



Effects of a brief interpersonal mindfulness program embedded in a psychiatric nursing practicum: A controlled pilot study

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ARTICLE INFO

Keywords:

Mindfulness training
Interpersonal mindfulness
Nursing practicum

ABSTRACT

Background: Nursing school is a stressful environment that demands high performance both professionally and academically. Interpersonal mindfulness training has shown promise for its stress-reducing capacity in other contexts; however, few descriptions or tests of this method in nursing training settings exist in the literature.

Purpose: This pilot study examined effects of a brief interpersonal mindfulness program embedded in a 4-week psychiatric nursing practicum in Thailand.

Methods: Mixed methods were used with 31 fourth-year nursing students to measure changes in mindfulness and assess their experiences of the program's impact. The control and experimental groups received the same clinical training, but the experimental group was also trained to practice interpersonal mindfulness throughout the course.

Findings: The experimental group reported statistically significantly greater increases in *Observing*, *Describing*, and *Non-reacting* subscale scores, and in scores for the overall Five-Facet Mindfulness questionnaire, Thai version, than the control group ($p < .05$, Cohen's $d = 0.83$ – 0.95 , large effect sizes). Group interviews revealed themes: initial challenges to mindfulness practice, experiences of becoming more mindful, intrapersonal benefits, and consequences of mindfulness on interpersonal skills.

Conclusion: Overall, an interpersonal mindfulness program embedded in a psychiatric nursing practicum was effective. Further studies are required to address limitations of the present study.

Introduction

Mindfulness is the awareness that comes from paying attention on purpose, in the present moment, and without judgment; it reportedly has healing power (Kabat-Zinn, 2003; Kabat-Zinn, 2018a, 2018b). In the medical field, including in the nursing profession, mindfulness is seen as an essential skill (White, 2013). By practicing mindfulness, nurses can improve their inner qualities such as attention, compassion, and presence (Penque, 2019), which in turn improve nurse-patient relationships (Niessen & Jacobs, 2014), patient satisfaction (Horner et al., 2014), and care quality (Williams, 2014). Furthermore, nurses may benefit from reduced anxiety, depression, stress (Kriakous et al., 2021), and burnout

(Salvado et al., 2021), as well as increased compassion, life satisfaction, and emotional intelligence (Lomas et al., 2019).

Several studies have shown that mindfulness-based interventions (MBIs)—both long versions (2.5 h/session) and short versions (4–30 min/session)—can improve wellbeing in healthcare professionals, including nurses and nursing students (e.g., Chen et al., 2021; Gilmartin et al., 2017; Kriakous et al., 2021; Li et al., 2020). However, most studies have offered MBIs outside of nursing workplaces and classrooms; thus, more research is still needed on the effects of mindfulness practices embedded in actual nursing practices and education (Rongmuang, 2018). Furthermore, mindfulness training for nursing professionals should incorporate a relational aspect. Interpersonal mindfulness

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practices can deepen health care providers' mindful presence, empathy, and compassion (Bartels-Velthuis et al., 2020), which enhance the quality of interactions with others and with oneself. Nonetheless, few nursing schools and hospitals currently offer such training.

Therefore, this current study embedded brief interpersonal mindfulness practices into a 4-week psychiatric nursing practicum aimed at developing therapeutic relationships between nurses and patients. The goals of this study were to measure the level of mindfulness of a group of students who received the proposed intervention compared with that of a control group and to explore the students' experiences of participating in the intervention.

The study's hypotheses were that participants' mindfulness would statistically significantly increase as a result of the intervention, that increases in mindfulness measures for the experimental group would be greater than those for the control group, and that the difference between the groups would be statistically significant.

Literature review

The word “mindfulness”, which originated from ancient Eastern and Buddhist philosophy, was first translated from the Pali term “sati” by Thomas William Rhys Davids in 1881 (Gethin, 2011). Since 1982, when Jon Kabat-Zinn combined medication and meditation to treat chronic pain patients at the University of Massachusetts Hospital, mindfulness has been studied increasingly in the psychotherapeutic and medical fields (Kabat-Zinn, 2003).

Mindfulness has been described variously by a number of investigators. For example, Kabat-Zinn (2003, 2018a, b) describes mindfulness as the awareness arising from paying attention on purpose, in the present moment, non-judgmentally, in the service of wisdom, compassion, and recognition of the interconnectedness with others and the world.

Bishop et al. (2004) proposed a two-component model of mindfulness: (1) the regulation of attention to the present moment and (2) an orientation characterized by curiosity, non-judgment, openness, and acceptance of one's present-moment experiences.

Since Jon Kabat-Zinn developed the Mindfulness-Based Stress-Reduction (MBSR) program in 1979, many different types of MBIs have been developed and used in therapy sessions (Lewis & Rozelle, 2016); examples are Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Relapse Prevention (MBRP), Dialectical Behavior Therapy (DBT), and Acceptance and Commitment Therapy (ACT).

MBIs, especially the traditional MBSR program, typically require weekly 2.5-h meetings, a one-day retreat, and 45 min of daily practice over 8 weeks (Koren & Purohit, 2014; Quigg, 2022). This continued time commitment may lead to high attrition among participants who lack sufficient time for practice (Koren, 2017; Koren & Purohit, 2014), an issue that is especially relevant for nurses and nursing students, who typically face highly demanding workloads and academic requirements. To increase the participation rate, shorter MBIs are recommended (Koren, 2017). A systematic literature review indicated that brief mindfulness-based interventions, which involve 4 to 30 min of mindful practices, can improve health care providers' mindfulness and resiliency

(Gilmartin et al., 2017). Hevezi (2016) also found that nurses who meditated for less than 10 min 5 days a week for 6 months had higher compassion satisfaction and lower burnout and secondary trauma.

