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Review Article

A critical review of reflective models in clinical nursing learning

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Abstract

Background and aims: Experience is the main foundation of learning, but learning without thinking and reflective cannot happen to be related to action. Moving towards experience-based education is an effective replacement for traditional education so that active learning can take place. Reflection in medical sciences seeks to combine theoretical concepts with practice, increase experience-based learning, accept responsibility and continuous professional growth, increase critical thinking and judgment in critical and complex situations based on experience and clinical knowledge, and improve the quality of care, increase professional strength, improvement in performance by raising individual awareness, development of clinical knowledge and skills. Therefore, this study was conducted to synthesis the research in reflective models in learning based on reflective thinking in clinical learning of nursing students in 2020.

Methods: In this systematic synthesis research, researches related to reflective models in clinical nursing learning were examined in three stages: determining the geography of the research, systematic critique of selected documents, and synthesizing a new creation of separate elements and combining them and evaluates and combines current and ongoing studies.

Results: The results of combining the findings of the research selected for this study are in response to research questions such as: What are the existing models of learning based on in-depth thinking? What features, levels and steps do they have? And what are the researches related to this type of learning in clinical nursing education and how have they been done? Which were selected based on systematic criteria and parameters and during a systematic process compared and combined the findings of this research and finally were synthesized and processed in the form of findings to answer research questions. Seven models of applied reflective thinking in clinical learning were reviewed by experts: Borton, Gibbs, Smyth, John, Mezirow, Zarezadeh, Cottrell, which had commonalities and distinctions according to specific concepts of reflective learning. In all models, gaining experience and examining it to promote and improve learning by identifying a problem or event, and the beginning and end of this method, increases the potential of this type of learning for more application in clinical education, especially the nursing group. Reflective thinking had practical values such as: strengthening deep learning, understanding the learning process in students, helping to advance professionalism and learning throughout life, using previous learning knowledge and building, redefining and reconstructing knowledge based on new experiences. It is presented through the learning environment and emphasizes accepting responsibility for educating others. Reflective learning ensures that learning is not limited to formal environments and that every experience is considered a learning experience. It also offers new insights, changed ideas, and a corrective attitude or emotional trait.

Conclusion: The result of research synthesis, strengthening the efficiency and positive effect of this type of learning on the acquisition of skills, student and teacher motivation and the ability to learn collaboratively as well as improving skills in the clinical environment, although moving beyond the traditional context of teaching and learning, demands and the result of combining the data of the studies also emphasizes the practical nature and construction of knowledge in learning based on insight and its special place to eliminate the theoretical and practical gap in clinical education witnessing the excellence of this operational part of clinical education and health promotion of community by providing proper performance of nursing staff. **Keywords:** Reflective learning, Synthesis research, Clinical learning, Nursing

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Introduction

Man's ability to learn is his most important characteristic. Personality, habits, skills, knowledge, attitudes, and interests result from learning (1). As the essential goal of education, learning is a process gained through the transfer of experience (2). The move towards experience-

centered education, which explicitly considers different learning styles, is thought to be an effective alternative to traditional education (3) since, in this way, the learner gets out of the passive state and becomes an active agent by participating in learning (4).

By 2004, over 71 models were identified for learning

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methods, the most influential of which was the Kolb model, whose emphasis was on the empirical learning process rather than the fixed features of learning. Experience is the main foundation of learning, but learning cannot occur without thinking and reflective learning; if thinking and reflective learning coincide, they are related to action and activity (5). Here is where learning and practice based on reflective learning become essential.

Background of studies and theoretical foundations

Reflective learning is a concept that emerged from the efforts of researchers such as Dewey, Schön, and Schwab on Reflective Practice. After Schön introduced this concept in his writings in 1983, many authors explained the term "Reflective Practice" with more deep thinking and by giving attention to other areas.

There are three components in reflection: cognition, critical thinking, and detailed questioning. These processes are problem-solving, and professional learning is rooted in continuous reflective learning on daily problems. Such knowledge is usually implicit, making identifying and analyzing such results challenging.

For thinking based on reflective learning, there are some steps, which include identifying the nature of the problem, responding to the problem by identifying similarities and differences with other results and implementing potential solutions, and examining the results with and without the meaning of the chosen solution (6). Reflective training is a structuralist and inclusive approach that emphasizes active, inclusive learning and enables students to achieve more sustainable learning with a critical perspective.

