# Relation between Self-Regulated Learning Skills and Academic Achievement among Nursing Students

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**Conflict of interest:** None declared
**Funding:** No funding sources

## Abstract
**Background:** Self-regulated learning is evidently one of the most vital competencies for the twenty-first century and has been noted as an evident key for long life learning process to enhance nursing students' success. **The aim** of the present study was to assess the relationship between self-regulated learning skills and academic achievement among nursing students in clinical nursing administration course.
**Design**: A descriptive design was utilized in this study.
**Setting:** this study was conducted at the faculty of nursing, Zagazig University. The sample included 82 nursing students in the fourth academic year, who studied nursing administration course. Tools of data collection: Two tools were used for data collection; Self-regulated learning Questionnaire and students' academic achievement practical test.
**Results:** the nursing students had a moderate self-regulated learning skill level (61%), and the learning strategy domain was a high total mean scores in self-regulated strategies domains (79.42±15.25) .As well as, the nursing students had good academic level in all practical units of nursing administration course.
**Conclusion:** nursing students' self-regulated learning positively correlated with academic achievement.
**Recommendation**: providing cooperative training programs to nursing students to enhance their self-regulated learning skills and academic achievement in clinical nursing administration course.

**Keywords:** Self-Regulated Learning Academic Achievement; Nursing students

**Tob Regul Sci. ™ 2023 ;9(1): 7433-7445**
**DOI : doi.org/10.18001/TRS.9.1.527**

## Introduction:
Nursing education plays a vital role in shaping competent and compassionate nurses who provide essential healthcare services to all sectors in the community. Nursing education comprises both theoretical and practical learning experience for enhancing nursing students' knowledge, evidence-based practice and attitudes necessary for safe and effective nursing care (**Alammar et al., 2020).** Moreover, there is a growing awareness of the need for changes in nursing education systems,

especially in developing self-learning techniques where the student is an active participant in the learning process **(Abdalla et al., 2021**).
Most health professional organizations encourage lifelong learning because of continuous generation of knowledge and improvement in nursing practice. Lifelong learning requires both self-direction and self-regulation. Self- directed learning means allowing learners to make decisions about the information they want to learn. While self-regulation means how learners guide and control their goal directed activities over time. Self-regulation involves both cognitive and behavioral processes to reach the desired goal. These regulatory processes are the essential of self-regulated learning, because they are under control of learners and would be the basis of continual professional development **(Eilts, 2024).**
Self-regulated learning (SRL) referred to as the degree to which students are met cognitively, motivationally, and behaviorally active participants in the process of monitoring their own learning. It is a fusion of skill and will. Additionally, Self-regulated learners are defined as those who actively construct their own learning process and are able to set their learning goals, while also making an effort to observe, adjust, and control their cognition, motivation, and behavior in achieving those goals **(Hwang & Oh, 2021;Anthonysamy et al., 2020).**
SRL is a cyclical process, where in the nursing students plan for a task, monitors their performance, and then reflects on the outcome. Furthermore, SRL is a self-steering process in which learners use cognitive and metacognitive strategies to regulate their learning and attain their goals. Learning strategies improve students' academic, social, emotional career outcomes and assist students to learn efficiently **(Kong & Lin, 2023**).
Self-regulated learning strategies help to prepare learners for lifelong learning and the important capacity to transfer skills, knowledge, and capabilities from one domain or setting to another. Many of the self-regulated learning strategies are useful across various content domains. Specifically, self-regulated learning consists of three components: **cognition, metacognition**, and **motivation**. The cognition component includes the skills and habits that are necessary to encode, memorize, and recall information as well as think critically and solve Problem. **(Subaş & Karaçay., 2023)**
**The metacognitive** component is comprised of declarative knowledge (knowledge about oneself as a learner – the factors that influence performance), procedural knowledge (knowledge about strategies and other procedures), and conditional knowledge (knowledge of why and when to use a particular strategy). The **motivation** component includes both self-efficacy (degree to which one is confident that one can perform a task or accomplish a goal) and epistemological beliefs (beliefs about the origin and nature of knowledge) **(Kurt& Eskimez., 2022).**
Academic achievement refers to a nursing student's success in meeting educational goals as measured through objective indicators within a specific educational context. Academic achievement typically operationalized through quantitative metrics like grades, test scores, completion rates, and acceptance into further programs of study. These metrics provide a measure of a student's educational performance in relation to established standards and criteria. Academic achievement is shaped by a student's intellectual abilities, motivation, learning engagement, study habits, self-regulation skills, and environmental influences **(Linnenbrink- Garcia & Patall., 2021; McLeod, 2020).**

