

Specific Features of Motivation for Interest in Professional Activity among Future Physicians

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Abstract. This article examines the structure and specific features of motivation for interest in professional activity among future physicians and its relationship with empathic abilities and anxiety. The sample comprised 422 third- and sixth-year students of Tashkent State Medical University and Bukhara Medical University. K. Zamfir's Motivation for Professional Activity technique as modified by A.A. Rean, V.V. Boyko's empathic abilities technique, the Spielberger-Khanin State-Trait Anxiety scale and an author-designed questionnaire were used; the data were processed with the Mann-Whitney U, Wilcoxon, χ^2 tests and rank correlation. Sixth-year students showed significantly higher intrinsic and external negative motivation than third-year students, whereas external positive motivation did not differ. Intrinsic motivation correlated positively with the emotional, identification and penetration channels of empathy and negatively with state and trait anxiety, while external negative motivation showed the opposite pattern, revealing an "anxiety – external negative motivation" chain. A corrective-developmental training programme for third-year students significantly increased intrinsic motivation and reduced external negative motivation. The findings can be used in psychological support services and in the design of medical curricula.

Keywords: future physicians, medical students, professional motivation, intrinsic motivation, external negative motivation, interest in professional activity, empathy, anxiety, burnout prevention, training programme.

1. Introduction

The quality of health care depends to a large extent on the professional and personal qualities of the physicians who provide it. Alongside knowledge and clinical skills, medical education is increasingly expected to cultivate professional values, responsibility and a sustained readiness for clinical work. The international Lancet Commission on the education of health professionals called for a transformation of medical education towards competency-based, health-system-oriented training [1], and contemporary research emphasises that the professional identity of medical students is formed under the influence of clinical experience, the learning environment, role models and personal values [2].

Within this context, motivation for professional activity is regarded as one of the key psychological factors that determine how a person chooses a profession, masters it, strives for professional goals and realises themselves in it. In medicine, interest in the profession, intrinsic motivation, responsibility, professional values and

confidence in one's own abilities are closely linked to future performance. A comprehensive review has shown that motivation in medical education acts both as an independent variable influencing learning outcomes and as a dependent variable shaped by the curriculum and environment [3]. At the same time, medical training is associated with considerable psychological distress: high rates of anxiety and depression among medical students have been documented internationally [4], and longitudinal studies report an erosion of empathy during clinical years [5; 6]. These findings suggest that the motivational sphere of future physicians should be studied together with their emotional characteristics.

In Uzbekistan, improving the quality of medical services and the system of training medical personnel is a priority of state policy. The Development Strategy of New Uzbekistan for 2022–2026, approved by Decree of the President No. PF-60 of 28 January 2022, sets out priority tasks for developing human capital, improving the quality of education and ensuring high-quality medical care for the population [7]. Determining the psychological features of future physicians' motivation for professional activity, its structural components and the conditions for its development is therefore a relevant scientific and practical task.

The aim of this study was to identify the specific psychological features of motivation for interest in professional activity among future physicians and to develop and test a programme for its development. The objectives were: (1) to compare intrinsic, external positive and external negative motivation in third- and sixth-year medical students; (2) to determine the relationships between professional motivation and empathic abilities; (3) to establish the correlations between motivational components and state and trait anxiety; and (4) to evaluate the effectiveness of a corrective-developmental training programme.

2. Literature Review and Methods

Theoretical background. The problem of motivation has a long tradition in psychology. In Western psychology, A. Maslow linked motivation to a hierarchy of needs [8], D. McClelland described the motivational role of the needs for achievement, power and affiliation [9], F. Herzberg distinguished motivating and hygiene factors in work [10], and V. Vroom explained motivation through expectancy, instrumentality and valence [11]. A. Bandura showed the importance of self-efficacy for a person's striving towards activity [12], while E. Deci and R. Ryan substantiated, within self-determination theory, that intrinsic motivation is supported by the satisfaction of the needs for autonomy, competence and relatedness [13; 14].

