Nurse Education Today 125 (2023) 105775

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/locate/nedt

Research article

Training nursing students in motivational interviewing for alcohol misuse: A mixed method study

M. Lavilla-Gracia [a], M. Pueyo-Garrigues [a,b,*], M. Fotopoulou [c], A. Canga-Armayor [b,d], N. Esandi [b,d], C. Alfaro-Díaz [b,d], N. Canga-Armayor [a,b]

[a] University of Navarra, School of Nursing, Community, Maternity and Pediatric Nursing, Campus Universitario, 31008 Pamplona, Spain
[b] IdiSNA, Navarra Institute for Health Research, Spain
[c] Colin Bell Building, University of Stirling, Stirling FK9 4LA, Scotland, UK
[d] University of Navarra, School of Nursing, Nursing Care for Adult Patients Department, Campus Universitario, 31008 Pamplona, Spain

ARTICLE INFO

Keywords:
Nursing students
Training
Motivational interviewing
Alcohol drinking
Mixed method

ABSTRACT

Background: Motivational interviewing led by nurses has been demonstrated to be effective in reducing alcohol consumption among university students. However, most of these professionals feel that they lack the competence necessary for motivational interviewing due to a lack of formal training in the nursing curriculum.
Objectives: To design, implement and evaluate a motivational interviewing training course for alcohol misuse in an undergraduate nursing curriculum and to explore students' experiences with this course.
Design: A mixed-methods study involving a descriptive comparative quantitative design and qualitative focus group interviews with nursing students.
Settings: An elective nursing course in a Spanish university.
Participants: A total of 21 fourth-year nursing students.
Methods: The course was developed as a twelve-week, two-hour course. It comprised three modules covering the concepts, tools and skills associated with motivational interviewing for alcohol misuse. Quantitative and qualitative data were collected after the completion of the course to evaluate the training received by students; these data were categorized using Kirkpatrick's model. The quantitative results included students' satisfaction, knowledge, skills and attitudes, which were measured using an ad hoc questionnaire, a multiple-choice exam, and two rater-based assessments (the Peer Proficiency Assessment instrument and an evidence-based checklist). Qualitative focus groups were used to explore students' experiences of the entire programme.
Results: Students' satisfaction with the course was rated 9 out of 10, highlighting the usefulness and adequacy of the course content. The quantitative and qualitative results both indicated that all students acquired the knowledge necessary to perform motivational interviewing and significantly improved their motivational interviewing microskills. Only half of the students reached the level of proficiency in two of the three ratios calculated. The three main themes identified pertained to the learning atmosphere, module methodologies, and students' self-perceptions of competence. Finally, the students reported having transferred their learning to clinical practice.
Conclusion: A course on motivational interviewing for alcohol misuse positively influences nursing students both personally and in terms of their future professional work by improving their knowledge, skills, attitudes and self-perceived competence.

1. Introduction

The harmful use of alcohol is a major public health problem among young people globally. It results in 320,000 deaths every year (World Health Organization [WHO], 2018), with an increase in high-risk behaviors and unintentional injuries over the past decade (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2022). In particular, university students are at risk of engaging in substance abuse

* Corresponding author at: School of Nursing, University of Navarra, C.P.: 31008, Spain.
E-mail addresses: mlavilla@unav.es (M. Lavilla-Gracia), mpueyo.3@unav.es (M. Pueyo-Garrigues), maria.fotopoulou@stir.ac.uk (M. Fotopoulou), ncanga@unav.es (A. Canga-Armayor), nelarramendi@unav.es (N. Esandi), calfarod@unav.es (C. Alfaro-Díaz), acanga@unav.es (N. Canga-Armayor).

https://doi.org/10.1016/j.nedt.2023.105775
Received 15 November 2022; Received in revised form 27 January 2023; Accepted 28 February 2023
Available online 10 March 2023

behaviors because of changes in lifestyle, reduced parental support, and stress (Mekonen et al., 2017). Approximately 65 % of this population reported drinking alcohol during the past month, 45 % reported engaging in abusive drinking episodes (Barry and Merianos, 2018; Busse et al., 2021), and 10 % reported developing alcohol dependence (Mekonen et al., 2017). This behaviour has multiple and wide-ranging effects on physical, psychosocial, and mental health and represents a major problem on campuses and for society in general (NIAAA, 2022). In Spain, the prevalence of risky alcohol consumption and heavy episodic drinking among university students is worrying. Nearly half of all youths engage in risky alcohol consumption; moreover, 18 % of females and 37 % of males engage in heavy episodic drinking (Busto Miramontes et al., 2021).

Research on behaviour change supports motivational interviewing (MI) as an appropriate strategy for reducing alcohol use among college students (Bridges and Sharma, 2015; Hennessy et al., 2019; Larimer et al., 2022).

2. Background

Worldwide, it has been recognized that nurses play an important role in providing health education, and MI is a key intervention that can be used to improve clients' positive health outcomes (Boom et al., 2022; Pueyo-Garrigues et al., 2022). MI is a "collaborative conversation style for strengthening a person's own motivation and commitment to change" (Miller and Rollnick, 2013, p. 12). It aims to address and resolve clients' ambivalence by eliciting and exploring their own reasons (Dobber et al., 2019), encouraging their responsibility, and increasing their awareness of how they might change (Perona and Sherry, 2018). Open-ended questions, affirmation, reflective listening, summary, and information exchange represent the basic skills used in MI (Rosengren, 2017).

MI has been shown to have effective results in promoting behavioural changes in the context of specific health conditions such as cardiovascular disease, diabetes, or HIV (Maloney and Ehrlich-Jones, 2017). With regard to alcohol intake, several studies have demonstrated that MI reduces the frequency and quantity of alcohol consumption as well as the number of binge drinking episodes among adults (Csillik et al., 2021) and young people (Feldstein Ewing et al., 2022). The young population is characterized by experiencing ambivalence when consuming alcohol (Foster et al., 2014), with MI being the most suitable intervention in this context (Miller and Rollnick, 2013).

