Learning motivation and determinants of career choice among midwifery students

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ABSTRACT

INTRODUCTION Learning motivation is a key predictor of academic achievement and professional commitment in healthcare education. However, evidence regarding midwifery students remains limited, particularly in Central and Eastern Europe. We aimed to assess factors influencing career choice and learning motivation among midwifery students at two Hungarian universities and to explore determinants shaping these motivations.

METHODS A cross-sectional, descriptive study was conducted among 307 undergraduate midwifery students (Years 1–4) from two Hungarian universities. Data were collected online between 2023 and 2024 using the Academic Motivation Scale College version (AMS-C 28) and a questionnaire assessing career-choice factors. The AMS-C demonstrated good internal consistency (Cronbach's α=0.844). Descriptive statistics, Spearman's rho correlations, and ANOVA with *post hoc* tests were performed.

RESULTS Extrinsic motivation (mean=68.72, SD=10.83) was slightly higher than intrinsic motivation (mean=68.45, SD=10.84), while amotivation was low (mean=8.77, SD=5.42). Intrinsic motivation was the strongest motivational factor (mean=23.95). Significant declines in intrinsic motivation and identified regulation, together with increased amotivation, were observed by the third academic year ($p<0.001$). Students intending to pursue further education demonstrated significantly higher levels of motivation and lower amotivation. Knowledge of the profession, university reputation, and professional prestige showed weakly significant positive associations with learning motivation.

CONCLUSIONS The AMS-C provides valuable insight into midwifery students' motivational orientations. Findings highlight the need for targeted educational interventions to strengthen intrinsic motivation and prevent rising amotivation in later academic years. Clear information about the profession may enhance sustained motivation to learn and academic persistence.

ABBREVIATIONS AMS: Academic Motivation Scale, AMS-C: Academic Motivation Scale College version, AMOT: amotivation, EM: extrinsic motivation, EMID: extrinsic motivation identified regulation, EMIN: extrinsic motivation introjected regulation, EMER: extrinsic motivation external regulation, IM: intrinsic motivation, IMTK: intrinsic motivation to know, IMTA: intrinsic motivation toward accomplishment, IMES: intrinsic motivation to experience stimulation, SDT: self-determination theory, PCA: principal component analysis

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INTRODUCTION

Motivation is a fundamental source of learning and a key component of student performance, influencing both the quality of future professional practice and commitment to the chosen profession. Learning is a dynamic process. Successful learning is affected by several cognitive and metacognitive factors, among which self-regulation and self-determination can be highlighted[1]. Continuous learning and development are strongly determined by motivation, a natural driving force that directs individuals toward growth and personal development, shaped by their social, societal, and intellectual conditions, and enables them to overcome real or perceived limitations. Self-determination theory (SDT) identifies multiple types of learning motivation along a continuum ranging from amotivation to intrinsic motivation[2]. Within this theoretical framework, learning motivation can be divided into three levels. The first level is intrinsic motivation (IM), which arises from personal desire and interest. The second level is extrinsic motivation (EM), which

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originates from parental, instructional, or social pressure. The third level is amotivation (AMOT), which refers to a lack of interest in learning[1,3].

Motivational factors have often been studied among medical students. Findings indicate that learning motivation is influenced by students' age, gender, level of education, ethnic background, and socioeconomic status[1,3]. Age contributes substantially to motivation: higher levels of self-efficacy have been observed among female students, while higher evaluations of learning strategies among male students indicate gender-related differences in learning motivation[4,5].

Academic motivation is also correlated with the number of years spent in higher education and with academic performance[6-8]. Frequent anxiety during studies, combined with low autonomy, can lead to depression and consequently reduce students' academic performance[9,10]. Al Ansari et al.[1] assessed learning motivation among medical students in the Middle East and found that motivation varied across academic years. Second-year students achieved higher scores on the amotivation (AMOT) subscale compared with other cohorts, while first-year students showed higher scores on the intrinsic motivation toward accomplishment (IMTA) subscale than students in other academic years. No significant age-related differences were identified in these studies. The authors emphasized the importance of integrating intrinsically supportive educational strategies for first-year students to foster motivation to learn and facilitate successful professional development[1]. Previous studies have suggested that declining motivation during healthcare education may be associated with increasing academic workload, prolonged exposure to stress, clinical placement demands, emotional burden, and reduced perceptions of autonomy. Furthermore, discrepancies between students' idealized expectations of the profession and the realities of clinical practice may contribute to decreases in intrinsic motivation and increases in amotivation as students progress through their studies[3,11]. A study published in 2017 demonstrated that senior students are regulated by a greater number of motivational profiles than younger students[11]. In addition, Ramos and Habig[12] reported gender-related differences in learning motivation among nursing students.