Nonetheless, in most studies, MBIs were offered outside of clinical settings and nursing classrooms; the integration of mindfulness training into real working and learning contexts is rare (Rongmuang, 2018). Importantly, the few studies that looked at brief mindfulness trainings embedded in clinical and educational settings found that they were effective. For example, Gauthier et al. (2015) led 5-min mindfulness practices for pediatric ICU nurses before day and night shifts in a room close to the nurses' station. From baseline to post-intervention, nurses reported significant stress reductions that persisted for 1 month.

Yang et al. (2018) gave psychiatric nurses 8 weeks of brief MBSR at their nurses' station. The intervention improved mental health and reduced depression and anxiety in nurses.

These two studies suggest that mindfulness interventions are feasible ways to support nurses' self-care and stress reduction within clinical settings. In the nursing education context, Swartz (2009) integrated yoga, dance, and mindfulness to two clinical courses in a Bachelor of Science Nursing program. Students reported improved body and emotional awareness, self-care, connection to the outside world, and understanding of patients' experiences after the courses. Despite this initial evidence, more studies on the effects of mindfulness practices embedded in clinical settings and nursing classrooms are still needed.

Mindfulness training for nurses should include an emphasis on relationships. Interpersonal mindfulness practices can strengthen the mindful presence, empathy, and compassion of health care providers (Bartels-Velthuis et al., 2020), enhancing the quality of interactions with others and with oneself. In 2007, Gregory Kramer introduced Insight Dialogue (ID) as an interpersonal meditation practice to help practitioners be more mindful in their daily interactions (Kramer, 2007; Kramer et al., 2022). ID guides participants' mindfulness meditation using traditional Buddhist methods, and then has them participate in the inquiry process in pairs or larger groups. ID training comprises six guidelines: *Pause, Relax, Open, Trust Emergence, Listen Deeply, and Speak the Truth* (see Table 1 for a description of the six instructions). In Kramer's (2015) study on the effects of ID practice, participants over the age of 18 were recruited from five ID retreats held in North America between 2013 and 2014; they reported increases in mindfulness, self-compassion, and well-being from pre- to post-retreat (approximately 5 days).

Research on ID or interpersonal mindfulness training is relatively new (Bartels-Velthuis et al., 2020). To date, there are few studies of interpersonal mindfulness programs conducted with health care professionals. Cohen and Miller (2009) integrated a novel 6-week interpersonal mindfulness training into a semester-long graduate course in psychology. After the training, students reported significant increases in mindfulness, emotional intelligence, social connectedness, life satisfaction, and decreased stress and anxiety. Bartels-Velthuis et al. (2020) examined the feasibility of using an interpersonal mindfulness program with mental health care providers. The intervention consisted of nine weekly 2.5-hour sessions and daily home practice (45–60 min). The study found that participants liked the intervention, which improved

Table 1
The six instructions of Kramer's insight dialogue (Kramer, 2007)

Instructions	
1. <i>Pause</i>	Participants are guided to practice taking a break from their own habitual or emotional reactions.
2. <i>Relax</i>	Participants are guided to be aware of tensions in the body and allow the body and mind to relax.
3. <i>Open</i>	Participants are guided to extend their awareness to the environment, meeting others with wakeful acceptance.
4. <i>Trust Emergence</i>	Participants are guided to pay attention to their changing experiences: thoughts, feelings, and relationships, being aware of the unpredictable nature of moment-to-moment experience.
5. <i>Listen Deeply</i>	Participants are guided to open their senses, hearts, and minds to fully listen to their inner voices and to receive the words, emotions, energy, and presence of co-meditators and others in their lives.
6. <i>Speak the Truth</i>	Participants are guided to mindfully observe their own inner experiences, such as bodily sensations, thoughts, and emotions, and verbally express them with an open and kind attitude.

their self-compassion, empathy, compassion fatigue, and non-reactivity to inner experiences. Rongmuang (2018) conducted a study on nursing students who practiced brief mindfulness and dyad inquiries during an 8-week Foundations of Nursing course. Students used a technique created by Hartelius (2015) that was based on attentional processes. The study found a significant increase in students' mindfulness. Despite this initial evidence, few nursing schools and hospitals currently offer such training. Furthermore, no research has investigated a brief interpersonal mindfulness program that is embedded in a clinical nursing course, in particular a psychiatric nursing practicum, with the primary goal of fostering students' self-awareness in order to improve therapeutic relationships with patients.

Methods and materials

Research design

A mixed-methods approach was used in this quasi-experimental controlled pilot study (pre-test and post-test design) to assess the impact of a brief interpersonal mindfulness program embedded in a psychiatric nursing practicum on nursing students' mindfulness and program experiences.

Participants

A purposive sampling method was used to invite voluntary participation from fourth-year nursing students enrolled in a 4-week psychiatric nursing practicum as part of a 4-year Bachelor of Science in Nursing program at a university in Bangkok. The study's inclusion criteria were: (1) being 18 years old or older; (2) being willing to practice interpersonal mindfulness daily during the psychiatric nursing practicum; (3) not participating in any other mind-body intervention during the study; and (4) providing informed consent. If a participant missed more than three practice sessions, their results were discarded from the study.

Procedure

This study was approved by the University's Ethical Review Committee for Human Research (No. COA.MURA2018/567) and was conducted from October 2018 to January 2019. In the 2018 academic year, 215 students enrolled in the 4-week psychiatric nursing practicum were divided into 4 rotations (53–55 students/rotation): first rotation, October 2018; second rotation, November 2018; third rotation, December 2018; and fourth rotation, January 2019. Before the course started, the course administrator randomly assigned the students in each rotation to one of seven groups (7–8 students/group). Then, the first author and six other nursing instructors were randomly assigned as the clinical instructors to one group in each rotation. Each instructor was responsible for four consecutive groups.

