Decision-Making by Healthcare Professionals in High-Risk Conditions

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Abstract: The most important reserve for improving the efficiency of any institution or organization is to improve the quality of timely management decisions. The conditions of existence of societies (organizations and individuals) in the modern world are constantly and rapidly changing, that makes special demands on the individual decision maker. In the current situation of the global economic crisis, which is accompanied by changes in resource, environmental, political, legislative, industrial, living conditions, management issues become especially relevant and require improvement of their scientific basis.

In connection with the above, the purpose of the work is to present the features of the development of socio-psychological traits identified in the empirical study, depending on the level of management occupied by the person, to optimize its functioning.

Keywords: Decision-making, high-risk conditions, healthcare, psychological traits.

INTRODUCTION

The most important reserve for increasing the efficiency of the functioning of any institution or organization is to improve the quality of management decisions made on time. In the scientific literature, the issue of decision-making in the field of management is given considerable attention. However, the conditions of existence of societies (organizations and individuals) in the modern world are constantly and rapidly changing, that has special requirements for decision-making. In the current situation, which is accompanied by changes in resource, environmental, political, legislative, industrial, living conditions, management issues become particularly relevant and need improvement.

The problem of making decisions in conditions of uncertainty is very relevant for lawyers, sociologists, economists, psychologists, etc. and can be the basis for the development of new hypotheses and theories. Currently, there is no understanding of risk within just one scientific discipline (Siryi 2006).

In our opinion, this thesis is somewhat erroneous, because some sciences have already decided on the concept of "risk". Thus, the health risk in the interpretation of the World Health Organization is the expected frequency of side effects arising from the impact of a negative factor on the body over a certain period of time. Such a health risk is expressed by a decrease in the adaptive and compensatory capabilities of the body, illness, disability, death of a person. It can be characterized by the likelihood of occurrence (the danger arises often, moderately often, etc.); the significance of the events (the effect is irreversible or the disease can be effectively treated); the consequences of implementation (the number of people at risk, and hence the number of effects, the size of resource losses, etc.) (Tymchenko 2003).

In the field of management psychology, including the medical industry, the development of the concept of "risk" remains relevant.

If we consider risk as the probability of occurring of an undesirable event, then it should be noted that it is an attribute of entrepreneurship and caused by uncertainty in a particular situation in the field of business and by the need to avoid it. Entrepreneurial actions are always associated with a certain risk (reduced income, loss of property, status, time). The risk should be considered in conjunction with other life processes. Risky operations are also contained in opportunities that are realized in a career, family, health (Siryi 2006).

Risk should be defined as an act that is carried out under conditions of choice, when in case of failure, a person is in a worse position than before a choice, and in the case of a positive ending, in a better one. The

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use of the word "act" means that the risk is viewed as a conscious social act (Kaneman D., Tverski A. 2003). However, it should be noted that an act, an action can also manifest itself as inaction, which does not contradict the above definition. But unconscious avoidance of action can also lead to a less desirable alternative.

Risk can be both the goal of action (when a person wants to show that one is not afraid of danger) and a way to achieve a goal (Korolchuk 2006: 34-46). The first option is often the result of overconfident behavior, which most authors identify as a typical trap when making decisions.

Decision making is seen as a process and is a complex, synthetic formation. It contains emotional, volitional, motivational types of mental processes that are objectively synthesized (Lesechko *et al.* 2003:10). To this should also be added a number of cognitive processes.

Decision making consists of the following components: information basis, criteria, rules, alternatives, methods, hypotheses, etc. It is important that the formation and implementation of each of the above components requires specific and active actions on the part of the subject (Lesechko *et al.* 2003:10).

If we turn to the medical industry, then we will talk about the possible loss of conditions for the normal functioning and life of people under the influence of certain factors of various origins (Serdiuk *et al.* 2003: 10-32). It should be noted that despite the extreme importance for decision-making, the concept of risk is not used enough in domestic medicine even to assess the impact of environmental factors on public health (Tymchenko O. I. 2003:126).

At the same time, the medical decision-making process has much in common with the decision-making in other professional fields. Therefore, it seems possible to use research results from other fields in the psychology of medical decision-making and apply appropriate approaches (Chapman G. B. 2003: 267).

