

An Integrative Literature Review of Interventions Addressing Knowledge, Attitudes, and Skills of Health Team to Achieve Best Maternal Outcomes

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Review article</p>	<p>Background & aim: The integrative review is the methodology that provides synthesis of knowledge and its results could be applicable to practice. This is achieved by analyzing previous studies and generating new perspectives on the topic. This integrative literature review sought to review empirical and theoretical literature considering the ways in which health professionals' knowledge, skills, and attitudes can be improved for the best maternal outcomes.</p> <p>Methods: Keywords were identified, and medical subject headings were used to formulate the search strategy. The search strategy was adapted according to several databases, including Academic Search Complete, Health Source: Nursing/Academic Edition, CINAHL, and Google Scholar. The present review focused the period from 1996 to 2016. Review questions were designed, and inclusion and exclusion criteria were determined.</p> <p>Results: The initial search resulted in the extraction of 780 papers; however, after screening the titles, abstracts, and duplicates only 12 articles were included in the final review. Among all 12 articles, in-service training program was the main intervention to update health professionals' knowledge, skills, and attitudes in order to achieve the best maternal outcomes. The reviewed articles focused on teaching methods, frequency or duration of the training programs, and setting of in-service training programs.</p> <p>Conclusion: In-service training programs can improve the quality of healthcare among nurses and midwives by increasing clinical knowledge and skills, as well as changing health professional attitudes towards a more patient-centered approach.</p>
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Introduction

Client satisfaction with healthcare delivery is an indication of quality care and is reported to affect health service utilization. People who are satisfied with their healthcare experience comply with service, as well as follow-up, and are more likely to continue the use of skilled care services. Client satisfaction with healthcare is influenced by their expectations and experiences (1). Disrespect and abuse in childbirth care have received widespread attention in the literature and are recognized as global problems (1, 2).

There is clear evidence that disrespect and abuse influence women's decision on the place of delivery (3). Home birth is associated with morbidities and mortalities among women and neonates in Ghana. In addition, home births are not attended by skilled birth attendants who are trained to recognize early abnormalities and intervene (4).

Most maternal and neonatal mortalities occur around the time of birth, and antenatal services are unable to fully determine which mother will have a complication during delivery

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(5). The utilization of facility-based childbirth care can improve maternal and neonatal outcomes, because skilled birth attendants, such as nurses, midwives, and physicians, are available in health facilities to detect and handle any deviation from normal condition. However, the use of these facilities is not optimized for women due to disrespect and abuse during childbirth (4).

In Ghana, facility-based childbirth care is mainly provided by midwives. Disrespect and abuse reported in facility-based childbirth care have implications for improving the quality of care, upholding human rights, and addressing disparities in the achievement of universal health coverage and other sustainable development goals (6).

The improvement of childbirth care service is critical for most developing countries (7). It is recognized that the attitude of midwives towards women during childbirth is a major factor influencing women's choice and decision regarding where to give birth (8, 9). Women's failure to seek skilled healthcare for giving birth may sometimes lead to maternal mortality due to unforeseen complications that always arise during pregnancy and delivery (5). The present integrative literature review was conducted to address the knowledge, attitudes, and skills of the health team to achieve the best maternal outcomes.

Materials and Methods

Determined steps were followed to perform an integrative review, including problem identification, search strategy, data evaluation, and data analysis (10).

Theoretical and empirical studies in the past related to the ways in which health professionals' knowledge, skills, and attitudes can be improved were sought for better patient outcomes. This was identified in order to address the issue of patient's dissatisfaction with care.

The search strategy for the review covered the articles published in databases, such as

Academic Search Complete, Health Source: Nursing/Academic Edition, CINAHL, and Google Scholar. The present review focused on the period from 1996 to 2016. The following search strategies were used and with the help of medical subjects heading other terminologies were identified and included:

1. "Midwifery" OR "Nurse midwives" OR "Midwives" OR "Midwife" OR "Skilled birth attendant" OR "Nurse"
2. "Training" OR "Guideline" OR "Intervention" OR "Program" OR "Programs" OR "In-service" OR "Education" OR "Curriculum" OR "Learning"
3. "Patient-centred care" OR "Patient-focused care" OR "Soft skills" OR "Patient satisfaction" OR "Client satisfaction"

The studies that focused on traditional birth attendants and community health workers were excluded because these groups do not work within the hospital setting.

