

**ACADEMIC MOTIVATION AND FACTOR ASSOCIATED
WITH PUBLIC HEALTH STUDENTS
AT CAN THO UNIVERSITY OF MEDICINE AND PHARMACY IN 2024**

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ABSTRACT

Background: *The academic motivation of students determines their performance and success. Learning motivation and related factors have been understood to improve the future healthcare and learning efficiency of students. Objectives:* *To describe academic motivation and determine related factors among students from Public Health Faculty, Can Tho University of Medicine and Pharmacy. Materials and methods:* *A cross-sectional study was conducted on 406 students from Public Health Faculty, Can Tho University of Medicine and Pharmacy from February to May 2024 by using the Academic Motivation Scale (AMS). This scale had been translated and standardized in Vietnamese showed a high internal consistency with a Cronbach's alpha was 0.9191. Results:* *Students' academic motivation score was measured by the Self Determination Index (SDI) with mean (SD) was -7.52 (2.84), which showed that learning motivation was assessed at a poor level. Differences in age, gender, major, and social activity in the university were the factors found to be associated with the academic motivation of students in preventive medicine and public health ($p < 0.05$). Conclusion:* *The academic motivation of preventive medicine and public health students is extremely low. Some unique strategies should be developed to effectively enhance the learning motivation of students.*

Keywords: *Academic motivation, preventive medicine, public health, students.*

I. INTRODUCTION

Learning motivation is characterized by a desire to learn, a sense of responsibility, and enthusiasm for the process [1]. In the context of the integration of Preventive Medicine and Public Health, as well as the increasing demand for disease prevention, learning motivation plays a crucial role that can influence the performance of students, learning process, and research [2], [3], [4]. The higher the motivation of medical students, the better their learning qualities, learning strategies, perseverance, and academic achievements [5]. A study of Bin Abdulrahman KA. and et al was conducted in 2023 on 429 medical students at a medical school in Riyadh found that 71.8% of students believed they had the motivation to complete their studies [6]. A study was conducted on factors related to learning motivation at Hue University of Medicine and Pharmacy in 2020 found that 68.0% of students had learning motivation [7]. Another study at Hai Phong University of Medicine and Pharmacy in 2018 showed that the proportion of students with "good learning motivation" was 60.1% [8]. According to various studies, learning motivation is influenced by several factors related to the learning environment, society, and individual characteristics [7]. Dalanbayar R. and et al found that learning motivation is linked to parental perceptions of pursuing a medical career [9]. Additionally, participation in extracurricular activities also impacts learning motivation [7]. Hongbin Wu's research revealed mixed findings regarding

gender differences in students' intrinsic and extrinsic motivation. Considering the disparities in motivation among male and female medical students can offer valuable insights to address gender imbalances in academic performance and professional success. Furthermore, it has been shown that students' motivation tends to change over the years of study. Taking into account the academic years as an essential factor can significantly enhance the comprehensive and convincing of the results [10]. Moreover, the impact of motivation on academic achievement and student competitiveness plays a crucial role in learning and has been thoroughly studied. Numerous well-conducted studies over the past decades have shown that students' motivation is highly positive correlation with their academic performance [6]. Based on these studies, it can be inferred that the learning motivation of students in preventive medicine and public health is influenced by various related factors. Currently, there is very little research on the learning motivation of students in preventive medicine and public health in Vietnam. Therefore, to establish a solid database for improving the quality of education and learning for students, we conducted this study with the objective of assessing academic motivation and identifying related factors in students.

II. MATERIALS AND METHODS

2.1. Materials

Full-time undergraduate students in the preventive medicine and public health programs at Can Tho University of Medicine and Pharmacy from February to May 2024.

- **Inclusion criteria:** All full-time undergraduate students in the preventive medicine and public health programs at Can Tho University of Medicine and Pharmacy.

- **Exclusion criteria:** Students who did not agree to participate in the survey or were absent during the survey period.

2.2. Methods:

- **Research design:** A cross-sectional study design.

