



Original Research Article

Reflective Teaching Strategies to Promote Healthy Learning Behaviour Among Nursing Students

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Name of Author:

Aqib Dil Awaiz¹, Sarfraz Masih² and Madiha Mukhtar³

Affiliation: ¹MSN Student, Lahore School of Nursing, The University of Lahore.

²Professor, Lahore School of Nursing, The University of Lahore.

³Associate Professor, Lahore School of Nursing, The University of Lahore.

Corresponding Author:

Aqib Dilawaiz

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Abstract: **Background:** Students studying at universities are thought to be more susceptible to health issues during this time. They must deal with having to leave home, becoming more independent, having to adjust to new social situations, changing peer groups, maintaining academic responsibilities, and having poor or compromised health status. This study is aimed to determine the effect of reflective teaching strategies to promote healthy learning behavior among nursing students. **Methodology:** A quasi-experimental (pre-posttest) study design was carried out at A Private College of Nursing Multan, Punjab from July 2024 to April 2025. A Non-Probability Purposive sample of n=146 BS nursing students was recruited. A Validated and reliable tool of health promoting learning behaviors was used to collect data. Initially, the pre-intervention was performed to assess the healthy learning behaviors at baseline, then reflective teaching sessions (10 sessions) were provided to the participants during the period of September 2024 to November 2024. After one month of the intervention period, post intervention assessment was conducted. At the end of data collection, the data was entered and analyzed using SPSS version 25, considering P. value < 0.05 as significant. **Results:** Findings revealed that all participants fell into poor healthy learning behaviors category (100%) before intervention, while post-test results indicate that majority of participants (n = 97; 66.4%) advanced to the excellent healthy learning behavior. It was also found that after the intervention, the mean healthy learning behavior score was increased from 31.08 to 65.28 with a p-value of 0.000, there was a statistically significant difference in the healthy learning behaviors before and after the intervention. **Conclusion:** The effective accomplishment of the impact of reflective teaching strategies on healthy learning behavior among nursing students was observed in this study as it was evident that the learning behaviors improved significantly after the intervention.

Keywords: Reflective Practice, Teaching Methods, Learning Behavior, Students' Learning.

INTRODUCTION

Nurses are the backbone of the healthcare profession. Their major role is to provide good quality care to patients along with health education that helps to pursue healthier choices in their lifestyle. However, it is noted that although they provide health care and health education to patients but when it comes to their own, they ignore many things and are not always able to make healthy behavioral changes (Davis et al., 2021).

Moreover, eating and physical activity behaviors established during childhood are likely to be tracked into adolescence and adulthood (Brown et al., 2022)

They also lack a deep understanding of the problems that their patients face. Therefore, many problems that are patient-related persist, so to practice and reflect the health promoting behavior is quite challenging in a safe environment (Inglis & Nelson, 2020). Previous studies have shown reflective learning reimbursements to those putting it into practice in terms of learning content, skills, and values. Students learn through the application process of integrating theoretical concepts, problem-based learning, and reflective practice, which according to Evans, favors learning outcomes (Alarabi et al., 2025).

Professors used the flipped teaching classroom “By

the Student” teaching method and promoted using Facebook and Google Form as learning platforms. The reflective practice journal is a teaching methodology that facilitates the acquisition of professional, attitudinal values and skills, affording comprehensive training by reflecting on experiences that have been lived and showing feelings that, a priori, would be hidden (Murillo-Llorente et al., 2021).

Under flipped teaching, nursing lecturers have begun employing scenario-based learning to increase self-confidence, professional capabilities, teamwork, and communication abilities in their nursing students. These experiences have encouraged scholars to incorporate different teaching methods into the nursing curriculum.

Universities and hospitals are stressful environments, resulting in high rates of occupational stress, leading to burnout. Stress can invoke physical and mental long-term effects that, along with anxiety, are the foremost-diagnosed conditions in college students (Bamber & Morpeth, 2019). Healthcare students enter a profession where anxiety and burnout are common (Hughes et al., 2021).