Although the popularity of MI has increased, adequate training is lacking and a structured programme for undergraduate students is necessary (Maloney and Ehrlich-Jones, 2017). International institutions (International Network on Brief Interventions for Alcohol & Other Drugs, 2022) and the recent literature (Boom et al., 2022; Szczekala et al., 2018) have emphasized the importance of training nursing students in this matter given the increasing prevalence of consumption of this substance as well as the proven efficacy of MI. Most nurses and nursing students recognize the need for MI training across the curriculum due to their lack of skills, knowledge, and self-confidence (Boom et al., 2022; Keifenheim et al., 2019). Various studies have been conducted to assess nurses' MI competence after a training course, but only one study targeted nursing students (Seigart et al., 2018). That study described the experience of implementing a three-semester MI training course following the screening, brief intervention, referral to treatment (SBIRT) model. Although students demonstrated the acquisition of information regarding MI and SBIRT, and expressed satisfaction with the course, no favourable changes were found regarding their attitudes towards people at risk of substance use (Seigart et al., 2018). Moreover, the acquisition of MI skills and health-specific content were not assessed.

When designing courses for nursing students that are focused on promoting behavioural change, special attention must be given to teaching strategies. Lectures are the most frequently used method of presenting the relevant content; however, this approach implies a passive role on the part of students, thus making comprehensive learning difficult (Waldeck and Weimer, 2017). A growing body of research highlights the fact that the combination of this approach with more active learning strategies, such as case studies, class debates or role playing, is key to promote deeper levels of learning (Bristol et al., 2019). The most common barrier to the implementation of these methodologies is the lack of training for academics in employing these more experiential methods (Fawaz and Hamdan-Mansour, 2016). Furthermore, the lack of interest and motivation in learning among nursing students has been highlighted (Fawaz and Hamdan-Mansour, 2016). Given the scarce literature on training programs for this type of pedagogical strategies and the challenge such strategies pose for academics, more research in this context is necessary.

3. Methods

3.1. Study aims

The aims of this study were to 1) design, implement and evaluate a motivational interviewing training course for alcohol misuse in an undergraduate nursing curriculum, and 2) explore students' experiences with the course.

3.2. Study design

The mixed-methods approach included a descriptive comparative quantitative design and qualitative focus group interviews. The competence acquired by the students after the course is described according to Kirkpatrick's model, which is commonly used in nursing (Lavoie et al., 2022) and describes four levels of outcomes: 1) the degree to which participants are satisfied and find the training favourable, appropriate, and relevant to their needs; 2) knowledge, skills, and attitude acquisition; 3) the degree to which participants apply what they have learned in the course that is relevant to their daily practice; and 4) the degree to which measurable results are achieved at the institution level (Kirkpatrick and Kirkpatrick, 2015). In this study, levels 1, 2 and 3 were evaluated.

3.3. Participants and setting

A convenience sample of twenty-one fourth-year nursing students was enrolled in the training course at a university in northern Spain. None of these students had prior MI training or had any personal experience with MI. The course was provided in the fourth year of a nursing curriculum as an elective course ("Motivational interviewing and the process of change"). The inclusion criteria were i) being a fourth-year nursing student and ii) not having received prior training in motivational interviewing.

3.4. Training course

This twelve-week, two-hour course (12 h for theoretical classes and 10 h for practice workshops) was conducted in one semester, from September to December 2021.

The course covered concepts related to MI that were structured into three modules: 1. motivational interviewing; 2. alcohol and university students; and 3. feedback (as a strategy for MI) (Supplementary material 1 and 2). Before starting the course, students participated in an introductory session in which the course and teaching methods were presented. Lectures were delivered by a faculty nurse member who was an expert in the field. The teaching methodologies were didactic lectures, video visualizations, and role play exercises: i) The content of the didactic lectures was related to MI (definition, general principles, core skills and phases) and alcohol consumption (prevalence and incidence of alcohol use, ethanol pharmacokinetics, definition of standard beverage unit and blood alcohol concentration, effects on the body and negative

consequences of alcohol consumption). Special attention was given to the principles of MI (express empathy, develop disagreements, avoid arguing, address resistance, and promote self-efficacy) with regard to both the theoretical explanations and the provision of role play feedback. These contents were prepared based on the MI literature and the manual Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach (Dimeff et al., 1999), and they were reviewed by two experts in the field. ii) Role playing exercises were aimed to encourage students to engage in experiential learning by practicing playing the role of interviewer while implementing the MI microskills learned during the course. They were designed based on the manual Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach (Dimeff et al., 1999). iii) Video visualizations with the aim of showing students examples of how to perform a good MI.

Upon completion of the theoretical classes, students conducted two in vivo simulations and motivational interviews with peers (undergraduates pursuing other degrees), which were videotaped. After the first motivational interview, all students were given tailored individual written feedback noting their strengths and areas for improvement. One group supervision was also conducted to emphasize ways to improve the use of motivational interviewing skills. Three weeks later, the students completed the second recorded in vivo simulation of motivational interviews.

3.5. Data collection

Quantitative data were collected between November and December 2021 through four instruments. First, to evaluate students' satisfaction, an ad hoc 11-item Likert-type questionnaire was used (Supplementary material 3). The total score ranged from 0 (no satisfaction) to 5 (maximum satisfaction).

Second, to assess students' knowledge of MI and alcohol, an evidence-based 37-item multiple-choice test was employed (Dimeff et al., 1999; Miller and Rollnick, 2013; WHO, 2018). The overall score ranged from 0 to 10; the higher the score, the better the knowledge level. The cut-off was twenty-five correctly answered questions (6.7 out of 10 points). Students who did not pass the exam were given an extraordinary examination call.