Factors underlying career choice represent a less extensively studied area within education. Research conducted among medical students has shown that, in addition to financial benefits, intellectual challenge and altruism also emerge as motivating factors[13]. A study conducted in France in 2018 identified four motivational factors influencing medical students' career choice: science, respect, indispensability, and helping others[14]. In a study conducted among Hungarian university students in 2012, Lukács[15] demonstrated a relationship between the level of career choice uncertainty and learning motivation. Students with higher levels of career choice uncertainty exhibited higher extrinsic motivation (EM) and lower intrinsic motivation (IM) scores[15].

Researchers at Semmelweis University and the University of Debrecen have been examining the motivational background of career choice among midwifery students for the past three years. Career choice is one of the most challenging tasks for adolescents, as it is influenced by several important factors, including an individual's professional interests, motivation toward a given field of study, the opinions of friends, acquaintances, and family members, as well as the prestige of the higher education institution. Motivation also serves as a driving force in achieving personal goals. This motivating force is particularly essential in healthcare, including the profession of midwifery. Midwifery represents a long-term professional commitment and is both psychologically and physically demanding[16-18]. It requires a high level of dedication, professional vocation, commitment, and altruism[19].

Although the present study focuses on Hungarian midwifery students, the findings have broader international relevance. Challenges in maintaining student motivation in healthcare education are universal, and midwifery programs worldwide face similar issues with student attrition and declining motivation. The Academic Motivation Scale College version (AMS-C 28), developed by Vallerand et al.[20,21] , is an internationally validated measurement tool that enables cross-cultural comparisons[20-22]. Understanding the motivational dynamics observed in the Hungarian context may inform the development of educational strategies applicable to other countries, particularly in Central and Eastern Europe, where healthcare education systems share similar structural and cultural characteristics. Furthermore, the findings contribute to the development of evidence-based interventions to improve student success and workforce retention.

Although learning motivation has been extensively studied among medical and nursing students, evidence regarding midwifery students remains limited, particularly in Central and Eastern Europe. Furthermore, few studies have simultaneously examined learning motivation and the determinants of career choice among midwifery students using a validated motivational framework. The relationship between career choice, academic progression, and motivational profiles in this population, therefore, remains insufficiently understood. Addressing this gap may support the development of targeted educational strategies to improve student engagement, academic success, and future workforce retention.

This study aimed to examine the characteristics of students' learning motivation based on data collected during the 2023–2024 academic year. Specifically, the study explored why students chose the midwifery profession, which factors influenced their career choice, whether learning motivation is associated with age and academic progression, and whether intentions for further education are related to learning motivation.

METHODS

Design, sample and study setting

A cross-sectional survey was applied to examine learning motivation and factors related to career choice among

midwifery students. A convenience sampling method was used. The study was conducted at the Faculty of Health Sciences of the University of Debrecen and the Faculty of Health Sciences of Semmelweis University, in Hungary. All midwifery students enrolled in full-time and part-time undergraduate programs in academic years 1–4 with active student status were eligible to participate during the 2023–2024 academic year. Students were invited to participate through the universities' electronic student information systems. The inclusion criteria were active enrollment in the midwifery program, registration in academic years 1–4, and willingness to provide informed consent. In total, 307 students completed the questionnaire.

The mean age of the students who completed the questionnaire was 23.2 years (SD=5.80). The youngest respondent was aged 18 years, and the oldest was aged 49 years. Of the participants, 68% were enrolled in full-time programs and 33% in part-time programs. Regarding academic year distribution, 27% of students were in first year , 24% in second year, 30% in third year, and 19% in fourth year. Regarding future educational plans, 47.4% of students planned to pursue an MSc degree, 11.7% did not plan to continue their studies, and 41% had not yet decided on further education.

