

The Effectiveness of Reflective Debriefing Strategy in Nursing Education

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Abstract: clinical training of nursing students considers the basis of nursing practice that increases the call for improving the methods of teaching and the environment in which nursing students learn the clinical skills. Thus, the nursing curriculum should guide toward using innovative methods of teaching that enhance the clinical skills and transforming nursing students into competent nursing practitioners. Reflective Debriefing Strategy (RDS) is a form of active self-learning where participants use self-discovery through reflection on their performance and experimentation with newly learned ideas to improve future performance. Aim: To determine the effectiveness of RDS in nursing students' learning. Setting: nursing skills laboratories of the Medical-Surgical Nursing Department at the Faculty of Nursing, Damanhour University. Subjects: 80 nursing students divided equally into two groups; each group will include 40 students. Tools: the first; Blood Pressure Evaluation Rubric measures nursing students' level of blood pressure (BL.P) performance. The second: The blood Pressure Self-Efficacy Scale, measures nursing students' self-efficacy in performing the BL.P procedure. The third: Reflective Debriefing Experience Scale (RDES) to determine the effectiveness of RDS from students' viewpoint. Results: There was a statistically significant difference between the study and control groups' clinical performance after applying RDS $\chi^2=44.598^*$ ($P<0.001^*$). Mean \pm SD in the study group was 23.73 ± 0.28 whereas in the control group was 19.30 ± 2.42 . Moreover, a highly statistically significant difference was found between the study and control groups about their Blood pressure self-efficacy immediately after applying RDS (76.400^* $p<0.001^*$).

Conclusions: RDS had a positive influence on nursing student's clinical performance and its efficacy, moreover observation, evaluation, critical thinking skills, awareness, and thought process.

Keywords: Reflective debriefing, clinical performance, performance - efficacy, Nursing student.

1. INTRODUCTION

Competent clinical performance considers as one of the essential attributes of the nursing profession (Pijl-Zieber, 2014; Shahsavari et al., 2013). The main aspect to graduating competent student is to introduce new educational strategies that focus on decreasing the gap between theory and practice which directly reflect on the student performance (Brownie et al ., 2018). RDS is considered one of the main strategies that allow students to be self-directed in their learning (Chapman et al, 2008, Essays, 2018). They are considered to be a discussion with students about their performance by using oral or written reflection, the student will expect to analyze their action and reflect on their cognition and psychomotor skills. So,

RDS not just feedback on performance but a communication process that draws out performance explanations and enables students to develop suggestions to enhance future performance (Buykx et al., 2011). Consequently, lead to multiple benefits as enhance students' skills, and allow them to learn from mistakes.

Moreover, RDS has a significant and measurable difference in undergraduate nursing student' critical thinking, clinical reasoning skills which allow instructors to expand the conversation beyond technical errors and impact learner thought on professional development (Lee et al., 2020; Morse, 2015; Dreifuerst, 2012; Minehart et al., 2014). Moreover, students engage in the self-review, self-correct by assimilating a new experience with the prior ones. Consequently, allow them to integrate their learning, take what they have learned in an outdoor experience, and thus improve professional competence and use it effectively in their everyday lives (Rudolf et al., 2006).

Reflective Debriefing can be conducted before /during or after the experience. *Firstly*; reflective debriefing for action (*anticipatory*) as the student begins to anticipate situations before being faced with them. *Secondly*; Reflective Debriefing in action (contemporaneous) occurs in the middle of an activity and is the result of conscious decisions made on the spot. *Thirdly*; Reflection on the action (retrospective) occurs after the action has been completed. Only when the students describe a specific event and attempt to better understand the situation, his or her action, and the outcomes (Sabei & Lasater, 2016; Edwards, 2014; Galutira, 2018; Schober, et al, 2019). Moreover reflection beyond-action, out of the context of just performance reflection and applying it in terms of developing professional practice by transformative and lifelong learning.

Process of Reflective Debriefing

The process of RDS consists of three phases which are; assessment and preparation, application, and evaluation of student performance. The assessment and preparation phase occurs before the conduction of RDS. The educator needs to assess to what extent students can reflect and prepare them well to recall, reflect and classify their feelings, thoughts related to the experience. Also build a trust relationship with them (Decker, et al 2013; Sabei & Lasater. 2016). So, they Provide questions and activities that enable students to review/reflect on what happened in the day. These activities as Use a too broad question, with a group that is unable to reflect their thoughts and feelings, allow them to reflect individually, in pairs or trios. Give them a writing assignment to identify if they reflect or not. When the group is tense; the educator can model self-disclosure to the student, reward tense students when taking by thanking them or by repeating what they said in a supportive way this method builds trust within the group. Moreover, use key questions at the right time for a group that discloses easily. In case of the group just spend an entertaining time, The educator places a matter-of-fact If the debriefing session tumbles or the group is not comfortable with the level of self-disclosure or self-examination they should change the questions or their style. So, the amount and type of structure educators use will depend on the participants' needs.

Application phase

in conduction of the RDS, the educator role is facilitator, they ensure a successful debriefing process and provide a supportive climate where students feel valued, respected, and free to learn in a decent environment (Decker, et al 2013; Forneris, 2016; Reiersen et al., 2017). Also, the educators may be loud and quiet, big and small, active and still, slow and fast, silly and serious based on the participant assessment, and also based on the style of debriefing as judgmental or non-judgmental approach (José et al., 2015)

Reflection is the distinctive feature and core of RDS as without reflection debriefing process become just simple discussion (National League for Nursing, 2015; Wareing, et al, 2020.) So, based on the educator assessment to students they decide to use the framework as a guide for reflection. Kolb's model of experiential learning portrays two dialectically related modes of grasping experience which is: Concrete Experience and Abstract Conceptualization and two dialectically related modes of transforming experience which is: Reflective Observation and Active Experimentation (Sherwood et al., 2015; Kolb, 2015; Flanagan, 2015).