In the activity-based tradition, A.N. Leontiev described the mechanism by which a need, once directed at an object, becomes a motive [15], S.L. Rubinstein emphasised the cognitive orientation of interest and its connection with needs, and E.P. Ilyin systematised the structure and types of motives and motivation [16]. K. Zamfir and A.A. Rean proposed distinguishing intrinsic, external positive and external negative motivation for professional activity, together with the notion of a motivational complex [17]. In Uzbek psychology, the problems of professional interest, career choice, learning and professional motivation and professional competence have been studied by E. G'oziyev, B.R. Qodirov, A.O. Fayzullayev, F.I. Haydarov, M.X. Djumaniyozova, F.A. Temurov and others. Previous publications of the present research team have described the empirical characteristics of professional motivation among medical students [18–20]. However, the relationships between the structure of professional motivation, empathy and anxiety in future physicians at different stages of training have not been studied sufficiently, which determined the focus of this study.

Participants. The study involved 422 medical students: 106 third-year and 104 sixth-year students of Tashkent State Medical University, and 107 third-year and 105 sixth-year students of Bukhara Medical University. In total, the third-year group included 213 and the sixth-year group 209 respondents.

Instruments. Professional motivation was assessed with K. Zamfir's technique "Motivation for Professional Activity" modified by A.A. Rean, which measures intrinsic motivation (IM), external positive motivation (EPM) and external negative motivation (ENM) [17]. Empathic abilities were measured with V.V. Boyko's technique, which includes six channels of empathy – rational, emotional, intuitive, attitudes promoting empathy, penetrating ability and identification – and an overall empathy score [21]. State and trait anxiety were assessed

with the Spielberger State-Trait Anxiety Inventory adapted by Yu.L. Khanin [22; 23]. In addition, an author-designed questionnaire, “Identifying the psychological factors of motivation for interest in professional activity among future physicians”, was used to study reasons for choosing the profession, manifestations of interest in professional disciplines and motivation in difficult clinical situations.

Procedure and data analysis. The study was conducted in two stages. At the ascertaining stage, third- and sixth-year students were compared. Since the third-year students showed lower intrinsic motivation, a corrective-developmental training programme was implemented with this group, and their indicators were measured again after the programme. The data were processed in Microsoft Excel and SPSS. Distribution normality was checked with the Kolmogorov–Smirnov test; independent groups were compared with the Mann–Whitney U test, related samples with the Wilcoxon signed-rank test, categorical distributions with Pearson’s χ^2 test, and relationships between variables with the rank correlation coefficient. The significance level was set at $p < 0.05$.

3. Results

Structure of professional motivation in third- and sixth-year students. The comparison of the two groups is presented in Table 1. Sixth-year students had significantly higher mean ranks for intrinsic motivation (243.57 vs 180.03; $U = 15\,556.0$; $p < 0.001$) and for external negative motivation (246.00 vs 177.65; $U = 15\,048.5$; $p < 0.001$). No significant difference was found for external positive motivation ($U = 21\,535.5$; $p = 0.564$).

Table 1. Motivation for professional activity in third- and sixth-year students (K. Zamfir – A.A. Rean; Mann–Whitney U test, $n = 422$)

Indicator	3rd year ($n = 213$), mean rank	6th year ($n = 209$), mean rank	U	p
Intrinsic motivation (IM)	180.03	243.57	15 556.0	< 0.001
External positive motivation (EPM)	208.11	214.96	21 535.5	0.564
External negative motivation (ENM)	177.65	246.00	15 048.5	< 0.001

Thus, in senior students, motivation related to the content and process of medical work and to self-realisation in it is more pronounced; at the same time, the stronger external negative motivation indicates that the pressure of responsibility, fear of failure and the desire to avoid sanctions also increase towards the end of training. External positive motives – income, career advancement and social prestige – remain at a similar level in both groups.

Psychological factors of motivation according to the questionnaire. The desire to help people was the most frequent reason for choosing medicine in both groups and was more common among sixth-year students (56.9% vs 44.1%), although the overall distribution of reasons did not differ significantly ($\chi^2 = 8.025$; $p = 0.091$) (Table 2).

Table 2. Main reason for choosing the medical profession ($n = 422$)

Reason	3rd year, n (%)	6th year, n (%)
Desire to help people	94 (44.1)	119 (56.9)
Recommendation of parents or relatives	38 (17.8)	25 (12.0)
Prestige of the profession in society	34 (16.0)	28 (13.4)
Stable income and social guarantees	39 (18.3)	28 (13.4)
Other	8 (3.8)	9 (4.3)

$\chi^2 = 8.025$; $p = 0.091$.