Data collection and measurement instrument

Data were collected via an anonymous, self-administered online questionnaire created in Google Forms between September 2023 and September 2024. Eligible students were invited to participate through the electronic student information systems of the participating universities. Before accessing the questionnaire, participants received written information about the study and provided electronic informed consent. Completion of the questionnaire was voluntary, and no personally identifiable information was collected.

The primary measurement instrument was the Academic Motivation Scale College version (AMS-C 28), developed by Vallerand et al. (1992). The AMS-C 28 is a 28-item questionnaire designed to assess different types of motivation in higher education settings. It evaluates three main types of motivation: intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AMOT). The AMS-C 28 assesses seven motivational dimensions derived from Self-Determination Theory. Three subscales measure intrinsic motivation: Intrinsic Motivation to Know (IMTK), which reflects interest in acquiring knowledge and understanding; Intrinsic Motivation Toward Accomplishment (IMTA), which refers to the satisfaction derived from achievement and mastering tasks; and Intrinsic Motivation to Experience Stimulation (IMES), which reflects engagement in learning because it is enjoyable, exciting, or stimulating. Three subscales assess extrinsic motivation: Extrinsic Motivation Identified Regulation (EMID), reflecting engagement in learning because its personal value is recognized; Extrinsic Motivation Introjected Regulation (EMIN), referring to behavior driven by internal pressures such as guilt or obligation; and Extrinsic Motivation External Regulation (EMER), representing motivation based on external rewards or avoidance of negative consequences. The final subscale, Amotivation (AMOT), reflects a lack of intention, purpose, or perceived value in learning activities[2,20].

The Hungarian-language version of the Academic Motivation Scale, College Version (AMS-C 28) was used in this study. The questionnaire was adopted from the work of Lukács (2012), who previously applied the Hungarian version among university students[15].

Responses were recorded on a 7-point Likert scale (1=strongly disagree, 7=strongly agree). The questionnaire was supplemented with items assessing age, academic year, factors underlying career choice, and intentions for further education.

Ethical considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the Regional and Institutional Research Ethics Committee. The study was approved by the Regional and Institutional Research Ethics Committee of the University of Debrecen (Approval DE RKEB.IKEB. No. 6657-2023).

All participants were informed about the aims and procedures of the study. Participation was voluntary, and students were informed that they could withdraw from the study at any time without consequences. Anonymity and confidentiality were ensured throughout the research process.

Statistical analysis

Sample characteristics were analyzed using descriptive statistical methods, including frequencies, means, and standard deviations. Learning motivation was assessed based on the 28 items of the AMS-C 28 questionnaire. Groups were formed according to the questionnaire subscales across the dimensions of intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AMOT). Means and standard deviations were calculated, and rankings of learning motivation types were established based on mean scores.

Internal consistency was assessed using Cronbach's alpha coefficient. Ninety-five percent confidence intervals were estimated using percentile bootstrap intervals based on 10.000 bootstrap resamples; effect size - 95%. Internal consistency was acceptable to good for most AMS-C 28 subscales, with Cronbach's alpha values ranging from 0.612 for IMTA to 0.881 for AMOT. The total AMS-C 28 showed good internal consistency (ą=0.844, 95% percentile bootstrap 95% CI: 0.810–0.871). The overall reliability is comparable to the original validation by Vallerand et al.[20], where total scale coefficients ranged from 0.83 to 0.86.

Due to the non-normality of the variables, nonparametric statistical procedures were primarily used. Spearman's rank correlation coefficients were used to examine associations between PCA-derived career choice components and AMS-C 28 motivation subscales. Spearman's rho was interpreted as the effect-size measure. Ninety-five percent confidence intervals were estimated using percentile bootstrap intervals

based on 10000 bootstrap resamples. A significance level of 5% was applied ($p<0.05$). Differences between group means were analyzed using one-way analysis of variance (ANOVA), followed by *post hoc* Bonferroni tests to further examine differences across academic years, intentions for further education, and learning motivation dimensions. In addition to ANOVA, Kruskal–Wallis tests were performed. Parametric and nonparametric tests yielded consistent results in all cases. Principal component analysis (PCA) was selected as a data-reduction technique to identify the underlying dimensions of career-choice factors. PCA was applied to the items related to career choice, and principal components were extracted. Associations between the resulting principal components and learning motivation were examined using Spearman's rho correlation coefficient ($p<0.001$).