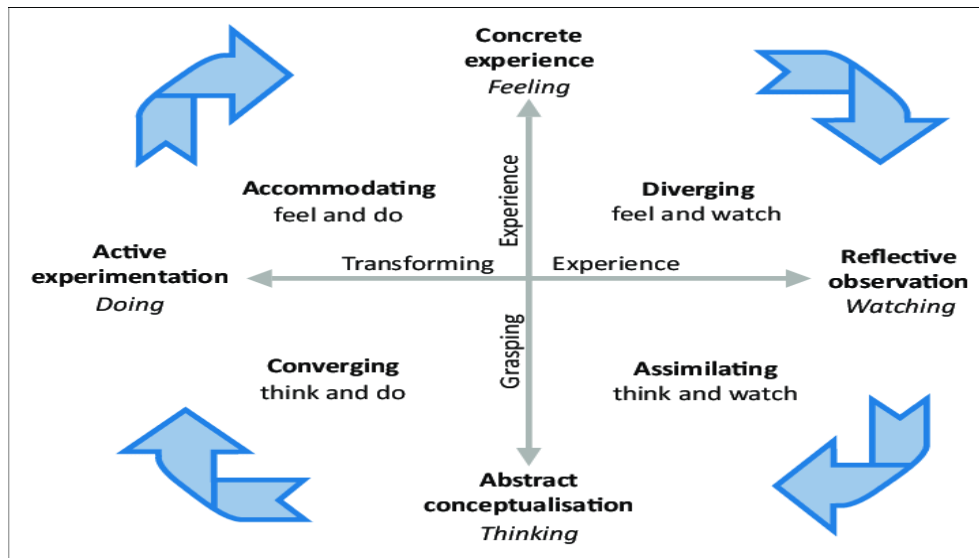


Figure (I) Kolb’s cycle (Sandhu, et al, 2014) Kolb's Experiential Learning Theory (ELT), and ACNP education.

Evaluation phase

Students reassess their performance several times in RDS and suggest how to enhance them until reaching their ideal performance. Finally, the educator uses a Rubric to evaluate what extended student reach to competency.

This study aims to:

Determine the effectiveness of Reflective Debriefing Strategy on nursing students learning

Research hypotheses:

Hypothesis1: Nursing students who are engaged in reflective debriefing strategy exhibit higher clinical performance in measuring blood pressure than those who are not.

Hypothesis2: Nursing students who are engaged in reflective debriefing strategy exhibit higher self-efficacy than those who are not.

Operational definitions:

Reflective Debriefing

Teacher discussion with students about their performance of blood pressure procedure by using written and oral reflection. The student will be expected to analyze their actions and reflect on their cognition and psychomotor skills, to improve their future performance.

2. MATERIALS AND METHOD

Study Design:

A quasi-experimental research design was used in this study

Study Setting:

This study was conducted at nursing skills laboratories of the Medical-Surgical Nursing Department at the Faculty of Nursing, Damanhour University where nursing students were trained for their clinical procedures.

Study subjects:

The subjects of this study comprised 80 nursing students who were selected randomly by using simple random sampling to represent 220 nursing students who were enrolled in the Medical-Surgical Nursing Course -at the first semester of the academic

year 2019-2020. This course includes three hours per week for theory and 12 hours per week for clinical practice. The total number of students was assigned randomly into two equal groups "study and control" 40 students for each.

Tools: To collect the necessary data, four tools were used.

A tool I: Tool I: Blood Pressure Evaluation Rubric

This observational Rubric was developed by the researcher after a thorough review of related literature. It was used to measure the medical surgical nursing students' level of the B.L.P performance. It consists of the five dimensions of the procedure steps that should be followed before, during, and after measuring blood pressure. It was divided into four levels of performance; poor zero, for good (1), very good performance (2), Excellent (3). A high score will represent excellent performance; a low score will represent poor performance.

Tool II: Blood Pressure Self-Efficacy Scale (BL.P SES)

This scale was developed by the researcher after a thorough review of related literature. It was used to measure nursing students' self-efficacy in performing blood pressure procedures. It consists of 20 statements. with 4 points Likert scale; strongly disagree (1), disagree (2), agree (3), strongly agree (4). The scoring system of this questionnaire ranging from 20 to 80, a high score will represent high efficacy, a low score will represent low efficacy in performance.

Tool III: Reflective Debriefing Experience questionnaire (RDEQ)

The scale was developed by the researcher after reviewing the related literature. It was used to determine students' opinions about the reflective debriefing strategy. The questionnaire contains 20 items. Responses of the students will be scored on a 4 point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The tool includes two parts: **The first part;** contains fourteen items related to the effectiveness of reflective debriefing strategy **The second part;** contains six items related to applicability of reflective debriefing strategy, a high score will represent student satisfaction, a low score will represent not satisfactory In addition to two open-ended questions **which are:**

- How well have you benefited from this strategy?
- From your point of view, what are the strong and weak points of this strategy?