Manifestations of interest in professional disciplines differed significantly between the groups ($\chi^2 = 21.938$; $p < 0.001$). Independent reading of additional literature was reported by 42.1% of sixth-year and 27.2% of third-year students, whereas studying “only to get a grade” and preparing “only to the extent required by the teacher” were about twice as frequent among third-year students (Table 3).

Table 3. Manifestations of interest in professional disciplines (n = 422)

Manifestation	3rd year, n (%)	6th year, n (%)
Independent reading of additional literature	58 (27.2)	88 (42.1)
Active participation in practical classes	72 (33.8)	81 (38.8)
Studying only to obtain a grade	39 (18.3)	18 (8.6)
Preparing only as required by the teacher	38 (17.8)	18 (8.6)
Other	6 (2.8)	4 (1.9)

$\chi^2 = 21.938$; $p < 0.001$.

Professional motivation and empathic abilities. Intrinsic motivation was positively related to most empathy channels, the strongest associations being with identification ($r = 0.62$) and emotional empathy ($r = 0.56$), followed by penetrating ability ($r = 0.51$), rational empathy ($r = 0.48$) and attitudes promoting empathy ($r = 0.42$). External positive motivation was related only to attitudes promoting empathy ($r = 0.35$). External negative motivation was negatively related to identification ($r = -0.41$), emotional empathy ($r = -0.34$) and the overall empathy level ($r = -0.31$) (Table 4).

Table 4. Correlations between professional motivation and empathy channels (V.V. Boyko)

Empathy scale	IM	EPM	ENM
Rational channel	0.48*	0.22	-0.15
Emotional channel	0.56**	0.18	-0.34*
Intuitive channel	0.29	0.11	-0.08
Attitudes promoting empathy	0.42*	0.35*	-0.21
Penetrating ability	0.51**	0.27	-0.19
Identification	0.62**	0.14	-0.41**
Overall empathy level	0.58**	0.24	-0.31*

Note: * $p < 0.05$; ** $p < 0.01$.

Professional motivation and anxiety. Intrinsic motivation was negatively correlated with trait anxiety ($r = -0.45$) and state anxiety ($r = -0.38$). External negative motivation showed the strongest positive correlations in the study – with trait anxiety ($r = 0.62$) and state anxiety ($r = 0.54$). Relationships between anxiety and external positive motivation were weak and non-significant (Table 5).

Table 5. Correlations between anxiety (Spielberger–Khanin) and professional motivation

Anxiety scale	IM	EPM	ENM
State anxiety	-0.38*	0.12	0.54**
Trait anxiety	-0.45**	0.19	0.62**

Note: * $p < 0.05$; ** $p < 0.01$.

Effectiveness of the training programme. The corrective-developmental programme for third-year students was organised in three interrelated directions: motivational awareness, professional-value development, and professional perspective and self-development. It began with students' awareness of their own professional motives and proceeded through clarifying professional values and mastering the humanistic and communicative aspects of medical work to defining their future professional perspective. The methods included analysis of clinical cases, simulations of doctor–patient communication, reflective tasks, role-playing and debriefing of errors in a psychologically safe environment. After the programme, intrinsic motivation increased significantly ($Z = -3.926$; $p < 0.001$), external positive motivation also increased ($Z = -2.184$; $p = 0.029$), and external negative motivation decreased ($Z = -3.751$; $p < 0.001$) (Table 6).

Table 6. Motivation for professional activity in third-year students before and after the training (Wilcoxon signed-rank test, $n = 213$)

Indicator	Direction of change	Z	p
Intrinsic motivation (IM)	Increase	-3.926	< 0.001
External positive motivation (EPM)	Increase	-2.184	0.029
External negative motivation (ENM)	Decrease	-3.751	< 0.001

The questionnaire data confirmed these changes. In difficult clinical situations, the share of students for whom difficulties are an additional incentive increased from 31.0% to 39.9%, and the share who respond with a sense of responsibility and a serious approach increased from 37.1% to 42.3%. At the same time, reliance on others' help decreased from 16.4% to 10.3%, and loss of self-confidence from 13.1% to 5.6% (Table 7). Independent reading of additional literature rose from 27.2% to 33.8%, active participation in practical classes from 33.8% to 39.9%, while studying only for a grade fell from 18.3% to 11.7% (Table 8).

