձնահատկությունները: Բժշկական աջակցության խմբում իրականացվել է հուսալիության չափանիշների համեմատական էմպիրիկ վերլուծություն:

Սույն հոդվածում ներկայացված հետազոտության գործնական արժեքը նրանում է, որ էմպիրիկ-տեսական հետազոտության ընթացքում խմբերի հուսալիության վերաբերյալ բացահայտված գաղափարները հանդիսանում են արդյունավետության բարձրացմանն ուղղված սոցիալ-հոգեբանական ծրագրերի և դասընթացների մշակման մեթոդաբանական հիմքը: Դրան կարելի է հասնել խմբի համախմբվածության բարելավման, անձնակազմի հաղորդակցական հմտությունների կատարելագործման և մարդկային ռեսուրսների ներդաշնակ զարգացման միջոցով:

Այս հետազոտությունը բացահայտում է նաև մասնագիտական հուսալիության կարևոր կողմ՝ կապված թիմային աշխատանքի հոգեբանական արդյունավետության հետ, որն իր հերթին նվազեցնում է թիմում լարվածությունը և նպաստում է

աշխատանքային գործառույթների իրականացմանը: Այս կապակցությամբ նշվում են այնպիսի ասպեկտներ, ինչպիսիք են՝

- համատեղ մասնագիտական գործունեությամբ զբաղվող անձանց հոգեբանական առանձնահատկությունները,

- Աշխատանքի կազմակերպման մեխանիզմները՝ հաշվի առնելով աշխատակիցների տարբեր մասնագիտական գործառույթները և անհատական առանձնահատկությունները:

### **Բանալի բառեր և բառակապակցություններ**

Խմբային հոսալիություն, անկեղծություն, պատասխանատվություն, տեղեկացվածություն, աշխատանքի արդյունավետություն, արտակարգ իրավիճակներ:

## **СОЦИАЛЬНО-ПСИХОЛОГИЧЕСКИЕ ХАРАКТЕРИСТИКИ ГРУППОВОЙ НАДЕЖНОСТИ ВРАЧЕЙ В ЧРЕЗВЫЧАЙНОЙ СИТУАЦИИ ПАНДЕМИИ COVID-19**

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### **Аннотация**

В статье представлена научная гипотеза о том, что социально-психологический профиль групповой надежности врачей в условиях чрезвычайной ситуации пандемии COVID-19 формируется, в основном, активными профессионально-личностными качествами членов группы, такими как искренность, личная ответственность, осведомленность и эффективность работы. Для подтверждения представленной гипотезы были изучены особенности демонстрации групповой надежности врачей - проведен сравнительный эмпирический анализ критериев надежности группы медицинского персонала.

Практическая ценность исследования, представленного в данной статье, заключается в том, что представления о групповой надежности, полученные в ходе

теоретико-эмпирического исследования, являются методологической базой для разработки социально-психологических программ и тренингов, направленных на повышение эффективности деятельности врачей. Это может быть достигнуто за счет улучшения показателей сплоченности группы, улучшения коммуникативных качеств персонала и гармоничного развития человеческих ресурсов.

Это исследование также выявляет важный аспект профессиональной надежности, связанный с психологической эффективностью командной работы, что, в свою очередь, снижает командное напряжение и помогает выполнять рабочие функции. В этой связи отметим такие аспекты, как:

- психологические особенности лиц, занимающихся совместной профессиональной деятельностью;
- механизмы организации работы в едином психологическом поле, учитывающие разные профессиональные функции и индивидуальные особенности сотрудников.

#### **Ключевые слова и фразы:**

Групповая надежность, искренность, ответственность, осведомленность, эффективность работы, чрезвычайные ситуации

### **Introduction**

Professional or work reliability is understood by some authors as a person's inherent readiness to avoid mistakes during work, a person being ready to perform a certain job or certain operative functions by displaying appropriate behaviour aimed not only at meeting his individual needs but also the needs of the whole group. Often, a person's job reliability is described as an indicator of their uninterrupted performance over a period of time, which becomes the demonstration of the entire team's efficiency during the work.

According to E.A. Milleryan (Milleryan, 1974), special attention should be given to their abilities and skills that continue to function smoothly even in emergencies when describing the employee's reliability. In doing so, according to the author, it is possible to describe best the operational standards that continue to be relevant in extreme conditions. These standards go on to be considered the most reliable and necessary. Many other authors (Chortok, Hakobyan, Khachatryan & Starchenko, 2019; Zavalova, 1971) understand "reliability" as the ability of a person to maintain working qualities in the face of difficult working conditions also show a similar position on the issue.