METHOD

1. Tools were tested for their content validity by five experts in the related fields and their reliability was calculated.
 2. A pilot study was carried out on 10 % of nursing students enrolled in the Fundamental of Medical-Surgical Nursing course to test the clarity and applicability of tools. The tools were clear and applicable. Nursing students included in the pilot study were excluded from the study subjects.
 3. The reliability of the tools was tested using Cronbach's Alpha test .T. Tools were reliable and their coefficient values were 0.846, 0.863, 0.887and 0.877, respectively.
 4. Data was collected over three months from the beginning of October to the end of December 2019.
 5. The blood pressure procedure was selected by the researcher because of its complexity and difficulty also; it is considered one of the most important and basic nursing procedures. It is taught by the Medical-Surgical Nursing Department staff, Faculty of Nursing, Damanhour University.
1. Students were assigned randomly into two equal groups "study and control" 40 students for each.
 2. The study was conducted through three phases; preparation, implementation, and evaluation phase.

Preparation phase

A. Preparation of the researcher

The researcher has reviewed the recent researches about reflective debriefing strategy to be knowledgeable about its application in teaching the blood pressure procedure.

B. Preparation of content

- Used Kolb's experiential learning model as a guide in reflective debriefing sessions; figure 1.
- The researcher designed a guided table that briefly organized and summarized the phases of the reflective debriefing strategy and its applicability on blood pressure procedure to facilitate conduction of the sessions; table 1.

Preparation of students

Orientation and training sessions about reflective debriefing meaning, importance, technique, and stages were carried out to study group; one session per week for three weeks .using the following steps.

- Assessed students about their ability of reflection by asking them to verbalize their feeling about the first day in the faculty of nursing in written and oral form, and evaluate their reflection
- Train students about reflection by using questions and activities to review the day (retrospective reflection) and to allow them to reflect on their day; orally or written.
- using activities and questions, Begin with broad questions than specific questions
- The students were asked to reflect on every lecture they attended in the faculty by using this question; what you learned today, how has this changed your way of thinking?, What will you do with this information?
- The students were asked to reflect on their clinical procedures by using questions to increase their comprehension of RDS and facilitate it before beginning.
- In case of inability of students to reflect, the researcher can demonstrate self-disclosure for students
- Use individual or group debriefing based on the participant's assessment
- Whats- App group was formulated to facilitate Communication with students.
- Nursing students' self-efficacy measured before the clinical experience using tool II.

Phase II: Implementation phase

Study group:

- The study group compromised 40 students who attended a; session per week for three weeks.
- The researcher conducted the sessions of Reflective debriefing after demonstration of the procedure; using the following steps:
 - Students were divided into 6 sub-groups; each group contained 6-7 students,

Considered reflective and non-reflective students in the same group.

- The researcher explained the roles that should be carried out by students in each subgroup by using the prepared guided table that briefly organized and summarized the stages/phases of Reflective Debriefing Strategy; table 1.
- Each student in each sub-group re-demonstrated the procedure; **Concrete experience**. Then reflected individually on their performance; **Reflective observation** in a written form by using a reflection template that was prepared by the researcher figure 1-3; the time allowed for this step approximately 3 hours.
- The students and researcher discussed together; **Abstract conceptualization** to provide suggestions to enhanced the further performance of the procedure based on the strength and weakness in the performance of each student
- the student applied what they suggested to enhance their weaknesses, then reapplied the procedure until reach perfection in their performance; **Active experimentation**
- Whats-App group as a social network platform formulated that allowed students to exchange their ideas, suggestions they decided with the instructor and other students. such as download an educated video about the sound expected to hear (systolic – diastolic sound....ect

Control group:

- The control group was left to the routine of the Medical-Surgical Nursing Department strategy in teaching the blood pressure. As the instructor demonstrates the procedure followed by the student's re-demonstration of that procedure.
- Self-efficacy tool was distributed to nursing students before re-demonstration of the procedure

Phase III: Evaluation phase
For both groups;

- The researcher evaluated students' performance and self-efficacy

For study group;

- The effectiveness of the debriefing sessions evaluated by using a debriefing experience scale (DES); Tool III.

Ethical considerations:

- Written informed consent was obtained from all participants after explanation of the study aim, Anonymity, and privacy of the study subjects, Participant confidentiality of the collected data was ensured, and the subject's right to withdraw from the study at any time without any penalties.

Statistical analysis:

The statistical package for social science (SPSS) was utilized for data analysis and tabulation. The level of significance selected for this study was "P" equal or less than 0.05.

The used tests were
1 - Chi-square test

For categorical variables, to compare between different groups

2 - Fisher's Exact or Monte Carlo correction

Correction for chi-square when more than 20% of the cells have expected count less than 5

3 - McNemar and Marginal Homogeneity Test

Used to analyze the significance between the different stages

4 - Student t-test

For normally distributed quantitative variables, to compare between two studied groups

5 - Paired t-test

For normally distributed quantitative variables, to compare between two periods

3. RESULTS

Table (1) showed the distribution of nursing students in the study and control groups according to their personal and academic characteristics.

It was observed that 75% of students in the study group compared to 72.5% of them in the control group were females, whereas 25.0% of the students in the study group were male compared to 27.5% of them in the control group. Moreover, three-quarters of students in both groups from a rural areas. The age of more than half of the students in both groups ranged from 18 to 19 years. Moreover, it was noted that 97.5% and 100.0% of the students in the study and control groups were enrolled in the academic semester for the first time respectively. About the students' Hobbies, it was detected that 47.5% of the student had hobbies in the study group compared to 17.5% of them in the control group. No statistically significant differences were found between the study and control groups concerning all personal and academic characteristics. Whereas, a significant difference was found between the study and control groups concerning to hobbies and activity.