One week before each rotation, the research assistant visited prospective participants in their classrooms and explained the study procedure. Students were informed that they could join, decline, or withdraw from the study at any time without penalty or prejudice. Students were assured that their practicum grade would not be affected by whether or not they participated in the study. Students who did not wish to participate in the study were encouraged to practice a self-care method of their choice while their classmates received mindfulness training. In the event of any negative effects from the mindfulness practice, students were informed that they would have access to emotional crisis intervention by psychiatrists assigned to the study. Students who agreed to participate in the study signed an informed consent form that detailed the study's objectives and guaranteed the anonymity and confidentiality of their data.

To reduce intervention contamination, students from the first and second rotations were assigned to the control group, while those from the third and fourth rotations were assigned to the experimental group.

The control group participants were not aware of their status as controls; by providing informed consent, they agreed to answer a demographic questionnaire and also complete the FFMQ, Thai version (FFMQ-T), one week before the clinical rotation (T-1) and immediately after the rotation ended (T-2). The administration of the measures was conducted by the research assistant. Participants in the experimental group filled out the same forms as those in the control group, but they were also invited to participate in focus group interviews right after the course ended.

Throughout the study, the first author provided the same clinical training and course-related instruction to both groups. This instruction and training covered the following elements: (1) clinical teaching and demonstration in therapeutic nurse-patient relationship and communication, mental status examination, and group therapy activities; (2) supervising students as they practiced group activities and therapeutic relationships with patients; (3) assisting students in developing critical thinking skills through group discussions before and after caring for patients; and (4) providing students with feedback.

During the practicum, the experimental group also received daily, brief interpersonal mindfulness training from the first author, who has been practicing the Theravada Buddhist tradition for 14 years and currently facilitates mindfulness workshops for nurses and nursing students. The control group received no interpersonal mindfulness training but was invited to practice mindfulness with the supervisor at their leisure after the study was completed.

Intervention

The intervention was a brief interpersonal mindfulness training based on the six instructions of Gregory Kramer's ID (Kramer, 2007). The intervention was embedded in the psychiatric nursing practicum, which lasted 8 h each day for 4 weeks. It took place in a quiet room near the psychiatric hospital unit. Each day, four brief mindfulness practices were carried out, lasting 2–5 min (*Pause, Relax, Open, and Trust Emergence*) and 20–25-min interpersonal inquiries in dyads or large-group settings (*Listen Deeply and Speak the Truth*). Additionally, participants were asked to put into practice what they learned in the group to establish therapeutic relationships with patients. In total, the intervention took about 90 min per day. Table 2 summarizes the daily practices of the intervention.

Measures

This study focused on the changes and experiences resulting from the brief interpersonal mindfulness training. The quantitative data were collected from the demographic questionnaire and the FFMQ-T. Focus group interviews were also conducted with the experimental group to gain a better understanding of the quantitative findings and obtain participants' in-person feedback about their experiences of the training program.

Demographic questionnaire

This questionnaire was used to collect students' personal information: age, gender, religion, and official grade point averages (GPAs).

Five-Facet Mindfulness Questionnaire, Thai Version (FFMQ-T)

Baer et al. developed the non-licensed FFMQ in 2006 by applying factor analysis to items from five mindfulness instruments. The FFMQ (Baer et al., 2006; Baer et al., 2008) consists of 39 items used to measure the five facets of dispositional mindfulness: *Observing* (8 items), *Describing* (8 items), *Acting with Awareness* (8 items), *Non-judging* (8 items), and *Non-reacting* (7 items). *Observing* facet measures the tendency to notice internal and external experiences such as sensations, emotions, and cognitions. *Describing* facet measures the tendency to describe internal experiences with words. *Acting with Awareness* facet

Table 2
Interpersonal mindfulness intervention embedded in a psychiatric nursing practicum.

Time	Intervention details
08.00–08.30 am	1. Group meeting before caring for patients (30 min) Participants were encouraged to share their worries that might keep them from being present (20–25 min). After sharing thoughts and feelings, participants were guided to meditate for 2–5 min to cultivate an open and relaxed presence before meeting patients.
11.00–11.30 am	2. Group meeting after caring for patients (30 min) Participants were guided to practice a 2- to 5-min meditation so that they could settle down in the body and listen to their thoughts and feelings after caring for patients. After that, participants shared their experiences with the group for 20–25 min.
12.30–01.00 pm	3. Practice establishing therapeutic relationships with patients (30 min) Participants practiced therapeutic relationships with patients by incorporating interpersonal mindfulness (e.g., sensing into the body, making eye contact, and listening attentively to patients).
02.45–03.15 pm	4. Group meeting for reflecting on the experiences of the day (30 min) Participants were guided to meditate for 2–5 min. They then had a 5- to 10-min embodied inquiry with their dyad partner. There are four steps to a dyad inquiry (Rongmuang, 2018): (1) <i>Attentive meeting</i> : Two persons pair up, face each other, and show a willingness to connect. (2) <i>Grounding oneself</i> : Each person shifts attention from thinking to sensing one's own body. (3) <i>Being with</i> : The pair has eye contact with each other and accepts the other's presence without judgment. (4) <i>Embodied inquiring</i> : The pair listens and talks openly while sensing their inner experiences. The inquiry covered clinical experiences from the day, such as what you learned about yourself from interacting with patients, being present with patients, and obstacles to being present. After the inquiry, participants shared their experiences with the group (20–25 min), discussed the implications of care, and explored alternatives for the next day.

refers to bringing awareness and undivided attention to current experiences. *Non-judging* facet refers to taking a nonevaluative stance toward inner experiences such as thoughts and feelings. *Non-reacting* facet measures the tendency to allow thoughts and feelings to come and go without getting caught up in them or carried away by them. Each item was rated on a five-point Likert scale (1 = never or very rarely true, to 5 = very often or always true); each facet score ranged from 8 to 40, except for the *Non-reactive* facet, which ranged from 7 to 35. Higher scores are interpreted as indicating higher levels of mindfulness. The FFMQ demonstrated adequate to good internal consistency, with alpha coefficients ranging from 0.75 to 0.91 (Baer et al., 2006). The FFMQ was previously translated into Thai (FFMQ-T) and subjected to reliability and validity testing with 350 Thai nurses, with a Cronbach's alpha of 0.93 (Rattanaphet et al., 2016). The permission to use the questionnaire was granted by the authors' university. In the present study, the internal consistency of the FFMQ-T was tested and found to be high, with a Cronbach's alpha = 0.90.