## Significance of the study

Nursing students can be challenging and demanding with rigorous curriculum and high experience and they often find themselves struggling to keep up with the workload. By using self-regulated

learning skills, the nursing students can take control of their education, improve their understanding of course material, and retain information more effectively this can lead to achieve academic success.so it is crucial to conduct this study to investigate the relationship between self-regulated skills and academic achievement among undergraduate nursing students who studying practical part of nursing administration course.

**Aim of the study:**

The present study was to assess the relationship between self-regulated learning skills and academic achievement among nursing students in clinical nursing administration course.

**Research questions**

1- What is the self-regulated learning skill level among nursing students?
2- What is the academic achievement level among nursing students in clinical nursing administration course?
3- Is there relationship between nursing students' self-regulated learning and their academic achievement?

**Methods**

***Study Design and Setting***

A descriptive correlational design was used to accomplish the objectives of present study at faculty of nursing, Zagazig University.

***Sample***

Simple random sample of the fourth year nursing students from the academic year 2022 - 2023, they registered in the nursing administration course and the total number of nursing students were 210; the required sample size was consisted of 82 nursing students.

***Sample size calculation***

Direct association between self-regulated learning strategies score and academic achievement was 0.341 College Students **(Elesio, 2023)** with power of test 90%, and confidence level 95%, the sample size calculated to be 82 students

Sample size equation

Sample size = $[(Z\alpha+Z\beta)/C]2 + 3$

The standard normal deviate for $\alpha = Z\alpha$

The standard normal deviate for $\beta = Z\beta$

$C = 0.5 * \ln [(1+r)/(1-r)]$ **(Hulley et al.,2013*)***

**Tool of data collection**

Two tools were used to collect the necessary data.

**Tool I: Self-regulated learning Questionnaire*:*** This tool developed by **Pintrich et al (1990)** and was modified by the researcher. consisted of two parts as follows:

**Part one**: personal characteristics of nursing students' such as: age, gender and marital status.

**Part two**: used to measure self-regulated learning skills of nursing students and consists of 81 items grouped under of 3 domains as follows:

- **Motivational domain (31 items):** consists of Students' goal orientation (8 items), task value (6 items), self-efficacy (8 items), control of learning beliefs (4 items) and test anxiety (5 items).

- **Learning strategies (30 items)**: consists of cognitive strategies Rehearsal (4 items), Elaboration (6 items), Organization (4 items), critical thinking (5 items) and Metacognition strategy (11 items).
- **Recourse management strategies (20 items)**: consists of Time and study environment (8) items, Effort regulation (4) items, Peer learning (3) items and Help-seeking (5) items.

**Scoring system:**

The response of the statements were measured by using five point Likert scale from 1 ("not at all true of me") to 5 ("very true of me"). While, the reverse question were scored as (5) for not at all true of (1) and me for very true of me respectively; and they were:

Items 3,7and 8 in the time and study environment sub domain of resources management strategies domain.

Scoring system: The total level of self-regulated learning skill which

High: if the score ≥ 75 %

Moderate: if the score range from 50% - < 75%

Low: if the score < 50% ***(Rovers et al, 2019).***

**Tool II: Students' Academic Achievement Practical test:** by using practical checklist that was developed by nursing administration department based on related literature to evaluate nursing students' achievement regarding five topics in clinical part of nursing administration course: (1) kardex: consists of 33steps, (2) functional method of assignment: consists of 12 steps, (3) supervision: consists of 19 steps, (4) shift report consists of 18 steps , (5) paired comparison method of performance appraisal consists of 14 steps. Each step was to be checked under done or not done, respectively scored 1 and 0.5 for some items and 0.25 for others and 0. The total score was 50. Then students' achievement scored according to the scoring system at the faculty of Nursing, Zagazig University, as follows

- If the score range from 85% to 100% is excellent degree.
- If the score range from 75% to less than 85% is very good degree.
- If the score e range from 65% to less than 75% is good degree.
- If the score range from 60% to less than 65% is pass degree.
- If the score Less than 60% is poor degree.