Finally, an alcohol-related checklist and the Peer Proficiency Assessment (PEPA; Mastroleo et al., 2009) instrument were used by two independent researchers to evaluate the students' competence when conducting the two videotaped motivational interviews. The alcohol-related checklist contained 27 items encompassing the basic content of the intervention (Supplementary material 4). The score was calculated by summing the number of correct answers.

The PEPA is a valid and reliable tool for assessing students' acquisition of MI microskills (open- and closed-ended questions, simple and complex reflection) when conducting a peer-led MI (Moyers et al., 2005). MI competency was achieved if the counsellor-client interaction exhibited a 1:1 ratio of open to closed questions, a 1:1 ratio of complex to simple reflections, and a 2:1 ratio of reflections to questions (Mastroleo et al., 2009).

Qualitative data were collected from focus groups. The objective of the focus groups was to explore the students' experiences with the course as well as their experiences conducting the two MIs with their peers. Three focus groups were held between February and March 2022, after completion of the course. A thematic guide was developed in collaboration with experts in the field and in qualitative methodology to encourage participants' discussion around topic of interest. This guide was used to structure the focus groups, and the questions asked in participants' native language (Spanish) can be observed in the supplementary material 5. All students were invited to participate at the end of the course and were provided date options. To encourage their participation, they were offered a certificate upon completion. The focus groups were conducted by two research team members, at the university and last between 60 and 90 min. One of the research team members was a doctoral student with no teaching relationship with the students and led the discussion. The other one was the course leader, that acted as a facilitator, taking charge of the recording and making the final summary. The focus groups were audio recorded and transcribed verbatim for subsequent analysis.

3.6. Data analysis

For quantitative data analysis, descriptive statistics such as frequency, percentages, mean, standard deviation and confidence intervals were used. Mean differences were calculated to assess the improvement in MI microskills using Stata v.16.0 software. For qualitative data analysis, the six-phase thematic analysis method by Braun and Clarke (2006) was employed, and QSR NVivo software (v.12.0) assisted in storing and organizing data. The process was conducted by two investigators independently, and consultation among the research team members took place throughout the analytical process to clarify any ambiguities or discrepancies. Qualitative data analysis took an inductive approach. Initially key points were identified using line by line technique and manual systematic identification of themes in participant narratives (Becker, 1998). Analysis was an iterative process and themes and subthemes that emerged from the first focus group analysis were compared against subsequent transcripts in order to conclude with findings that reflected the whole body of data.

3.7. Rigour of qualitative data

Lincoln and Guba's (1985) criteria were used. Credibility was established by audiotaping and verbatim transcription of all the focus group sessions, prolonged engagement with the data, and comparative analysis procedures. Dependability was ensured by a rich description of the study methods and the development of a detailed record of the data collection process. Confirmability was ensured through memo-writing and reflexivity. Finally, transferability was established based on data saturation and by confirming the emerging knowledge with participants at the end of the focus groups.

3.8. Ethical considerations

This research was approved by the Research Ethics Committee of the university where the research was conducted (code: 2021.162). Institutional permission was obtained, and all participants signed a written informed consent form and agreed to be recorded during the motivational interview. To maintain confidentiality, the participants' details were anonymized, and pseudonyms were used in all focus group transcripts.

4. Results

4.1. Participant characteristics

All nursing students took part in the descriptive comparative study. The mean age was 21.40 years (SD = 1.34), and most were female (n = 14; 66.67 %). Seventeen students agreed to participate in the focus groups. These were composed as follow: the first focus group included five female and two male students; the second one, two female and three male students; and the third focus group was made by four female and one male students.

4.2. Quantitative results according to Kirkpatrick's model

4.2.1. Level I: students' satisfaction

The satisfaction survey was answered by nineteen students (90.47 %). The average score was 4.50 out of 5 (SD = 0.19) (Supplementary material 3). The item with the lowest scores was the correspondence

between the hours of work needed and the credits assigned to the subject (4.21 out of 5), and the item with the highest score was the teacher's availability to answer questions about the subject (4.79 out of 5).

4.2.2. Level II: knowledge, skills, and attitudes

Regarding the level of knowledge related to MI for alcohol misuse, most of the students (80 %) passed the exam with an average grade of 8.39 (SD = 0.65) out of 10, getting at least thirty questions right. Only two students did not pass the exam, and one did not show up. These three students demonstrated the acquisition of knowledge in the extraordinary examination call with an average grade of 9.50 (SD = 0.70).

To assess the acquisition of alcohol-related concepts and MI micro-skills, a total of forty videotaped MI sessions (two videos per student) were evaluated with an average duration of 40 min (range = 18–52). In the first MI sessions, the students addressed an average of 15.70 of the 27 topics (SD = 4.37), whereas in the second interview, after completing the tailored individualized feedback, group supervision, and all the practical workshops, the students discussed an average of 19.90 topics (SD = 3.75). The number of topics covered significantly increased by 4.20 points (CI = 1.59 to 6.81).

To assess the acquisition of microskills (through open- and closed-ended questions as well as simple and complex reflections), the mean differences between the first and second interview were evaluated. The evaluation showed that, in the second interview, the number of open questions increased by 1.75 points (CI = −2.98 to 6.48) and the number of closed questions decreased by 3.85 points (CI = −10.16 to 2.46) (Fig. 1). Similarly, the number of simple and complex reflections performed increased by 0.35 points (CI = −1.57 to 2.27) and 0.95 points (CI = −0.74 to 2.64), respectively. However, these differences were not statistically significant.

Regarding the MI competence achieved in the second MI session, most students (n = 14; 70 %) reached the correct proportion of 1:1 for open and closed questions, including seven who demonstrated more open than closed questions. Similarly, 10 (50 %) students reached a ratio of 1:1 for complex to simple reflexes, with six students exhibiting more complex than simple reflexes. No student was able to achieve proficiency for the desired ratio of total reflexes to total questions.