It should be noted that modern psychological studies of reliability take the theoretical-methodological emphasis to a new level. Thus, some authors (Everdij &

Blom, 2006; Flyer, 1965; Hollnagel, 1989) point out that today the analysis of professional reliability in the field of nuclear energy needs to be moved to a methodically new level to include the term "safety culture" in the whole system of reliability training.

This means that reliability has begun being seen as a measure of a person's potential reserves and their effectiveness – as a measure of certain personal qualities. That is why, for several authors, reliability is primarily interpreted as an indicator of a person's work efficiency in an emergency or unusual situations.

As we can see, the term personal reliability mainly relates to the psychological aspects of professional productivity in various areas of work. In general, the concept of personal reliability particularly reveals the qualitative features of an individual activity only indirectly related to group reliability. According to some researchers (Altman, 1996; Flinn, Flyer & Holdrege, 1963; Gertman, 2004; Wiskoff, 1987), reliability is a strong trait of a person, which characterizes him by the predictability of behaviour in the work process, compliance with social norms, social standards necessary for the implementation and development of social relations in society. Therefore, the psychological description of reliability is used in a special cognitive-behavioural way.

According to the experts in the field, professional reliability is characterized by infallibility, excellence, the ability to act promptly, which is aimed at the strategy to achieve the goal during a certain interaction. Professional reliability is essentially the sum of functional properties in the workplace that provide the quality needed to ensure dynamic stability in the performance of work responsibilities. Thus, a systemic feature of reliability can be considered the diligence of employees, ensuring inclusion in work activities.

The group factor of reliability is a combination of professional, psychological, physiological, anthropological and social features typical for the entire or predominant staff.

Examining the issue of reliability in military psychology (Crook, 2011), the author singled out the factor of personal reliability in the professional activity of the personnel. From this point of view, the author singles out the features of the behaviour following the rules of ethics, which are most in line with the goals of maintaining and developing the professional-working indicators of the personnel. Only in this case, the appropriate solution to work problems is possible.

We see the same conclusion in the research by I. Altman, a psychologist at the School of Marine Medicine (University of Utah) since the mid-1960s. It relates to behaviour of male groups isolated from their families and private life. H. Abrams, in turn, considered that the main task of development of professional-working functions is to study the problems of staff reliability to increase the level of reliability. Abrams

suggested that certain measures be taken to achieve a higher level of staff reliability, measures to improve the staff monitoring system: medical examinations, personal interviews with candidates, completion of standardized tests, control of alcohol and drug abuse, and so on (Abrams, 1987; Altman, 1996).

### **Methodological bases**

From a methodological point of view, the study of group reliability by Hollnagel proposed several evaluation criteria to identify group organization, based on the system-functional approach (Hollnagel, 1993). He set the following criteria to assess the group's reliability:

a) Compatibility, which requires the existence of relatively homogeneous elements within a single social structure, their actual interaction as one of the essential conditions for the existence of that structure;

b) The degree of intensity with which the modernization of functions takes place as a guarantee for the maintenance of a social structure, regardless of the intra-system structure;

c) Neutralization of dysfunctions as a basis for maintaining the balance of the system;

d) Concentration of functions, which reflects the need to coordinate them for achieving the desired result.

Of particular interest in the field of social psychology is the theoretical-methodological study of the group reliability of medical personnel in emergencies or conditions caused by the COVID-19 pandemic. It is noteworthy that this socio-psychological issue has been covered or researched in relatively minimal scopes. Some publications are devoted to the study of socio-psychological consequences of emergency stress (Hakobyan & Khachatryan, 2018; Hakobyan & Khachatryan, 2020a). It is known that some researchers (Kirwan, Kennedy, Taylor-Adams & Lambert, 1997) paid great attention to the social-psychological factors of stress formation. They drew the scientific community's attention to the level of interpersonal relationships, which is a source of stress. As the main cause of distress, the authors mention the stress that arises from the need to share social space with others in the workplace. So, the authors suggest seeing the solution in re-evaluating the overall group goals, thus increasing the level of group reliability.

Reliable groups express a strong social position aimed at the optimal organization of joint activities, flexible equipping of the management process at work according to the new requirements and goals. Thus, in such reliable groups, developed algorithms of

social behaviour appear, which can meet the organizational and socio-psychological needs of the group not only in ordinary but also in extreme conditions.

The next component of group reliability is voluntary group self-regulation. It turns out that in the presence of extreme conditions during joint activities, there is a tendency to mediate voluntary efforts expressed on a personal level with more developed group activities. In other words, certain compensatory mechanisms are introduced, which maintain the efficiency of the activity as well as significantly increase it during the development of joint activities. As a result, the group maintains its organizational structure.