A 2019 study acknowledges that 65.6% of college students experience overwhelming stress and anxiety (Zaidlin et al., 2020). Stress and anxiety often lead to high attrition (Hughes et al., 2021). A recent nationwide workplace survey of approximately 1,200 nurses revealed that half (49%) are contemplating leaving their jobs (ANF, 2022). This is costly when you consider the resources that are used for training new nurses (Rushton et al., 2021).

Therefore, nursing curricula should adopt reflective learning methodologies as an experiential learning pedagogy to provide opportunities for students to engage with their community and increase their knowledge. Moreover, as reflective learning takes place in a real-life situation, this provides essential knowledge and experience needed for caring for diverse community backgrounds as future registered nurses (Glòria et al., 2022).

Reflective learning journals are recognized as a significant tool in promoting active learning among nursing students. Essentially, nurse educators strive to encourage students to think about past experiences, current situations, and expected outcomes of their actions so that they can explain what they do in the clinical setting and why. In other words, nurse educators seek to promote professional practice that is reflective rather than routine (Fernandez, 2023).

Students studying at universities are thought to be more susceptible to health issues during this time. They must deal with "having to leave home, becoming

more independent, having to adjust to new social situations, changing peer groups, maintaining academic responsibilities, and having more access to alcohol and drugs." Due to the detrimental effects of the surroundings on their physical and mental well-being, they are also exposed to smoking. Spiritual development, health responsibility, interpersonal relationships, stress management, physical activity, and nutrition are the six components of a healthy lifestyle. People who are empowered by health promotion are better able to control the variables that affect their health and, when necessary, alter their lifestyle in order to maintain or improve their health (Ghabeesh, 2021).

Previous research demonstrating the efficacy of reflective teaching in fostering self-awareness and health-conscious behaviors is strongly supported by the notable change in health habits following the reflective intervention. The intervention was most successful in lowering smoking in a previous trial, with 65.8% (75 students) either quitting or only smoking sometimes. The mean values before and after the intervention differed by 10.6 (95%CI 8.7–12.6; $p < 0.001$). Of those who attempted weight loss, 155 (52%) succeeded in reaching the goal of dropping 3 kg. 4.8 kg was the average weight loss (95%CI 4.6–5.1; $p < 0.001$) (Pérez-Rivas et al., 2023).

Another study also found that the intervention group showed a persistent improvement in the follow-up phase, scoring 2.4 points higher on the total PC in the post-test ($p < 0.001$) than the control group. Significant gains were also discovered in other areas, including physical examination and communication abilities (Mohajer et al., 2024).

Despite the growing awareness of the importance of health education, there remains a noticeable gap in understanding how reflective teaching practices contribute to the development of health-promoting behaviors among students. Traditional teaching approaches often focus solely on the transmission of information, neglecting the holistic aspects of student well-being. As a result, there is a pressing need to investigate the role of reflective teaching in cultivating a learning environment that not only imparts knowledge but also instills behaviors conducive to health and well-rounded development (Guerrero, 2023).

OBJECTIVE OF THE STUDY

1. To determine the effect of reflective teaching strategies to promote healthy learning behavior among nursing students.

MATERIAL AND METHODS

A quasi-experimental (pre-posttest) interventional study was conducted among BS Nursing Students at a

private College of Nursing Multan, Punjab from July 2024 to April 2025. A non-probability purposive sample of n=146 was recruited based on the inclusion criteria.

Inclusion Criteria

- BS Nursing Students of a private College of Nursing Multan.
- Male and Female students with age of 18 and above 25

Exclusion criteria

- BS Nursing Students those are on medical leave.
- Participants who face recent family trauma (within 6 months).
- Participants who freeze/withdraw their semester.

The pre intervention data collection was performed during the months of July 2025 to August 2025 where healthy learning behavior was obtained. It was assessed individually at their respective class rooms using data collection tools. The study tools was, Demographic Questionnaire and healthy learning behavior scale tool.