There are various strategies to facilitate reflective learning, including critical incident analysis, reflective journal writing, portfolio development, and commitment to change contracts. These strategies reinforce reflection because they help the learner focus on the events he/she has already experienced (7).

The concepts of teaching and learning of reflective learning are considered facilitators of the professional development of teachers (8). Education theorists in all disciplines argue that active learning strategies potentially lead to students' acquisition of critical thinking skills (4). Accordingly, eminent educators, researchers, and authors have emphasized the importance of reflection over the years. The goal of reflection can be to increase the effectiveness of learning or to promote metacognition or similar concepts such as learning for learning, or selfregulation, all of which are essential for people dealing with knowledge (9). Many researchers believe that reflective learning has many practical values. Such as enhancing deep learning, understanding the learning process of the self in students, helping them to progress professionally and learning throughout life, using previously learned knowledge and building, demolishing, and rebuilding the knowledge based on new experiences presented through the learning environment, and emphases assuming responsibility for educating others. Reflective learning ensures that learning is not limited to formal

environments and that every experience contributes to learning. It also provides new insights, changed ideas, and a corrective attitude or emotional trait (10). On the other hand, using reflective learning, that is, respect for the student as a cultured adult, creates independence, confidence in his/her competence, and success in daily performance (11).

Reflection in the learning process allows the learner to review his/her learning and performance and leads him/her to critical thinking to generate new knowledge and solutions to problems. Reflection leads to moral-personal, personality, psychological, emotional, and cognitive development (12), which is especially important for medical sciences students, particularly nursing students.

Statement of the problem

Practicing a reflective approach in nursing is essential for both the nurse and the patient. From a holistic care perspective, nurses should constantly provide human beings with holistic nature, consider all its dimensions, and perform their care in this domain with minor mistakes. Therefore, it is critical to think and reflect on the desired action during or after performing particular actions to reduce the distance between theory and bed and learn the necessary points from specific experiences. The importance of a reflective approach for the nurse and the patient is because the person can avoid doing the wrong thing or substitute the right things, so it can help increase the development of the person's abilities. Therefore, nurses can provide their care with better understanding and awareness during a reflective performance and are motivated to change and improve the quality of holistic care (13). The present study seeks to answer a broader research question of a specific framework and model based on reflection in clinical nursing education. So, the researcher predicts that such a model and framework, to a large extent, can be effective in benefiting from its advantages in reducing the gap between the theory of clinics, improve patient care and help students in expanding and developing clinical knowledge and skills, and assist planners and education officials as well as professors and students of nursing and all stakeholders in the educational and clinical system. Therefore, this study aims to explain the synthesis of reflection models in learning and research related to reflective learning in the clinical education of nursing students.

Methods

This research was done using a synthesis research method, the result of which is integrated knowledge, which brings together the already-known findings of diverse and scattered studies that can be related to the field of action. In order to gain knowledge that can help solve current problems and issues that require planning or making practical decisions, integrated research evaluates and combines current and implemented studies (14). The knowledge in separate studies and reports usually needs to be more suitable to apply immediately

in decision-making. Such knowledge is linked to the knowledge generated by other related studies. More clearly, the knowledge obtained is evaluated, reorganized, and interpreted in a format appropriate to current needs. Integrated research is the most crucial practical research that creates a harmony between knowledge, needs, and skills through which knowledge combination and integration occur (14).

Synthesis research has two categories, quantitative and qualitative (15). With regards to qualitative research related to the present study, the development of theoretical and methodological fields leads to novel methods of synthesis research such as literature review or narrative review, systematic review, meta-analysis, meta-ethnography, cross-case comparison, secondary analysis of primary data, meta interpretation, meta-study, and mixed research synthesis (16).

In this regard, this critical review research was designed in three stages:

(1) Determining the geography of the research

Selection of the studies whose findings could be used was made in the following two steps:

First: One should consider determining search parameters such as publication date and type of research that is relevant to research questions, research quality in terms of validity of research tools used, and validity of analysis methods used to investigate quality and relevance criteria, as well as reliable quantitative, accurate and deep qualitative research, reference books and documents related to the studied subject.