The process of making management decisions is influenced by many different socio-psychological factors. The most important are:

1. The level of team support of the manager. On this basis, it is necessary to consider the fact that new managers and leaders are not immediately perceived. If understanding and support of other managers and subordinates is not enough, then the problem should be eliminated at the expense of personal manager qualities, which should contribute to the implementation of decisions.

2. Organization policy. This is about its status among other similar organizations; the prestige that the institution has; the power that the organization has; the degree of ease of implementation of the planned. All these can influence the adoption of one or another decision.

There are a number of features of human perception that can significantly affect the implementation of the decision by distorting the incoming information. This problem requires further detailed analysis and development in the field of the psychology of medical decision making. It is the doctor who decides on life and death, illness or health of a person every day, separating the day of life from the darkness of nothingness. This is the routine of medical practice (Borisova *et al*. 1997).

Below, in a brief recalculation, the already studied features of human perception in the framework of social psychology are presented. It seems that the list should begin with the selectivity of perception, which manifests itself in the invisibility of obvious errors where we do not expect to see them at all. Many researchers have described the manifestation of the halo effect in various areas of life. These are the experiments of Asch, Cooper, Feldman, Kelly and others. The halo effect also takes place in the medical field. The doctor evaluates the information provided by the patient based on their own impression of patient, which can lead to erroneous judgments. If the impression of a person is generally positive, then we tend to justify even one's negative actions, in contrast to the similar actions of another person, whose image is negative to us. That is why the doctor must be impartial, which is very difficult, especially with patients who are close friends or relatives.

The framing effect is that, depending on the description of a real situation, people evaluate the consequences of events as either win or loss. That is, their solution depends on the context of the description of the situation. According to Kahneman and Tversky, we are more sensitive to losses than to winnings (Galotti K. M., 1994). Therefore, for example, we are more concerned with the loss of a certain organ as a result of an operation than with operation's result as the

form of health. This often leads to postponing decisions about surgery, which can be fatal. It is important here the doctor's ability to present information about the need for further treatment, so that the patient agrees and makes such a decision. Indeed, in medicine, the doctor and the patient make a common decision.

Physicians could influence patient decisions without distorting or suppressing information, relying only on the framing of results and the sequence of events. Framing effects mostly occur by chance, when no one knows about the effect of the frame on the final decision. However, they can be used specifically to regulate the relative attractiveness of options. Related to this is the endowment effect, according to which the subjective value of win is less than the subjective value of loss.

The scientific literature also describes such a phenomenon as the representativeness heuristic. People tend to represent randomness as a process that does not have a pattern. In fact, randomness can have a natural character, which a person does not immediately understand and therefore does not see cause-and-effect relationships.

According to Halpern D., people experience more than necessary confidence in their decisions regarding probabilistic events. In conditions of uncertainty, individuals are more inclined to believe in success if they think they are capable of managing random events. Associated with this is the tendency to wishful thinking. This is clearly manifested in the saying "Even if it is possible, then just not with me".

The decision-making is also influenced by the rule of mutual exchange. Our emotions and mood play an important role in our decision-making, since they both directly and indirectly affect the thinking process. The effect of prior acquaintance is that previous experience creates a sense of familiarity, which in turn engenders a feeling of liking. It is important not to be influenced by this effect, especially when making important decisions (Halpern D., 2000: 369).

D. Harper cites the results of Smedslund's (Smedslund J., 1963) and Berger's (Berger D., 1994) researches conducted in the medical field, which illustrate one of the options for false judgments.

In life, the result of our decision often depends on the choice of another person, when the success or failure of the choice you made will depend on the decision of an opponent or partner. This shows up brightly especially in medicine in the relationship between patient and doctor.

An important problem is the distribution of solutions into simple and complex ones. There are two pitfalls in this distribution. First, even if a decision is made, at first glance, it is simple, this does not mean that it will be correct. Secondly, if we delay making a "difficult decision", the situation gradually worsens, and we feel the tension that grows. In this case, the end result is unlikely to bring us personal satisfaction, no matter how wonderful it turns out to be (Lengdon K. 2007: 15-16).

In making a decision, the environment of the decision-maker is implicitly involved (Larichev O. I. 2000: 17). In the case of the psychology of management decisions in medicine, this can be the clinical environment, including medical, demographic, technical aspects (Chapman G. B. 2003: 280).