Focus group interviews

Focus group interviews were semi-structured, lasted about 60 min, took place at the end of the clinical rotation in a classroom at the nursing school, and were audio recorded. The interviews were conducted by the research assistant, who had not been involved in the intervention or the course. The assistant built trust with each participant and encouraged them to speak freely. Participants were assured that their answers would not affect their grades or be reviewed until after the grades were released. The assistant informed participants that they could leave the interview at any time without explanation. The assistant asked open-ended questions about how the intervention had affected participants and their relationships with patients and others. The assistant maintained neutrality and, whenever possible, asked participants to give detailed examples to ensure accurate understandings of their experiences. When a participant provided a response, the assistant reflected back understanding of the comment so they could correct the information or elaborate on their experience as necessary. The guide for the focus group interview is presented in Table 3.

Data analyses

Quantitative data analysis

Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) Version 24 for Windows. A chi-square test was used to confirm that there were no significant between-group differences in gender or religious background. Prior to testing the study hypothesis,

Table 3
Qualitative interview guide.

Participants' experiences of a brief interpersonal mindfulness program
1. Please describe your experiences (physically, emotionally, and mentally) of practicing brief interpersonal mindfulness in this course.
2. How has the brief interpersonal mindfulness program in this course impacted your relationship with patients and others, and if so, in what ways?
3. What else would you like to tell us about your experiences in this course?

the *Kolmogorov-Smirnov test* was applied to test the normality of data distribution; all data were found to be normally distributed. A dependent samples *t*-test was used to analyze differences in FFMQ-T scores between T-1 and T-2 within each group; an independent samples *t*-test was used to analyze differences in mean change in scores (from T-1 to T-2) for the FFMQ-T between two groups. *P*-values were calculated to show statistical significance, and Cohen's *d* effect sizes were calculated by using pooled standard deviations (SDs) to estimate statistical strength, and therefore the practical significance of the findings. Cronbach's alpha was calculated to test internal consistency of the FFMQ-T.

Qualitative data analysis

Focus group interviews were digitally recorded and transcribed without identifying the participants. Data were analyzed using a general inductive approach (Thomas, 2006) to understand subjective experiences of intervention participation and effects, with the goal of gaining a deeper understanding of the quantitative outcomes and subjective impacts of the program. In analyzing the data, the implementer of the intervention (the first author) consciously examined one's own values and assumptions. The second author, a qualitative research expert and a nursing supervisor teaching the same practicum course but not involved in the intervention, also analyzed the data. The first and second authors read and analyzed the transcripts separately, conducted open coding, and defined themes. After this parallel process, they compared and discussed the interpretations to develop final themes linked to the research objectives. In addition, the fourth author, an independent researcher not involved in the intervention, reviewed codes and themes to ensure the results reflected the data accurately. While qualitative analysis necessarily involves subjective interpretation, these cross-checks reduced individual biases, thereby enhancing the trustworthiness of the qualitative findings.

Results

Thirty-one students from four consecutive rotations in the 2018 academic year met inclusion criteria and volunteered for the study:

Table 4
Baseline comparisons of the experimental and control groups for demographic data and results of the Five Facet Mindfulness Questionnaire.

Variables	Experimental Group			Control Group			χ^2 or <i>t</i> -test	<i>p</i> -value
	Range	M	SD	Range	M	SD		
Gender: Women		16(100 %)			15(100 %)			
Religion: Buddhism		15(93.8 %)			15(100 %)		0.97	0.33
Muslim		1(6.2 %)			0(0 %)			
Age	21–23	21.81	0.54	21–22	21.40	0.51	–2.18	0.04*
GPA	2.69–3.41	3.05	0.17	2.50–3.59	2.91	0.32	–1.47	0.15
Observing		28.94	2.89		25.93	4.90	–2.10	0.05
Describing		26.38	4.50		26.20	5.45	–0.10	0.92
Acting with Awareness		28.81	5.93		29.20	5.60	0.19	0.85
Non-judging		25.19	4.10		23.80	5.76	–0.78	0.44
Non-reacting		21.69	2.44		20.60	3.78	–0.96	0.35
Overall FFMQ		131.00	14.21		125.73	17.86	–0.91	0.37

* *p* < .05.

October 2018 (*n* = 7), November 2018 (*n* = 8), December 2018 (*n* = 8), and January 2019 (*n* = 8). Fifteen participants from the October and November 2018 rotations and 16 from the December and January 2019 rotations were assigned to the control and experimental groups, respectively. Baseline comparisons between groups, quantitative results, and qualitative results are reported from these participants.

Baseline comparisons between groups

Table 4 shows demographic data and baseline comparisons of the experimental and control groups. All participants were Thai women aged 21–23 (experimental = 21–23, *M* = 21.81, *SD* = 0.54; control = 21–22, *M* = 21.40, *SD* = 0.51). The control group was all Buddhist, while the experimental group was composed of 15 Buddhists and one Muslim. Participants' official GPAs ranged from 2.50 to 3.59 (experimental: *M* = 3.05, *SD* = 0.17; control: *M* = 2.91, *SD* = 0.32). Comparisons of demographic data between groups found no statistically significant differences in gender or religious affiliation (Chi-square test; *p* > .05) and GPA (Independent samples *t*-test; *p* > .05). Age differences between groups were found to be statistically significant (Independent samples *t*-test; *p* < .05). This spurious significance was attributable to the narrow age distribution across both groups (i.e., 21–22 years old), with the exception of one 23-year-old participant in the experimental group. Therefore, the demographic characteristics of both groups were comparable.

