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Determining the Relationship between Learning Styles and Mental Vitality in Nursing and Midwifery Students

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A B S T R A C T

Introduction: The main goal of an education system in any country is to facilitate learning, influenced by factors such as intelligence, motivation, supportive environments, family and social dynamics, educational standards, and the quality of teachers. This research investigated the relationship between learning styles and the mental well-being of students in nursing and midwifery programs.

Materials & Methods: In 2024, 194 nursing and midwifery students at Ilam University of Medical Sciences participated in this cross-sectional study. The VARK Learning Styles Questionnaire, the Subjective Vitality Scale (SVS), and a demographic form were employed to gather data. The questionnaires were submitted by all participants, who met the inclusion criteria. The instruments' validity and reliability were verified in previous research. Using descriptive statistics, correlation tests, and multiple linear regression with a significance level of $p < 0.05$, the data were analyzed in SPSS version 22.

Results: A significant proportion of students exhibited a dominant learning style characterized by visual preferences, accounting for 31.4% of the population. The subsequent styles were reading/writing, auditory, and kinesthetic. The average score of students' mental vitality was 25.65, accompanied by a standard deviation of 4.20, suggesting a relatively positive level of mental vitality among the participants. The most significant correlation between mental vitality and visual style was observed ($r = 0.39$), followed by kinesthetic, auditory, and reading/writing styles in that order.

Conclusion: Medical education system administrators are advised to consider students' chosen learning styles and provide training for professors via educational workshops to transform existing methodologies and enhance students' cognitive engagement.

Keywords: Education, Learning, Subjective, Nursing, Midwifery

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Introduction

The primary objective of any nation's education system is learning, which is shaped by various factors including intelligence, motivation, environmental conditions, familial and social influences, the quality of schools, and the caliber of instructors (1, 2). The learning process involves active student participation in the acquisition of information and the creation of knowledge. Their preferred learning styles are crucial in improving student learning and developing their abilities, talents, and competencies in nursing education (3). The learning style of learners is a significant factor influencing their educational outcomes. Students originate from various backgrounds, experiences, cultures, and preferences in learning styles. Many have been instructed primarily through rote learning and have limited options regarding the pedagogical approaches employed. Students entering health professional programs, such as nursing and midwifery, encounter various teaching and learning methodologies at universities. Students commence courses requiring practical learning, reading, writing, critical analysis, and autonomous study (3). Recognizing students' preferred learning styles significantly determines academic success (3). Learning styles refer to the cognitive, emotional, and physiological traits that consistently influence how students perceive, engage with, and react to their learning environment (5, 6). Learning styles refer to individual methods to comprehend, retain information, and develop knowledge or skills (7). Various scales are used to assess learning styles, with the Wark Learning Styles Model being utilized in medical education in recent years. Wark encompasses four sensory modalities: visual, auditory, reading/writing, and kinesthetic, among others. Wark's learning style was characterized by the framework established by Fleming and Mills (2004). This model categorizes learners into subgroups according to their abilities: those with strong visual function (visual style), those with strong reading and writing function (reading and writing style), those with strong auditory function (auditory style), those with strong motor skills (motor style), and those with multiple functions who engage two or more abilities concurrently in learning (8-10).

Conversely, cheerfulness represents a novel psychological concept, characterized as a positive emotion comprising three fundamental elements: pleasure, satisfaction, and life satisfaction (11). Mental cheerfulness is defined as the absence of fatigue and the presence of vitality in learners, contributing to enhanced learning and academic progress (12). Cheerfulness denotes a positive and constructive response to challenges and obstacles encountered in various domains, illustrating resilience within positive psychology. It is defined as the capacity of learners to effectively navigate common obstacles and academic challenges faced throughout their academic journey (13). Mental well-being comprises the elements of coordination, commitment, control, calmness, and self-confidence. An internal sense of well-being is a crucial indicator of mental health, underpinning academic progress. When students engage in spontaneous activities, they experience a lack of fatigue or frustration and a notable increase in energy and strength (12, 14). Many experts assert that happiness and cheerfulness ought to be the primary objectives of education (14, 15). The individual’s mental cheerfulness is enhanced through actions associated with independence and intrinsic motivation, which are critical factors influencing productive and successful education and learning, as well as the development of qualities and skills (16). If an individual perceives that others control him, his mental well-being diminishes. Mental cheerfulness enhances life attitude, positive emotions, self-concept, social functioning, and overall favorable disposition (17). The absence of mental cheerfulness represents a significant and prevalent educational challenge encountered by learners, manifesting in the following ways: A disconnect exists between academic aspirations and expectations, illustrated by insufficient interaction with teachers and peers, incomplete assignments, low grades, subpar