4.3. Qualitative results

Three main themes emerged: the learning atmosphere, module methodologies, and students' self-perception of competence (Fig. 2).

4.3.1. Learning atmosphere

According to the participants, there were two main elements that created a friendly learning environment. First, most participants noted that the facilitator role of teachers was crucial, highlighting their approachability and nonjudgmental attitude. An indicator of this is the quotation below:

- "I felt like the teachers wanted to help me. That they didn't throw me in the pool without knowing how to swim. I mean, she accompanied me and didn't judge me because she didn't tell me, 'You've done it wrong or right'. But she gave me tools about what I've done well and what I could improve without judging me or anything". (FG 1, participant 3, woman).

Second, regarding class composition, it was largely reported that the small number of students enrolled in the course allowed them to gain confidence among classmates and receive more personalized attention from the teaching staff.

- "I think it also helped that since there weren't many students in class, it gave us more confidence. Despite that, I didn't go to the front of the class to practice because I was dying of shame, but if it had been a bigger class, it would have been worse". (FG 3, participant 13, woman).

4.3.2. Module methodologies

The participants noted that the teaching approach used in the design and delivery of the course facilitated student learning. First, the students noted that the theoretical classes increased their knowledge of MI and alcohol and, consequently, their confidence in conducting an MI. Illustrative of this view is the quotation below:

- "Theory was also important because there were many things that I didn't know, both about motivational interviewing and about alcohol. I believe that if you are going to face an interview, in

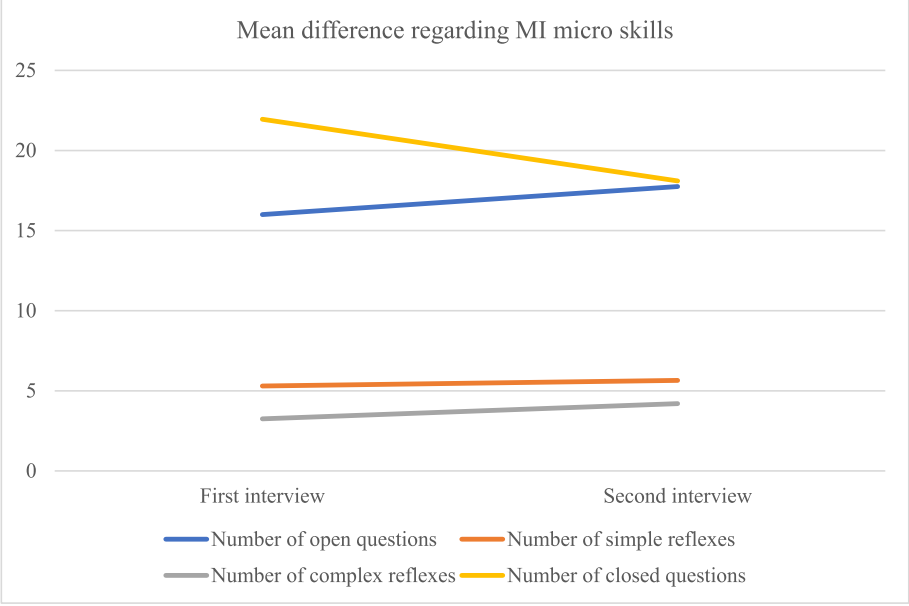

Fig. 1. Mean difference regarding motivational interviewing (MI) micro skills.

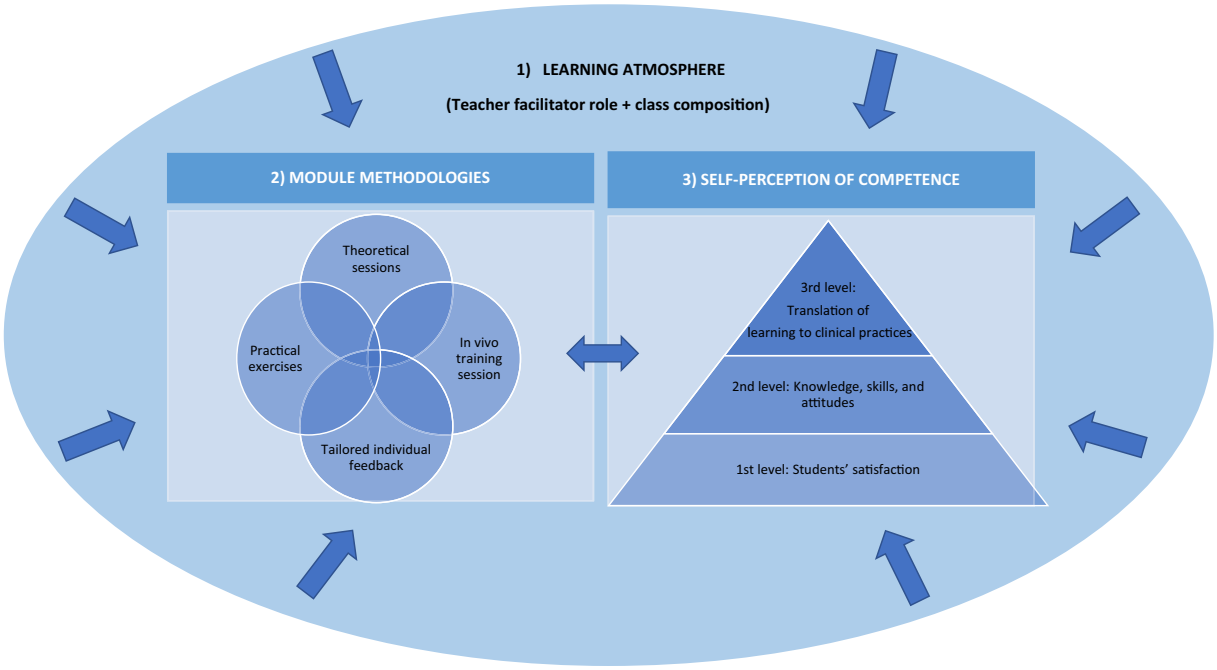

Fig. 2. Themes and subthemes emerged from the focus groups.

addition to having the skills, you must master the knowledge". (FG 3, participant 15, man).