The experimental group scored higher on the overall and four FFMQ-T subscales (except *Acting with Awareness*) at baseline (T-1). An independent samples *t*-test found no significant differences between the two groups in overall FFMQ-T scores and four of the five subscales at T-1 (*p* > .05), except for the *Observing* subscale, which was borderline at *p* = .05.

Although statistically nonsignificant, the consistently higher scores of the experimental group compared with the scores of the control group across most subscales indicated a possible sample bias in favor of the experimental group. The possible cause of the bias and methodological

remedies are discussed in the limitations and recommendations for future research section.

Effects of the intervention: quantitative results

Table 5 shows the *Ms* and *SDs* of the FFMQ-T scores at T-1 and T-2, as well as the results of the dependent samples *t*-test, for both experimental and control groups. In the experimental group, the dependent samples *t*-test showed statistically significant increases in overall FFMQ-T scores, and *Describing* and *Acting with Awareness* subscales from T-1 (*M* = 131.00, 26.38, 28.81, and *SD* = 14.21, 4.50, 5.94, respectively) to T-2 (*M* = 136.69, 28.00, 30.75, and *SD* = 12.31, 3.85, 4.81, respectively), with *t* (15) = 2.52, 2.36, 2.96, and *p* = 0.02, 0.03, and 0.01, respectively. However, Cohen's *d* = 0.43, 0.39, and 0.36, respectively, indicating small effect sizes. There were no statistically significant increases in the *Observing*, *Non-judging*, and *Non-reacting* subscales from T-1 (*M* = 28.94, 25.19, 21.69, and *SD* = 2.89, 4.10, 2.44, respectively) to T-2 (*M* = 29.94, 25.81, 22.19, and *SD* = 3.77, 3.97, 2.90, respectively), with *t* (15) = 1.16, 0.93, 0.62, respectively, and *p* > .05 for all variables. In the control group, the dependent samples *t*-test showed statistically significant decreases in the *Observing* and *Non-reacting* subscales from T-1 (*M* = 25.93, 20.60, and *SD* = 4.90, 3.77, respectively) to T-2 (*M* = 23.87, 18.13, and *SD* = 5.36, 4.44, respectively) with *t* (14) = 2.68, 2.96, and *p* = 0.02, 0.01, respectively. Cohen's *d* = 0.40 and 0.60, respectively, indicating medium effect sizes. Overall FFMQ-T scores, and *Describing*, *Acting with Awareness*, and *Non-judging* subscales showed no statistically significant differences from T-1 (*M* = 125.73, 26.20, 29.20, 23.80, and *SD* = 17.86, 5.45, 5.60, 5.76, respectively) to T-2 (*M* = 121.60, 24.67, 29.33, 25.60, and *SD* = 19.12, 4.82, 5.60, 6.03, respectively), with *p* > .05 for all variables.

Table 6 shows the *Ms* and *SDs* of the change in scores for the FFMQ-T overall and for each subscale in the experimental and control groups. The independent samples *t*-test found that the mean change in scores on overall FFMQ-T and three subscales—*Observing*, *Describing*, and *Non-reacting*—for the experimental group (*M* = 5.69, 1.00, 1.63, 0.50, and

Table 5
Comparison of the FFMQ-T between T-1 and T-2 within Groups

Variables	Experimental Group (<i>n</i> = 16)					Control Group (<i>n</i> = 15)				
	T-1 M (SD)	T-2 M (SD)	<i>t</i>	<i>p</i>	<i>d</i>	T-1 M (SD)	T-2 M (SD)	<i>t</i>	<i>p</i>	<i>d</i>
Observing	28.94 (2.89)	29.94 (3.77)	–1.16	0.27	0.30	25.93 (4.90)	23.87(5.36)	2.68	0.02*	0.40
Describing	26.38 (4.50)	28.00 (3.85)	–2.36	0.03*	0.39	26.20 (5.45)	24.67(4.82)	1.40	0.19	0.30
Acting with Awareness	28.81 (5.94)	30.75 (4.81)	–2.96	0.01*	0.36	29.20 (5.60)	29.33(5.60)	0.14	0.89	0.02
Non-judging	25.19 (4.10)	25.81 (3.97)	–0.93	0.37	0.15	23.80 (5.76)	25.60(6.03)	1.42	0.18	0.31
Non-reacting	21.69 (2.44)	22.19 (2.90)	–0.62	0.55	0.19	20.60 (3.77)	18.13(4.44)	2.96	0.01*	0.60
Overall FFMQ	131.00 (14.21)	136.69 (12.31)	–2.52	0.02*	0.43	125.73 (17.86)	121.60(19.12)	1.14	0.27	0.22

* *p* < .05.

Table 6
Comparisons of change scores (T-2) of the FFMQ between groups.

Variables	Change scores		t	p-value	d
	Experimental Group M (SD)	Control Group M (SD)			
Observing	+ 1.00 (3.46)	- 2.06 (2.99)	-2.63	0.01*	0.95
Describing	+ 1.63 (2.75)	- 1.53 (4.26)	-2.47	0.02*	0.88
Acting with Awareness	+ 1.94 (2.62)	+ 0.13 (3.74)	-1.56	0.13	0.56
Non-judging	+ 0.63 (2.68)	+ 1.80 (4.92)	0.83	0.41	0.30
Non-reacting	+ 0.50 (3.25)	- 2.47 (3.23)	-2.55	0.02*	0.92
Overall FFMQ	+ 5.69 (9.02)	- 4.13 (14.05)	-2.33	0.03*	0.83

* $p < .05$.