**Validity**

The tools of data collection were tested for their content and face validity sheet by a jury of five experts from which three assistant professors of nursing administration at the faculty of nursing at Zagazig University and two professors of nursing administration at the faculty of nursing at Ain Shams University and Beni-Suef University. The face &content validity sheet involved two parts. The first part: included the opinions of the experts for each item that were recorded on a two point scale: relevant, and not relevant. The second part: covered general or overall opinion about the form which expressed their opinions and comments on the tools for clarity, applicability, comprehensiveness, understanding, any suggestions for any additional or omissions of items and ease of implementation. According to their opinions, the researcher performed all recommended modifications

**Reliability of data collection tools**

Internal consistency reliability was established with Cornbrach's Alpha coefficient to assess the consistency of the results across items within the test. Self-regulated learning questionnaire was (0.818).

**Pilot study:**

A pilot study was carried out with 10% of the study sample (8) nursing students to test the tools feasibility, understandability and to estimate the time consumed for filling in the forms. A brief explanation of the purpose of the study was provided to every participant in the pilot study, and then they were provided with a copy of the study tools. The time consumed in answering the questions was about 20- 30 minutes for each tool. Data collected from the pilot study was reviewed and no modifications to items of the tools so the nursing students included in the main study sample.

**Fieldwork**

Fieldwork of this study was executed in two months started from the first of November, 2022 and was completed by the end of December, 2022. The preparatory phase that was done by meeting with nursing students to clarify the objective of the study and the applied methodology and each individual given the opportunity to fill-in the questionnaire under guidance and supervision of the researcher that ranged from 15 to 20 minutes. The questionnaire sheets were distributed among the study subjects, they were fill it on their own, and then the questionnaire sheets were collected.

**Ethical Considerations:**

The study was approved by the Ethics Research Committee at the Faculty of Nursing; Zagazig University with code No (**M.D zu.Nur107/ 16-10-2022).** The verbal explanation of the nature, purpose, and benefits of the study was performed by the researcher to nursing students included in the study sample. Oral and written consent were taken from subjects and reassured them about the confidentiality and anonymity of the study. They were informed about their right to refuse or withdraw from the study at any time without giving a reason.

**Statistical analysis**

All data were collected, tabulated and statistically analyzed using IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp. Quantitative data were expressed as the mean ± SD and qualitative data were expressed as number & (percentage). Percent of categorical variables were compared using Chi square test. Pearson' correlation coefficient was calculated to assess relationship between various study variables. All tests were two sided. p-value $< 0.05$ was considered statistically significant, p-value $\geq 0.05$ was considered statistically.

**Results**

***Personal characteristics of nursing students***

**Table 1** shows personal characteristics of nursing students; it is clear from the table that, 46.3% of nursing students were in the age group 22 years old. As regards gender of nursing students were females (54.8%). In addition, the majority of nursing students in both groups were single (86.5%).

**Table 2** indicates that, highest mean score of self- regulated learning subdomain was related to learning strategy (79.42±15.25), followed by motivation (69.68±8.42) and finally recourse management (47.37±5.81) with total mean scores (196.55±24.52).

**Table 3** shows the relation between nursing students' self-regulated learning and their personal characteristics. It is clear from the table, that there was no statistically significant relation between nursing students' nursing students' self-regulated learning and their personal characteristics.

**Figure 1** portrays self-regulated learning among nursing students, this figure points to that (61%) of nursing students had moderate level of self- regulated learning, while 37.8 % of them had a high level.

**Figure 2** illustrates the nursing students' achievement level in five units in clinical administration course. This figure reveals that (63.4%) of nursing students had good academic level.

**Figure 3** portrays the scatter dot positive correlation between nursing students' self-regulated learning and their academic achievement. There was statistically significant correlation between self-regulated learning score and academic achievement scores (r=0.359, p=0.001).