S.G. Moskvichev gives a list of similar problems for Ukraine and the United States, which he singled out from the reflections of L. Iacocca (Lesechko *et al.* 2003:10). Among them are such management features as: complacency often borders on tyranny; inability to predict the situation that will happen next year, but not next month; a wall of confrontation and antagonism between administration and workers. However, the author draws attention to the fact that these difficulties are inherent in American management only partially and from time to time, only when the need for updating wasn't realized in time. This is a common phenomenon in our country, but not a transitional one. On the contrary, it is increasing (Lesechko *et al.* 2003:11).

One of the most common causes of managerial mistakes is precisely the desire to find the right answer, not the right solution (Lengdon 2007: 24).

Unfortunately, it must be admitted that a significant number of decisions made in the domestic health care system by both health care organizers and medical practitioners (despite the emergence of new areas of medical science, such as analytical epidemiology, economic analysis, risk assessment and generally evidence medicine) are still based on intuition, previous experience and opinion of authorities (Kulagina and Kornilova 2005).

Management decisions must be safe for society and the individual, and then made decisions seem to be appropriate to assess the degree of risk they cause, including in the social aspect.

The concept of risk turns out to be extremely relevant, since the presence of risk affects a person, one's mental, psychological and physical state, which, in turn, is reflected in the behavior and activities of a person.

Information is an important factor that can help reduce the level of uncertainty in decision-making, and then risks. Modern society is permeated by streams of various information. The complexity of information technology is growing all the time. There are new opportunities for collecting, analyzing and disseminating information.

The information received in a situation where it is necessary to make a decision must be reliable and sufficiently complete. Inaccurate or insufficiently complete information can lead to erroneous and ineffective decisions. However, no less difficulties arise in the presence of an excessive amount of information, since the problem arises of selecting those messages among the information noise that are really important for a timely effective choice (Siryi 2006).

An important feature of information is stability (Siryi 2006). In terms of stability, information can be variable (current) and constant (conditionally constant). Variable information can change depending on the situation. For example, the number of ill people, the condition of an individual patient, etc. Constant (conditionally constant) information is one that is used for a long period, it is repeated many times and looks unchanged. Constant information can be reference, normative, planned (Siryi 2006).

The completeness of information is determined with respect to management functions. The information may be incomplete both in composition and in the amount of information. In any case, the lack of information leads to the impossibility of performing management functions at the right time, in the specified place, in the appropriate form (Siryi 2006).

Knowing the mechanisms of influence of information on a person, it is possible to make an impact on one's behavior (Serdiuk *et al*. 2003).

As a result, it can be noted that the decision-making process is influenced by many different socio-psychological factors. The most important of them include the quality, completeness and timeliness of information, which should act as the main resource and product of management (although, unfortunately, this does not always happen), the peculiarities of the perception of this information by a person and the way of making a decision. In Ukraine, these issues on the medical industry are not considered in available sources.

The purpose of our work was to identify and assess the socio-psychological factors of managerial decision-making in the state medical field to improve their quality. Institutions were selected on the principle of convenience.

METHODS

The sample is made up of hospital doctors of the practical health care network, employees of a hygienic research institution with a medical education and representatives of the highest management in the field of environment and health, also with a medical education. Regarding the levels of management, the highest level of management includes heads of laboratories and employees of the environmental department; practicing physicians and senior researchers are included to the middle level of management; researchers and junior staff were identified as lower management level.

The total sample of the study was 131 people. Of these, 79 women and 52 men are residents of Ukraine. Of the Ukrainians, 59 people are engaged in scientific work in the field of disease prevention, and 72 are doctors of the practical network. The sampled persons live in Ukraine and graduated from medical faculties of medical universities and worked as obstetricians-gynecologists, surgeons, endocrinologists.

As for the management levels, the heads of laboratories and employees of environmental management are referred to the top management level; practicing doctors are referred to the middle level of management, senior researchers are assigned to the same link; scientific and junior employees were identified as the lowest level of management. Thus, the total sample consisted of 24 people at the highest level, 90 at the middle level, and 17 at the lowest level of management. When comparing groups by management level, doctors were excluded from the analysis.