academic performance, academic burnout, and a disparity between educational aspirations and expectations (18). Insufficient vitality contributes to behavioral issues, including sadness, aggression, and depression. Consequently, to address these challenges, learners in educational settings choose, organize, and assess their learning activities while guiding their learning process (17-19).

In high-pressure educational settings like nursing and midwifery programs, students encounter various challenges that can result in diminished motivation, heightened psychological stress, anxiety, and a subsequent decline in mental vitality. Psychological stress, the abundance of educational materials, and demanding clinical environments necessitate that students adopt efficient learning strategies and maintain a positive attitude to enhance their performance in both academic and clinical settings (2, 4). Adjusting teaching methods to accommodate diverse student learning styles can improve learning outcomes and mitigate frustration and apathy, potentially influencing the learning environment (2, 20).

Zhou et al. (2018) conducted a study in China indicating that identifying students' learning styles can enhance motivation and improve learning efficiency and quality. Learning styles assist nursing and midwifery educators design curricula and implement teaching methods that engage students and positively impact their learning environment. The authors assert that a crucial element of delivering effective curriculum content is utilising diverse teaching styles that engage and appeal to learners.

Chen et al. (2021) demonstrate that selecting a teaching method aligned with nursing students' learning styles enhances participation and satisfaction while reducing anxiety and stress. Academic life represents a crucial phase in an individual's development, significantly influencing their abilities, educational advancement, and psychological well-being. Consequently, it is essential to consider psychological traits, such as mental vitality, in the context of these learners during the learning and teaching process. While extensive research exists on individual learning styles and mental well-being, a notable scarcity of studies concurrently investigates the interplay between these factors within the context of nursing and midwifery students. This study examined the correlation between learning styles and the mental well-being of nursing and midwifery students. This research provides a foundation for developing targeted educational programs and interventions to enhance students' mental health.

Materials and methods

This study was designed as a cross-sectional analysis to be conducted in 2024. The research population comprised 194 nursing and midwifery students from the Faculty of Nursing and Midwifery at Ilam University of Medical Sciences. Following the acquisition of the ethics code, the researcher conducted a primary assessment and, after screening, distributed the online link to the eligible participants. All participants completed the questionnaires during the data collection, resulting in a 100% response rate, with none excluded from the study. Individuals aged 18 years and older, with at least one semester completed at the university, were included based on the criteria. The exclusion criteria comprised unwillingness to participate in the study, enrollment from other universities, and incomplete questionnaire submissions.

Instruments were included Demographic Information Form, Subjective Vitality Scale (GVS), VARK Learning Styles which first one contained age, gender, marital status, field, and semesters, second one named the Subjective Vitality Scale (SVS), created by Ryan and Frederick in 1997, measures an individual's present vitality and energy levels (1). The self-report scale comprises seven items, each evaluated on a 5-point Likert scale from 1 (“strongly disagree”) to 5 (“strongly agree”). The total score varies from 7 to 35, with elevated scores reflecting increased levels of subjective vitality.

The original version exhibited strong internal consistency, indicated by a Cronbach's alpha of 0.94, and its construct validity was established through factor analysis. An Iranian study on the Persian scale version reported a Cronbach's alpha of 0.72. The item-total correlations varied between 0.58 and 0.81, indicating the scale's validity. Reliability coefficients in other Iranian studies have varied between 0.88 and 0.98 (2). The third one included the VARK learning styles questionnaire, created by Fleming and Mills in 2004, evaluates individuals' preferred learning modalities. The scale comprises 16 items, each offering four response options aligned with four domains: Visual, Auditory (Aural), Read/Write, and Kinesthetic. The items are developed from real-life scenarios, with respondents instructed to choose the option that most accurately reflects their typical behaviour or preference. Scoring entails quantifying the responses linked to each learning style, facilitating the identification of dominant, bimodal, trimodal, or multimodal learning preferences. If a respondent selects multiple options for an item, all chosen preferences are incorporated into the scoring. A higher score in any learning domain signifies a greater preference for that specific learning style. The original version's reliability and validity were established by Fleming (2004) and have been corroborated by international studies in nursing and educational contexts (1–3). The psychometric properties of the Persian version in Iranian studies have been validated, with Cronbach's alpha coefficients reported between 0.86 and 0.97 across various Iranian samples (3).