These review questions guided the data extraction process to ensure the collection of all relevant data, minimize the risk of error in transcription, and confirm precision in checking for information (11). Therefore, the researchers were guided by the research questions presented for the evidence of interventions that may increase midwives' ability to provide mothers with patient-centered care services during childbirth. The review questions were applied for every research article to identify relevant issues that address these questions. These relevant issues were then noted and extracted.

- What training programs or guidelines have been designed to improve care provision to clients?
- What evidence suggests that these programs were successful or what were the improvements in outcomes after these interventions?
- What techniques were used in training programs or guidelines?

Table 1. Summary of articles focusing on teaching techniques

Author	Study design	Participants	Focus of training	Key findings
Norgaard et al. (2012) (13)	An effectiveness study to investigate impact of an in-house training course implemented in 2008 and 2009 in real world adapted to local settings	Doctors, nurses, midwives n=181 doctors (n=21), nurses (n=102), nursing assistants (n=30)	Compulsory communication skill course to increase self-efficacy and patient care satisfaction, problem-focused training workshops using strategies, such as video recording for feedback The course was designed to ensure that the skills learned were immediately applicable in healthcare professionals' clinical practice.	The effect of the training was observed 6 months after the training. The training methods contributed to the success of the program.
Bluestone et al. (2013) (14)	Integrative literature review using multiple databases, such as PubMed, Cochrane library, and CINAHL, literature review of 37 systematic reviews and 32 randomized controlled trials	Health workers	Educational techniques to enhance learning among health professionals Use of multiple techniques, such as case study, clinical simulation, practice, and feedback allows for interaction and enables learners to process and apply information.	Targeted repetitive interventions resulted in learning and improvements in clinical behaviors.
Lin et al. (2010) (15)	A randomized controlled trial to determine if peer-tutored problem-based learning (PBL) is preferable to didactic-based instruction for teaching nursing ethics	Nursing students Intervention group (n=72) Control group (n=70)	PBL technique was applied in intervention group. Control group received didactic-based instruction. PBL versus didactic teaching	Peer-tutored PBL was significantly more effective than a didactic lecture. Peer-tutored technique is useful in resource-constrained environments.
Bruppacher et al. (2010) (16)	Prospective single-blinded randomized controlled trial to determine if simulation or interactive techniques are better for teaching how to wean a patient from anesthesia	Health professionals (Anaesthesiology trainees, post-graduate 4 th year)	Intervention group received simulation-based training, and an interactive seminar was presented for control group. Simulation versus interactive teaching presented as a single intervention	Simulation group scored significantly higher than the seminar group on both post-test and retention test.
Majumdar et al. (2004) (17)	Randomized controlled trial, 114 health care providers and 133 patients were randomly assigned to experimental and control groups, followed for 18 months' qualitative analysis to identify and analyze themes from journals kept by participants	Health care providers	Culturally sensitive training to improve care using role play and lectures	Increased open-mindedness and cultural awareness improved understanding of multiculturalism and ability to communicate. A culturally sensitive training program not only improved knowledge and attitudes among healthcare providers but also yielded positive health outcomes for their patients.
Ngongo et al. (2012) (18)	Using an environment of supportive supervision, continuing education enabling policies and access to equipment, as well as referral facility, to promote excellence in clinical care	Midwives	Providing on-going professional development through in-service education	In-service education and supportive supervision facilitated the midwives' professional growth leading to improvement in care for mothers and their new-borns in Freetown.
Rowe et al. (2002) (19)	Trial review of intervention effectiveness aimed at improving communication between health professionals and women in maternity care Search of electronic databases, such as Medline, PsychLit, Cochrane Library, Berkeley Institute for Data Science and Social Science Indexes, CINAHL, and Embase 95 potentially eligible papers identified, 11 articles included	Health professionals	Lecture for communication skills training, 4 trials provided women with extra information about antenatal care, 3 trials of women-held maternity records suggested increasing women's involvement and controlling their care	Improvement in communication between midwives and mothers
Reynolds et al. (2010) (20)	Randomized controlled trial to relate knowledge of students, used simulation or didactic lectures	Midwifery students	Simulation versus didactic lectures, a single intervention with control group and intervention group, Control group received didactic lectures with printed visuals and intervention group received simulation-based training.	Greater learner satisfaction and knowledge reinforcement were noted using simulation-based lectures to teach routine management of normal delivery with successful management of shoulder dystocia.