Table (2) shows nursing student's blood pressure self-efficacy before and immediately after applying the Reflective Debriefing Strategy.

It can be observed that around three-quarters of students in both groups had low self-efficacy before applying RDS. Whereas, it was noted that 97.0% of students in the study group compared to none of them in the control group had high self-efficacy immediately post applying RDS

There was not a statistically significant difference between the study and control groups about their Blood pressure self-efficacy before applying RDS (1.607 $p=0.302$) Whereas, a highly statistically significant difference was found between the study and control groups about their Blood pressure self-efficacy immediately after applying RDS (76.400* $p<0.001$).

On the other hand, there was a significant difference between pre and post-application of RDS in relation study group ($p<0.001$ *). Whereas, There no significant difference between pre and post-application of RDS concerning the control group ($p=0.763$).

Table (3): Nursing students' overall clinical performance immediately after applying Reflective Debriefing Strategy.

It was observed that 100.0% of students in the study group compared to 32.5% of them in the control group had excellent performance in performing blood pressure procedure immediately after applying RDS. Whereas none of the students in the study group compared to 42.05%, 20.0%, 5.0% of them in the control group had very good, good, and fair, performance in performing blood pressure procedure, respectively.

There was a statistically significant difference between the study and control groups' clinical performance after applying RDS $\chi^2=44.598$ * ($P<0.001$ *). Mean \pm SD in the study group was 23.73 ± 0.28 whereas in the control group was 19.30 ± 2.42 .

Table (4) Nursing students' overall clinical performance immediately and after 8weeks of applying Reflective Debriefing Strategy.

There was a statistically significant difference between the study and control groups' clinical performance immediately after application RDS, $\chi^2=44.598$ * ($^{MC}p<0.001$ *). As well, a statistically significant difference was found between the study and control groups' clinical performance 8 after applying RDS $\chi^2=27.659$ * ($^{MC}p<0.001$ *).

On the other hand, there was no significant difference between the performance of students immediately and after 8weeks of application DDS in relation to the study group as the Mean \pm SD was 23.73 ± 0.28 , 23.61 ± 0.65 respectively. Moreover, There no significant difference immediately and after 8weeks of application DDS in relation control group as the Mean \pm SD was 19.30 ± 2.42 , 19.37 ± 4.54 , respectively.

Table (5) the feedback of the study group about Reflective Debriefing Strategy effectiveness and applicability.

Regarding the effectiveness of the reflective debriefing strategy, it was found that 100.0% of students agree that RDS was improved their self-evaluation; realize the value of reflection on their performance. As well as the majority of students agree that RDS enabled them to analyze their performance, retrieved what they learn and did, identified their weaknesses, expressed themselves, improved their thoughts, became more aware of their strength about skills, identified their own learning needs, improved observation skills reflect on any task.

Concerning Reflective Debriefing Strategy applicability, it was noted that all of the students agree that RDS was productive and fruitful and they feel competent during the application of strategy. The majority of students agree that they not founded difficulties in reflection on their performance, the environment was comfortable, satisfied toward the application of strategy and the instructor provide suitable guidance.

Table (6) reveals Reflective debriefing Strategy' benefits from the viewpoints of study group.

It was found that the majority of students reported that RDS enabled them to master the procedure independently and learned them new ways of thinking, analyzed their performance, enhanced their awareness regarding their weakness, Used new way of learning as reflection, and more comprehend and applied what they are learning.

Table (7): Show the study groups' perspectives about the weak and strong points of the Reflective Debriefing Strategy.

Regarding the strong points of RDS, It was found that (62.5%) of students reported that RDS allowed them to practice the procedure more than one time. Moreover, around three-quarters of students reported that RDS gave students the

opportunity to divide into sub-groups, gave chance to individual reflect on their performance and more interact with the instructor, instructor available online for discussion and it can be used as a method of learning any procedure.

Concerning week points of RDS, it was observed that 90.0% of students reported that there were no drawbacks to applying this strategy.

Regarding the students' suggestions, it was noted that two-third 60.0% of students suggested using RDS as a method of learning any procedure, and also 35.0% of them suggested introducing reflective questions with any learning topics.

4. DISCUSSION

Results of the present study revealed that the implementation of the RDS **Error! Bookmark not defined.** has a significant immediate effect on Students' performance, its efficacy, and another skill as evaluation, observational, and assessment skills.

Students' performance-efficacy. There was a highly statistically significant difference between the study and control groups concerning their self-efficacy in performing the procedure in favor of the study group. These results may be due to many reasons; the first one; students in RDS had the full opportunity to re-examined their performance many times with considering the cause behind their mistakes. Thus, they had evidence of their performance which directly influenced positively on their confidence in performing the procedure. Additionally, students self-evaluated their performance several times until reached perfectly which increased their trust in their performance. On the other hand, students in RDS identified the causes behind their weaknesses. They were independent in constructing their learning. So, this enhanced their confidence. Moreover, RDS followed progressivism theory's ideas; as students learn by doing, had the upper hand in their learning which provided a great opportunity in enhancing their confidence.

Furthermore, Students' measuring of BL.P at home gave them a sense of value and confidence. For instance one of the students said that *"the reading and follow up of my father's BL.P helped the doctor to determine the dose of medication. This situation made me more confident in my performance. So, I'm happy"*

Another one said that *"They were confused and found difficulties at the beginning but, strategy helped them to spotlight on the underlying causes behind these difficulties, finally feel confident in their performance"*

Therefore, the students in RDS identified their own difficulties in performing the BL.P procedure and managed it by themselves by trying multiple suggestions they proposed and recognized from the instructor. Thus, the enhancement occurred in the student performance which based on his suggestion gave them a sense of humanity, value, trust, and confidence. Moreover, the environment of the strategy itself provided full opportunity to practice without threatening or worry students.