Second: Determining the strategy of searching for documents and databases where the keywords related to reflective learning models and the nature of this type of learning could be drawn, such as "Reflection, reflective learning, reflective training, reflective teaching, reflective thinking, reflective practice" or "Levels of reflectivity, reflective learning model, reflective practice in nursing." Then, scientific databases, including international databases, were determined and explored. Some examples are Google Scholar, Web of Science, PubMed, ScienceDirect, and ERIC, which were identified and selected to increase search accuracy. Studies on reflection in medical students with relevant and original content published in a credible journal; and articles addressing reflective learning in non-medical students were excluded. Selected studies were categorized and carefully reviewed to draw existing reflective learning models, their characteristics, their levels, and stages, especially in clinical education. From the initial search, 64 articles, documents, and books were drawn to address reflective learning models and the nature of this type of learning; a total of 47 documents remained to include in the next stage based on the selection criteria.

(2) Systematic critique of the selected documents

This was done through the following three stages:

First: Coarse screening: Abstracts of the documents

were read and selected based on quality and relevance criteria. The most credible research that answered some of the researcher's questions was examined and selected; the questions include Is the focus of the research consistent with the purpose of the ongoing synthesis? Is the method used to answer the questions in the research appropriate? Has the research been conducted accurately and deeply? Given the characteristics considered in the research, like the characteristics of the selected sample, are the types of tools used appropriately for the present synthesis research? Is the data well analyzed and interpreted?

Second: Screening title: The whole text of the documents published between 1970 (Borton compiled the first model) and 2018 were reviewed and selected based on the above two criteria. This stage yielded 47 documents, 4 book titles, 4 documents, and 39 articles.

Third: Analysis: For this purpose, after determining the inclusion and search criteria based on keywords in international and domestic databases and screenings performed, documents were analyzed, and their different sections were expressed in detail in the table cells, which include the research questions, research design, production methods, data analysis and findings, and the research sections were categorized and arranged according to each of these criteria. This information was used for the next stage, a configurative synthesis, and the summary was presented at the end of each concept.

(3) Synthesis; Creating a new concept from separate elements

In this study, a configurative synthesis was performed, and the findings of others were converted into data combined with other data and then recreated with a new identity (16). At this stage, patterns or interpretations were searched for in the data to produce a higher level of explanation. This approach is put together like a jigsaw puzzle to create a new concept. This study compiled different findings about reflective learning models and the nature of this type of learning. Then with repeated and accurate readings, these data were categorized under more significant themes.

Results

The results of combining the findings of the researches selected for this study are to answer the research questions. What are the existing models of reflective learning? What are their characteristics, levels, and stages? Moreover, what is the research related to this learning in clinical education, and how is it done? Those researches were systematically selected based on criteria and parameters. Again, throughout a systematic process, the research findings were compared, integrated, and finally synthesized and processed into findings to answer the research questions.

Question 1: What are the existing models of reflective learning? What are their characteristics, levels, and stages?

During the review of recent studies, seven sub-applied reflection models in clinical learning were drawn, whose