- **Sample Size and Sampling:**

The sample size is calculated as follows:

$$n = Z^2_{(1-\alpha/2)} \cdot \frac{p(1-p)}{d^2}$$

We use $Z=1.96$ with a 95% confidence level, $\alpha=0.05$. p : represents the estimated proportion of students with good study motivation according to Tran Thuy Duong and Le Tien Thanh study in 2018 on full-time nursing students at Hai Phong University of Medicine and Pharmacy, estimated to be 60.1%, so $p=0.601$. $d=0.05$ is the absolute error or precision. To ensure accuracy and account for possible non-responses, we added an additional 5% to the sample size and rounded the result, ($n = 368.5 + 5\% \times 368.5 = 390$). Therefore, the minimum sample size in our study is 390 students. In fact, the final sample size in our study was 406 students.

- **Sampling Method:** Convenience sampling.

- **Research scale:** The study utilizes the Academic Motivation Scale (AMS) developed by Vallerand, RJ and et al (1989). This university version has been authorized for use by Vallerand and translated into Vietnamese, with a Cronbach's alpha of 0.9191. This scale includes 28 questions divided into 7 subscales: (1) intrinsic motivation to know, (2) intrinsic motivation to accomplish, (3) intrinsic motivation to experience, (4) extrinsic motivation to identify, (5) extrinsic motivation to control, (6) extrinsic regulation, and (7) motivation. The final score is calculated by averaging the total scores for each subscale and

is converted into a Self-Determination Index (SDI). The SDI ranges from -18 (low self-determination) to +18 (high self-determination). Classification of Academic Motivation based on a 5-point Likert scale [11], as follows: lack of motivation ($-18.00 \leq \text{SDI} < -10.79$); very low motivation ($-10.80 \leq \text{SDI} < -3.59$); moderate motivation ($-3.60 \leq \text{SDI} < 3.59$); high motivation ($3.60 \leq \text{SDI} < 10.79$) and very high motivation ($10.80 \leq \text{SDI} \leq 18.00$).

- **Data collection method:** A self-administered questionnaire is distributed directly to the study participants during the break between periods and/or at the end of each session. The research team then returned to collect the completed questionnaires at the end of the session and/or according to each student's subsequent class schedule.

- **Statistical analysis:** data was analyzed by STATA 14.2 software. Descriptive statistics (percentages, means, and standard deviations) are used to describe the general characteristics of the study subjects and their academic motivation. Inferential Statistics: t-tests, ANOVA, and Pearson correlation are used to identify factors related to academic motivation. A significance level of $p < 0.05$ is considered statistically significant.

- **Ethics approval:** The study was conducted following approval by the Ethics Committee of Biomedical Research at Can Tho University of Medicine and Pharmacy, with approval number 23.085.SV/PCT-HĐĐĐ. Participants were informed, explained, and voluntarily agreed to participate. All participant information was anonymized to ensure privacy. The researcher ensured fairness and objectivity in the data collection and processing.

III. RESULTS

3.1. General Characteristics of the Research Participants

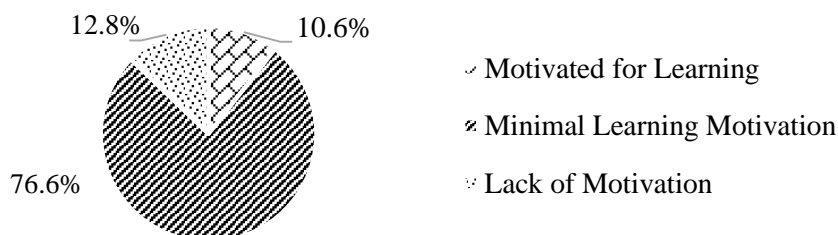
The average age of the study participants was 21.56 ± 2.13 years, with the youngest being 19 and the oldest being 32. Individuals under 23 years old made up 69.2% of the sample. Female participants accounted for 68.23%, and the majority were from the Preventive Medicine program, which represented 82.51% of the group. Among them, first-year students constituted the largest proportion at 22.66%, while sixth-year students made up the smallest proportion at 2.69%. The highest percentage of students had a good academic performance at 48.52%, while only 2.96% had a poor performance. Furthermore, family influenced significantly impacts the choice of study field, with a rate of 41.63%. The majority of students did not participate in any school clubs, with 63.55% not being involved. Competition for academic achievement and participation in clubs had a minimal impact on career orientation, affecting 40.15% and 59.44% of the students, respectively.