RESULTS

Learning motivation based on the AMS-C 28

Extrinsic motivation (EM) was present slightly more strongly in the sample (mean=68.72, SD=10.83) than intrinsic motivation (IM) (mean=68.45, SD=10.84), while amotivation (AMOT) was the least characteristic of the students (mean=8.77, SD=5.72). When evaluating the individual groups of learning motivation, intrinsic motivation to know (IMTK) was the most prominent among intrinsic motivational factors (mean=23.95, SD=3.93), reflecting the enjoyment associated with learning, exploration, and understanding something new. This was followed by extrinsic motivation identified regulation (EMID) (mean=23.62, SD=4.00), which reflects learning driven by the pursuit of rewards or the avoidance of punishment. The third most prominent motivational factor was intrinsic motivation toward accomplishment (IMTA) (mean=23.56, SD=3.47), representing participation in activities for the pleasure and satisfaction experienced when attempting to achieve or create something. In this case, the emphasis is not on the outcome itself, but on the process leading to achievement. Table 1 shows the mean values and ranking of the types of learning motivation (Table 1).

Table 1. Mean values and ranking of learning motivation types

Academic Motivation Scale (N=307)	*Mean*	*SD*	*Rank*
Intrinsic Motivation (IM)	68.45	10.84	
IM to know (IMTK)	23.95	3.93	1
IM towards accomplishment (IMTA)	23.56	3.47	3
IM to experience stimulation (IMES)	20.95	4.61	6
Extrinsic motivation (EM)	68.72	10.83	
EM Identified Regulation (EMID)	23.62	4.00	2
EM Introjected Regulation (EMIN)	22.85	4.80	4
EM External Regulation (EMER)	22.25	4.55	5
Amotivation (AMOT)	8.77	5.42	

Background of career choice

The results of the questions related to career choice were analyzed using principal component analysis. Five components were identified, explaining 62.6% of the total variance (KMO=0.740; Bartlett's test of sphericity: $\chi^2=1193.624$, df=105, $p<0.001$). The five components were labeled as follows: recommendation, knowledge of the profession, university reputation, knowledge of the specialization, and professional prestige. The results of the principal component analysis are shown in Table 2.

When considering students enrolled in full-time and part-time programs, we found no statistically significant difference between the generated principal components.

Associations between the modeled components and the subscales of learning motivation were examined using Spearman's rho correlation coefficient. The results showed that the components of knowledge of the profession, university reputation, and professional prestige demonstrated weak positive correlations and statistically significant associations with the learning motivation subscales intrinsic motivation to know (IMTK), intrinsic motivation toward accomplishment (IMTA), intrinsic motivation to experience stimulation (IMES), and extrinsic motivation identified regulation (EMID). In addition, a weak negative association was observed with amotivation (AMOT) (Table 3).

Spearman's rank correlation analyses showed that the PCA-derived career choice components were differentially associated with the AMS-C 28 motivation subscales. The component reflecting knowledge of/interest in the profession was positively associated with intrinsic motivation to know ($\rho=0.431$; 95% percentile bootstrap CI: 0.325–0.528, $p<0.001$), intrinsic motivation toward accomplishment ($\rho=0.231$; 95% CI: 0.122–0.338, $p<0.001$), intrinsic motivation to experience stimulation ($\rho=0.316$; 95% CI: 0.201–0.425, $p<0.001$), and extrinsic motivation identified regulation ($\rho=0.334$; 95% CI: 0.228–0.434, $p<0.001$), while it was negatively associated with amotivation ($\rho= -0.271$; 95% CI: -0.377 – -0.160, $p<0.001$).