 Table 1. Applied reflective clinical learning models

Model/Designer/Year	This model is appropriate for the following:	Model components	Model and the researcher's critique	
Borton's Model of Reflection/Borton/2003	1) Physicians tend to develop reflective writing skills. 2) Short reflective interpretation of fewer than 500 words 3) A reflection that does not focus on a particular experience or event.	Step 1: What? This aspect is a description of reflection. What is what you and the others have done? Step 2: So what? Why did the events happen in the method they did? Step 3: Now what? Thinking of what you want to do in the future, what could be the outcomes of your measures?	Researcher critique: In 1970, when learning based on experience did not have a special place, Borton's attempt to design a model with this theme is commendable and was completed according to the needs of learners in a few decades until 2003, when he proposed his final model of two subject importance indices in learning. Of course, personal feelings are neglected in gaining experience and transferring it for better reflective learning. People's feelings need to be clarified for the result of learning to be clear in a thoughtful reflection on the same experience (24).	
Gibbs' Model of Reflection/Gibbs/1988	1) Novice reflector 2) Students undertaking level 4/certificate level studies	Step 1: Description of the event: The starting point is to write another version of the event that you want to reflect on or tell someone else. The type of event you choose depends on whether you want to share it with someone else or keep it to yourself. Step 2: Feelings: Remember and discover the things that happen in your mind that make us feel happy or unhappy and come to mind in the first place. Step 3: Evaluation: When we evaluate, we value it or measure it against some standard. What should be good about an experience? Step 4: Analysis: Analyze the items into their components to be examined separately. Step 5: Conclusion: You have changed your perception of yourself and others in terms of how you help them as a result of the event. Could we have acted differently? Step 6: Action Plan: Think again in the face of this event and plan what you will do.	Researcher critique: The Gibbs cycle emphasizes the design of six primary stages and that reflection must be a continuous cycle. In this cycle, little attention is paid to the fact that when people have trouble doing something, they immediately stop their activity and think again to consider an alternative way or another activity (25).	
Smyth's Model of Reflection/Smyth/1989	A framework for physicians to practice seriously and influence change A more experienced reflector Experiences of issues related to an imbalance between people involved. Conditions in which the reflector is unable to develop or change.	Describe: What did you do? Give a brief description of the experience. Inform (analysis): - What does that mean? - Analyze the situation using the relevant theory to support it. Confront (self-awareness): - How did I become like this? - Consider how past experiences, values, and education have shaped you professionally. Reconstruct (evaluation and synthesis): What do your practices say about your assumptions, values, and beliefs?	Researcher critique: What is distinctive in Smyth's model is attention to performance based on reflection, and it is based on the social element in the stage of reconstruction (evaluation and synthesis), which is not limited to individuals, but the lack of attention to the psychological element along with the social discussion at this stage can be considered (26).	
John's Reflective Framework/John, 2009	1) Experienced reflector 2) People who want to reflect at the "degree level."	1) Bring the mind home By choosing a quiet moment to think, prepare your time to reflect. 2) Description of the experience Provide a summary of the experience. 3) Reflection What are the main topics that need to be considered? What did you try to achieve?	Researcher critique: It is interesting to consider a time for thinking and to prepare for reflection. This step will be a prelude to a better discovery of the experience and can have a better result. Also, having a plan for the future is only explicitly present in some models (20).	
Mezirow's Reflective Model/Mezirow/2002	Mezirow Framework is a valuable tool to help the learner challenge his assumptions, values, and beliefs and thus consider alternative perspectives and new ways of behaving. Critical theorists believe that individuals can help understand the world through mental frameworks.	Step 1: Disorienting: An experience that allows you to use the usual method of observing the situation. Step 2: Self-examination with guilt or shame Step 3: Critically evaluate epistemological, social, cultural, or psychological assumptions Step 4: Sharing the diagnosis of personal dissatisfaction and the trend of evolution and negotiating with others about the exact change Step 5: Discovering new roles, relationships, and actions Step 6: Planning a practical course to change the self. Step 7: Gaining the knowledge and skills to run a personal program Step 8: Temporarily try a new role and try a new way of behaving Step 9: Building self-competence and confidence in new roles and relationships Step 10: Fully embed new perceptions and behaviors in your personal and professional life.	Researcher critique: One of the advantages of Mezirow's model is helping the learner to challenge his hypotheses, values, and beliefs. This model pays less attention to the influence of external and social factors (27).	

Table 1. Continued

Model/Designer/Year	This model is appropriate for the following:	Model components	Model and the researcher's critique
6) A Reflective Model for Interprofessional Learning Zarezadeh et al/2009	To enhance interprofessional learning and collaboration, this model is designed and is suitable for the following: 1. Experiences related to other members of the interprofessional team. 2. Reflection along with professional learning	1) The personal level: strengthens self-awareness. 2) The professional level: reinforces specific professional attitudes and behaviors. 3) Inter-professional level: Gives more appreciation for the role of team members and creates more respect for their contribution. - What are the commonalities and differences between professional groups? What about their role in health and social care?	Researcher critique: Zarezadeh et al presented the model from his point of view by dealing with interprofessional learning with a reflection that starts from the personal level. The only point is that the place of feedback and evaluation in this model is small (22).
The Core Model for Critical Reflection/ Cottrell/2010	1) For more experienced reflectors, including those with postgraduate education. 2) To create a higher level of reflection to create a deeper understanding of a situation or event.	1) Evaluate: Identify the reason for choosing this experience, event, or topic. 2) Reconstruct A description of what happened during the event or experience. 3) Analyze: Examine one's thoughts and compare new findings with what is expected from the texts and what is currently considered the best method. 4) Distil: Your analysis should generate many thoughts. Draw the most relevant ones and turn them into ideas or practical conclusions. 5) Apply: How to use what you have learned before forgetting?	Researcher critique: The critical method of reflection is worth pondering. It should be addressed that this model does not mention the learning environment that allows for the reconstruction and destruction of knowledge based on new experiences (28).