Data entered into SPSS 22 were analyzed using descriptive tests, including frequency, mean, and standard deviation, and analytical tests, such as correlation tests and linear regression models, at a significance level of less than 0.05.

Findings

Descriptive Results

The normality of the data was evaluated through the Kolmogorov-Smirnov test, revealing that all data conformed to a normal distribution ($P > 0.05$). A significant proportion of participants were female students (69.6%) and nursing students (60.8%). Furthermore, the majority were aged 18–22 years (50%), single (79.9%), and enrolled at the undergraduate level (85.6%). The Chi-square test indicated no significant differences between demographic characteristics and dominant learning style ($P > 0.05$) (Table 1).

Table 1. Demographic characteristics

Variables	Group	Frequency (%)	Chi-square value	*P*value
Gender	Female	135 (69.6)	3.21	0.073
	Male	59 (30.4)		
Age	18–22	97 (50)	6.13	0.067
	23–27	78 (40.2)		
	28–32	19 (9.8)		
Field of Study	Nursing	118 (60.8)	1.96	0.161
	Midwifery	76 (39.2)		
Marital Status	Single	155 (79.9)	2.05	0.152
	Married	39 (20.1)		
Educational Degree	Bachelor's	166 (85.6)	0.83	0.363
	Master's	28 (14.4)		
Semester	Semester 2	49 (25.3)	5.94	0.115
	Semester 4	51 (26.3)		
	Semester 6	47 (24.2)		
	Semester 8	47 (24.2)		

The predominant learning style identified among students was A quadruple learning style, accounting for 31.44%, followed by One, dual and triple learning styles in that order (Fig 1).

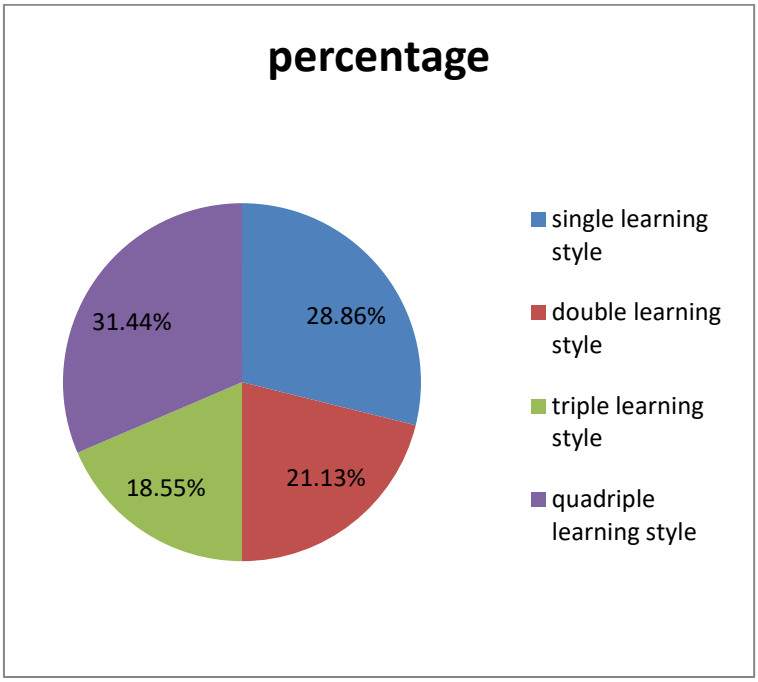

Fig 1. Dominant Learning Styles among Students.

Analytical Results

The mean score for students' subjective vitality was 25.65 ± 4.20, with a range of scores from 13 to 35, suggesting a generally favorable level of mental vitality among the participants. The data distribution exhibited an approximate normality, characterized by the absence of significant skewness or kurtosis (Table 2).

Table 2. Statistical Indices of Students' Subjective Vitality Scores.