In interventional phase, the Reflective Teaching session was delivered to BS Nursing students to promote healthy learning behavior after institutional consent. Ten reflective teaching sessions were delivered to BS Nursing students. One session was delivered in one weeks. Ten sessions were delivered and required three months (September, October and November 2024) to be completed. Each session was contained at least 90 minutes. Ten session required 15 hours. The Reflective teaching strategies used for these sessions is Lecture cum demonstration, Role Modeling and Discussion method.

Following the execution of the intervention, one month after the intervention during January and February 2025, post assessment was done. The data was entered and analyzed while using SPSS version 25. Descriptive statistics were used to describe and examine frequencies, percentages, measures of central tendency (mean, median), and dispersion (standard deviation). Furthermore to assess the impact of reflective teaching on healthy learning habits among nursing students in pre and post intervention groups, inferential statistics were examined using nonparametric tests such the Wilcoxon sign rank test, with a p-value of less than 0.05 as significant.

RESULTS

This chapter outlines the analysis and interpretation of various findings identified during this study. First of all, the demographic findings are presented, then the levels of health learning behaviors before and after the interventions are presented in frequency and percentages as poor, fair and excellent health learning behaviors. At the end Wilcoxon sign rank test is used to compare the mean score before and after the intervention for health learning behaviors. The results very efficiently organized according to the study objectives, beginning with a description of the participants' demographic data, followed by an analysis of pre- and post-intervention outcomes.

Tables 1: Demographic Characteristics of the Study Participants (n = 146)

S. No	Demographic Characteristic	Frequency (n)	Percentage (%)
1	Gender		
	Female	97	66.4
	Male	49	33.6
2	Marital Status		
	Unmarried	142	97.3
	Married	4	2.7
3	Age Group		
	18–22	85	58.2
	23–25	53	36.3
	Above 25	8	5.5
4	Financial Status		
	Good	23	15.8
	Moderate	123	84.2
	Worse	0	0.0
5	Entrance Year		
	2021	49	33.6
	2022	49	33.6
	2023	48	32.8
6	Chronic Illness		
	Yes	0	0.0

	No	146	100.0
7	Perceived Health		
	Very Good	38	26.0
	Good	104	71.2
	Moderate/Bad	4	2.8
8	BMI		
	Underweight	48	32.9
	Normal	87	59.6
	Overweight	9	6.2
	Obese	2	1.4
9	Living Arrangement		
	Day Scholars	50	34.2
	Hostellite	96	65.8

Table 1 provides a concise summary of the demographic information of the study participants (n = 146). According to the demographic profile of the study, a majority (66.4%) of the participants were female, and comparatively a lower number (33.6%) were male. Looking at the marital status, a very high portion, (97.3%) of respondents were unmarried, while only few (2.7%) respondents reported being married. Moreover, a majority of individuals were aged 18 to 22 (58.2%), followed by those aged 23 to 25 (36.3%), with a small number (5.5%) over 25 years of age. When asked their financial status, a good majority of the study participants (84.2%) reported possessing a moderate financial history, whereas 15.8% indicated a good financial background. No one claimed to have a worst financial status. The distribution of entering years was rather even, with 33.6% entering in to the program in 2021, similarly 33.6% entered in 2022, and 32.8% entered in 2023. When asked about chronic illness, all participants reported no chronic illnesses, indicating their overall health is not affected in this regard. Furthermore, a majority of individuals (71.2%) rated their health as "good," whereas (26%) considered it "very good," and only 2.8% assessed it as "moderate/bad". Looking at the body mass index (BMI), (59.6%) exhibited a normal (BMI), whereas (32.9%) were classified as underweight, 6.2% as overweight, and 1.4% as obese. Ultimately, regarding their residence, more than two-thirds (65.8%) of the respondents resided in hostels, whereas 34.2% were day learners. Overall the demographic profile revealed that the majority of participants were young, unmarried female students from a middle-class background, in good health, and living in hostels.