Students also reported that the practical exercises conducted in class, such as role play or the silence dynamic, helped them develop MI skills and highlighted that the workshops truly aided them in translating theory into practice. In addition, they indicated that although the in vivo sessions were "scary" at first, they offered an opportunity to show themselves that they were prepared and capable of doing them.

- "When the teacher said that we had to do two interviews, it was like… where do I have to go to change my module? Please, I don't want to do that. However, it was the way to force myself to practice, above all, as if we were in real life. In the end, I think it was an opportunity to prove to myself, without the help of any teacher, that I was capable of doing a motivational interview". (FG 1, participant 1, man).

They highlighted the closeness of the methodology to the reality that they would face when they were professionals. Finally, they found personalized individual feedback useful, positively noting teachers' constructive communication about the things they had done well and aspects on which they should improve.

4.3.3. Students' self-perception of competence

4.3.3.1. Level I: students' satisfaction. All the students were satisfied with the course. Participants reported feeling comfortable and trained and indicated that they had the resources necessary to conduct an MI. They all agreed that they needed to practice more to achieve competency. The quotation below is indicative of this overall feeling of satisfaction with the course.

- "I feel wonderful, mainly because I think that I have changed personally and with great satisfaction with the course, although I would like to continue training because I think that it will be a useful tool for dealing with my patients in the future". (FG 2, participant 9, woman).

Participants recommended role play with unknown classmates. Most of them noted that all nursing students should take the course, indicating the usefulness of the tools in any nursing field.

4.3.3.2. Level II: knowledge, skills, and attitudes. Students' perceptions of their competence at the end of the course highlighted mixed feelings. The most frequently mentioned strengths were improvements in silence and active listening, the use of reflections and open questions, and better expression of empathy. In addition, the students stated that although not giving advice was one of the greatest difficulties they experienced, they were proud of their achievement.

- "It was very difficult for me not to advise, although now I am proud of it. It was like… I wanted to tell her what to do. For example, with the whole issue of taking the car being drunk. It came out to me like… you don't have to take the car! And I was like… no, stop! I can't say that. That was my greatest difficulty but also my achievement". (FG 2, participant 11, man).

A relevant term introduced by one participant was "doing a chip change"; instead of giving advice, they reported trying to help the other person look for the answer.

The participants reported feeling proud of having developed various MI microskills, such as asking open-ended questions. They also reflected on their ability to experience the benefits of using these tools. Finally, regarding the philosophy of the MI, they highlighted empathizing with the participant:

- "I have been able to work on empathy, knowing how to put myself in his place and understanding what he was telling me. I have improved in not judging the other person and in trying to help them find their own solutions". (FG 3, participant 16, woman).

In contrast, the students mentioned that they still needed to not judge and to change the authoritarian role. They struggled to maintain a balance between the main topic—alcohol consumption—and the personal issues that the student brought to the interview. Many commented that when talking about alcohol, the participant was diverted to other

topics, making it difficult for them to redirect the dialogue.

4.3.3.3. Level III: translating learning to clinical practice. A common theme was the notion of having benefitted from the training course both professionally and personally alongside the belief that the training would have a positive impact on their future relationships with patients.

- "I really think that this course helps me in life in general, not just in my professional career. Well, at least that's my personal feeling. I think that now when I deal with patients, I am able to use more tools to promote healthy lifestyles. Even my nurse tutor told me that I have improved". (FG 1, participant 3, woman).

Participants reported that they had already begun to implement the tools learned in their current clinical practice and obtained satisfactory results, such as promoting healthy lifestyles in nursing primary care consultations. It was also noted that the improvement in MI competence greatly impacted their relationships with friends and family, as illustrated below:

- "I am now in my clinical placements at a health care centre, and they do not do motivational interventions, they provide information… However, with my nurse permission, I have been able to put into practice the tools learned, such as open questions or reflections to address issues like this". (FG 1)

5. Discussion

This study is the first to evaluate a training course focused on the use of MI for alcohol misuse following Kirkpatrick's model and to incorporate a qualitative assessment of nursing students' experience with the course. Overall, both the quantitative and the qualitative analyses showed students' improvement in MI competence (knowledge, skills, and attitudes) and their positive rating of the course.

Referring to Level I of Kirkpatrick's model, our results showed higher levels of satisfaction with the course, in line with Seigart et al. (2018). In the words of the participants, and according to Satoh et al. (2020), this may be explained by the facilitator role of the educator, whose expertise in creating learning environments enhances students' comfort and encourages learning. Our findings may also be related to students' feeling of being trained after theoretical and practice sessions and acquiring the necessary resources to conduct an alcohol-related MI (Huang et al., 2020).

The findings regarding Level II (knowledge, skills and attitudes) showed that nursing students objectively acquired the necessary knowledge to conduct an MI for alcohol misuse with their peers and obtained high average marks on the exam. This is crucial as possessing theoretical knowledge is the first step to competently providing nursing interventions (Arulappan et al., 2021). This point is supported by our qualitative results, which demonstrated that theoretical knowledge motivates not only students' learning but also their practice (Vergara et al., 2020).