$SD = 9.02, 3.46, 2.75, 3.25$, respectively) was statistically significantly greater than that for the control group ($M = -4.13, -2.06, -1.53, -2.47$, and $SD = 14.05, 2.99, 4.26, 3.23$, respectively), $t(29) = 2.33, 2.63, 2.47, 2.55$, $p = 0.03, 0.01, 0.02, 0.02$, and Cohen's $d = 0.83, 0.95, 0.88, 0.92$, respectively, indicating large to very large effect sizes. However, mean change in scores on the *Acting with Awareness* and *Non-judging* subscales for the experimental group ($M = 1.94, 0.63$, and $SD = 2.62, 2.68$, respectively) showed no statistically significant differences compared with that for the control group ($M = 0.13, 1.80$, and $SD = 3.74, 4.92$, respectively), $t(29) = 1.56, 0.83$, respectively, and $p > .05$ for both variables.

Effects of the intervention: qualitative results

All participants in the experimental group took part in the focus group interviews. A general inductive analysis found four themes reflecting the effects of the brief interpersonal mindfulness intervention. Theme 1: Initial challenges to mindfulness practice (i.e., physical discomfort, psychological discomfort, and chaotic mind); theme 2: Experiences of gradually becoming more mindful (i.e., became more aware of inner and outer experiences, became less distracted and more focused, became less self-judgmental, and became more able to allow inner experiences to come and go without reacting); theme 3: Perceived intrapersonal benefits from practicing mindfulness (i.e., decreased anxiety and anger, and increased happiness); and theme 4: Perceived consequences of mindfulness on interpersonal skills (i.e., became more open to connect with others, increased active listening skills, and increased acceptance and empathy for others). Themes, sub-themes, and selected verbatim comments are presented in [Table 7](#).

Discussion

This study examined the effects of a brief interpersonal mindfulness program embedded in a 4-week psychiatric nursing practicum course. Statistically significant increases in mindfulness were found in the experimental group, particularly for the two subscales, *Describing* and *Acting with Awareness*, and for overall FFMQ-T scores, although effect sizes were small. The experimental group's score increases for the *Observing*, *Describing*, and *Non-reacting* subscales, and for overall FFMQ-T, were greater than those in the control group at statistically significant levels, with large to very large effect sizes. No significant differences were observed between groups for the *Acting with Awareness* and *Non-judging* subscales. These results largely supported the research hypotheses. Four themes detected in the focus group interview data also provided a more detailed understanding of how the intervention impacted participants.

Our finding of nursing students' increased overall FFMQ-T scores after participation in the brief interpersonal mindfulness practice is consistent with Rongmuang's (2018) results, which showed that brief meditation and dyad inquiry embedded in an 8-week Foundations of Nursing course produced increases in mindfulness. Similarly, [Kramer \(2015\)](#) reported significant increases in overall FFMQ and each of its five

subscales in 100 adults (aged 19–87 years), but not nursing students, after participation in a 5-day interpersonal meditation retreat. [Bartels-Velthuis et al. \(2020\)](#) observed a statistically significant increase in *Non-reacting* subscale scores but not in the other subscales or overall FFMQ, in 47 health care professionals, after a 9-week interpersonal mindfulness program.

The experimental group's significant increase in overall FFMQ-T, and greater increase compared with that of the control group, aligns with participant qualitative reports of the experience of gradually becoming more mindful. The significant increase in the *Observing* subscale was corroborated by the qualitative subtheme, "Became more aware of inner and outer experiences." Participant ID 2 said, "My mind became silent, I noticed voices and sounds outside and inside myself"; participant ID11 added, "While taking a shower, I became aware that I scrubbed my body very hard...I didn't know that my skin got really irritated!" The experimental group was prompted daily to observe changes in their bodies, thoughts, and feelings, in contrast with the clinical teaching experienced by the control group, which focuses almost exclusively on thinking and using knowledge to care for patients.

The experimental group also reported a significant increase in *Describing* subscale scores compared with the control group, although this aspect was not noted during the focus group interview. The participants' ability to describe their internal experiences with words may well have been cultivated through the embodied dyad inquiry and group sharing, where participants were encouraged to practice observing their inner experiences and speak honestly about what they thought and felt without worrying whether what they said related to the course content. This form of embodied inquiry differs from group discussion methods in the clinical teaching and course-related instruction experienced by the control group, which encourage participants to adhere to medical and nursing knowledge and leave little time for self-reflection on discomforts of the mind, body, or spirit.

The experimental group showed a significant increase in *Non-reacting* subscale scores compared with the control group. This finding is consistent with results reported by [Bartels-Velthuis et al. \(2020\)](#), who observed a statistically significant increase in *Non-reacting* subscale scores among health care professionals after an interpersonal mindfulness program. In our focus group interviews, this accorded with the qualitative subtheme, "Became more able to allow inner experiences to come and go without reacting." For example, participant ID 11 said, "When I got mad, I just recognized it, then I came back to the normal state, being aware of my body, letting go of the anger." Through mindfulness practice, the experimental group gradually learned to cultivate quiet awareness and use it to look into the nature of emotions, which, if observed but left alone, naturally change on their own. This practice is quite different from typical reactions to problems, where one may automatically become identified with experiences and judgmentally look for ways to get rid of them.

We also found that scores for the subscale, *Acting with Awareness*, increased from T-1 to T-2 for both experimental and control groups, but the increase was significant only for the experimental group. This finding aligns with the focus group subtheme, "Became less distracted

Table 7
Summary of qualitative results.