**Table (1):** personal characteristics of nursing students **(n=82)**

| personal characteristics | frequency No. | Percent (%) |
|---|---|---|
| Age per year | | |
| 21 | 37 | 45.12 |
| 22 | 38 | **46.34** |
| 23 | 7 | 8.54 |
| Mean± SD | 21.63±0.64 | |
| Gender | | |
| Males | 37 | 45.12 |
| Females | 45 | **54.88** |
| Marital status | | |
| Single | 71 | **86.59** |
| Married | 11 | 13.41 |

**Table (2):** Self-regulated learning strategies domains of nursing students (n=82)

| Self-regulated learning strategies domains | Mean ±SD | domains level | | | | | | Rank |
|---|---|---|---|---|---|---|---|---|
| | | High | | Moderate | | Low | | |
| | | n. | % | n. | % | n. | % | |
| Motivation strategies | 69.68±8.42 | 0 | .0 | 13 | 15.9 | 69 | 84.1 | II |
| Learning strategies | **79.42±15.25** | 1 | 1.2 | 50 | 61.0 | 31 | 37.8 | I |
| Resource management strategies | 47.37±5.81 | 0 | 0.0 | 25 | 30.5 | 57 | 69.5 | III |
| Nursing students' self-regulated learning skills | 196.55±24.52 | 1 | 1.2 | 50 | 61.0 | 31 | 37.8 | |

**Table (3):** Relation between Self-regulated learning skill levels and personal characteristics of nursing students

| Variables | Self-regulated learnings level | | | $\chi^2$ | p |
|---|---|---|---|---|---|
| | High | Moderate | Low | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Age(years)** | 21 | N | 1 | 23 | 13 | | |
| | | % | 2.7% | 62.2% | 35.1% | | |
| | 22 | N | 0 | 22 | 16 | 1.82 | 0.76 |
| | | % | 0.0% | 57.9% | 42.1% | | |
| | 23 | N | 0 | 5 | 2 | | |
| | | % | 0.0% | 71.4% | 28.6% | | |
| **Gender** | Males | N | 1 | 25 | 19 | | |
| | | % | 2.2% | 55.6% | 42.2% | | |
| | Females | N | 0 | 25 | 12 | 1.8 | 0.403 |
| | | % | 0.0% | 67.6% | 32.4% | | |
| **Marital status** | Single | N | 1 | 42 | 28 | | |
| | | % | 1.4% | 59.2% | 39.4% | | |
| | Married | N | 0 | 8 | 3 | 0.81 | 0.66 |
| | | % | 0.0% | 72.7% | 27.3% | | |