characteristics and stages are presented in Table 1.

- 1. Borton's model of reflection (17)
- 2. Gibbs' model of reflection (18)
- 3. Smyth's model of reflection (19)
- 4. John's reflective framework (20)
- 5. Mezirow's reflective model (21)
- 6. A reflective model for interprofessional learning (22)
- 7. The core model for critical reflection (23).

By reviewing the seven models of reflection, it is clear that they have commonalities and differences in learning, given specific definitions and concepts of reflection: in all of them, we take measure by gaining experience and examining it to promote learning by identifying a problem or event and the beginning and end of this method in different models increase the potential of this learning for further application in clinical education, especially the nursing group and what is mentioned in the section of researcher critique indicates this situation. Different studies have addressed factors affecting clinical education in nursing (29,30). Some recognize students' lack of motivation and interest as a significant challenge facing clinical nursing education (29,31). Some also point out the influential role of educators in the efficacy of clinical education and consider it an essential factor for motivating students and self-confidence and ultimately promoting the level of clinical education (32).

Some studies found physical limitations, such as the clinical education environment, as necessary and influential factors for clinical nursing education (33). In addition to the above issues, theoretical training and its incompatibility with the clinical setting conditions have also been reported as another challenge of clinical nursing education. Factors practical on the quality of clinical education are numerous and are intertwined as complex components, bringing about many complexities in all countries (34,35).

Many studies worldwide have been done on clinical education. However, in Iran, clinical education has yet to be investigated sufficiently. Despite the efforts made to clarify the issue of clinical education and its related factors, so far, clinical education and these factors have remained complex and ambiguous. Many of the shortcomings of clinical education cannot be quantified, and the subtleties of this issue must be revealed in qualitative evaluations because all the positive and negative points of clinical nursing education can never be found by using questionnaires alone (36).

Various factors play a role in the quality of clinical nursing education, among which the four main factors, namely, the characteristics of the educator, the individual characteristics of the learners, the characteristics of the clinical environment, and the educational program, are salient. In order to reduce the gap between learning content and internship, the curriculum should be revised to enhance the ability of the students to integrate theoretical content with practical skills. The next step is to accurately and practically compile a description of nursing students' duties in the clinic so that students will know how to use what they have learned in the clinical settings (37,38).

By developing practice-based theories and considering the facts in clinical settings when teaching, theoretical knowledge by nursing theorists and instructors can also eliminate the existing gap. Clinical experience is one of the most stressful components of a nursing education program. Lack of clinical experience, unfamiliar environments, complex patients, fear of making mistakes, and fear of being evaluated by faculty members have been reported as stressful situations in clinical experience. Although there are slight differences in the factors related to clinical education in various studies and the authors' arguments, it is clear that clinical education is a

fundamental and multidimensional issue that, by affecting the way of education of the new generation of nurses, is considered as one of the main factors guaranteeing patient care. Therefore, the basis of the care system of all aspects of community health is based on clinical education (39).

In the second part of this study, the results of combining the findings of the studies selected were displayed. In response to the second question, what are the researches related to reflective learning in clinical nursing education, and how are they done? Based on criteria and parameters, they were selected systematically, and then again, during a systematic process, the findings of this research were compared, integrated, and combined. Finally, they were synthesized and processed into findings to answer research questions (Table 2).