To study the socio-psychological factors of influence on decision-making in high-risk conditions, the following methods were chosen:

1. V. M. Rusalov's temperament structure questionnaire.

2. Questionnaire "Personal factors of decision-making" by Kornilova.

3. The questionnaire of activity and tendency to dominate by E. Kudlychkova, P. Osetski, V. Smekal and S. Kratokhvil

4. Risk appraisal questionnaire (RSK) by G. Schubert

5. Typological questionnaire MBTI

6. The questionnaire by Ehlers T. "motivation for success"

Justifying the choice of these tools, we can say that, since Rusalov's temperament structure questionnaire (Korolchuk 2006) is designed to diagnose the properties of "subject-activity" and "communicative" aspects of temperament, then it best meets the objectives of the work and measures the level of development of personality traits that are highlighted as important in decision-making.

The method reveals two plans of human interaction with the environment: with the material and social worlds. In each of them manifestations of four fundamental qualities are diagnosed: temperament as a tone of interaction of organic system with the world; plasticity as a degree of ease of changing behavioral programs; pace as the degree of speed of a particular program of activity; and emotional sensitivity as resistance to failure.

In the study, the method "Personal factors of decision making" by T. V. Kornilova was also used (Kornilova 1994), because it is a proven tool that diagnoses the manifestation of personal characteristics that express the dependent variable of our survey. It considers a person's willingness to take risks, rather than the propensity to take risks.

Personal questionnaire of activity and tendency to dominate (Moskvichev 1991) was developed by E. Kudlychkova in 1964. The author of the adaptation is Chirkov V. I. In the process of psychometric development of the questionnaire, special attention was paid to the validity of meaningful statements. Internal consistency was established, as well as discriminativeness of individual statements. The final version of the questionnaire included only those statements that met the statistical criteria. There are data on retest reliability (r = 0.80 - 0.96). The norms of the questionnaire were developed by the author for a limited contingent of subjects, (students, graduate students, women and men in management positions, workers of certain specialties, health care workers). Healthcare workers took part in our study. Both individual and group examination is allowed (Burlachuk 2007: 210).

Diagnosis is based on the analysis of five bipolar personality factors: stability-lability, activity-passivity, dominance-subordination, rationality-sensitivity, extra-version-introversion.

From the above factors, two were selected: activity-passivity and dominance-subordination, using the "Questionnaire of activity and propensity to dominate" (Moskvichev 1991: 66-67).

Questionnaire for risk assessment by G. Schubert (Moskvichev 1991: 71-73) is designed to quickly assess a person's propensity to take risks. The process of activity in extreme conditions is particularly affected by such a personality trait as readiness to take risks. According to G. Hovt and J. Stoner, a person who seeks to take risks in one situation will try to take risks in other conditions. "Risky" individuals are able to influence other people, seek leadership in groups, have a high level of motivation. The "cautious" individuals prefer to obey, they are more conservative and indecisive.

The desire for risk is associated with a person's focus on achieving a goal or avoiding failure. This focus is manifested in extreme situations and can be a prerequisite for accidents and injuries.

The Myers-Briggs Type Indicator (MBTI) (Borisova *et al*. 1997) was chosen among others because, in contrast to psychological, this socio-psychological typology allows to consider social manifestations of psychological features. It describes different types of behavior, i.e. considers how a person will behave in a given life situation.

MBTI is based on the identification of two different ways to replenish energy (scale “extraversion-introversion”), two opposite ways of collecting information (“sensory-intuition” scale), two different ways of making decisions (scale of “thinking-sensuality”) and two different ways of organizing interaction with the outside world (“decision-perception” scale).

Thus, four main dichotomous scales of aptitudes are substantiated.

The questionnaire by Ehlers T. "motivation for success" (Moskvichev 1991: 68-69) is designed to diagnose the motivational orientation of the person to achieve success, identified by Heckhausen. This method belongs to monoscale techniques. It contains both direct and reverse questions, what removes the respondent's setting to provide any one type of answer.

Thus, for the study were selected adequate techniques, the use of which allows to achieve the objectives.

RESULTS

Assessing the results of the study and socio-psychological factors of managerial decision-making that characterized Ukrainian respondents, we found the following significant characteristics.

The characteristics that were found to be significant for the propensity to make decisions are shown in Table **1**.

It can be noted that the closest positive relationship we got between the propensity to make decisions and such characteristics as: activity, motivation to achieve success, endurance and social desirability. The closest negative relationship was noted for the characteristic "subordination".

The factors influencing the decision-making of Ukrainian doctors were also evaluated. The characteristics that were found to be significant for the propensity to make decisions are shown in Table **2**.