Statistical Index	Value
Sample Size (n)	194
Mean ± SD	25.65 ± 4.20
Minimum	13
Maximum	35
Median	25
Skewness	0.32
Kurtosis	-0.55

A noteworthy and substantial correlation was identified between all learning styles and subjective vitality ($P < 0.05$). The most significant correlation was observed for the visual style ($r = 0.39$), followed by kinesthetic, auditory, and read/write styles (refer to Table 3).

Table 3. Correlation between Learning Styles and Subjective Vitality.

Learning Style	Correlation Coefficient (r)	*P*Value
Visual	0.39	0.0001
Auditory	0.29	0.0018

Read/Write	0.24	0.0071
Kinesthetic	0.33	0.0004

Table 4 displays the comprehensive correlation matrix among the research variables. The findings indicate that all relationships are positive, exhibiting a low to moderate strength. The learning styles exhibit minimal overlap, indicating low interrelationships; however, their correlation with mental well-being is statistically significant.

Table 4. Correlation Matrix between Learning Styles and Subjective Vitality.

Variables	Visual	Auditory	Read/Write	Kinesthetic	Subjective Vitality
Visual	1	0.21*	0.18	0.22*	0.39**
Auditory		1	0.16	0.25*	0.29**
Read/Write			1	0.19	0.24*
Kinesthetic				1	0.33**
Subjective Vitality					1

All learning styles emerged as significant predictors of subjective vitality. The ultimate model accounted for 38% of the variance in vitality scores. Visual ($P < 0.001$, $\beta = 0.28$) and kinesthetic ($P < 0.001$, $\beta = 0.23$) learning styles significantly predicted subjective vitality, as illustrated in Table 5.

Table 5. Predicted subjective vitality.

Independent Variables	Beta (β)	Std. Error	*t* Value	*P* Value
Visual	0.28	0.06	4.67	< 0.001
Auditory	0.21	0.07	3.00	0.003
Read/Write	0.17	0.07	2.43	0.016
Kinesthetic	0.23	0.06	3.84	< 0.001
R^2	0.38			

Discussion

This study examined the correlation between learning styles and mental vitality in nursing and midwifery students. Findings indicated that the predominant learning style within this cohort was visual, which exhibited the strongest association with cognitive vitality. Consistent with these findings, Ahmadinia et al. (2022) reported that 35.1% of second-semester students and 29% of third-semester students at Rafsanjan University favoured the visual style (22). Magolod (2019) found that students preferred visual and kinesthetic learning styles (23). Al-Harbi et al. (2017) demonstrated that nursing students favoured visual learning styles, with active learning styles being the second preference (24). The learning style favoured in this study diverged from findings in several previous studies (4, 25-27). This discrepancy may stem from variations in individual characteristics of the participants, such as experience and motivation, alongside differences in educational settings, instructional approaches, participant numbers, and cultural contexts. Considering the varied learning styles of university students, it is crucial for faculty and planners to recognise this diversity and tailor their teaching programs and methods to meet student needs, thereby enhancing academic and learning efficiency to the greatest extent possible. Nursing and midwifery education necessitates faculty who employ diverse active teaching strategies, including role-playing, practice and repetition, brainstorming, simulation, and

demonstration, to impart care principles to students (28).

One of the notable findings of this study was the lack of significant differences between demographic variables (such as age, gender, field of study, marital status, and semester of study) and dominant learning style. This result suggests that demographic factors do not necessarily influence learning style choice or preference and may be more influenced by cognitive characteristics, previous experiences, or even the structure of educational courses. Some studies have shown no significant differences in learning style preference based on age and gender (29). Some studies have also highlighted the effect of gender, academic year, and educational background on students' preferred learning styles, in contrast to the current research (9, 22). This difference may be due to individual characteristics, differences in the study population, learning style questionnaires used, and different educational backgrounds among participants. Another finding of the present study was the relatively favourable level of mental vitality among students (mean 25.65). This level could reflect the supportive educational and social environments in universities. However, given the wide range of scores (13 to 35), it can be concluded that some students are also exposed to lower levels of mental vitality that require attention and intervention. Mental vitality is a key factor affecting a person's productive and successful education and learning. Also, where qualities and skills are developed, mental vitality increases by performing actions related to independence and intrinsic motivation (30, 31). Fathi et al.'s study reported a mean of 25.19 with a standard deviation of 4.55 among students, and based on the findings, 36% of the variance in students' mental vitality was explained by university well-being components and achievement goals (32). The positive and significant correlation between all learning styles and mental vitality, especially visual (r=0.39) and kinesthetic (r=0.33) styles, indicates the importance of adapting educational content to learners' preferred styles. These styles are the strongest predictors of mental vitality, explaining 38% of the variance. In fact, students who are able to learn through their preferred style are likely to experience greater feelings of achievement, motivation, and satisfaction (2), which can lead to increased mental well-being. Magoglud (2019) found that students preferred visual and kinesthetic learning styles and demonstrated exemplary and cheerful academic performance (23).