The next important component of reliability is the person's social position on the successful resolution of the situation in conditions of organizational uncertainty (Vicente, 2002). It turns out that one of the most important factors in overcoming extreme conditions is the socio-psychological conviction of the group members that the current uncertain situation can be successfully resolved, in which a reliable internal working style plays a unique role. In many cases, the most challenging moment for people in such situations psychologically ends not when the problem is objectively corrected, but sooner, as soon as a favourable psychological position is formed among the group members – the belief that everything will end well.

Thus, in the sum of the analyses mentioned above, it can be concluded that the socio-psychological problems that arise during joint group activities are more easily overcome when there is an intra-group organization, which becomes an effective anti-stress tool through group reliability criteria.

Being a subject of joint activity, the group can express itself only in the conditions of realization of existing opportunities. Proportional means of organizing the given activity created by the group members act as a guarantor of group reliability in the conditions of joint activity. Moreover, the proportionality of means is reflected in both internal and external conditions of the environment (Adams, 1982; Benedek, Everett & Holstege, 2011).

Therefore, the reliable group stands out with the following characteristics:

- a) Higher efficiency of joint activities;
- b) Group behaviour in the structure of joint activities;
- c) Ability to take joint action, develop and implement a plan aimed at maintaining effective cooperation.

Thus, a reliable group stands out in extreme conditions, such as the professional environment of physicians working during the COVID-19 pandemic, with the ability to centralize functions maintaining modernization, a positive attitude and organizational values, as well as motivation in the field of social improvement. In other words, the ability of a group to function in a tense or extreme environment is manifested in the

characteristics of group reliability, which are characterized by the effectiveness of the group, the interaction of group members, and the coordination of actions Hakobyan & Khachatryan, 2020b).

Thus, as a result of the social-psychological analysis of group reliability in the conditions of the coronavirus, we have come to the following conclusions.

1. To date, there is no common, universally accepted definition of group reliability in the psychological discipline.

The two most common types of definitions are procedural-summative. The procedural point of view is the dynamics of reliability, the idea of developing reliability as a component of joint activities that stand out in different groups. This aggregate view is valid based on the results at the end of the joint operation.

However, studying the idea of group reliability as a social psychological phenomenon, scientists working on the topic have identified a number of components that can be attributed to the criteria that express the essence of the problem. They are personal, organizational, technological, psychophysiological, professional, methodological, and affective components.

2. Diversity of interpretations of the concept of group reliability and their significantly different parameters indicate the insufficient study of the problem in the social-psychological discipline. On the one hand, this fact can harm the results of decisions aimed at the implementation of theoretical-applied research tasks in extreme conditions. On the other hand, the need to study the tense or extreme conditions of joint activity in this light may intensify this study process, as required in many areas.

3. One of the most effective views is the view that reliability is the system for providing the integral quality of the group, which is upgraded in extreme conditions.

Group reliability in terms of content includes:

- 1) Sustainable results, despite changing conditions of joint activity;
- 2) Ability to make immediate decisions on joint activities in extreme conditions;
- 3) Ability to carry out joint activities without error in extreme conditions;
- 4) Psychological stability aimed at neutralizing the negative factors of the environment and the stressful conditions;
- 5) The ability of group members to work in extreme situations.

4. Theoretical analysis of the work on this issue has shown that most studies are characterized by a predominance of a static approach to the problem. This approach assumes that the impact of the extreme conditions on the group's activities can only be exerted to the extent that the members of the group can foresee changes in processes.

5. When considering the issue of reliability, most of the authors study the peculiarities of joint activity, or group behaviour, in extreme conditions, paying attention to the stability of interpersonal relations and related concepts: "stress resistance", "noise



resistance", "resistance". We believe that stability analysis needs to be complemented by a dynamic approach that makes it possible to study intragroup changes and intragroup behaviour in a given situation.

6. The dynamic approach to the problem mentioned above was substantiated by K. Lynn in "The Conflict between Aristotle and Galilean Thoughts in Modern Psychology" and noted by R. Nemov (Nemov, 2002). In the context of this approach, it is not necessary to make abstract observations instead of aiming to study the dynamic side of a specific event, which will not be related to the isolated object but to the processes arising in the given situation.