The result of this study was consistent with **(Kiernan, et al 2020)** who validating nursing students' self-efficacy rating and urinary catheterization skills using debriefing. The findings showed that debriefing was effective in improving student's self-efficacy in the performance of nursing skills including urinary catheter insertion. Effects of structured self-debriefing in comparison with an instructor-led debriefing on the clinical competency, self-efficacy, and educational satisfaction in nursing students was studies by **(Ha & Song, 2015)**, they reported that there was a significant difference in nursing students clinical competence, self-efficacy, and also in their satisfaction toward instructor-led debriefing.

Moreover, the findings of the current study consistent with **(Maloney, 2013)** Who studied the effect of students' Reflective Debriefing on self-video of their performance on clinical skill competency, and their future self-efficacy. and **(Ali, et al; 2020)** had evaluated the effectiveness of video-assisted debriefing as compared with the traditional verbal debriefing alone on students' learning outcomes: knowledge acquisition/retention, leadership skills, self-efficacy, and competency in their performance. They found that there were no significant differences between the groups in skills acquisition/retention, and self-efficacy

Also, the finding of this study was in congruence with **(Bilgin et al., 2015)** who had undergone a study about the effect of different debriefing strategies in terms of two groups; self vs. team debriefing. It was investigated on the motivation and self-efficacy levels of students. Findings indicated that students showed higher motivation and self-efficacy scores in the team debriefing than in the self-debriefing.

A comparison between three methods of reflective debriefing; instructor-directed, self-directed, and video-assisted on self-efficacy, confidence in performance, self-assessed communication skills, and satisfaction was conducted by (Lee, Kim, et al 2020) they showed that the video-assisted, self-directed debriefing group obtained the highest mean score difference for confidence in performance, self-assessed communication skills, and satisfaction with the debriefing method.

The result of this study was not consistent with (Lee, et al, 2020) who conducted a study about Reflective Debriefing methods and learning outcomes in nursing education. numerous debriefing methods have been used to improve learning outcomes as clinical competencies with self-confidence. However, there was insufficient evidence to identify the debriefing methods that are most effective in improving learning outcomes.

Students' blood pressure Clinical Performance There was a highly statistically significant difference between the study and control groups in relation to their clinical performance scores of measuring blood pressure procedures in favor of the study group.

From the researcher's point of viewpoint, this result may be due to the following reasons; the student in RDS have time to actively thinking about how they did, what they did well, and what they did not do so well; they self-evaluate/analyze their performance. They did the best the second time. Therefore, RDS enhanced students' order of thinking from lower to higher-order from just remembers their performance to comprehension, understanding, and analyzed it, which have great power in enhancing performance as the main concern of cognitive theory.

Additionally, the instructor divided students into subgroups that allowed them to reapply the procedure on each other .this opportunity gave them a chance to trial and error and learn from their mistakes as the main concern of behaviorism and progressivism theory. Moreover, RDS followed humanism's main concept that learning occurs when the person's attitudes, feelings are changed as intrinsic motivation, self-direction, and self-awareness. Therefore, each student in RDS evaluated himself and made suggestions to improve performance. So, the student was self-directed and has intrinsic motivation to actively engage in self-improvement that has greeted power in enhances their performance.

Students in RDS had evidence of their performance that was an important component of quality improvement. On the other hand, the instructor provided students with simple prompt questions based on the steps of the BLP procedure. These reflective questions had the power to enabled students to self-reflect and analyzed their performance. So, questions provide an opportunity to draw from the past and present to improve performance in the future. Therefore, by engaging in the experience and reflecting upon it, students were able to evaluate what was good and bad / strength and weak points about their performances.

The environment of RDS was comfortable, honest, appreciated, and had constructive criticism without threat. as the students self-reflect their weak and strong points in their performance followed by a constructive discussion with their instructor. Student's discussion with the instructor enhanced their thought process, helped student's process information rather than simply receive it, and testing their ideas regarding enhancement of the performance as students share their views with the instructor. On the other hand, suggestions that student-produced to enhance performance have a great role in the enhancement of performance.

Additionally, the nature of the BLP procedure, their types of equipment were available and easy to brunches and acquired. So, enabled students to reapply the procedure many times at home and reflect on it. Also with The availability of the Whats-App application enabled students to discuss their own weaknesses in performing the procedure and exchange their ideas to enhances further performance with the instructor and other students.

The result of the current study was in congruence with (Van, et al, 2020) and (Boet, et al , 2013) they demonstrated that the participants who perform the procedure followed by reflective debriefing sessions regardless of its type developed a high level of performance and added that debriefing has a positive impact on the improvement of team behavior and performance.

Moreover, the result of the current study was in congruence with (Jootun, McGarry, 2014) reported that Reflective strategy is a transformational process and has become an invaluable tool for nursing students to learn from Practice. It helped to heighten awareness of the nurse on how to improve on practical performance and link the relevant theory so, their performance enhanced.

(Bauchat& Seropian, 2020) conducted a discussion and interaction with students to promote self-assessment and reflection and to help them abstract from the learning experience to clinical practice. They reported that reflective debriefing was an essential component of performance and added that they have a positive effect on students' self-assessment and also their clinical performance. Similarly, (Rossigno, 2017) found that anxiety level significantly decreased and performance score improved as a result of using debriefing and there was no significant difference between the two groups of debriefing regarding the performance and anxiety.