Table 2. Summary of articles focusing on frequency/duration

Author	Study design	Participants	Focus of training	Key findings
Kerfoot et al. (2007) (21)	Randomized controlled trial to determine if spacing principles can improve acquisition and retention of medical knowledge	Health professionals 5 cohorts with 76-80 urology residents in each cohort, out of 537 participants, 400 (74%) completed online staggered tests, and 515 (96%) completed in-service examination. Cohort 1= bolus, single intervention; cohort 2= multiple, spaced intervention	Using self-directed technique the interventions were introduced as multiple and single means. Cohort 1 received bolus education of 96 study questions in June; cohort 2 received daily emails over 27 weeks from June to December, each with one or two questions in spaced pattern. In November, all participants completed a urology exam. Participants were randomized to five cohorts and completed a 32-item online test at staggered time points (1-14 weeks) after completion of spaced education	Communication skills training leads to positive outcome in patient care.
Crofts et al. (2007) (22)	A prospective randomized controlled trial. A total of 140 participants were studied.	Doctors and midwives	Practical, multi-professional, and obstetric training. 1-day course at local hospital, 2-day course with team training at local hospital, and 2-day course with team training	Improvement in performance, no significant difference between training method and duration

Table 3. Summary of articles focusing on setting

Author	Study design	Participants	Focus of training	Key findings
Opiyo and English (2015) (23)	32 randomized controlled trials Cochrane library, MEDLINE, Ovid SP randomized controlled trials, non-randomised trials, controlled before and after studies that compared the effect of in-service emergency care training versus usual care	Health professionals	In-service training in hospital	Improvement in health, professionals' treatment of patients, Use of hospital setting for training was significant in knowledge acquisition
Coomarasamy and Khan (2004) (24)	Effect of stand-alone teaching method versus clinically integrated teaching	Health professionals	Both single and multiple interventions that were multiple and case-based in simulation laboratory and hospital	Clinically integrated teaching has advantages over stand-alone education. Knowledge was improved through stand-alone teaching; however, teaching did not significantly improve skills and attitude. Having clinical skills in a setting similar to hospital environment was significant. Clinically integrated teaching showed improvements in knowledge, skills, attitudes, and behaviors.

- Who were the participants attending these programs?
- How feasible are these intervention programs?

Data were extracted and reviewed for disparities, as well as erroneous and/or inconsistent data. This was followed by exploring the relationships between and within data through the use of the sub-questions in the review for the identification of relevant issues regarding the interventions to improve client care and/or health outcomes. These reviews were then extracted as evidence that could be applied to improve maternal satisfaction with childbirth care in public health settings. The researchers used a standard template to extract the following information from the articles.

The quality of the reviewed papers was assessed by the researcher and colleagues using a checklist adapted from the Joanna Briggs Institute for critical appraisal (11). On the basis of these criteria, each reviewed paper received a quality grade of yes, no, or unclear. "Yes" has a

score of 1, while, "no" and "unclear" have a score of 0. (See below for the assessment of the articles). The criteria have five assessment components as follows:

- If there is congruity between the stated philosophical perspectives and research methodology
- If there is congruity between the research methodology and research questions or objectives

An article was scored 2 if the explicitly and information are observed about the assessment component, and it was scored 1 if the information was present but not clear. An article with no information about the assessed component was scored 0. The score is calculated out of 10, and any score between 8 and 10 is considered good in quality, and therefore the article was included in the present study. In case there was disagreement regarding this grading process, a third colleague was consulted for resolution. According to these criteria, four

articles were scored 9, while 8 articles were scored 8 indicating that 12 articles were of good quality.