3.2. Components of Learning Motivation Among the Research Participants

Table 1. Components of Learning Motivation

Component	Mean (SD)
Intrinsic Motivation – to know	5.12 (1.09)
Intrinsic Motivation - toward accomplishment	4.88 (1.08)
Intrinsic Motivation - to experience stimulation	4.58 (1.07)
Extrinsic Motivation - identified	5.17 (1.04)
Extrinsic Motivation - introjected	4.74 (1.15)
Extrinsic Motivation - external regulation	4.21 (1.30)
Lack of Motivation	3.79 (1.48)
Motivation Classification	4.64 (0.88)

The mean score for Extrinsic Motivation - identified (5.17 ± 1.04) was the highest among the components of learning motivation. Conversely, the mean score for lack of motivation (3.79 ± 1.48) was the lowest. The mean score for the classification of learning motivation was 4.64 ± 0.88 .



Self Determination Index(SDI): Mean (SD: -7.52 (2.84)

Figure 1. Classification of Learning Motivation

A majority of students exhibit low levels of learning motivation, with 76.6% falling into this category. The study did not record data on students with high levels of learning motivation. The mean Standard Deviation Index (SDI) for the participants is -7.52 ± 2.84 , indicating that the learning motivation of the students is assessed as below satisfactory.

3.3. Some factors related to learning motivation

Table 2. The relationship between characteristics of students and learning motivation

Variables		Mean \pm SD	t, F	p value
Age	< 23 years	-7.31 \pm 2.96	t=2.33	0.02
	\geq 23 years	-8.01 \pm 2.45		
Gender	Male	-8.22 \pm 2.73	t=3.44	0.0006
	Female	-7.19 \pm 2.83		
Birth Order	Second-born	-7.41 \pm 2.76	t=1.92	0.06
	Other (3rd, 4th, 5th, etc.)	-7.61 \pm 2.86		
Family Member in Health Sciences Field	Yes	-7.75 \pm 2.84	t=1.92	0.06
	No	-7.20 \pm 2.81		
Majors	Preventive Medicine	-7.79 \pm 2.69	t=10.12	0.0000
	Public Health	-6.27 \pm 3.18		
Academic year	Year 1	-8.65 \pm 2.44	F=16.57	0.005
	Year 2	-8.21 \pm 2.56		
	Year 3	-6.10 \pm 2.88		
	Year 4	-6.09 \pm 2.97		
	Year	-8.57 \pm 1.97		
	Year	-6.44 \pm 2.93		
Academic Performance Classification	Excellent	-7.63 \pm 2.99	F=3.97	0.95
	Very Good	-6.61 \pm 2.86		
	Good	-7.62 \pm 2.79		
	Average	-7.95 \pm 2.68		
	Poor	-9.15 \pm 2.99		
Impact of Personal Achievement Competition in the Classroom	Significant impact	-7.35 \pm 2.90	F=0.64	0.16
	Slight impact	-7.72 \pm 2.61		
	No impact	-7.43 \pm 3.05		
Impact of Family on Career Orientation in Choosing a Field of Study	Significant impact	-7.52 \pm 2.87	F=0.12	0.90
	Slight impact	-7.44 \pm 2.78		
	No impact	-7.63 \pm 2.87		

Variables		Mean \pm SD	t, F	p value
Participation in Extracurricular Clubs at School	Yes	-6.88 \pm 2.88	F=3.51	0.0005
	No	-7.89 \pm 2.75		
Impact of Club Participation on Academic Motivation	Significant impact	-6.73 \pm 3.20	F=0.78	0.74
	Slight impact	-7.12 \pm 2.83		
	No impact	-6.41 \pm 2.99		

t = t test; F = ANOVA test

The differences in academic motivation based on age, gender, field of study, and participation in extracurricular clubs at school had a significant impact on career orientation, with $p < 0.05$.