Health Learning Behaviors Among the nursing students (n=146) Per -Intervention and Post-Intervention

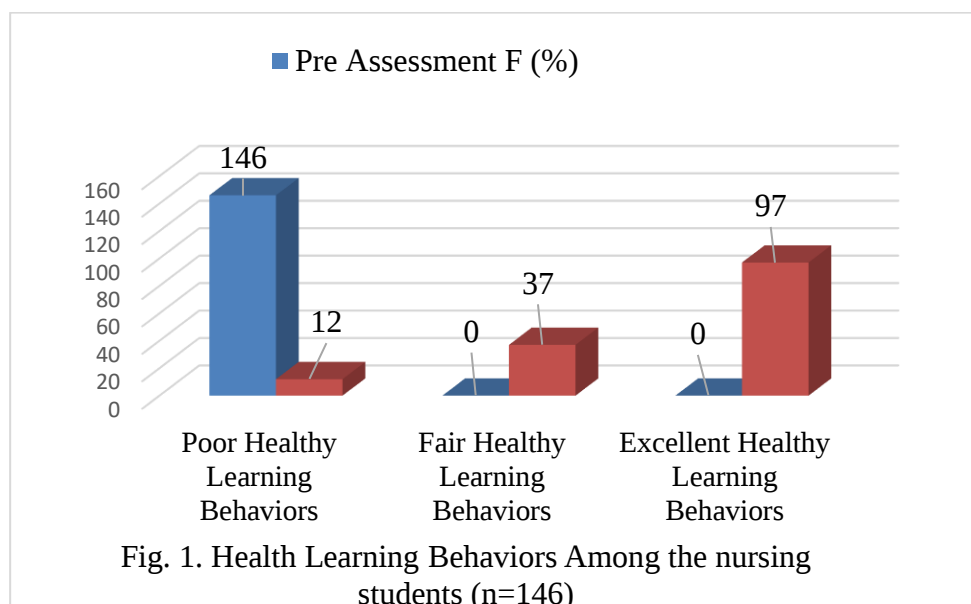


Fig. 1. Health Learning Behaviors Among the nursing students (n=146)

Figure 1 and table 4.3 shows that significant differences between pre- and post-interventional assessment was observed. Findings illustrates the impact of the Health Promotion Lifestyle intervention on the outcomes of 146 participants prior to and following the examination. The pre-test results indicate that all participants fell into poor healthy learning behaviors category (100%), reflecting uniformly low or comparable initial health promotion lifestyle scores before the intervention.

The post-test results indicate a clear favorable shift in the participants' health-promoting behaviors. A majority of

participants (n = 97; 66.4%) advanced to the excellent healthy learning behavior category, signifying substantial improvements in lifestyle behaviors. A very small number of individuals were classified in the poor healthy learning behaviors categories (n = 12; 8.2%) and in the fair healthy learning category (n = 37; 25.3%) of the study participants were found. This indicates that the majority of individuals saw significant enhancement from the intervention, while very few observed just marginal improvement.

Table 2: Healthy Learning Behaviors Among the Nursing Students Pre-post intervention score (n=146)

Value	Pre-Intervention (Mean $\pm$ SD)	Post Intervention (Mean $\pm$ SD)	Z	P-value
Healthy Learning Behaviors	31.08 $\pm$ 4.121	65.28 $\pm$ 14.498	-10.486 ^b	<.001

Wilcoxon Signed rank test with p<.05 value as significant

Wilcoxon signed rank test was used to evaluate the effect of reflective teaching strategies on healthy learning behaviors among nursing students. The comparison of healthy learning behavior scores between the pre intervention and post intervention revealed that there is clear difference after the intervention. At the beginning, the mean healthy learning behavior score was 31.08 with a standard deviation of 4.121, which was increased to 65.28 with standard deviation of 14.498 with a p-value of 0.000 and a Z value of -5.543b, there was a statistically significant difference in the healthy learning behaviors before and after the intervention.