University reputation was positively associated with all intrinsic and extrinsic motivation subscales, with correlations ranging from $\rho=0.231$ to 0.349, and was negatively associated with amotivation ($\rho= -0.285$; 95% CI: -0.392 – -0.175, $p<0.001$). Professional prestige/labor-market demand was positively associated with intrinsic motivation toward accomplishment ($\rho=0.237$; 95% CI: 0.135–0.340, $p<0.001$), extrinsic motivation identified regulation ($\rho=0.214$; 95% CI: 0.114–0.316, $p<0.001$), introjected regulation ($\rho=0.264$; 95% CI: 0.155–0.365, $p<0.001$), and external regulation ($\rho=0.356$; 95% CI: 0.249–0.454, $p<0.001$). No statistically significant associations were observed for the recommendation component or the knowledge of specialization component at the $p<0.001$ level.

Association of age, academic year, and intentions for further education with learning motivation

Spearman's rank correlation analyses showed significant

associations among the AMS-C 28 motivation subscales. The strongest positive association was observed between intrinsic motivation to know and intrinsic motivation to experience stimulation (ρ=0.746; 95% percentile bootstrap CI: 0.685–0.797, p<0.001). Strong positive associations were also found between intrinsic motivation to know and

Table 2. Rotated component matrix and component loadings

Responses to 'Why have you chosen the midwifery program?'	Principal components				
	1 Recommendation	2 Knowledge of the profession	3 University reputation	4 Knowledge of the specialization	5 Professional prestige
1. It was recommended by friends/acquaintances	**0.782**		-0.109		0.131
2. Friends/acquaintances study here	**0.738**				
3. It was recommended by high school teachers	**0.699**		0.102		
4. It was recommended by family members	**0.664**		-0.227	0.260	
5. Based on the information presented at the faculty open day	**0.404**		0.193		0.292
6. Because of the institution's good reputation		**0.877**		0.116	0.171
7. Because of the high quality of education		**0.860**	0.191		0.112
8. I am interested in the profession that I can study in this specialization			**0.873**	0.106	0.116
9. Completing the program allows me to pursue an interesting profession		0.149	**0.832**	0.193	0.111
10. The opportunity to obtain a well-paid job		0.235		**0.700**	0.117
11. A profession that is always in demand		0.138	0.352	**0.677**	
12. I wanted to choose a female-dominated profession			0.166	**0.571**	0.238
13. The social prestige of the profession	0.275	0.447	0.151	**0.465**	
14. At the chosen faculty, the specialization offers better opportunities than other programs		0.104		0.266	**0.835**
15. Among the university's programs, I liked this specialization the most	0.100	0.188	0.204		**0.805**
TOTAL	2.362	1.894	1.830	1.697	1.606
% of Variance	15.749	12.625	12.197	11.314	10.709
Cumulative % (left summary data series)	15.749	28.374	40.571	51.885	62.594