Results

Data analysis

As shown in Figure 1, it can be noticed that 780 titles and abstracts were observed to be potentially eligible. These articles were then screened based on the titles and abstracts that led to the elimination of 757 articles. Further screening of 23 remaining articles for duplication resulted in the elimination of 6 other articles. Then, 17 articles were reviewed for full-text analysis and relevance that led to the elimination of 5 articles. Finally, 12 articles were eligible for the present study. These articles were published between 1998 and 2015. The population was mostly health professionals, including nurses, midwives,

doctors, and anaesthetists (16, 18, 21, 22). These studies were carried out in Nairobi, Kenya, Canada, and the United Kingdom.

Programs/Interventions for client outcome improvement

These interventions aimed to address the issues of staff communication with personnel and patients, attitudinal issues, skill acquisition and determine the effects of attitudinal training for staff on patient care. In 4 of the reviewed articles, the authors used randomized controlled trials (RCTs), integrative literature search, and literature reviews to assess the improvement techniques regarding other health professionals' skills, knowledge, attitudes, and communication towards clients.

The main intervention in all 12 reviewed articles was the use of in-service training programs to update knowledge, skills, and

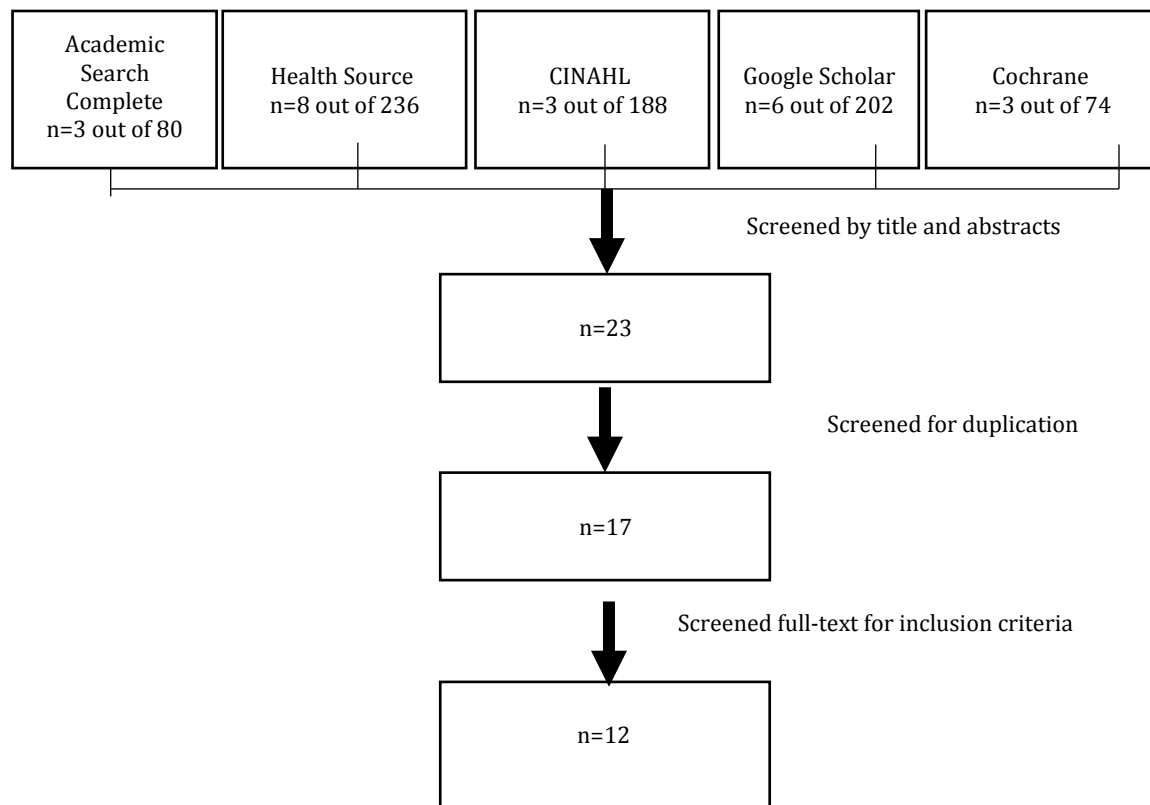


Figure 1. Diagram of searched databases and flowchart of screening process

attitudes of health professionals. Contents that were delivered focused on communication skills, culturally sensitive care approaches, and health outcomes improvements for patients. Educational techniques were the means or methods by which these contents were delivered, such as case studies, didactic lectures, interactive teaching and learning approach, problem-based learning, and team-based learning. The use of these various teaching and learning approaches enhanced the acquisition of the required knowledge, skills, and attitudes by the healthcare professionals although some of these approaches were observed to be more successful than others.