DISUSSION

The majority of the participants in this study were female (66.4%), which indicates that more female students are enrolled in nursing programs. Recent research on reflective learning among nursing students has consistently shown this tendency, with similar studies reporting greater female involvement rates (e.g., 65.8% females identified by (Mohajer et al., 2024). The results are also in line with earlier studies that found that 70.9% of participants were female (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025). Similar results were also found in another study on nursing students' reflective capacity and clinical self-efficacy, with a majority of females (76%) (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025). These similar results imply that the current sample is typical of the gender distribution found in nursing programs.

On the other hand, a greater proportion of participants in certain reflective-practice training (81%) were female more than the current study (Yan et al., 2025). Similarly, a different study found even more higher percentage of female participants, revealed that 95.92% of the participants were female (Yang & Zou, 2025). These differences show that although the demographic structure of the current study is within the predicted range, nursing cohorts in specific educational environments may exhibit an even more extreme gender imbalance. All things considered, the consistency between studies supports the findings' generalizability to comparable nursing student populations and validates the representativeness of the current sample.

The vast majority of individuals in the current study (97.3%) were determined to be unmarried. In a previous study, 89.9% of participants were unmarried. The results were consistent (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025). Another consistently

high finding was that 95% of the participants were unmarried (Yang & Zou, 2025). These consistent findings imply that the majority of single participants is typical of nursing student groups and is probably impacted by the age distribution and academic obligations related to the field.

Some inconsistent study was found that the Single study participants were 76.3% (Mohajer et al., 2024). The marital -status distribution of this study is almost identical to global undergraduate nursing cohorts. This variance could be the result of institutional or environmental variations in student demography. Overall, the distribution of marital status found in this study seems to be very representative of student nursing cohorts around the world, which supports the findings' applicability and generalizability.

The age distribution of this current study presented that majority participants 58.2% were in age group 18–22 years, 36.3% were in 23–25 years and very few 5.5% were above 25 years. Previous research revealed similar results, with the average age of the students being 21.50 $\pm$ 2.41 years (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025), average age of 22.32 $\pm$ 66 years (Mohajer et al., 2024). In a similar manner, 88% of the students in another survey were between the ages of 18 and 25, with only 3.1% being older (Sánchez-Ojeda et al., 2022).

In contrast to the current study, which indicated that the majority of participants were between the ages of 18 and 22 (58%), a prior study found that the mean age was slightly on the upper side (24.81 $\pm$ 2.75 years) (Yang & Zou, 2025). The age range of reflective learning studies is generally well-aligned with the current study. However, the general age pattern found in this study is consistent with the demographics commonly reported in nursing education and reflective learning studies, supporting the suitability

and generalizability of the sample characteristics.

The majority of the current study's findings (84.2%) indicate a moderate financial condition. Consistently seventy to ninety percent of nursing students identify as having a "middle/moderate" socioeconomic position, according to numerous research on reflective practice and student welfare (Jafari, Zeraatpishe, & Zohoorian, 2024). This consistency implies that nursing students are generally from secure but not wealthy families, which may have an impact on their use of stress-reduction techniques and reflective learning. In contrast to those found in some other studies, the somewhat greater proportion in the current study suggests even less financial diversity within this cohort, indicating a more socioeconomically homogeneous sample.

Furthermore, the current study assessed how well reflective teaching techniques improved undergraduate nursing students' healthy learning habits. The results showed a notable change in students' self-regulation and health-promoting behavior patterns between pre- and post-intervention evaluations, demonstrating the transformative power of reflective teaching. The significant change in learning behavior categories after the intervention was one of the study's main findings. Every participant (100%) scored in the poor healthy learning behavior category at baseline, demonstrating pervasive deficiencies in areas like time management, self-care, stress management, and involvement with productive learning habits. However, following the reflective teaching intervention, there was a noticeable shift toward learning practices, with 66.4% ($n = 97$) moving up to the excellent behavior category and 25.3% ($n = 37$) achieving fair healthy learning behaviors.

The results of this study are congruent with a previous study where the experimental group's self-efficacy score was higher than the control group's. The results showed how multidimensional instruction based on the self-efficacy model improved students' learning (Tseng *et al.*, 2022).