**$\chi^2$ = Chi square test , p no significant p>0.05**

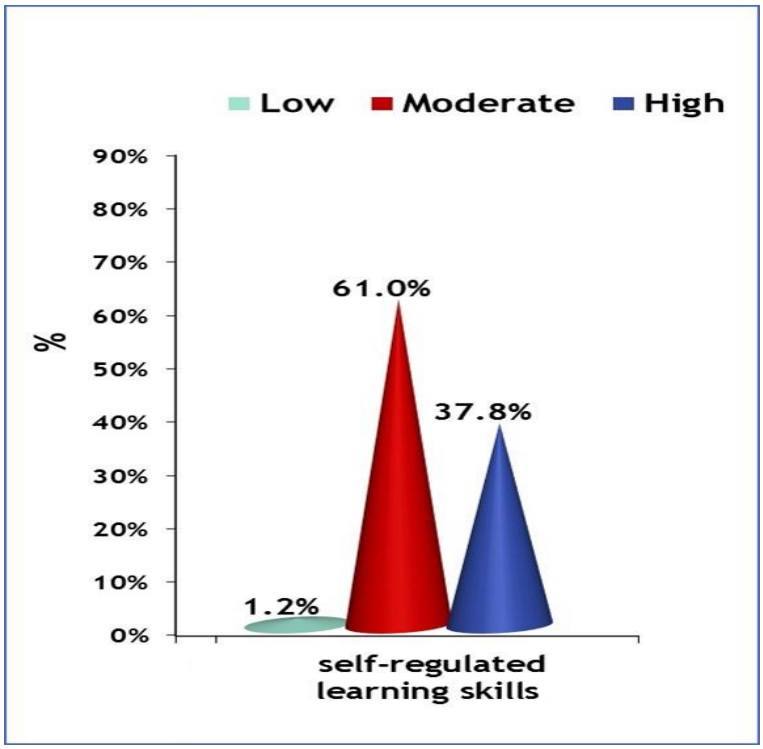


**Figure (1):** Self-regulated learning skill levels among nursing students

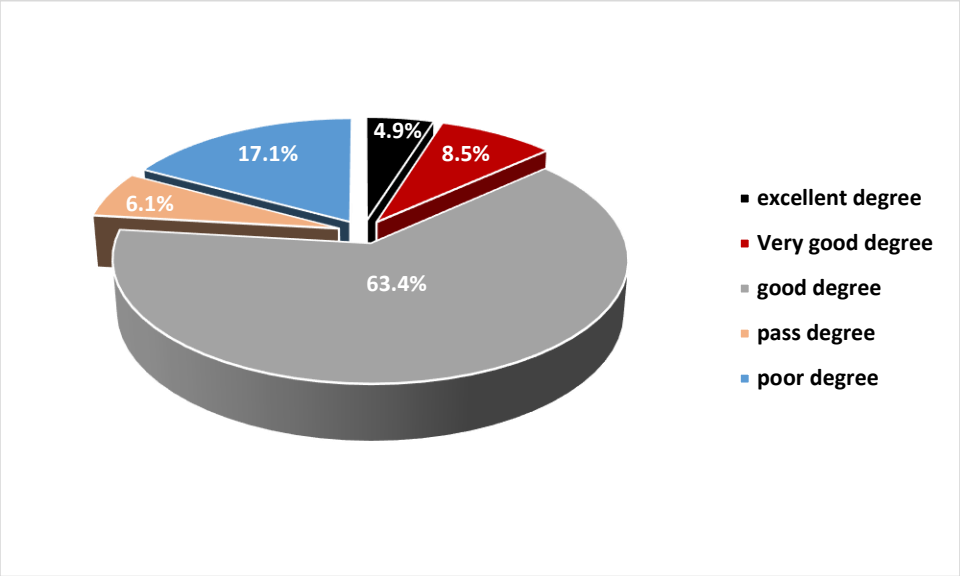


**Figure (2):** Achievement level of practical nursing administrative test among nursing students (n=82).

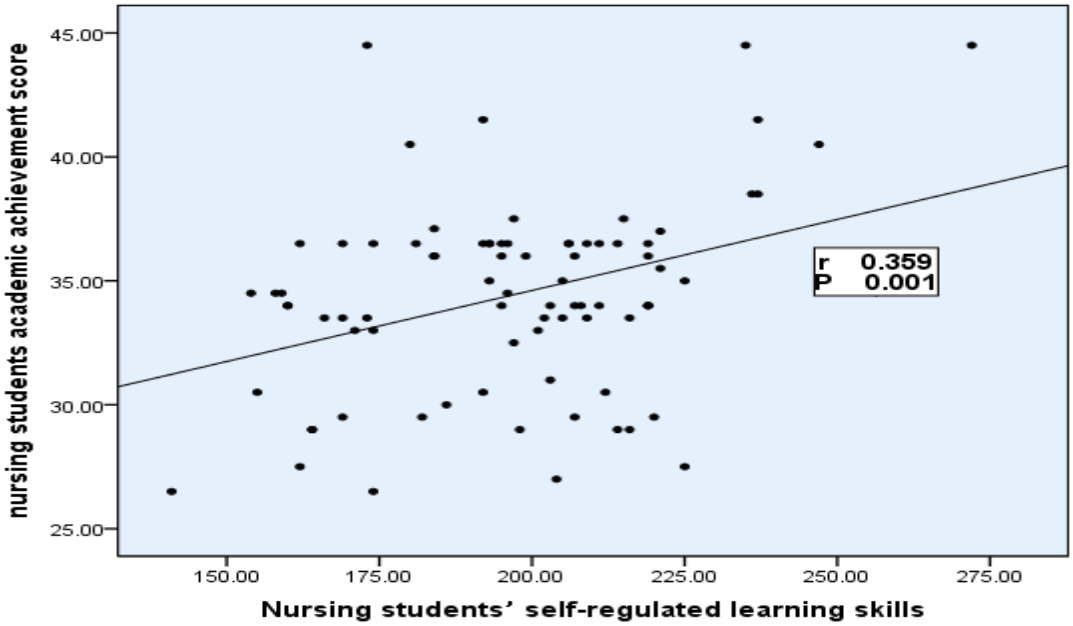


**Figure (3):** scatter dots of positive significant correlation between nursing students' self-regulated learning skills and nursing students academic achievement score(r=0.359, p=0.001)

## Discussion

Currently, there is a need to cultivate competent nursing graduates for clinical nursing work. Self-regulated learning is the central tenet of lifelong learning and the prerequisite for nursing students to continuously adapt to and be qualified for nursing posts now and in the future **(Visiers-Jiménez et al., 2022).** Additionally, SRL is linked to students becoming adaptive, lifelong learners who are critical and creative thinkers, problem solvers, and able to work and learn both independently and collaboratively. The development of SRL is a significant source of achievement differences among students **(Qadach, Schechter & Da'as., 2022).**

Concerning total nursing students' self- regulated learning skill level, the finding of the present study indicated that the highest percentage of nursing students had a moderate level of self-regulated learning. This findings could be due to the fourth year nursing students who are studied nursing administration course; they had past feedback that this course was rough and they will be forced with more hard learning tasks and pressures, and they exhibited fear from drop out of their studies, low self-efficacy, inability to set goals, a low sense of motivation and passion for learning these lead to inability to regulate their learning process. Therefore, improvement in the SRL ability of students is a key imperative to prepare them for keeping up-to-date with the complex and knowledge-intensive work-life environment.