IV. DISCUSSION

4.1. Learning Motivation Status of the Research Subjects

Students majoring in Preventive Medicine and Public Health demonstrate low levels of learning motivation, as evidenced by a Self-Determination Index (SDI) score of (-7.52 ± 2.84) . The majority, comprising 76.6%, exhibit very low learning motivation. This suggests that the motivation of Preventive Medicine and Public Health students is significantly lower compared to that of Nursing students at Can Tho University of Medicine and Pharmacy, where 60.7% of students report high learning motivation, with an SDI score of 4.66 ± 4.18 [12]. This level of motivation is also lower than that observed in a 2018 study at Hai Phong University of Medicine and Pharmacy, where 60.1% of students were characterized by "high learning motivation," with an SDI range from -10.92 to 13.38 and a median score of 5.08 [8]. The highest average score was observed in the domain of external motivation-determined value (5.17 ± 1.04), followed closely by internal motivation to know (5.12 ± 1.09). These types of motivation, which are highly autonomous and self-determined, are consistent with the findings of Tran Thuy Duong (2018) [8]. Internal motivation to know refers to engagement in activities driven by intrinsic enjoyment and satisfaction, while external motivation to determine pertains to external regulation through recognition. This suggests that Preventive Medicine and Public Health students derive joy, satisfaction, and interest from the learning process and acknowledge the importance of their studies in their respective fields. However, when considering the contribution of different types of motivation to overall learning motivation, the scores for both internal and external factors do not exhibit significant differences. This indicates that the learning behaviors of Preventive Medicine and Public Health students in our study are influenced equally by both internal and external motivational factors. Internal motivations encompass the pursuit of novelty, the desire to overcome challenges successfully, the experience of engaging in intriguing activities, and the sharing of these experiences with others. External motivations include defining future career paths, seeking control and self-validation, and striving for a better life. This finding is consistent with research conducted on Nursing students at Can Tho University of Medicine and Pharmacy [12].

4.2. Factors related to Learning Motivation

The research findings suggest that learning motivation among students is minimally influenced by related factors. Nevertheless, certain variables exert varying degrees of impact on learning motivation among students. Specifically, learning motivation in Preventive Medicine and Public Health students is associated with several factors, including age,

gender, academic major, year of study, and involvement in clubs/team activities, all of which exhibit statistically significant differences ($p < 0.05$). As detailed in Table 3.6, age ($p = 0.02$) demonstrates statistical significance. These results are congruent with the research conducted by Kusurkar *et al.*, which indicates that motivational strength escalates with age, particularly between the ages of 18 and 24 years [13]. This finding implies that older students tend to exhibit a heightened awareness of learning motivation, suggesting that age plays a pivotal role in shaping personal orientation. Younger individuals often have yet to clearly delineate a suitable career trajectory, frequently resorting to passive learning strategies, which in turn leads to diminished academic performance and motivation—particularly among Preventive Medicine and Public Health students. Conversely, older students possess greater experiential knowledge and practical understanding, which aligns with their personal aspirations, thereby fostering enhanced learning motivation. Moreover, Table 3.6 reveals that gender significantly influences learning motivation ($p = 0.0006$). Our research indicates that female students generally exhibit higher learning motivation than their male counterparts, a finding consistent with the results of Kusurkar *et al.* [14]. However, contrasting evidence from Hongbin Wu *et al.* suggests that female students may exhibit lower intrinsic motivation compared to male students [10]. Additionally, studies by Nguyen Thi Van Anh [15] and Nguyen Truong An *et al.* [7] suggest that gender does not exert a significant influence on student learning motivation. This indicates that the impact of gender on learning motivation may vary depending on the geographical context, academic discipline, temporal framework of the research, and the educational environment. The academic characteristics of the research subjects indicate that academic major and participation in extracurricular clubs exhibit statistically significant effects, consistent with findings from a study conducted at Hue University of Medicine and Pharmacy in 2019 [7]. Participation in clubs enables students to mitigate stress, foster an academic communication environment among students from different cohorts and instructors, and develop a variety of competencies, thereby enhancing learning motivation. Additionally, differences in learning motivation related to academic major, year of study, academic performance, competition for individual academic achievements within the class, and having family members employed in the health sciences do not demonstrate a significant impact on learning motivation ($p > 0.05$). This research was conducted among Preventive Medicine and Public Health students, a demographic for which limited research on learning motivation exists in Vietnam. The study assessed learning motivation among Public Health students across various dimensions (age, gender, academic major, etc.) and related factors (individual competition, familial influence, participation in clubs/team activities, etc.), employing a scientific approach to provide a more nuanced and accurate understanding. This constitutes a strength of the study, although it still bears certain limitations concerning the research scope. The study was general and descriptive, lacking a comprehensive evaluation of the research problem. Furthermore, the factors influencing learning motivation are heavily contingent upon the environmental context and timing of the research. The study was also constrained to Public Health students, rendering it challenging to generalize findings related to learning motivation and associated factors among students in other health sciences disciplines. Nonetheless, the study's findings offer an educational perspective for evaluating various factors to inform strategies for enhancing learning motivation among Preventive Medicine and Public Health students specifically and health sciences students more broadly in future research endeavors.