Recent research demonstrating the efficacy of reflective teaching in fostering self-awareness and health-conscious behaviors is strongly supported by the notable change in health habits following the reflective intervention. The intervention was most successful in lowering smoking in a previous trial, with 65.8% (75 students) either quitting or only smoking sometimes. The mean values before and after the intervention differed by 10.6 (95%CI 8.7–12.6; $p < 0.001$). Of those who attempted weight loss, 155 (52%) succeeded in reaching the goal of dropping 3 kg. 4.8 kg was the average weight loss (95%CI 4.6–5.1; $p < 0.001$) (Pérez-Rivas *et al.*, 2023).

According to Yang & Zou (2025), students' self-care

practices, emotional well-being, and stress-management abilities significantly improved as a result of reflective practice training; mean scores increased from $M = 3.15$ to $M = 4.02$, and the difference was statistically significant ($p < 0.001$). These results are consistent with the current research participants' improved post-assessment health behavior scores (Yang & Zou, 2025).

A previous study that found that reflective journaling and guided reflection led to significant improvements in nursing students' health behaviors, such as hydration, sleep hygiene, and dietary regulation, with post-reflection scores significantly higher than baseline ($p < 0.01$), provides strong support for the findings. This constancy highlights how reflective methods foster self-awareness, empowering students to see harmful tendencies and intentionally change them (Khokhar & MacKinnon, 2024). Furthermore, Barkhordari-Sharifabad *et al.* (2025) observed a substantial positive association ($r = 0.24$, $p = 0.02$) between reflective capacity and academic achievement (GPA), which supports this relationship. Their results provide credence to the theory that reflective instruction boosts students' self-assurance in handling academic difficulties, which in turn promotes better and more organized learning practices (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025).

According to Maldari *et al.* (2023), self-efficacy in health behaviors may also be influenced by reflective learning. They found that students who completed a health/wellness university course had significantly higher levels of self-efficacy, along with increases in knowledge about moderate-to-vigorous physical activity and fitness ($p < 0.0001$). According to this research, treatments that foster introspection and conceptual understanding, like the design of the current study, boost the adoption and persistence of beneficial behaviors (Maldari, Garcia, & Rice, 2023). Healthy learning behavior ratings were compared before and after the intervention in the current study, and the results showed a significant difference following the intervention. There was a statistically significant difference in the healthy learning behaviors before and after the intervention; the initial mean score was 31.08 with a standard deviation of 4.121, and it increased to 65.28 with a standard deviation of 14.498 with a p -value of 0.000 and a Z value of -5.543b.

Comparisons across groups at different time points (pre, post, and follow-up assessments) showed significant differences at post-test and follow-up evaluations ($p < 0.05$), which is consistent with the research aims of the study (Table 3). For instance, the intervention group showed a persistent improvement in the follow-up phase, scoring 2.4 points higher on the total PC in the post-test ($p < 0.001$) than the control

group. Significant gains were also discovered in other areas, including physical examination and communication abilities (Mohajer et al., 2024).

Furthermore, Barkhordari-Sharifabad et al. (2025) showed that self-efficacy and reflective capacity are positively and statistically significantly correlated ($p < 0.01$), and that better control of both personal and professional behaviors results from higher reflective ability. The statistically significant changes observed in the current study are supported by this theoretical connection, since improved reflection probably made it possible for students to change their health-related habits more successfully (Barkhordari-Sharifabad, Alipour, & Jahantab, 2025).

According to another study, there was a substantial improvement ($p = 0.003$ and 0.002) in the number of days' individuals consumed vegetables and participated in moderate-to-vigorous physical activity after the intervention. Participants' mean nutrition care knowledge scores rose from 19.49 at baseline to 24.78 post- and 22.76 four-week follow-up, an increase of 3.27 points (95% CI: 1.98–4.56, $p < 0.001$). The mean attitude toward nutrition care score did not change significantly ($X^2 = 1.568$, $p = 0.457$). In comparison to the baseline scores, the mean level of self-efficacy in providing nutrition care improved by 1.73 (95% CI: 1.17–2.28, $p < 0.001$) at the post-intervention and 4-week follow-up (Amoore et al., 2023).