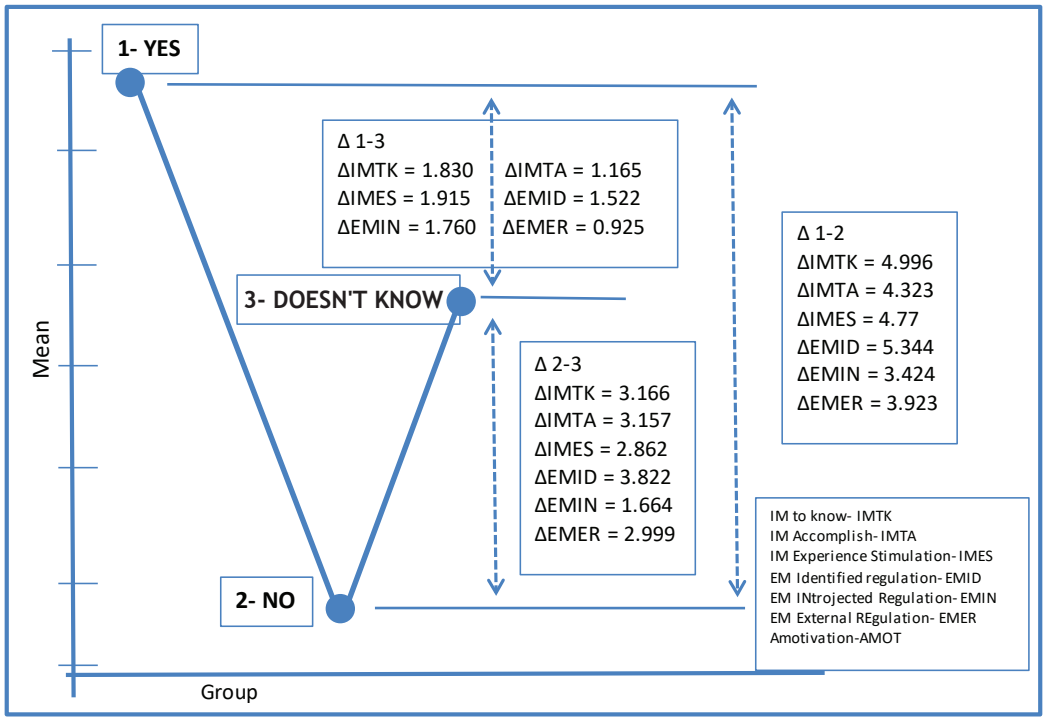
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy index=0.740. Bartlett's test of sphericity: χ^2 =1193.624, df=105, p<0.001.

Table 3. Association between principal components and learning motivation

Learning motivation items	Principal components Spearman's rho				
	Recommendation	Knowledge of the profession	University reputation	Knowledge of the specialization	Professional prestige
IMTK	-0.069	**0.431****	**0.241****	-0.018	0.092
IMTA	-0.037	**0.231****	**0.349****	0.004	**0.237****
IMES	-0.084	**0.316****	**0.275****	0.000	0.120
EMID	-0.006	**0.334****	**0.344****	0.019	**0.214****
EMIN	0.078	0.065	**0.285****	0.109	**0.264****
EMER	0.067	-0.030	**0.231****	0.021	**0.356****
AMOT	0.084	**-0.271****	**-0.285****	-0.021	-0.071

**Correlation is significant at the 0.001 level (2-tailed).

Figure 1. Mean values of learning motivation by groups based on intentions for further education (ANOVA) (Δ=differences between means)



extrinsic motivation identified regulation (ρ=0.661, 95% CI: 0.586–0.729, p<0.001), intrinsic motivation toward accomplishment and intrinsic motivation to experience stimulation (ρ=0.663; 95% CI: 0.581–0.733, p<0.001), intrinsic motivation to know and intrinsic motivation toward accomplishment (ρ=0.627; 95% CI: 0.544–0.700, p<0.001), and intrinsic motivation toward accomplishment and extrinsic motivation identified regulation (ρ=0.613; 95% CI: 0.530–0.685, p<0.001).

Amotivation showed negative associations with all intrinsic motivation subscales and with extrinsic motivation and identified regulation. The strongest negative association was observed between extrinsic motivation, identified regulation, and amotivation (ρ= -0.589; 95% CI: -0.670 – -0.499, p<0.001). Moderate negative associations were found between amotivation and intrinsic motivation to know (ρ= -0.447; 95% CI: -0.541 – -0.346, p<0.001), intrinsic motivation toward accomplishment (ρ= -0.447; 95% CI: -0.540 – -0.346], p<0.001), and intrinsic motivation to experience stimulation (ρ= -0.412; 95% CI: -0.506 – -0.308], p<0.001). Weaker negative associations were observed between amotivation and extrinsic motivation introjected regulation (ρ= -0.188; 95% CI: -0.295 – -0.077, p<0.001) and external regulation (ρ= -0.190; 95% CI: -0.302 – -0.073, p<0.001).

Differences in learning motivation across academic years were examined using one-way ANOVA with Bonferroni *post hoc* comparisons. Significant differences were observed for IMTK [F(3, 303)=8.662; p<0.001, partial η^2=0.079], IMTA [F(3, 303)=8.570, p<0.001, partial η^2=0.078], IMES [F(3, 303)=9.071, p<0.001, partial η^2=0.082], EMID [F(3, 303)=9.144, p<0.001, partial η^2=0.083], and AMOT [F(3, 303)=7.118, p<0.001, partial η^2=0.066]. By the third year of university studies, intrinsic motivation and identified regulation decreased, whereas amotivation increased.