Moreover, (Ostovar et al, 2018) had undergone a study on 50 first-year nursing students to compare oral debriefing and video-assisted debriefing. And (Ha, 2020) investigated the effect of peer-led debriefing; written versus observed on Sixty-nine third-year undergraduate nursing students. Similarity (Schober, 2019) compares the effects of post-scenario debriefing versus stop-and-go debriefing on skill acquisition and learning experience. They displayed that reflective debriefing positively impacts psychomotor skills, self-confidence, and satisfaction of nursing students. Additionally, a study that compared the effect of peer-led and instructor-led debriefing among third-year nursing students after cardiopulmonary reputation was conducted by (Roh, et al, 2016) reported that nursing students in the instructor-led debriefing group showed better subsequent cardiopulmonary resuscitation performance.

On the other side, the present finding contradicts (Bartz-Kurycki, et al, 2017) who studied the compliance of students to the debriefing checklist and its effect on performance, they reported that a slight increase in overall compliance of students with the debriefing checklist was observed, and slightly improving in performance.

Effectiveness of RDS from students points of view

The majority of students reported the RDS improved their self-evaluation; realized the value of reflection on their performance, enabled them to analyze their performance, retrieved what they learn and did, identified their weaknesses, expressed themselves, improved their thoughts, became more aware of their strength about skills, identified their own learning needs, improved observation skills reflect on any task, enabled them to master the procedure independently and was taught them new ways of thinking, enhanced their awareness regarding their weakness, Use a new way of learning as reflection.

From the researcher's point of view, these findings can be attributed to several reasons. First of all, the nature of the RDS environment that they were none threatening, each student can reflect on their performance individually without embarrassment in front of the instructor. After that, engaged in a group discussion with the availability of the instructor. Moreover, the instructor's role as facilitator, they guided without criticism.

Additionally, the design of RDS was dependent on reflective questions about the BL.P procedure that enabled students to evoke their thought process to reflect on the performance. On the other hand, students were divided into sub-groups; every two students performed the procedure on each other. They had full opportunity to know their weaknesses and control them. So, they are satisfied that they managed it. Furthermore, the availability of instructor with students in Whats-App application enabled them to interact easily and share their ideas after the performance of BL.P procedure at home, increased their satisfaction toward RDS.

“Majority of students said that RDS very useful to apply on all procedures”

The result of the current study is congruent with (Reed, 2012) who developed a tool to evaluate the student learning experience in Debriefing and their experience during debriefing. And (Reed, 2013) had done a study about the differences in the student experience between two debriefing types: debriefing with video and debriefing without video (debriefing alone). Also, (Yeun, 2020) conducted a study of perceptions of nursing students' participation in debriefing. They reported a positive attitude toward debriefing. They found that all students were satisfied with debriefing and they had positive feedback about it. The students viewed that. Debriefing helped them to made connections between theory and real-life situations, as they provided them with self-development through evaluation of one's strengths and weaknesses and increased their learning outcomes.

In this respect, The effects of a three-phase Video assistant debriefing in enhancing nursing students' debriefing experiences and perceived stress compared to verbal debriefing was studied by (Zhang, 2020). They viewed that students had better impressions of Video assistant debriefing compared to those in debriefing without assistance and significantly

reduced students' stress. Similarly (Ha, 2014) studied students' attitudes towards video-assisted debriefing after the performance of the procedure in undergraduate nursing students. They demonstrated that students had a positive attitude toward assistant debriefing as they provide them with improvement in both technical and nontechnical skills, and particularly promoted analytical thinking through self-reflection.

A comparative, crossover design was used by (Chronister & Brown, 2012) who compared reflective debriefing methods and students' opinions regarding that experience. One group received only verbal debriefing and the other received video-assisted verbal debriefing. Outcomes measured included quality of student skills (assessment and psychomotor) students were satisfied with that experience.

Few papers have mentioned dissatisfaction toward RDS or its lack of benefit. the present finding contradicts the study done by (Fakazli & Gonen, 2017) who examined the perception toward reflective strategy; they reported that some students disliked reflective writing or record their analysis and students' reflections in Debriefing influenced by the modes used as; expert-led or self-debriefing, oral versus written debriefing, individual or collaborative reflective debriefing. and preparation of the students. Moreover, (Ashwin, et al, 2020) studied the reflective teaching strategies in higher education. They reported that the curriculum schedule does not support RDS, to enable the educator to provide sufficient time for students to process their recalled learning. Similarly (Bruno & Dell'Aversana, 2017) reported that reflective strategies required commitment and hard work. Additionally, (Sandhu , et al 2014) studied a post-resuscitation debriefing in the pediatric emergency department: a national needs assessment. They reported that debriefing occurred infrequently, although most health care providers agreed on its importance and the need for skilled facilitators.

5. CONCLUSION

It can be concluded from the current study that RDS is a valuable teaching strategy. It played a crucial role in enhancing Medical-Surgical nursing students', self-awareness, clinical performance, and efficacy in performing blood pressure procedures. Reflective debriefing Strategy was perceived by Medical-Surgical nursing students as a self-learning teaching method and taught those new ways of thinking and learning; enable them to analyze their performance. Also, it developed their evaluation, critical thinking, observation, and judgment, and communication skills. Also, it enabled them to master the procedure independently, Identified their own learning needs. Moreover, the students had positive feedback about the Reflective Debriefing Strategy.