Themes	Sub-themes	Selected verbatims	
Initial challenges to mindfulness practice	Physical discomfort	“As I was trying to sit straight, my body got tired and tensed; I wasn't used to the practice.” (ID11) “My body tensed. It felt unnatural; I couldn't breathe deeply. It felt like I was controlling my body too much.” (ID13)	
	Psychological discomfort	“I felt I had to adjust myself a lot. I was not used to the practice; I didn't feel like doing it.” (ID10) “Thoughts of the past and future kept going around in my head. I felt irritated. I felt like I was breathing out almost all the time, and my breath rhythm was irregular.” (ID15)	
	Chaotic mind	“Many chaotic thoughts were in my head. I tried to brush them off...but after a while they returned, moving back and forth.” (ID14)	
Experiences of gradually becoming more mindful	Became more aware of inner and outer experiences	“My ears and skin became more sensitive to the external environment... I became quicker at noticing a voice, even when it was very low in volume. One day, I applied mindfulness practice in the bathroom by sensing my body while taking a shower. I became aware that I scrubbed my body very hard. Before that, I didn't know that my skin got really irritated!” (ID11) “When my mind became silent, I noticed voices and sounds outside and inside myself. I was able to hear people talking in the next room. I also noticed the voice inside my head. I became aware that I tended to think a lot. There are too many thoughts moving around in the mind.” (ID2)	
	Became less distracted and more focused	“I considered myself to have a low degree of concentration. I wasn't able to pay attention to one thing for very long. I had so many ideas in my head. This caused my body to tense and my head to ache. After practicing meditation every day in this course, I was able to focus on one thing at a time, organizing my ideas, and knowing what to do next, step by step.” (ID 4) “Mindfulness practice helped me to be more focused and well prepared for any situation.” (ID14) “I was able to focus on my work more; I didn't follow discursive thoughts.” (ID5) “My discursive thoughts gradually reduced. I was able to think more clearly and make a better decision to complete my work.” (ID7)	
	Became less self-judgmental	“I blamed myself less.” (ID14) “I used to dislike my short temper, which I sometimes expressed without being aware. Once I practiced mindfulness in this course, I became more aware of my emotions. I was able to accept and be fully with my emotions without letting them take me over.” (ID2)	
	Became more able to allow inner experiences to come and go without reacting	“I could manage my emotional reactions better. When I got mad, I just recognized it, then I came back to the normal state, being aware of my body and letting go of the anger.” (ID11) “I was aware of my anger, but I didn't go into it. I learned to have a self-reflection and consider what the consequences would be if I responded this way or that way. I became more self-aware. I didn't follow my emotions.” (ID4)	
	Perceived intrapersonal benefits from practicing mindfulness	Decreased anxiety and anger	“My anxiety almost disappeared... I didn't think too much, having let go of expectations. I was just prepared to accept whatever might happen. My mind was very peaceful.” (ID14) “My short-temperedness reduced. I became a calmer person by being aware of my emotions and knowing what I was feeling in the moment. Once I became more aware of myself, I gradually started to deal with the challenges without using my aggression.” (ID2) “I was aware of my anger, but I didn't go into it. (ID4)
		Increased happiness	“I became more stable. I felt happier. My happiness score increased from 0.5 to 8–9.” (ID3) “Mindfulness practice helped reduce negative and increase positive energy...I became more self-aware, felt happier, and was able to convey my inner happiness through my facial expressions.” (ID4) “I felt the best with this course. It helped me know myself, become more focused, and feel good about myself.” (ID7)
Perceived consequences of mindfulness on interpersonal skills.	Became more open to connect with others	“At the beginning of the course, I thought patients were sick and more inferior than normal people. But once we practiced mindfulness often, whatever I encountered in the ward, reflecting on my experiences opened up my attitude toward patients. I could see that patients were not that scary; they're just similar to other people who can be vulnerable.” (ID10) “I don't have any close friends in this group. But once we practiced eye contact (during embodied inquiry), I could understand my partner's feelings, particularly while holding each other's hands. I could feel warm energy running through our hands, and I felt her feelings.” (ID7) “I could get along with friends easier even though we never studied in the same group before.” (ID13)	
	Increased active listening skills	“Practicing mindful listening made me understand my patients. I might not get everything from his words, but I could see it from his gesture. He might say one thing, but his expression might be different.” (ID8) “This mindfulness practice improved my listening. This is different from the past, where I often got lost, pretending that I was listening to others but I wasn't.” (ID3) Usually, when I listened to others, I often thought, Why do they think that way? ... but once I practiced truly deep listening to patients. I was able to accept them without interfering them with my opinions.” (ID7) “His words might not explain everything, but looking into his eyes, his face, it made me understand what he was feeling in the moment.” (ID11)	
	Increased acceptance and empathy for others	“Usually, I tended to judge others based on their appearance. But (in this course) once I opened to have a conversation with my patients, I could recognize that they are human and all have feelings. I could understand them better.” (ID16) “I used to not care for others. I thought, their business is not mine. Once we practiced mindfulness together in this course, it helped me be more sensitive to others, including patients and friends. If my friend felt stressed, she didn't have to say anything; just looking into her eyes, I could feel and understand her feelings.” (ID11)	

and more focused.” After daily practicing paying attention in the moment throughout the course, participant ID 4 said, “I was able to focus on one thing at a time, knowing what to do next, step by step.” Although the control group did not explicitly practice mindfulness, by virtue of their nursing training, they were trained to pay full attention to whatever they did for their patients. Yagi et al. (2021) discovered that the mean score on the *Acting with Awareness* subscale among nursing students at a university in Bangkok, Thailand, was moderate to slightly high, despite the fact that the students did not participate in mindfulness training. Thus, the control group's modest increase in mean score for this subscale may be attributed to nursing education.

No statistically significant changes were observed in the *Non-judging* subscale for either the experimental or control groups, and the control group showed greater improvement from T-1 to T-2 than the experimental group. Since both groups were taught by the same instructor, who practiced non-judgmental listening, this may have impacted the control group's non-judging attitude. Indeed, Dobkin and Laliberte (2014) noted that mindful characteristics in a clinical supervisor may have a positive impact on students. Although the increase in *Non-judging* subscale scores for the experimental group was statistically nonsignificant, some participants in the focus group said they became less self-judgmental; for example, participant ID 14 said, “I blamed myself less.”