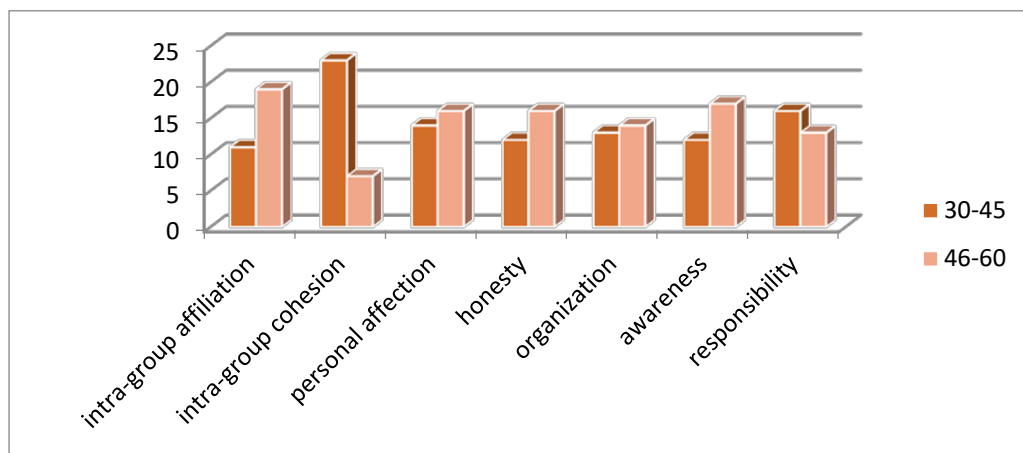
### Research methods

The experimental research was conducted through the following methodological elaborations: R. Nemov's "Social-psychological self-assessment of the team" method, A. Lutoshkin's "Assessment of the team psychological atmosphere" method, V. Khashchenko's "Video-analog" scale (Khashchenko & Juravlev, 1990; Lutoshkin, 1978; Nemov, 2002).

Now let's present the results derived from the first method.

For the medical staff by the age of 30-45, the order of assessments showed the following picture. Except for the intragroup cohesion test, where the average score was higher, all other criteria were approximately the same. The next age group (46-60) showed a higher assessment of intra-group affiliation in relation to the rest of the indicators (Figure 1).

**Figure 1. Social-psychological self-assessment of the team**



The results of the first method by gender are as follows.

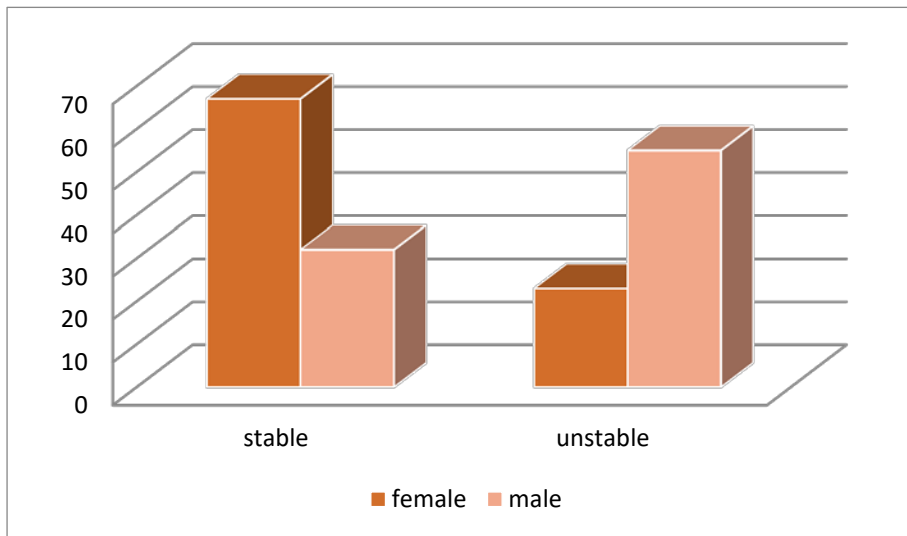
Women showed equal indicators with a slight prevalence of high scores. The only exception was the intragroup cohesion index, with which almost everyone was unhappy and chose the average rating.

For men, the differences were sharper. The indicators of intragroup cohesion were averaged, and the opinions on the indicators of personal intragroup affiliation, organization and responsibility were shared.

From the above, it can be assumed that in the extreme situation caused by COVID-19, in the team group of physicians, such characteristics as organization and responsibility are not perceived as criteria of group reliability but rather as individual traits. However, the desire to maintain group integrity and affiliation was highly valued in all sample groups. Another important factor is that the intragroup cohesion index has emerged as the most sensitive criterion for all. Therefore, this conclusion already suggests that the factor of intragroup cohesion underlying the hypothesis of group reliability is indeed considered an important factor – a criterion worthy of special attention.

The next method, the results of which are presented below, is the method of characterizing the psychological climate, the numerical indicators of which we show as well (Figure 2).