The main recommendations are:

Recommendations related to nursing education

- Educational workshops should be conducted for all nurse educators to raise their awareness about how to write, think reflectively.
- Educational workshops should be conducted for all nurse educators to raise their awareness about the RDS.
- Reflective Debriefing strategy should be used in combination with traditional clinical teaching methods.
- Reflective questions should be introduced in all nursing /non-nursing courses at the Faculty of Nursing, Damanhour University.

Recommendations for further studies

- Replicate the current study with other and larger populations of nursing students for generalization of results.
- Replicate the current study in comparison with non guided Reflective Debriefing Strategy
- Replicate the current study on the theoretical nursing courses.
- Study the effect of RDS on nursing students' clinical competency
- Study the effect of RDS on nursing students' retention of knowledge
- Study the effect of RDS on effectiveness and competency of teachers.

Table (1): Distribution of nursing students in the study and control groups according to their personal and academic characteristics (n=80)

Q	Personal and Academic Characteristics	Study group (n = 40)		Control group (n = 40)		χ^2	P
		No.	%	No.	%		
1	Gender						
	Male	10	25.0	11	27.5	0.065	0.799
	Female	30	75.0	29	72.5		
2	Academic level						
	Doubler	1	2.5	0	0.0	1.013	FE p= 1.000
	First time	39	97.5	40	100.0		
3	Hobbies						
	Hobbies/activity	19	47.5	7	17.5	8.205	0.004*
	Non	21	52.5	33	82.5		
5	Age (Years)						
	<18	2	5.0	1	2.5	0.735	MC p= 0.750
	18-19	35	87.5	37	92.5		
	>19	3	7.5	2	5.0		
6	Residence						
	Rural	30	75.0	31	77.5	1.328	MC p= 0.553
	Urban	10	25.0	9	22.5		

χ^2 : Chi-square test

FE: Fisher Exact

p: p-value for comparing between the studied groups

*: Statistically significant at $p \leq 0.05$

Table (2) Nursing student’s blood pressure self-efficacy before and immediately post applying Reflective Debriefing Strategy.

BL.P Self-efficacy	Study group (n = 40)				Control group (n = 40)				Test of Sig. (p ₁)	Test of Sig. (p ₂)
	Pre		Post		Pre		Post			
	No.	%	No.	%	No.	%	No.	%		
Low (20 – 39)	28	70.0	0	0.0	32	80.0	31	77.5	$\chi^2=1.607$ (0.302)	$\chi^2=76.400^*$ ($<0.001^*$)
Moderate (40 – 59)	12	30.0	1	2.5	8	20.0	9	22.5		
High (60 – 80)	0	0.0	39	97.5	0	0.0	0	0.0		
Sig. bet. periods.	MH p<0.001*				McN p=0.763					
Min. – Max.	38.0– 59.0		53.0– 66.0		35.0 – 56.0		38.0– 59.0		t=1.220	t=16.227*
Mean ± SD.	42.40 ± 6.63		60.88 ± 2.09		40.72 ± 5.61		42.13 ± 7.0		(0.226)	($<0.001^*$)
t ₀ (p ₀)	15.901* ($<0.001^*$)				1.60 .296)					

χ^2 : Chi square test

MC: Monte Carlo

MH: Marginal Homogeneity Test

t: Student t-test

t₀: Paired t-test

p₁: p-value for comparing between Study group and Control group at Pre

p₂: p-value for comparing between Study group and Control group at Post

p₀: p-value for comparing between Pre and Post in each group

*: Statistically significant at $p \leq 0.05$

Table (3) Nursing students 'clinical performance immediately following applying Reflective Debriefing Strategy (n = 40).

Total score	Study group (n = 40)		Control group (n = 40)		Test of Sig.	P
	No.	%	No.	%		
Fair (<14.5)	0	0.0	2	5.0	$\chi^2=44.598^*$	$^{MC}p < 0.001^*$
Good(14.5-<18)	0	0.0	8	20.0		
Very good (18-<20.5)	0	0.0	17	42.5		
Excellent (>20.5)	40	100.0	13	32.5		
Min. – Max.	23.0 – 24.0		10.50– 24.0		t=11.490	<0.001*
Mean ± SD.	23.73± 0.28		19.30±2.42			

χ^2 : Chi square test MC: Monte Carlo t: Student t-test

p: p value for comparing between Study group and Control group at Post

*: Statistically significant at $p \leq 0.05$

Table (4) nursing students' overall clinical performance immediately and after 8 weeks of applying Reflective Debriefing Strategy (n= 80).

Total score	Study group (n = 40)				Control group (n = 40)				Test of sig.(p ₁)	Test of sig. (p ₂)
	Immediately		After 8 weeks		Immediately		After 8 weeks			
	No.	%	No.	%	No.	%	No.	%		
Fair (<14.5)	0	0.0	0	0.0	2	5.0	5	12.5	$\chi^2=44.598^*$ ($^{MC}p < 0.001^*$)	$\chi^2=27.659^*$ ($^{MC}p < 0.001^*$)
Good(14.5-<18)	0	0.0	0	0.0	8	20.0	11	27.5		
Very good (18-<20.5)	0	0.0	0	0.0	17	42.5	4	10.0		
Excellent (>20.5)	40	100.0	40	100.0	13	32.5	20	50.0		
Sig. bet. periods	–				$^{MH}p=0.077$					
Min. – Max.	23.0 – 24.0		22.0 – 24.0		10.50– 24.0		8.0 – 24.0		11.491 (<0.001*)	5.832* (<0.001*)
Mean ± SD.	23.73± 0.28		23.61 ± 0.65		19.30±2.42		19.37 ± 4.54			
t(p₀)	1.086(0.284)				0.119(0.906)					