The focus group interviews also included reflections on the consequences of becoming more mindful in the form of perceived intrapersonal and interpersonal benefits. Throughout the course, the experimental group practiced embodied dialogue by listening to their inner voices, to friends, and to patients without judging, and learning to honestly describe their thoughts and feelings. These practices may have helped decrease anxiety about the practicum, as well as increase a sense of openness to connect with others, and enhance the ability to listen actively and empathetically. These findings are similar to those reported by Cohen and Miller (2009), who found that after a 6-week interpersonal mindfulness training, psychology graduate students reported increased mindfulness. They also found that increased mindfulness was associated with decreased anxiety and an enhanced sense of wellbeing and connection with others. Jones et al. (2016), moreover, indicated that mindful *Observing* and *Describing* facets positively predicted empathy and active listening among undergraduate students. They explained that these facets of mindfulness closely align with the practice of sensing, processing, and responding, which are integral aspects of active listening.

Strengths, limitations, and recommendations for future research

The embedded aspect of the intervention implemented in this study was crucial for its effectiveness. Although the intervention was brief in duration (2 to 15 min), it was frequent (3–4 times a day), fully embedded in the practicum content, and repeated every day. This particular format—brief, frequent, embedded, and repeated daily—appears to be a likely explanatory factor for its efficacy. The focus group interviews suggest, furthermore, that participants were able to immediately apply what they learned during the intervention to their practicum activities, resulting in rapid reinforcement.

However, several limitations in the present pilot study should be considered when interpreting the findings. First, the data from this study are now 4 years old and thus may not reflect the most recent discoveries. Second, the sample size was relatively small. Post hoc analysis in G*Power, based on the observed significant outcomes for overall FFMQ-T and its facets, revealed a power of 0.70–0.80, indicating that larger samples are needed for future research to confirm these findings with more confidence. Third, participants' demographics lacked gender and racial diversity. The results, therefore, cannot be generalized to different or more diverse populations. Fourth, participants were not randomly assigned to the control and experimental groups. Future research should employ randomized sampling to increase the external generalizability. Additionally, the experimental group exhibited higher scores (although statistically nonsignificant) in four of the five FFMQ-T subscales at T-1,

compared with the control group. This indicates possible sampling bias, and may be attributable to the experimental group's exposure to two different (but non-intervention) practicum courses (8–12 weeks each) prior to the intervention; the control group did not have this or a similar experience prior to the intervention. The time lag between the control and experimental groups may have impacted the results. To measure and control for the possible impact of other practicum courses, then, additional FFMQ-T measurements for both groups should have been taken at the beginning of the nursing program's fourth year, and prior to any practicum courses to determine starting values at Time 0 (T-0). This step would have enabled measurement of the impact of non-psychiatric practicum courses prior to the study's T-1. Currently, not many nursing instructors are trained in interpersonal mindfulness to be able to effectively implement embedded interventions. If interpersonal mindfulness training becomes more common among nursing instructors, it will become possible to create contemporaneous experimental and control groups. Such circumstances, if available in the future, would provide improved opportunities for studying the efficacy of embedded mindfulness education in a nursing curriculum. Fifth, it is possible that the lack of blinding in the experimental group may have contributed to participant bias. The experimental group knew that the clinical supervisor was training them in the intervention. They were also aware that the questionnaire and focus group interview were related to the intervention, even though these were administered by the research assistant. It is possible the participants tried to present answers and behaviors that they believed would please the supervisor (e.g., social desirability bias). There may also have been some impact from the intervention instructor's bias as the first author on this paper and the instructor for the practicum for both control and experimental groups. Sixth, the results of the present study are also limited by the collection of only subjective data. Future research should include objective data, such as physiological measures, to further test the validity of the subjective data regarding the impacts of the intervention. Finally, follow-up evaluation is lacking; a longer-term study with follow-up evaluation is needed to assess the durability of the intervention's impact on mindfulness.

Implications for nursing education

The benefits of cultivating nursing students' mindfulness and self-care through MBIs are well understood among nursing educators. However, to date, such programs are not widely implemented in nursing classes or learning contexts, largely because of the extra time demands such programs impose on students who are already handling heavy course requirements and exam preparations. Thus, by providing mindfulness training sessions that are of brief duration, by embedding mindfulness training in nursing classes or clinical courses, and by focusing on the interpersonal aspect of mindfulness, the program presented in this study offers an effective way to teach mindful presence that requires only a small additional time commitment for students.

Conclusions

Despite its limitations and preliminary nature, the present study offers a novel contribution to the literature of mindfulness training in nursing education. This study found that embedding a brief interpersonal mindfulness intervention in a nursing training course may improve real-time clinical practices, particularly in the psychiatric nursing practicum, which aims to promote nurses' self-awareness and therapeutic relationships with patients.

Funding

No funding was received for conducting this study.

CRediT authorship contribution statement

Authors	Criteria 1 Contributing to conception or design		Criteria 2 Drafting the manuscript		Criteria 3 Giving final approval of the submitted version	
		Analyzing, interpreting data		Revising the manuscript for intellectual content		
Sudaros Rongmuang	x	x	x	x		x
Yagi						
Wilai Napa		x		x		x
Tantawan				x		x
Awirutworakul						
Pichai Ittasakul				x		x
Nobumori Yagi	x	x	x	x		x
Glenn Hartelius	x		x	x		x

Ethics committee approval

This study was approved by the Human Research Ethics Committees for Research, Faculty of Medicine Ramathibodi Hospital, Mahidol University (no. COA.MURA2018/567, Ref. 1622, Oct 01, 2018), and performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki. Participants were asked to give or withhold consent/assent for participation and they were free to withdraw from participating at any time.

Declaration of competing interest

The authors declare no conflict of interest.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgment

We are grateful to the nursing students for participating in the study and providing both quantitative and qualitative data.

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