These findings were consistent with the study conducted by **Elsayed Abdullah et al.,2024**, in Egypt and reported that more than two thirds of nursing students had a moderate level of SRL while, the rest of them had a high level of self-regulated learning., In addition, the current finding was harmony with the studies carried out by **Yang, Gao, & Ji., 2023; Chen et al.,2019,** in China**,** to explore the relationship between self-regulated learning, mindful agency, and psychological resilience in Chinese master of nursing specialists and they found that nursing students had moderate self-regulated learning. Again the study of **Mäenpää et al., 2020,** in Finland, to investigate nursing students' motivation regulation strategies in blended learning and reported that nursing students had a moderate level of self-regulated learning.

In contrast, these findings were not matched with the study that conducted by **Tanimura et al., 2023,** in Japan to examine the reliability and validity of a self-regulated learning strategy scale for undergraduate nursing students and effective factors of self-regulated learning strategies and reported that the nursing students had a high level. Also, the study was in the same vein with study that done by **Zhang et al., 2023,** in China, to explore what affects self-regulated learning ability in undergraduate nursing students: A structural equation modelling approach and found high SRL among nursing students. In addition **Faisal, 2023 in** King Saud University, Riyadh, Saudi Arabia **to** understanding the interplay of self-regulated learning strategies in medical education, and the study performed by **Granberg, Palm & Palmberg , 2021,** in Sweden to investigate teacher's implementation of formative assessment and its effects on students' self-regulated learning and they found that self-regulated learning was high level.

As regards to total mean percent score of nursing students' self-regulated learning strategies, the findings of the study presented that learning strategy domain was the highest mean percent score, while the lowest was for resources management domain. this might due to the nursing students use cognitive strategy during their learning as rehearsal, organization of information, elaboration , critical thinking and also metacognitive strategy as planning, monitoring and reflecting in in checking and correcting their behavior.