χ^2 : Chi-square test MC: Monte Carlo t: Student t-test t: Paired t-test

MH: Marginal Homogeneity Test

p₀: p value for comparing between the studied periods in each group

p₁: p-value for comparing between the studied groups in Immediately

p₂: p-value for comparing between the studied groups in After 8 weeks

*: Statistically significant at $p \leq 0.05$

Table (5) Nursing students feedback regarding debriefing strategy reflective (n = 40)

Reflective debriefing scale' items	Strongly disagree		Disagree		Agree		Strongly agree		
	No.	%	No.	%	No.	%	No.	%	
A Effectiveness of reflective debriefing strategy									
1 Analyze my Performance	2	5.0	1	2.5	21	52.5	16	40.0	
2 Improve my self-evaluation skills	0	0.0	0	0.0	19	47.5	21	52.5	
3 Retrieve what I learned and what I did	3	7.5	0	0.0	18	45.0	19	47.5	
4 Identify my own weakness.	4	10.0	1	2.5	16	40.0	19	47.5	
5 Expressing my self	2	5.0	2	5.0	18	45.0	18	45.0	
6 Improve my thoughts	1	2.5	2	5.0	13	32.5	24	60.0	
7 Became more aware of my strength in skills	2	5.0	0	0.0	17	42.5	21	52.5	
8 Realize the value of reflection on my performance	0	0.0	0	0.0	15	37.5	25	62.5	
9 Identify my own learning needs	3	7.5	0	0.0	18	45.0	19	47.5	
9									
10 Improve my observational skills	2	5.0	2	5.0	16	40.0	20	50.0	
11 Reflect on any task	2	5.0	0	0.0	16	40.0	22	55.0	
12 Improve my judgment skills	1	2.5	1	2.5	16	40.0	22	55.0	
13 Improve my discussion skills	2	5.0	5	12.5	14	35.0	19	47.5	
14 Improve my critical thinking skills	4	10.0	1	2.5	17	42.5	18	45.0	
Mean ±SD		47.30 ± 3.65							
B Applicability									
1 I found difficulties in reflection on my performance	22	55.0	15	37.5	1	2.5	2	5.0	
2 The environment around the application of this strategy was comfortable.	3	7.5	1	2.5	20	50.0	16	40.0	
3 I'm satisfied with the application of this strategy	0	0.0	0	0.0	15	37.5	25	62.5	
4 Reflective debriefing strategy was time-consuming for me	16	40.0	24	60.0	0	0.0	0	0.0	
5 I feel competent during the application of this strategy	0	0.0	0	0.0	16	40.0	24	60.0	
6 The instructor provided me with a suitable guidance	0	0.0	2	5.0	17	42.5	21	52.5	
Mean ±SD		20.75 ± 1.41							

Table (6) the study group feedback regarding the application of Reflective Debriefing Strategy from their point of view (n = 40)

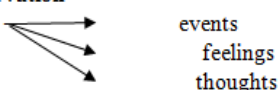
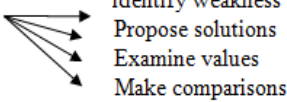
Study group's point of view	Study Group (N=40)	
	No	%
Mastery of the procedure /independence in enhancing their performance	33	82.5
Enhance awareness of my weaknesses	32	80.0
Learn me new ways of thinking and learning, Enable me to analyze any performance	35	87.5
Use a new way of learning as a reflection	37	92.5.0
Face my concerns /problems	28	70.0
Enhance communication skills with others/ Decreases embarrassment	29	72.5
more comprehension and application of what they are learning (decrease gap between theory to practice)	35	87.5

Table (7): Nursing student’s perspectives about the week and strong point of Reflective Debriefing Strategy (N=40).

Nursing students' perspective	Study Group (N=40)	
	No.	%
Strongpoint		
Divided students to sub-groups	28	70.0
Give chance for Individual reflection and interact with the instructore	33	82.5
Practice procedure more than one time	25	62.5
Teacher available online on Whatapp for discussion	29	72.5
It can be used as a method of learning any procedure	30	80.0
Week point		
Non	36	90.0
Suggestions		
▪ Used for all procedures	24	60.0
▪ All the topics include reflective questions	16	40.0

APPENDIX

Table 1: Reflective Debriefing Strategy Stages

Kolb's stages	Applicability on blood pressure procedure; by using guided questions
1- Concrete experimentation (performance of the procedure)	Performance of the procedure.
2- Reflective observation review, describe 	<ul style="list-style-type: none"> • Did you prepare all the equipment for the B.L.P procedure? • Did you check the efficiency of the sphygmomanometer? • Did you know the reason behind explain the procedure to the patient? • Did you palpate the radial pulse? • Did the radial pulse strong or weak? • Did you know your cause behind the inability to palpate the radial pulse? • Did you listen well? • What you are listen?
3- Abstract conceptualization The student think critically about the event (procedure)to 	<ul style="list-style-type: none"> • Did you have difficulties in measuring blood pressure? Why? • Did you anxious about measuring blood pressure? • Can you explain your emotion in measuring blood pressure? • What are your difficulties in measuring blood pressure? and why ? <ul style="list-style-type: none"> ✓ concerning your performance ✓ concerning learning environment
4 Active experimentation come up with a plan for future experience	<ul style="list-style-type: none"> • How to overcome these difficulties? • based on the group suggestion to enhance the future performance
• Return to the first step	• Use the same question mentioned in a first stage

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