Our findings demonstrated that the course improved students' skills and attitudes towards the prospect of conducting an MI, which could be explained by the tailored individualized feedback they received and the group supervision, which has been shown to improve student performance (Karaoglan-Yilmaz and Yilmaz, 2020). Specifically, adherence to the content of the intervention was good. Based on students' experiences, this may be due to the novelty of the topics covered, which increased peers' interest. In addition, most of the students' MI microskills improved. This can be explained, first, by the use of tailored individualized feedback (Mastroleo et al., 2014) and, second, by the application of in vivo training (Lei et al., 2022). Although students achieved proficiency regarding the proportion of open and closed questions and complex to simple reflexes, none of them obtained the desired ratio of total reflexes to total questions. One reason might be the complexity of this performance (Larimer et al., 2022; Mastroleo, 2008; Mastroleo et al., 2014). In addition, the performers were students and not professionals, suggesting that this target population might require more time to develop MI competence (Larimer et al., 2022; Mastroleo et al., 2014).

It is important to highlight the fact that students' motivation could have influenced their learning success (Saeedi et al., 2021). The factors influencing their motivation might include, first, the inclusion of active methodologies, such as role play, which allow students to engage in experiential learning and play an active role while facing situations that are very similar to real life (Fawaz and Hamdan-Mansour, 2016; Saeedi et al., 2021). Second, these factors include the personalized feedback received by students in terms of their strengths and areas for improvement, which can promote reflection-in-action and reflection-on-action (Lim et al., 2020; Mulli et al., 2022). The final factor pertains to the MI tools used by the lecturer when dealing with the students, such as positive reinforcement, which can enhance the student's openness to learning (Froneman et al., 2016).

Finally, referring to Kirkpatrick's model level III (translation of learning to clinical practice), students perceived that the acquired tools, such as asking open questions, complex reflections, or active listening, affected their clinical practice and that these tools would be essential for their future professional relationships with patients. This finding is consistent with the importance of training future nurses in MI, which has been found to have an impact on the nurse–patient relationship and to contribute to better care (Dobber et al., 2019; Pyle, 2015).

5.1. Implications and future lines of action

This study shows how the teaching methodologies and the learning atmosphere contributed to the success of this course. The acquisition of skills requires methodologies that combine cognitive and behavioural approaches (Lavilla-Gracia et al., 2022). In particular, students highlighted the use of in vivo training sessions and tailored individual feedback as key components of the course, and as essential strategies to acquire MI competence. In addition, both quantitative and qualitative data support the idea that students need practice to achieve proficiency in MI microskills (Seigart et al., 2018). Therefore, future courses should increase the number of practical exercises. Moreover, it would be interesting to evaluate Kirkpatrick's model level IV, which concerns the impact of training on the institution. This would allow us to assess the long-term effects of the training course on nursing care.

5.2. Limitations

A possible limitation of this study could be the elective nature of the course, which resulted in students' higher predisposition towards MI for alcohol misuse. Future studies should be conducted to test this training course in an entire nursing cohort.

6. Conclusions

This study showed promising results for the usefulness of this innovative course to teach nursing students about MI for alcohol misuse. The quantitative and qualitative data demonstrated that the students were satisfied with the training they received, and they felt capable of conducting motivational interviews. After the course, all students demonstrated the acquisition of knowledge and an improvement in MI microskills. In addition, participating students reported that they implemented the tools and strategies they learned in their clinical practice and personal life. Our study suggests that in vivo training sessions and tailored individual feedback are effective strategies to improve students' motivational interviewing competence. Future training courses should include more hours of practice, as indicated by the quantitative and qualitative data obtained. Finally, these results can guide the

introduction of training courses in the nursing curriculum. MI competence in nursing is essential as it improves relationships with patients and increases the motivation to make health changes.

Ethical approval

Ethical approval was obtained by the Research Ethics Committee of the University of Navarra.

Funding

This work was supported by the Association of Friends of the University of Navarra and Banco Santander.

CRediT authorship contribution statement

MLG (primary author) is a researcher in Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, its analysis and interpretation, and writing the article.

MPG is a researcher in Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, its analysis and interpretation, and writing the article.

MF s is a researcher in Health Promotion, Education, Sociology, Social Policy and Criminology. She contributed to analysis and interpretation of the data, critical reviewing of the manuscript, enhancing the final version, and writing the article.

ACA is a senior researcher in Health Education and Family Health Promotion. She contributed analysis and interpretation of the data, critical reviewing of the manuscript, enhancing the final version, and writing the article.

NE is a researcher in Family Health Promotion. She contributed in analysis and interpretation of the data, critical reviewing of the manuscript, enhancing the final version, and writing the article.

CAD is a researcher in Family Health Promotion. She contributed in analysis and interpretation of the data, critical reviewing of the manuscript, enhancing the final version, and writing the article.

NCA is a senior researcher in Public Health and Health Promotion and Education. This author has participated in the conception and design of the study, acquisition of data, its analysis and interpretation, and writing the article.

All authors read and approved the final manuscript.

Conflict of interest

No conflict of interest has been declared by the authors.

Data availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Acknowledgements

We thank the Santander-University of Navarra for providing a grant and the Association of Friends of the University of Navarra for their financial collaboration in this project.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.nedt.2023.105775.

References

Arulappan, J., Matua, G.A., Alzaabi, O., Vincent, S.C., Jayapal, S.K., Al Sabei, S.D., Seshan, V., 2021. Knowledge and readiness for inter professional education and collaborative practice among undergraduate nursing students in a middle eastern country - a pilot study. Nurse Educ. Today 100, 104865. https://doi.org/10.1016/j.nedt.2021.104865.

Barry, A.E., Merianos, A.L., 2018. The impact of protective behavioral strategy use frequency on blood alcohol concentrations among student drinkers Nationwide. Am. J. Health Promot. 32 (1), 205–209. https://doi.org/10.1177/0890117116686901.

Becker, H.S., 1998. Tricks of the Trade. How to Think About Your Research While You are Doing It. University of Chicago Press, London.

Boom, S.M., Oberink, R., Zonneveld, A., van Dijk, N., Visser, M., 2022. Implementation of motivational interviewing in the general practice setting: a qualitative study. BMC Primary Care 23 (1), 21. https://doi.org/10.1186/s12875-022-01623-z.

Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. Qual. Res. Psychol. 3, 77–101.

Bridges, L., Sharma, M.K., 2015. A systematic review of interventions aimed at reducing binge drinking among college students. J. Alcohol Drug Educ. 59, 25–47.

Bristol, T., Hagler, D., McMillian-Bohler, J., Wermers, R., Hatch, D., Oermann, M.H., 2019. Nurse Educators' use of lecture and active learning. Teach. Learn. Nurs. 14 (2), 94–96. https://doi.org/10.1016/j.teln.2018.12.003.

Busse, H., Buck, C., Stock, C., Zeeb, H., Pischke, C.R., Fialho, P., Wendt, C., Helmer, S.M., 2021. Engagement in health risk behaviours before and during the COVID-19 pandemic in German university students: results of a cross-sectional study. Int. J. Environ. Res. Public Health 18 (4), 1410. https://doi.org/10.3390/ijerph18041410.

Busto Miramontes, A., Moure-Rodríguez, L., Mallah, N., Díaz-Geada, A., Corral, M., Cadaveira, F., Caamaño-Isorna, F., 2021. Alcohol consumption among freshman college students in Spain: individual and pooled analyses of three cross-sectional surveys (2005, 2012 and 2016). Int. J. Environ. Res. Public Health 18 (5), 2548. https://doi.org/10.3390/ijerph18052548.

Csillik, A., Devulder, L., Fenouillet, F., Louville, P., 2021. A pilot study on the efficacy of motivational interviewing groups in alcohol use disorders. J. Clin. Psychol. 77 (12), 2746–2764. https://doi.org/10.1002/jclp.23265.

Dimeff, L.A., Baer, J.S., Kivlahan, D.R., Marlatt, G.A., 1999. Brief Alcohol Screening and Intervention for College Students (BASICS): A Harm Reduction Approach. Guilford Press, New York.

Dobber, J., Latour, C., Snaterse, M., van Meijel, B., Ter Riet, G., Scholte Op Reimer, W., Peters, R., 2019. Developing nurses' skills in motivational interviewing to promote a healthy lifestyle in patients with coronary artery disease. European Journal of Cardiovascular Nursing 18 (1), 28–37. https://doi.org/10.1177/1474515118784101.

Fawaz, M.A., Hamdan-Mansour, A.M., 2016. Impact of high-fidelity simulation on the development of clinical judgment and motivation among lebanese nursing students. Nurse Educ. Today 46, 36–42. https://doi.org/10.1016/j.nedt.2016.08.026.

Feldstein Ewing, S., Bryan, A.D., Dash, G.F., Lovejoy, T.I., Borsari, B., Schmiege, S.J., 2022. Randomized controlled trial of motivational interviewing for alcohol and cannabis use within a predominantly Hispanic adolescent sample. Exp. Clin. Psychopharmacol. 30 (3), 287–299. https://doi.org/10.1037/pha0000445.

Foster, D.W., Neighbors, C., Prokhorov, A., 2014. Drinking motives as moderators of the effect of ambivalence on drinking and alcohol-related problems. Addict. Behav. 39 (1), 133–139. https://doi.org/10.1016/j.addbeh.2013.09.016.

Froneman, K., Du Plessis, E., Koen, M.P., 2016. Effective educator-student relationships in nursing education to strengthen nursing students' resilience. Curationis 39 (1), 1595. https://doi.org/10.4102/curationis.v39i1.1595.

Hennessy, E.A., Tanner-Smith, E.E., Mavridis, D., Grant, S.P., 2019. Comparative effectiveness of brief alcohol interventions for college students: results from a network meta-analysis. Prev. Sci. 20 (5), 715–740. https://doi.org/10.1007/s11121-018-0960-z.

Huang, Y., Liu, L., An, L., 2020. Are the teachers and students satisfied: sustainable development mode of entrepreneurship education in Chinese Universities? Front. Psychol. 11, 1738. https://doi.org/10.3389/fpsyg.2020.01738.

International Network on Brief Interventions for Alcohol & Other Drugs, 2022. Proceedings of the 17th annual international INEBRIA conference. Addict. Sci. Clin. Pract. 17 (Suppl. 1), 33. https://doi.org/10.1186/s13722-022-00308-3.

Karaoglan-Yilmaz, F.G., Yilmaz, R., 2020. Student opinions about personalized recommendation and feedback based on learning analytics. Technol. Knowl. Learn. 25, 753–768. https://doi.org/10.1007/s10758-020-09460-8.

Keifenheim, K.E., Velten-Schurian, K., Fahse, B., Erschens, R., Loda, T., Wiesner, L., Zipfel, S., Herrmann-Werner, A., 2019. "A change would do you good": training medical students in motivational interviewing using a blended-learning approach - a pilot evaluation. Patient Educ. Couns. 102 (4), 663–669. https://doi.org/10.1016/j.pec.2018.10.027.

Kirkpatrick, J., Kirkpatrick, W., 2015. An introduction to the New World Kirkpatrick model. Kirkpatrick Partners.

Larimer, M.E., Kilmer, J.R., Cronce, J.M., Hultgren, B.A., Gilson, M.S., Lee, C.M., 2022. Thirty years of BASICS: dissemination and implementation progress and challenges. Psychol. Addict. Behav. 36 (6), 664–677. https://doi.org/10.1037/adb0000794.

Lavilla-Gracia, M., Pueyo-Garrigues, M., Pueyo-Garrigues, S., Pardavila-Belio, M.I., Canga-Armayor, A., Esandi, N., Alfaro-Díaz, C., Canga-Armayor, N., 2022. Peer-led interventions to reduce alcohol consumption in college students: a scoping review. Health Soc. Care Community. https://doi.org/10.1111/hsc.13990. Advance online publication.