According to the evidence obtained from the RCTs, it was suggested that the integration of in-service training programs within clinical setting is useful in changing the behaviors of health professionals positively (14, 19, 21, 24). The use of in-service training has been successful in the improvement of client-provider communication, provider-provider communication, knowledge, skills, and attitudes of health professionals towards patients and clinical behaviors in general (15, 19, 22, 23).

Various teaching techniques were used in the interventions. Teaching technique refers to the means by which knowledge, skills, attitudes, and behaviors are transferred by the instructor to the learner (14). Accordingly, 8 articles were identified to focus on the techniques, and their obtained are presented in Appendix 3. Educational methods that were used include lectures and interactive methods, such as case studies/problem-based learning, role play, and simulation/demonstration.

Lecture

This is a technique by which knowledge content is presented, and the facilitator determines content, organization, and pace (14). The lecture method was used in some studies (15, 20); it was observed that lecture methods were effective in the transfer of knowledge, compared to other methods. A comparison of simulation-based training with didactic lecture and printed visuals demonstrated a significant increase in the mean post-test score and overall higher learner satisfaction with simulation-based training (20). In a systematic review, a

comparison of classroom teaching with clinically integrated teaching for evidence-based medicine showed that classroom teaching improved mostly knowledge, compare to attitudes, behaviors, and skills; on the other hand, clinical teaching improved skills, knowledge, behaviors, and attitudes (24).

Interactive methods

This is the use of various teaching methods, such as case study/problem-based learning, simulation, demonstration, and role play. These methods were used by researchers who declare interactive teaching methods to be very useful in teaching knowledge, skills, attitudes, and behaviors. The same researchers observed interactive methods that are useful in teaching the adult learner (14, 15). These teaching and learning methods were concluded to be more successful in adult learning due to being interactive. They were also useful when multiple methods were used together (14).

Case study/problem-based learning

This is an interactive teaching method that requires the use of created or actual cases that present materials and questions (14). These methods were used in training health professionals with positive outcomes (13, 14).

Role play

This is also an interactive teaching method where roles are assigned to participants to depict a situation, which is then discussed. This method was observed to be useful in the teaching of knowledge, skills, attitudes, and behaviors (14).

Simulation-based training and demonstration

This is where educational training occurs in settings that are provided to mimic real situations. The comparison of simulation-based training and interactive teaching showed that both approaches were useful in the transfer of knowledge, skills, attitudes, and behaviors (16).

Setting and frequency of interventions

The setting is the place in which the training takes place. Two articles were identified that considered the place where the training occurs. A comparison between the effects of in-service

emergency care training and usual care revealed that the type of training did not make any difference, as there was an improvement in health professionals' treatment of patients (23). These intervention programs were presented in settings, such as the clinical settings and simulation laboratories for 1 to 3 days.

Outcomes of interventions

The outcomes were the consequences of training intervention and changes in knowledge, skills, and attitudes that were positively affected and then influenced the clinical behaviors of health professionals. These consequences were reported in the studied articles through post-test assessment of participants that received various forms of interventions during in-service training sessions. According to the reviewed studies, there was an indication that in-service training could effectively address knowledge particularly if various teaching methodologies are applied (13, 17, 19, 22, 23); as there was an improvement in staff's knowledge, skills, and attitudes after in-service training programs.

Feasibility of in-service training programs

Based on the review, it is evident that in-service training programs were feasible. The programs did not bring about the large budget cost if participants were nonresidential, and therefore there was no accommodation cost, the programs were held in hospital premises and conference halls within the hospitals. The main incurred costs were given to the expenses of facilitators and snacks, as well as lunch for participants (17, 18, 22). On the other hand, if participants are accommodated, the costs will be higher. The in-service training programs are also organized in cohorts for the health professionals since all the staff cannot be trained and work at the same time. However, based on the evidence, it is strongly suggested that in-service training programs are feasible for the acquisition of knowledge, skills, and attitudes among health professionals to ultimately improve patient health outcomes (13, 17, 19, 21).