For doctors, a positive correlation was noted (in decreasing order of importance) with endurance,

Table 1: Significant Relationship between the Socio-Psychological Characteristics of Respondents and their Propensity on Decision-Making

Characteristic	Correlation coefficient	Significance level
Activity	,449	,000
Dominance	,290	,005
Subordination	-,415	,000
Motivation to achieve success	,454	,000
Extraversion	,212	,043
Introversion	-,205	,050
Thinking type	,268	,010
Perceiving type	-,253	,015
Endurance	,402	,000
Social endurance	,321	,002
Plasticity	,251	,016
Social desirability	,383	,000

Table 2: Significant Relationship between the Socio-Psychological Characteristics of Ukrainian Doctors and their Propensity on Decision-Making

Characteristic	Correlation coefficient	Significance level
Subordination	-,496	,002
Motivation to achieve success	,477	,003
Risk tendency	-,361	,028
Activity	,437	,007
Emotionality	,410	,012
Intuitive type	-,418	,010
Sensual type	,363	,027
Endurance	,550	,000
Social desirability	,424	,009

Table 3: Significant Relationship between Socio-Psychological Characteristics of Scientific Researchers and their Propensity on Decision-Making

Characteristic	Correlation coefficient	Significance level
Activity	,479	,000
Dominance	,380	,004
Subordination	-,373	,005
Motivation to achieve success	,463	,000
Social emotionality	-,272	,044
Social endurance	,354	,008
Plasticity	,271	,046
Social desirability	,355	,008

motivation to achieve success, activity, social desirability, emotionality and sensual type. A negative correlation was found for subordination, intuitive type, and risk tendency. The characteristics that turned out to be significant are shown in Table **3**.

A positive correlation was revealed between activity, motivation to achieve success, social endurance, social desirability, dominance and plasticity. Negative correlation was between subordination and social emotionality.

Our results confirm the data that there is a close relationship between these psychological characteristics of individuals and the level of development of their ability to make decisions.

It should be noted that the above results also confirm the conclusions that the studied significant characteristics of decision-makers in the medical field are identical to the characteristics that are highlighted as necessary for decision-making in other activities, as indicated in other studies (Morgunov 2001).

It is also interesting that social desirability turned out to be a significant characteristic for the group as a whole and for subgroups, which we did not find in other sources. To assess the significance of the revealed phenomenon, it is necessary to confirm it in the next study and further detailed analysis.

It can be noted that in both areas (theoretical and practical), the overwhelming majority are women. Therefore, their characterization was considered as more important, and in further analysis the socio-psychological description of the female part of the respondents were characterized. Significant differences between groups from different fields of activity are presented in Table **4**.

The propensity to take risks, or rather the willingness to take risks, turned out to be significantly higher in women who are engaged in scientific work.

Among scientists, there were more individuals with a developed intuitive and sensual type, which can

Table 4: Comparison of the Socio-Psychological Characteristics of Women Employed in Various Fields

Characteristic	Field of activity	Number of persons	The average	Standard deviation	Significance between groups by t-test
Risk tendency	Science	39	-11,3333	13,76940	,005
	Practice	27	-20,4074	11,16746	
Perceiving type	Science	39	15,7692	6,76470	,046
	Practice	27	19,8148	5,38543	
Intuitive type	Science	39	10,1538	5,84690	,002
	Practice	27	6,4074	3,60832	
Evaluating type	Science	39	17,8462	8,22556	,012
	Practice	27	22,2222	5,46551	
Sensual type	Science	39	11,2051	8,15695	,009
	Practice	27	7,7778	5,54238	

positively characterize their creative abilities, but does not contribute to decision-making.

Risk tendency could indicate a better efficiency of the work of women scientists in risky conditions, when it is necessary to make a decision and act in a limited time and with a limited amount of information. But the indicators for the perceiving and evaluating type of scientists are lower than those of practicing doctors. These types are characterized by an interest in practical experience, orderliness, planning, orientation towards results, and a tendency to make decisions. The lower manifestation of these types, combined with a willingness to take risks, leads scientists to make quick decisions that are divorced from reality in comparison with practical doctors.

We examined the psychological characteristics of scientists of the same age range who hold positions related to various levels of management. Significant characteristics are grouped in Table **5**.