Table 7. Changes in motivation in difficult clinical situations among third-year students before and after the training ($n = 213$)

Response	Before, n (%)	After, n (%)
Difficulties motivate me even more	66 (31.0)	85 (39.9)
I feel responsible and take a serious approach	79 (37.1)	90 (42.3)
I rely on the help of others	35 (16.4)	22 (10.3)
My self-confidence decreases	28 (13.1)	12 (5.6)
Other	5 (2.3)	4 (1.9)

Table 8. Manifestations of interest in professional disciplines among third-year students before and after the training ($n = 213$)

Manifestation	Before, n (%)	After, n (%)
Independent reading of additional literature	58 (27.2)	72 (33.8)
Active participation in practical classes	72 (33.8)	85 (39.9)
Studying only to obtain a grade	39 (18.3)	25 (11.7)
Preparing only as required by the teacher	38 (17.8)	26 (12.2)
Other	6 (2.8)	5 (2.3)

These shifts show that after the programme students increasingly relied on their own resources in difficult situations and approached professional disciplines on the basis of independent cognitive interest rather than external requirements such as grades or the teacher's demands.

4. Discussion

The results show that the motivational sphere of future physicians changes markedly over the course of training. The higher intrinsic motivation of sixth-year students is consistent with the view that clinical experience and growing professional identity strengthen interest in the content of medical work [2; 3]. Notably, this finding differs from studies reporting a decline in empathy and idealism during clinical years [5; 6], which may reflect cultural characteristics of the sample and the humanistic orientation of career choice, as indicated by the predominance of the desire to help people among senior students.

At the same time, intrinsic and external negative motivation increase simultaneously in senior students. This suggests that their motivational complex is not purely "optimal" in Rean's sense [17]: alongside genuine interest in the profession, fear of mistakes, of sanctions and of failing to meet expectations becomes stronger as responsibility for patients grows. The stability of external positive motivation indicates that material and status motives are present at all stages but do not define the dynamics of professional motivation.

The correlation analysis clarifies the psychological meaning of these motivational components. The close links between intrinsic motivation and the identification and emotional channels of empathy indicate that a genuine interest in medicine is associated with the ability to share patients' feelings and to put oneself in their place. External positive motivation, by contrast, is related only to attitudes promoting empathy – that is, to following the social norm that "a doctor must be compassionate" – but not to deeper emotional or intuitive empathy. The negative relationships between external negative motivation and empathy point to a risk of emotional detachment from patients, an early sign of professional burnout.

The pattern of correlations with anxiety is in line with self-determination theory, according to which motivation driven by pressure and threat undermines autonomous, interest-based engagement [13; 14], and with data on the high psychological distress of medical students [4]. Taken together, the results reveal a destructive "anxiety – external negative motivation" chain: in students with high anxiety, behaviour becomes governed by the motive of avoiding failure and punishment, which may lead to excessive fear of error, indecisiveness in clinical situations and early emotional burnout. Reducing anxiety and creating a psychologically safe learning environment can therefore release intrinsic motivation.

The effectiveness of the training programme supports this conclusion. The significant growth of intrinsic motivation and the decline of external negative motivation show that the motivational structure of third-year students can be purposefully restructured through case-based learning, communication simulations and reflection. The slight increase in external positive motivation is not a negative outcome, since recognition and professional success can support a positive attitude towards the profession as long as they remain secondary to intrinsic motives.

The study has several limitations. It was cross-sectional, so differences between third- and sixth-year students may partly reflect cohort effects rather than developmental change. The effect of the training was assessed without a control group, and all data were obtained by self-report. Future research should use longitudinal designs, control groups and objective indicators of clinical performance.

5. Conclusion

Motivation for interest in professional activity among future physicians is a multicomponent formation whose structure changes during training. Sixth-year students show significantly higher intrinsic and external negative motivation than third-year students, while external positive motivation remains stable. Intrinsic motivation is positively associated with empathy, especially with its identification and emotional channels, and negatively

associated with state and trait anxiety; external negative motivation shows the opposite relationships, forming an “anxiety – external negative motivation” chain that increases the risk of emotional burnout.

A corrective-developmental training programme based on clinical cases, doctor–patient communication simulations and medical reflection significantly strengthened intrinsic motivation and reduced external negative motivation among third-year students. It is recommended that medical universities establish psychological support services addressing students’ professional crises and demotivation, analyse student errors through debriefing in a psychologically safe environment rather than through punishment, expand early clinical exposure and volunteering for junior students, and integrate training in self-motivation, emotion regulation and reflection into the curriculum.

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