In a related study, it was discovered that the overall mean score of Health Promoting Lifestyle HPL improved by 4.58 points (95% CI: 0.12, 9.04; $P = 0.044$) during the course of the three measurement time points. Additionally, there was a significant rise in the mean scores of the stress management and health responsibility subscales by 0.71 points (95% CI: 0.13, 1.26; $P = 0.015$) and 1.77 points (95% CI: 0.39, 3.15; $P = 0.012$), respectively (Khajavi et al., 2024).

Some studies also found inconsistent findings where the conduct and views of nursing and non-nursing students differed considerably only in a small number of instances, according to certain research' conflicting results. Consequently, the entire sample was used to compare health habits and views. For instance, students who do not find exercise boring are more likely to engage in any kind of physical activity (OR = 3.23, p -value = 0.005). Keep in mind that there is no distinction between thoughts and behavior when it comes to sexual activity (Sánchez-Ojeda et al., 2022). The mean scores of the HPL subscales for nutrition (0.71 (95% CI: -0.03, 1.43, $P = 0.062$), interpersonal relations (0.63 (95% CI: -0.11, 1.38; $P = 0.097$), physical activity (0.88 (95% CI: -0.16, 1.94; $P = 0.098$), and self-actualization (0.11 (95% CI: -1.29, 1.05; $P = 0.832$)) did not significantly change over the three measurement (Khajavi et al., 2024).

The results of Sánchez-Ojeda et al. (2022), who found no changes in health lifestyle views between nursing and non-nursing students, provide another contrasting example. Their findings imply that behavioral change cannot be ensured by knowledge alone. In contrast, the current study employed reflective tactics rather than just information delivery, which may account for the more pronounced behavioral changes seen Sánchez-Ojeda et al. (2022)

CONCLUSION

The effective accomplishment of the goal of identifying the impact of reflective teaching strategies on encouraging healthy learning behavior among nursing students. Students' learning behaviors, such as increased self-awareness, improved focus, higher participation in academic activities, and more positive attitudes about learning, significantly improved once reflective teaching practices were put into practice. After the intervention, students showed an enhanced capacity to manage study-related stress, reflect on their learning experiences, and adopt healthy academic practices. These results show that reflective teaching techniques successfully provide a safe, learner-centered atmosphere that promotes self-control, critical thinking, and responsible learning practices. Overall, the findings offer compelling evidence that reflective teaching techniques are important for improving nursing students' healthy learning habits and should be incorporated into nursing education to promote both academic achievement and personal growth.

RECOMMENDATIONS

Based on the findings of this study, following recommendations can be made:

- Reflective teaching techniques ought to be properly incorporated In the Nursing curriculum to encourage good or healthy learning behavior and improve students' habits.
- To guarantee successful and uniform use in classroom and clinical teaching, nursing faculty should receive frequent training and workshops on reflective teaching techniques.
- Both theoretical and clinical learning experiences should include reflective exercises including journaling, group reflection and case-based discussions.
- Furthermore, the educational institutions should establish a supportive learning atmosphere that promotes introspection and student-centered learning.

Ethics, Approval and consent to participate

The rules and regulations set by the research ethical committee (REC) of the University of Lahore were followed while conducting the research and the rights of the research participants were respected. Written

informed consent was taken from all the participants. All information and data collection was kept confidential. Participants were kept anonymous throughout the study.

After receiving approvals from the REC Ref no REC-UOL-/247/08/24, permission was granted from the administration of the selected setting. The BS Nursing students were explained about the study during an introduction session. Participants gave their informed consent to participate in the study.

Availability of data and materials

Due to a data protection policy, the datasets created and/or analyzed during the current work are not publically available, although they can be obtained from the corresponding author upon reasonable request.

Conflict of Interest

There is no known financial or relationship conflict of interest while conducting this research study

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