The difference was assessed by the nonparametric Kruskal-Wallace test, which is used to compare two or more samples in terms of the severity of a variable and is based on a comparison of mean ranks. It is indicated that this criterion is the most sensitive (Nasledov 2008: 181).

The obtained results indicate that there is a significant difference in the development of some psychological traits in individuals belonging to the same age interval, but to different levels of management. Below is a table that shows a statistically significant difference for characteristics such as social endurance, subordination, risk tendency and two types: evaluating and perceiving types (Table **6**).

Interestingly, tendency to risk is approximately equally high among representatives of the lower and upper levels of management, and the development of the type that makes decisions is much higher among representatives of the lower level of management.

But, at the same time, the representatives of the lower management level showed a high level of subordination and a low level of social endurance, which indicates a lack of independence in decision-making and corresponds to a certain degree of

Table 5: Psychological Characteristics of Persons who Belong to Various Levels of Management

Characteristic	Control level	Number of persons	Middle rank
Evaluating type	High	3	3,50
	Average	21	16,10
	Low	6	19,42
	In total	30	
Perceiving type	High	3	27,00
	Average	21	14,67
	Low	6	12,67
	In total	30	
Social endurance	High	3	27,83
	Average	21	14,14
	Low	6	14,08
	In total	30	
Subordination	High	3	4,33
	Average	21	16,17
	Low	6	18,75
	In total	30	
Risk tendency	High	3	21,17
	Average	21	12,43
	Low	6	23,42
	In total	30	

Table 6: Statistically Significant Difference between the Levels of Managers According to the Identified Psychological Characteristics

Criterion statistics	Evaluating type	Perceiving type	Social Endurance	Subordination	Risk tendency
Chi-square	6,921	5,965	6,630	6,007	8,661
DF	2	2	2	2	2
Asymptotic Significance,	,031	,051	,036	,050	,013

suggestibility, difficulties in establishing social contacts that interfere with effective decision-making.

Managers of average level have a significantly lower level of risk tendency. In other characteristics, these people are similar to those at the lower management level. This indicates that they avoid risky situations and do not act impulsively.

CONCLUSIONS

Our study confirmed the hypothesis of the existence of psychological traits inherent in groups of professionals, due to biological, cultural and social characteristics that affect decision-making in medicine.

1. As a result of an analysis of literature sources, it has been determined that the decision-making process is influenced by many different socio-psychological factors, the most important of which are the quality, completeness and timeliness of the information received, the peculiarities of the perception of this information by a person and the method of decision-making.

2. Psychological traits that are indicated by most authors as important and necessary when making decisions are highlighted. Among them are: level of activity; tendency to dominate, to take risks and to evaluate; the presence of extroversion or introversion; motivation for achieving success, speed and flexibility of thinking (thought processes); sociability; objectivity; lability; attentiveness to people around and to oneself; rationality.

3. Among doctors, a positive correlation was noted between the propensity to make decisions and such socio-psychological characteristics as endurance, motivation to achieve success, activity, social desirability, emotionality and sensual type. A negative correlation was found for the characteristics of subordination, intuitive type and risk tendency.

4. Among scientists, a positive correlation was found between the propensity to make decisions and the characteristics of activity, motivation to achieve success, social endurance, social desirability, plasticity and dominance. A negative relationship was noted for the characteristics of subordination and social emotionality.

5. There has been an increased willingness to take risks in women doing scientific work when compared with women doctors. Among women scientists, there are more persons with a developed intuitive and sensual type, which can positively characterize their creative capabilities, but does not contribute to decision-making.

6. Among persons engaged in scientific activities, of the same age interval, but at different levels of management, differences were revealed in the development of such characteristics as social endurance, subordination, risk tendency and of two types: evaluating and perceiving types. Risk tendency is approximately equally high among representatives of the lower and upper levels of management, and the development of the type that makes decisions is much higher among representatives of the lower level of management. Representatives of this level showed a high level of subordination and a low level of social endurance. Compared to people of the lower level, representatives of the middle level have a reduced level of risk tendency. In other characteristics, these people are similar.

7. It was found that women, who make up 71.7% of the respondents of the Ukrainian sample and were interviewed by chance, do not have the necessary level of development of socio-psychological traits associated with decision-making in their activities. This means the extreme importance of vocational guidance in the previous stages, which would contribute to the development of their personality and a high level of labor efficiency.

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