Lavoie, P., Lapierre, A., Maheu-Cadotte, M.A., Rodriguez, D., Lavallée, A., Mailhot, T., 2022. Improving the recognition and management of haemorrhage: a scoping review of nursing and midwifery education. Nurse Educ. Today 113, 105361. https://doi.org/10.1016/j.nedt.2022.105361.

Lei, Y.Y., Zhu, L., Sa, Y., Cui, X.S., 2022. Effects of high-fidelity simulation teaching on nursing students' knowledge, professional skills and clinical ability: a meta-analysis and systematic review. Nurse Educ. Pract. 60, 103306 https://doi.org/10.1016/j.nepr.2022.103306.

Lim, L.A., Dawson, S., Gašević, D., Joksimović, S., Fudge, A., Pardo, A., Gentili, S., 2020. Students' sense-making of personalised feedback based on learning analytics. Australas. J. Educ. Technol. 36 (6), 15–33. https://doi.org/10.14742/ajet.6370.

Lincoln, F.M., Guba, E.G., 1985. Naturalistic Enquiry. Sage Publication, London.

Maloney, A.R., Ehrlich-Jones, L., 2017. Implementing motivational interviewing training: strengthening the role of the registered nurse. J. Nurs. Educ. Pract. 7 (8) https://doi.org/10.5430/jnep.v7n8p51.

Mastroleo, N.R., 2008. Comparison of Supervision Training Techniques in a Motivational Enhancement Intervention on College Student Drinking. The Pennsylvania State University doctoral dissertation.

Mastroleo, N.R., Mallett, K.A., Turrisi, R., Ray, A.E., 2009. Psychometric properties of the peer proficiency assessment (PEPA): a tool for evaluation of undergraduate peer counselors' motivational interviewing fidelity. Addict. Behav. 34 (9), 717–722. https://doi.org/10.1016/j.addbeh.2009.04.008.

Mastroleo, N.R., Magill, M., Barnett, N.P., Borsari, B., 2014. A pilot study of two supervision approaches for peer-led alcohol interventions with mandated college students. J. Stud. Alcohol Drugs 75 (3), 458–466. https://doi.org/10.15288/jsad.2014.75.458.

Mekonen, T., Fekadu, W., Chane, T., Bitew, S., 2017. Problematic alcohol use among university students. Front. Psychiatry 8, 86. https://doi.org/10.3389/fpsyt.2017.00086.

Miller, W., Rollnick, S., 2013. Motivational Interviewing: Helping People Change, 3rd edition. The Guilford Press, New York, NY.

Moyers, T.B., Martin, T.M., Manuel, J.K., Hendrickson, S.M.L., Miller, W.R., 2005. Assessing competence in the use of motivational interviewing. J. Subst. Abus. Treat. 28, 19–26.

Mulli, J., Nowell, L., Swart, R., Estefan, A., 2022. Undergraduate nursing simulation facilitators lived experience of facilitating reflection-in-action during high-fidelity simulation: a phenomenological study. Nurse Educ. Today 109, 105251. https://doi.org/10.1016/j.nedt.2021.105251.

National Institute on Alcohol Abuse and Alcoholism, 2022. College Drinking. https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/college-drinking#:~:text=Academic%20Problems&text=In%20a%20national%20survey%2C%20college,who%20drank%20but%20never%20binged.

Perona, V., Sherry, D., 2018. Evaluation of motivational interview in nursing: a literature review. International Journal of Nursing and Health Care Research IJNHR-131. https://doi.org/10.29011/IJNHR-131.100031.

Pueyo-Garrigues, M., Pardavila-Belio, M.I., Canga-Armayor, A., Esandi, N., Alfaro-Díaz, C., Canga-Armayor, N., 2022. NURSES' knowledge, skills, and personal attributes for providing competent health education practice, and its influencing factors: a cross-sectional study. Nurse Educ. Pract. 58, 103277 https://doi.org/10.1016/j.nepr.2021.103277.

Pyle, J.J., 2015. A motivational interviewing education intervention for home healthcare nurses. Home Healthc. Now 33 (2), 79–83. https://doi.org/10.1097/NHH.0000000000000184.

Rosengren, D., 2017. Building Motivational Interviewing Skills: A Practitioner Workbook, 2nd edition. Guilford Press.

Satoh, M., Fujimura, A., Sato, N., 2020. Competency of academic nurse educators. SAGE Open Nursing. https://doi.org/10.1177/2377960820969389.

Saeedi, M., Ghafouri, R., Tehrani, F.J., Abedini, Z., 2021. The effects of teaching methods on academic motivation in nursing students: a systematic review. J. Educ. Health Promot. 10, 271. https://doi.org/10.4103/jehp.jehp_1070_20.

Seigart, D., Veltman, M., Willhaus, J., Letterle, C., 2018. Implementation of motivational interviewing training in an undergraduate nursing curriculum: identifying adolescents at risk for substance use. Int. J. Environ. Res. Public Health 15 (8), 1623. https://doi.org/10.3390/ijerph15081623.

Szczekala, K., Wiktor, K., Kanadys, K., Wiktor, H., 2018. Benefits of motivational interviewing application for patients and healthcare professionals. Pol. J. Public Health 128 (4), 170–173. https://doi.org/10.2478/pjph-2018-0034.

Vergara, D., Paredes-Velasco, M., Chivite, C., Fernández-Arias, P., 2020. The challenge of increasing the effectiveness of learning by using active methodologies. Sustainability 12 (20), 8702. https://doi.org/10.3390/su12208702.

Waldeck, J.N., Weimer, M., 2017. Sound decision making about the lecture's role in the college classroom. Commun. Educ. 66, 247–250. https://doi.org/10.1080/03634523.2016.1275721.

World Health Organization, 2018. Global Status Report on Alcohol and Health. World Health Organization, Geneva https://www.who.int/publications/i/item/9789241565639.