Regarding intentions for further education, one-way ANOVA with Bonferroni *post hoc* comparisons revealed significant group differences in IMTK [F(2, 263)=21.696, p<0.001, partial η^2=0.142], IMTA [F(2, 263)=20.569, p<0.001, partial η^2=0.135], IMES [F(2, 263)=13.850, p<0.001, partial η^2=0.095], EMIN [F(2, 263)=25.328, p<0.001, partial η^2=0.162], EMER [F(2, 263)=10.567, p<0.001, partial η^2=0.074] and AMOT [F(2, 263)=14.967, p<0.001, partial η^2=0.102]. Students who did not plan to continue their studies showed lower motivation scores and higher amotivation (Figure 1).

DISCUSSION

This study examined learning motivation and career choice components among midwifery students at two major Hungarian universities. The findings reveal a complex motivational profile. Although extrinsic motivation was slightly higher overall, the single strongest motivating component was intrinsic: the desire for knowledge (IMTK). This suggests that, despite the presence of external pressures, students are primarily driven by a genuine

interest in learning. A critical finding is the substantial increase in amotivation and the concurrent decline in both intrinsic and extrinsic motivation by the third academic year. This pattern indicates a 'motivational crisis' in the later stages of the program, which warrants attention from educators. Furthermore, our results show that components such as age, intentions for further education, and the background of career choice are significant predictors of students' motivational profiles. This can also be influenced by components affecting students' professional outlook, such as labor market uncertainty and young people's general sense of uncertainty about the future[23,24].

Our findings are consistent with previous studies by Al Ansari et al.[1] who also reported differences in motivation across academic years among medical students. The increase in amotivation observed in later years is a common phenomenon in healthcare education and is often attributed to burnout, stress, and a perceived disconnect between academic learning and clinical practice[1,3]. At the same time, our finding that age shows a weak negative correlation with motivation related to accomplishment and identified regulation differs from some studies that reported no significant age-related differences. This suggests that, in the Hungarian context, more mature students may enter training with different motivational orientations or that their motivation develops differently over time. The high level of intrinsic motivation to know (IMTK) is in line with international evidence indicating that the desire to help others and interest in science are primary driving forces in choosing healthcare professions[14,25,26].

As students progressed to the third and fourth academic years, learning motivation factors representing enjoyment in learning new things and the desire for knowledge (such as IMTK and IMTA) declined markedly, while amotivation (AMOT) increased significantly. This pattern differs from the findings of Al Ansari et al.[1] among medical students, where the highest level of amotivation was observed among second-year students, and first-year students showed more favorable scores across subscales compared with other academic years. Similar results were reported by Bingen et al.[11] among Norwegian advanced practice nursing (APN) students, who found significantly lower levels across all dimensions of learning motivation by the end of the second semester[11,27]. Our findings highlight the need for further research to explore the underlying reasons for declining motivation. Several components may explain the substantial decline in motivation observed by the third academic year. Previous studies have suggested that increasing academic workload, prolonged exposure to stress, and reduced perceptions of autonomy may contribute to decreases in intrinsic motivation and increases in amotivation among healthcare students[3]. In addition, students entering extensive clinical placements may experience a discrepancy between their idealized expectations of the profession and the realities of clinical practice, which can negatively affect motivation[1]. In the Hungarian context, this phenomenon may be further reinforced by exposure to workforce shortages, high workload, and burnout among practicing midwives, as reported in recent national studies[17,18]. Together, these factors may contribute to the motivational decline observed among students in the later stages of training.

Our findings indicate that intentions for further education have a positive effect on learning motivation and may reduce disinterest in learning and feelings of uncertainty.

During career choice, prior knowledge of the chosen profession and the training institution may serve as influential factors in strengthening learning motivation throughout university studies, increasing the desire for knowledge acquisition, active learning, and achievement, and preventing the development of amotivation during the learning process.