The present results were consistent with a survey conducted by Alkooheji and Al-Hattami (2018) in Bahrain. This study found that language learners preferred visual and kinesthetic learning styles (33). As also noted by Al-Harbi et al., nursing students preferred visual learning styles, followed by kinesthetic learning styles (34). Nursing students can demonstrate a visual learning style at early levels of education, where students are expected to learn while watching clinical instructors perform specific nursing tasks (34). The kinesthetic style engages the student who prefers hands-on experience or participatory knowledge. These students learn best by taking on physical roles in the learning process. Kinetic learners learn best through physical activities rather than listening or watching. In addition, visual learners are characterized by excellent evaluation, verification, and synthesis of information with the help of meaningful symbols in graphic presentations (35).

To help nursing students learn better, nursing educators should emphasize the importance of creating curricula that focus on visual and active learning styles to improve students' learning process (35). Also, the results of a study showed that the kinesthetic learning style is the most popular learning style for Saudi Arabian nursing students (36). According to Elgzar et al. (2019), in students who prefer the kinesthetic learning style, learning occurs when students are physically active, rather than listening to lectures or watching demonstrations. Therefore, nursing students with a kinesthetic learning style prefer to have practical practice while

learning. This method suits nursing students in educational and simulation laboratories or clinical environments (25). These studies are also in line with the results of the present study. Students prefer active learning strategies, and the kinesthetic style induces active thinking in students. This is not far-fetched for nursing and midwifery students because their field involves practicality, and students have a close relationship with their patients and therefore support this style. Given the differences in learning styles among university students, it is suggested that professors and educational planners design and implement their teaching programs and methods according to the needs of students in order to improve educational efficiency, academic and mental vitality, and learning outcomes as much as possible. In this way, students will be expected to increase their interest in studying and actively participate in classes. However, neglect or insufficient attention to students' learning styles reduces the effectiveness of professors' educational activities and students' academic motivation, leading to their academic decline (37).

The findings showed that the dominant learning style among nursing and midwifery students was multi-style (71%), which is consistent with the study by Peyman et al. (38) which aimed to determine the learning style of first-year nursing students in Ilam, and 56% of them preferred a mixed learning style. The results of the study by Behnam Moghadam et al. (39) showed that 70% of the learning styles of nursing, midwifery, and emergency medicine students had chosen only one type of learning style, and 30% had preferred a mixed learning style. This difference in results may be due to cultural, environmental, personal interests, and the number of study samples.

Among the study's limitations are the limited statistical population of nursing and midwifery students and the lack of direct access to students' GPAs, and obtaining this information from the students themselves. It is recommended that higher education system officials be sensitive to professors' teaching methods and hold workshops to make professors aware of teaching styles.

Conclusion

Considering learning styles, particularly visual and motor modalities, among nursing and midwifery students can significantly enhance their cognitive engagement and overall mental vitality. Professors and educational designers are advised to employ various methods that align with these styles during the educational process. Psychological support and mental health promotion programs appear essential for students with diminished vitality levels. To transform existing educational methodologies and enhance students' cognitive engagement, medical education authorities must consider students' preferred learning styles and provide training for professors through educational workshops.

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Ethics approval

The ethical considerations included adherence to the ethics code (IR.MEDILAM.REC.1403.107), maintaining honesty in the library collection and data reporting, obtaining written informed consent from all participants in accordance with the Declaration of Helsinki's guidelines, and following established principles for conducting interventions involving human subjects.

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Conflict of interest

The authors have declared no conflict of interest.

Authors' contributions

Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing– Original Draft Preparation, Writing–

Review & Editing, Visualization, Supervision, Project Administration: FN, RN, MJ, AV.

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