Discussion

According to the review of articles identified for the present study, there are similar

discussions regarding in-service education for health professionals as a format to improve knowledge, skills, and attitudes with the aim of improving clinical behaviors and health outcomes for patients (13, 14, 17). In-service training is a form of education given to people while they are formally employed and is a preferred technique for health professionals because it does not take the professionals off the duty for a long time as in a formal educational program (25). Moreover, in-service training programs enhance the knowledge, skills, and attitudes of health professionals to improve patient outcomes (14).

In order to improve midwifery clients' satisfaction with childbirth care, in-service training programs for midwives are considered expedient to change the clinical behaviors of midwives towards client care. Abundant evidence was obtained in the present review to support the use of in-service training that is frequently delivered in various modules useful for health professionals' improvement in client care (13, 17, 19, 21). The educational techniques support the positive transfer of knowledge, skills, or attitudes (13, 14, 17, 19, 21). These educational techniques are also supported according to the literature regarding education (25).

Furthermore, in the present review, it was noticed that delivering modules, such as communication skills and patient-centered care, through the use of various teaching and learning methods are helpful (14, 21). This finding is supported by some systematic reviews that focused on the development of communication skills and reported that the use of techniques, including feedback and practice, behavior modeling, more practice opportunities or longer duration, were more efficient with simulations and feedback to address attitudinal issues of health professionals.

In order to train the learner, she/he should play an active role in the teaching-learning process (25). Therefore, teaching and learning that actively involves the learner enable learning. In addition, the training methods that allow for immediate practice or the application of knowledge after learning is useful in the enhancement of learning that is supported by adult learning principles (13, 25).

Strengths and Limitations

The strength of the present study was the identification of in-service training as an effective technique in addressing the knowledge, attitudes, and skills of health team to achieve the best maternal outcomes. Various databases were searched and scientific processes were followed. However, the limitation of this study was the presence of few articles that directly addressed midwives' knowledge, skills, and attitudes.

Conclusion

In-service training is important in the improving and safeguarding competencies for optimal performance of health professionals to provide patient-centered care service. There were no identified interventions for midwives that aimed to improve patient-centered care. However, there is evidence of interventions for health professionals (including midwives) that aimed at improving clinical behaviors to enhance client health outcomes. Therefore, the use of multiple interactive educational techniques and application of adult learning principles can be helpful in the acquisition of attitudes and clinical behaviors.

Considering the nature of competencies acquired by the learner and choosing the appropriate techniques to enhance its transfer are important in the success of designing and implementing in-service training programs. Furthermore, it is useful to be conscious of and apply adult learning principles in planning and implementing the curriculum. The following key points were obtained according to the present review:

- i. Educational techniques that provide a passive transfer of information, such as reading and lecture, should not be exclusively used as a teaching method but in combination with other interactive methods. The techniques should be used that engage the learner in mental processing, such as simulation, case studies, and other interactive strategies (14, 15). This finding is also echoed by educational psychologists (25).
- ii. The use of simulation is a preferred educational technique notably for the transfer of psychomotor skill (22).
- iii. For adult learners, self-directed learning was also observed to be an effective strategy;

however, it requires the use of interactive techniques that engage the learner. Self-directed learning has additional benefit as it permits the learners to study at their own speed (14).

iv. Adult learners would like to be engaged in problem-centered learning experiences and to perform tasks while learning. Therefore, the use of problem-based learning is recommended in teaching adults (25).

v. Repeated exposure to desired competencies or behaviors is also supported in the literature. It is recommended to run frequent in-service training programs, which then serve as reinforcement.

vi. It is also important to direct reinforcement programs toward important targets or exclusively information to avoid what educational psychologists refer to as cognitive overload.

vii. The setting should be selected based on its conduciveness for the use of the chosen educational techniques. Furthermore, the setting should be similar to the work environment of health professionals and permit hands-on practice for feedback.

viii. The availability of appropriate staffing in the units, involvement of staff in identifying the need for in-service training, having an explicit philosophy for the unit and continuous review, and evaluation are important to ensure the success and implementation of learning outcomes (18).

ix. In-service training programs can positively affect desired learning outcomes among midwives and increase the provision of patient-centered care services if effective teaching techniques are used.

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Conflicts of interest

The authors declare no conflicts of interest.

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