V. CONCLUSION

Preventive Medicine and Public Health students have poor learning motivation, with an SDI index (-7.52 ± 2.84). The survey showed that differences in age, gender, major, and club participation at the school were factors found to be related to the learning motivation of Preventive Medicine and Public Health students. From there, it is necessary to pay a lot of attention to the subjects in the early years of study, and strengthen the extracurricular activities on learning, thereby creating conditions to help improve the learning motivation for students majoring in Preventive Medicine and Public Health students.

REFERENCES

1. Mai Thi Truc Ngan, Nguyen Do Bich Nga, Huynh My Tien. Factors Influencing Learning Motivation of Economics Students at Hong Bang International University. *Institute of Business and Management - Hong Bang International University, Journal of Education*. 2020. No. 472, 22-28.
 2. Bomia Lisa, Beluzo Lynne, Demeester Debra, Elander Keli, Johnson Mary, Sheldon Betty. The Impact of Teaching Strategies on Intrinsic Motivation. 1997.
 3. Durbin A.J. Human Relations for Career and Personal Success. Upper Saddle River, N.J.: Pearson Education, 2008.
 4. Murphy Alexander. A Motivated Exploration of Motivation Terminology. *Contemporary Educational Psychology*. 2000. 25, 3 – 53.
 5. Pelaccia T, Viau R. *Med Teach*. Motivation in medical education. 2017.
 6. Bin Abdulrahman Khalid A; Alshehri, Abdulrahman S; Alkhalifah, Khalid M; Alasiri Ahmed; Aldayel, Mohammad S; Alahmari, Faisal S; Alothman, Abdulrahman M; Alfadhel, Mohammed A. The Relationship Between Motivation and Academic Performance Among Medical Students in Riyadh. 2023.
 7. Nguyen Truong An, Tran Thi My Huyen, Phan Van Thang, Ha Minh Phuong, Vo Phuc Anh, etc. A Study on Factors Related to Learning Motivation of Students at Hue University of Medicine and Pharmacy. Hue University of Medicine and Pharmacy. 2020. Vol. 10, No. 1.
 8. Tran Thuy Duong, Le Tien Thanh, Nguyen Thi Hoa, Thai Lan Anh. Academic motivation among undergraduate nursing students at Hai Phong University of Medicine and Pharmacy in. 2018. 02(01).
 9. Regzedmaa Dalanbayar, Tsend-Ayush Damba, Oyungoo Badamdorj. Academic Motivation in Medical Education: A Literature Review. 2024.
 10. Wu H, Li S, Zheng J, Guo J. Medical student's motivation and academic performance: the mediating roles of self-efficacy and learning engagement. *Med Educ Online*. 2020. 25(1), 1742964, doi: 10.1080/10872981.2020.1742964.
 11. Brown S. Likert scale examples for surveys. ANR Program evaluation, Iowa State University, USA. 2010.
 12. Huynh Thi Ngoc My, Nguyen Thi Xuan Huynh, Nguyen Huynh Truc Manh, Le Quang Minh, Vo Minh Thu, Nguyen Van Tuan, Huynh Van Loc, Nguyen Thanh Liem. Academic motivation and associated factors among nursing students at Can Tho University of Medicine and Pharmacy. *Can Tho Journal of Medical and Pharmacy*. 2023. No. 01, DOI:10.58490/ctump.2023i62.432.
 13. Kusurkar, R., Kruitwagen, C., ten Cate, O. *et al*. Effects of age, gender and educational background on strength of motivation for medical school. 2010. *Adv Health Sci Educ Theory Pract*. 2010. 15(3), 303-13, doi: 10.1007/s10459-009-9198-7.
 14. Kusurkar, R.A., Croiset, G., Galindo-Garré, F. *et al*. Motivational profiles of medical students: Association with study effort, academic performance and exhaustion. *BMC Med Educ*. 2013. 19, 13(87), doi: 10.1186/1472-6920-13-87.
 15. Nguyen Thi Van Anh, Karen D. Könings, Albert J. J. A. Scherpbier, Pamela Wright, Hoat Ngoc Luu and Jeroen J. G. van Merriënboer. Preventive medicine as a first- or second-choice course: a cross-sectional survey into students' motivational differences and implications for information provision. *BMC Res Notes*. 2017 Aug 10. 10(1), 383, doi: 10.1186/s13104-017-2706-6.
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