Older students demonstrated slightly lower levels of accomplishment-related and identified regulation motivation, suggesting that educational strategies targeting part-time and mature students should place greater emphasis on strengthening intrinsic motivational factors.

The AMS-C 28 questionnaire provides insight into students' motivational orientations, which can support educators in designing and implementing interventions aimed at promoting more adaptive forms of motivation. In student groups characterized by high levels of external regulation or amotivation, educators can plan strategic goals within the educational process that enhance intrinsic motivation and interest in learning by emphasizing the personal relevance and value of learning (identified regulation) and by supporting students' basic psychological needs, particularly autonomy and competence. Creating a learning environment that offers choice, provides constructive feedback, and fosters a sense of relatedness may help students shift toward more intrinsic forms of motivation.

Assessing learning motivation is essential for advancing the understanding of motivational processes and for creating educational environments that effectively nurture students' desire for learning, perseverance, and career development, thereby unlocking students' motivational potential. Maintaining students' intrinsic motivation throughout the educational process may be essential not only for academic success but also for strengthening long-term commitment to the midwifery profession.

Limitations

Learning motivation was assessed at a single time point using a cross-sectional design; however, motivation may be influenced by various factors during the academic term and examination periods. Although teaching methodologies may differ between the two universities, the Training and Output Requirements (KKK) are identical, and faculty members from both institutions regularly participate in professional meetings. These factors support the use of a combined sample in the present study.

In addition, the use of self-reported questionnaires may have introduced social desirability bias. Participants may have been inclined to provide responses that reflected socially acceptable attitudes toward learning and professional commitment, potentially leading to an

overestimation of motivation levels. Furthermore, the study was conducted at only two Hungarian universities. Although both institutions provide midwifery education under the same national training requirements, the findings may not be fully generalizable to students studying in other educational or cultural contexts. Therefore, caution is warranted when interpreting the results beyond the Hungarian setting.

Future research

Future longitudinal studies are needed to track changes in motivation over time and to better understand the reasons underlying the decline in motivation observed during the third academic year. The negative changes in learning motivation identified among students may also serve as a starting point for qualitative research, providing valuable feedback for university faculties. These changes could be explored in a targeted manner through focus group interviews or individual narratives. Future research should expand the present study through multicenter and international collaboration. The authors plan to extend data collection to additional Hungarian universities offering midwifery education, as well as to institutions in Slovakia, Romania, and Türkiye. Such cross-cultural comparisons would allow a better understanding of whether the motivational patterns observed in the present study reflect characteristics of the Hungarian educational context or represent broader trends within midwifery education. International comparative research may also contribute to the development of evidence-based educational strategies aimed at strengthening student motivation and supporting workforce retention in the midwifery profession.

CONCLUSIONS

This study provides valuable evidence of the learning motivation profiles of Hungarian midwifery students. The AMS-C 28 questionnaire proved to be a useful tool for assessing learning motivation because it demonstrated good internal consistency (Cronbach's α=0.844) and successfully differentiated between motivational profiles associated with academic progression, career choice determinants, and intentions for further education. These characteristics support its applicability for identifying students at risk of declining motivation and for informing targeted educational interventions. The findings highlight the importance of promoting intrinsic motivation and addressing factors that contribute to increasing amotivation as students progress through their studies. By creating a supportive and engaging learning environment and ensuring that prospective students are well informed, educational institutions can play a vital role in developing a motivated and resilient future midwifery workforce.

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DATA AVAILABILITY
Data sharing is not applicable to this article as no new data were created.

AUTHORS' CONTRIBUTIONS
KGÉ: writing, reviewing and editing of the manuscript, writing of original draft, supervision, methodology, literature collection and analysis, preparation of tables and figures. IR: supervision, methodology, investigation, conceptualization. GM: literature collection and analysis, data collection. PT: data analysis, performing statistical tests, evaluation of results. JR: supervision, investigation, conceptualization, reviewing of the manuscript. JC: reviewing and editing of the manuscript. ILK: writing, reviewing and editing of the manuscript, supervision, conceptualization, data collection. All authors read and approved the final version of the manuscript.

AI DECLARATION
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