This finding agreed with a previous study was conducted by **Diğin, & Ataşen, 2021**, Turkey, and was determined that nursing students had good self-regulated learning levels regarding the clinical nursing practices and the mean learning strategy score of the students was higher than the motivational sub-dimension. As well, the study done by **Bakar et al., 2017** to assess correlation of self-regulated learning and academic achievement among Universiti Sultan Zainal Abidin and found that learning strategy was high strategy level

While, the findings of the current study are contradicting with results of a study carried out by **Lee et al., 2019**, Singapore indicate that students' intrinsic motivation is generally high in pre-clinical year. However, metacognition and critical thinking strategies will need to be enhanced among students.

Regarding the nursing students' academic achievement level, the finding of the current study stated that the highest percentage of nursing students had good academic achievement level in practical nursing administration. This could be due to there were factors that influence students' academic achievement such as, the lack of study place and conducive environment with large number of nursing students in classrooms, the problem and lack of students' time management, inappropriate use and application of continuous assessment , students lack of confidence, students' inadequacy of planning to their academic tasks, and, shortages of fundamental and technological resources in the faculty and the lack of using various teaching methods by the instructor.

In congruent with these results of study by **Joseph-Edwards , 2019** in west India aimed to examine the effects of standardized learning diaries on online, graduate students' self-regulated learning, academic achievement, and calibration accuracy and demonstrated that students had good level of academic achievement.

Concerning with the relation between self-regulated learning of nursing students and their personal characteristics. The findings of current study showed that there was no statistically significant relation between nursing students' nursing students' self-regulated learning and their personal characteristics. The possible clarification of these results could be self-regulated learning affected by factors intrinsic and extrinsic goal orientation, task value, self-efficacy, personal motivation, peer factors and time and study environment factors rather than personal characteristics.

These results not matched with the study conducted by **Romli et al., 2023** in Malaysia, to investigate the self-regulated learning level of nursing students, and found that male students have better motivation for intrinsic goal orientation than females, which indicates that they pursue their nursing study due to their interest, which seeks challenge, curiosity, and mastery. This is in concordance with the nature of male on masculinity were to be dominant, thrill-seeking, and becoming provider or protector for family. In addition, **Subaş & Karaçay, 2023**, in Turkey to investigate factors associated with nursing students' self-regulated learning in clinical practicum, and reported that there was statistically significant relation between nursing students' self-regulated learning skill levels and their personal characteristics specially female. Furthermore, the study of **Liu et al., 2021** the findings indicated that females had a high level of SRL than males.

As regards the correlation and the predicting effect of nursing students' self-regulated learning and academic achievement. The current study findings showed that self-regulated learning was positively and significantly correlated to academic achievement. This might be due to

Nursing students who have self regulated learning skills actively construct their own learning process, set their learning goals, and also making an effort to observe, adjust, and control their cognition, motivation, and behavior in achieving their goals. In essence, self-regulated learning is a significant factor for academic success in learning environments.

These findings was consistent with the study conducted by **Kamel et al., 2022**, to assess self-regulated learning as a predictor of academic achievement among nursing students, in Egypt, and found that self- regulated learning was a predictor to academic achievement among nursing students and there was a significant relationship between self-regulated learning, and academic achievement among nursing students. Also the study done by **Ningrum. 2018** to investigate the relationship between self-regulated learning and academic achievement of undergraduate medical students of Universitas Warmadewa in Poland, and found that a students who had good self-regulated learning has good academic achievement. In contrast the findings not matched with the study done by **(Gün and Denat, 2020),** and found that students' academic achievement decreased parallel with their scores on the scale.

## Conclusion

Based on the findings of the present study the highest percentage of nursing students had moderate self-regulated learning and had a good academic achievement level in practical units of nursing administration. As well, there no statically relation between nursing students self-regulated learning and their personal characteristics. In addition to, there was a statically positive correlation between self-regulated learning and academic achievement of nursing students.

## Recommendation

- Assess influencing factors on self-regulated learning ability among undergraduate nursing students
- Provide regular exercises for nursing students about self-regulated learning strategies for self-monitoring, reflection, and trial performance
- Providing cooperative training programs to nursing students to enhance their self-regulated learning skills and academic achievement in clinical nursing administration course

## Acknowledgments

The present study was derived from a thesis in Doctorate of Nursing, Zagazig University. The authors would like to thank all nursing students who accepted to participate in the study.

## Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

## Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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