Discussion and Conclusion

What comes from combining relevant research in the field of reflection is that this model entered the field of learning and education from Borton in 1970 and gradually became more apparent in clinical education. There is still work to be done for measuring the performance of students'

Table 2. The research on reflective learning in clinical nursing education

Author/Year of publication	Research objective	Sample	Research methodology	Key findings
Platzer et al, 2000	Identifying barriers to reflective learning	A group of nurses with a bachelor's degree	Qualitative research	The existing culture or environment in that nurses work there, is the most significant barrier to reflective and experiential learning (40).
Ruth-Sahd 2003	Critical analysis of the performance of reflection with application in nursing	Nursing students and professors	Qualitative research	Performance-based on reflection begins with novice students, and the value and importance of reflection can be taught to beginners. In nursing procedures, reflecting is necessary to take more effective measures for the patient (41).
Bordonaro and Richardson, 2004	Determining learners' learning strategies in classroom environments	Students	Quantitative research	The use of questionnaires to complete the tasks should be considered an accurate reflection of individuals' cognitive processing, and individuals act differently in reflective learning (42).
Gustafsson et al, 2007	Determining the effect of reflective practice in nursing care	Nurses in the field of clinical care	Qualitative research	Performance-based on reflection is a valuable tool for nursing care, and nurses with this method find the ability to perform holistic nursing care and have logical thinking and develop their knowledge; this is a strategy to integrate new nursing knowledge with previous knowledge in order to change nursing practice (43).
Chong, 2009	Explaining nursing students' perception of reflective performance	Nursing students	Qualitative research	Nursing students positively perceive reflective practice in the nursing clinic, which enhances learning activities and students' self-directed motivation. Course content, instructional method, instructor readiness, clinical instructor, and supportive learning resources should be provided for students (44).
Mettiäinen and Vähämaa, 2013	Determining the application of the reflective learning process's awareness and critical awareness levels; To be used in a modified way.	Nursing students	Qualitative research	Nursing students, in their work environment, through perception and thinking, create conceptual structures and reflect on the meaning of perceptions and their theoretical background. At the level of critical awareness, students became self-aware of awareness and knowledge and learned to criticize this awareness and knowledge and challenge their assumptions (45).
Naicker and Mestry, 2013	Examining and describing the role of nursing instructors in facilitating reflective learning in students	Nursing instructors	Qualitative research	In practice, nursing instructors failed in the field of reflective learning. That learning approach is not considered in the formal approach to learning in their curricula, but instructors sought to use these measures in their teaching and learning activities (46).
Ryan, 2013	Theorizing a model for teaching and evaluating reflective learning in higher education of higher education	Students and professors	Qualitative research	Higher education is a multidimensional space that justifies the need to pay attention to all the different dimensions of students' learning (47).
Muncy, 2014	Determining the type of student learning when using and writing their daily posts in blogs	Students	Qualitative research	Blogging is a valuable tool for reflective learning among students (48).
Gašević et al, 2014	Determining and analyzing the effects of using video and education to support learning based on students' reflection	Students	Qualitative research	Using video and teaching improves students' reflective learning processes (49).
Guerrero- Hernández and Fernández-Ugalde, 2015	Determining the relationship between reflection, interests, and motivations in achieving standard reading success in high school	High school students	Qualitative research	Students' motivational activities make a difference in learning, and one or more learning activities were valued for each. The need for compiling clear standards between reflective learning and student achievement was evident (50).
Saperstein et al, 2015	Presenting a model for reflective learning performance by compiling and implementing a curriculum during the four years of medical education in master's degree	Students and Professors of Edward Hubert Medical School USU	Qualitative research	Practice-based on reflection longitudinally in 3 stages of training and by providing a sample of reflective writing to students show that by replacing such a curriculum, how we can witness its potential benefits, such as promoting interprofessional education and improving self-awareness and clinical practice (51).

clinical education so that better performance can be expected from students, especially the large population of nurses. However, the results of the synthesis of various research have confirmed the efficiency and positive effect of this learning on the acquisition of skills, student and teacher motivation, the ability to learn collaboratively, and, subsequently, skills improvement in the clinical and working environment. However, significant effort is required to become separated from the context of traditional teaching and learning and implement this learning method. Combining the data of the studies reviewed also emphasizes the practical and constructive nature of knowledge in reflective learning and its special status. So that by eliminating the gap between theoretical and practical distance in clinical education, we will witness the excellence of this active part of education and the promotion of community health through the proper performance of nursing staff.

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Conflict of Interests

The authors declare no conflict of interests.

Ethical Approval

Not applicable.

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