**Figure 2. Description of the psychological climate by gender**



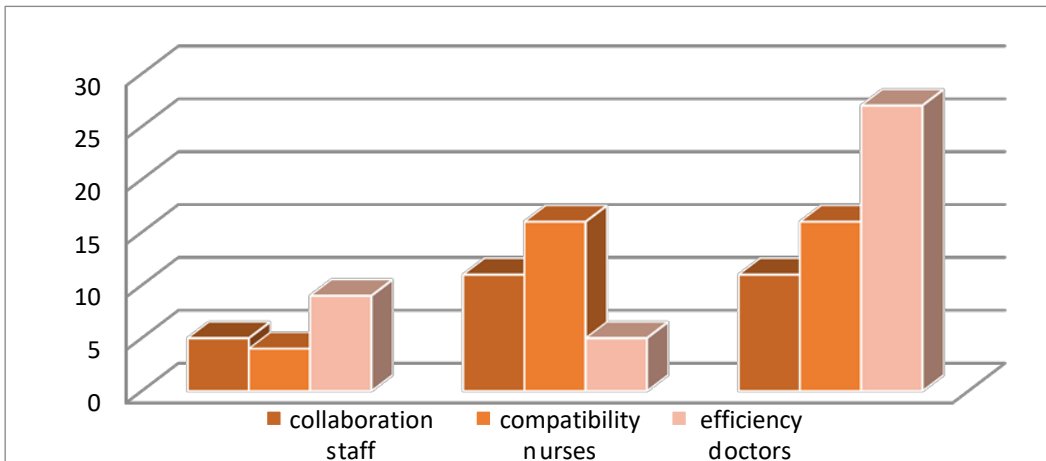
As can be seen from Figure 2, most physicians consider the current psychological climate to be determined by the gender of the respondents. This chart clearly shows that men tend to find the psychological atmosphere of doctors more unstable than women do. As for the age groups, the opinions are almost equal here.

The next method, which was used to examine the group reliability of medical staff, is the "Video-analog" scale. Here the survey was organized according to three criteria:

1. Collaboration.
2. Compatibility
3. Efficiency.

With this scale, the respondents were offered to evaluate the above-mentioned criteria on a 100-point scale based on which they think are more characteristic for the group. The answers were averaged and categorized as low (0-40%), medium (41-70%) and high (71-100%) points (Figure 3).

**Figure 3. Video-analog scale**



As we can see from Figure 3, group reliability is maximized by the efficiency of group work. The compatibility criterion is, on average, equated with group reliability.

As for the individual groups, it should be noted that among female employees, the average scores again exceed all three criteria, and in addition to the compatibility criterion for men, which has an average image, the other two criteria are sharply emphasized in terms of efficiency. In terms of age, efficiency and cohesion prevail in the first age group, while in the second age group, only efficiency is emphasized as a measure of group reliability.

This proves our hypothesis that the conceptual framework of group reliability of physicians in COVID-19 emergencies is shaped not as much by intragroup cohesion and work compatibility criteria as by active professional and personal qualities of group members such as sincerity, individual responsibility and awareness and work efficiency.

## **Obtained results**

The results of theoretical and empirical research brought us to the following main conclusions:

1. The conceptual framework of group reliability of physicians is of particular importance due to the presence of other members of the medical staff representing different professions in the professional group - nurses, service staff and administrative staff. Therefore, when mentioning a professional working group of medical staff, we mean, in addition to doctors, the administrative staff of the treatment organization, the service staff, the nurses, who act as members of the support team.

2. The peculiarity of group reliability of medical staff is that it is often manifested in extreme situations such as the coronavirus pandemic. Hence, the mechanisms and technologies of social training for the development of group reliability of physicians are imperative in improving work efficiency based on the principles of a person's value system and self-control.

## **Conclusion**

In conclusion, the research confirms the scientific hypothesis that the socio-psychological profile of group reliability of medical staff is formed mainly by active professional-personal qualities of group members, such as sincerity, individual responsibility, awareness, and work efficiency, among others.

The practical value of the research lies in the fact that as a result of the socio-psychological analysis of the group reliability of medical staff, specific recommendations can be given to specialists in the field to further increase the level of group reliability, taking into account the need to modernize intragroup cohesion.

The identified features make it possible to purposefully organize social-psychological training sessions, seminars on communication skills and capacity development of medical staff.

The scientific-practical significance of this field is very urgent. The importance of research in the international social context of the spread of the epidemic is to focus on the harmonious development of human resources and the development of methodological tools for the study of the communicative qualities of medical staff.

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