



# **Interventions of Mental Support for Nursing Students**

## **A Literature Review**

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### **Interventions of Mental Support for Nursing Students**

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### **Abstract**

Nursing students face significant challenges, both in their personal lives and during their education, which can lead to the development of psychological problems. Such issues can have a profound impact on general well-being, academic performance, and subsequent professional careers. Therefore, early intervention is crucial, not only to prevent the development of serious psychological disorders, but also to motivate students to excel in their studies, enhance their professionalism, build resilience to stress, and develop effective coping strategies. This paper aims to discover interventions for mental health support for nursing students.

To achieve this aim, a literature review was conducted using an inductive approach, focusing on terms such as 'nursing students', 'undergraduate student nurses', 'interventions', 'mental health' and 'depression'. Relevant articles were screened from databases "PubMed" and "CINAHL" to gather data necessary for further analysis.

After thorough analysis, this study identified four key areas that were found to be effective in intervening and promoting mental health among nursing students. Firstly, positive thinking-based interventions: positive psychotherapy (PPT) and mindfulness. Secondly, upgrading relevant knowledge: mental health first aid (MHFA) training and test-taking strategies. Thirdly, relaxation methods: visualization meditation and Progressive muscle relaxation. Lastly, changing the surroundings: essential oil, classical music, pet therapy, and magic pencil.

While these interventions have shown promise in promoting mental health among nursing students, there is a need for future research to explore more cost-effective and efficient approaches. Additionally, conducting studies in various languages could provide a more comprehensive understanding of mental health support for nursing students and could uncover additional interventions to support mental well-being. Testing these interventions in different countries and among different ethnic groups could serve to determine effectiveness across diverse populations, which would be especially useful when targeting interventions among international nursing students.

### **Keywords/tags (subjects)**

Mental health support, Nursing students, Intervention

### **Miscellaneous (Confidential information)**

None

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# 1 Introduction

Mental health significantly impacts global development, which is why the United Nations has included it as one of the goals of sustainable development. A healthy mental state enables a person to deal with problems and cope with the stresses of life in the best possible way, yet many of the world's children and adolescents are not mentally healthy (WHO, 2022). The Centers for Disease Control and Prevention (CDC) report that the mental health of adolescents can be affected by physical, emotional, psychological, and social changes as well as adverse experiences (CDC, 2021).

In today's globally interconnected world, where communication and travel are increasingly accessible, many young people are choosing to study abroad. In 2019, over six millions of people were already studying in countries other than their own (UIS, 2023). However, as Khanal and Gaulee (2019) mention, the challenges international students confront upon entering a completely unfamiliar environment include, different habits, ways of studying, cultures, social circles, language barriers, financial difficulties, and even racial discrimination. There are also stresses associated with concerns about post-graduation careers and reverse "culture shock" (Khanal & Gaulee, 2019, p.570) upon returning home. Farnsworth (2013) found that students have various sources of stress, such as the desire to get better grades and the fear of familial disappointment. Therefore, there exist various explanatory factors as to why students, especially those in higher education, are more likely to suffer from mental health problems. The impact of stress is even more pronounced for nursing students. Research has found that nursing students have had unpleasant experiences and mental health problems as a result of being under-supported due to a lack of qualified nurses working in the field, yet ever-increasing demand for their services. The authors suggest that providing nursing students with emotional support and improving mentors' understanding of nursing students could help with their mental health (Galvin et al., 2015). So, identifying interventions to maintain and improve the mental health of nursing students is of key concern and requires exploration.

The nursing student population experiences multiple and additional stressors. Hamaideh & Hamdan-Mansour (2020) argue that the cause of most nursing students' anxiety and depression stems from their inability to find a balance between their studies and their lives (Walailak et al, 2018). The imbalance of financial insecurity, new cultural conflicts and differences in beliefs, lack

of communication due to language barriers, homesickness and the stress of studying puts international students at high risk of depression (Alfie, 2022). Therefore, international students' mental health issues should be taken seriously.

While mild stress helps students to stay on top of their studies, high or constant stress can not only lead to physical and psychological problems for nursing students, but also affect the quality of their subsequent care (Zheng et al., 2022). The findings of Kaur et al. (2020), suggest that helping nursing students to understand and address their sources of stress and learn ways to cope with stress can help to reduce its negative impacts. Cleary et al. (2012), suggests that substance abuse, depression, personality disorders and behavioural challenges can emerge in undergraduate nursing students and thus affect their studies, so early identification and intervention is necessary.

An article by Quinn & Peters (2017) found that mental health first aid (MHFA) training was able to improve nursing students' theoretical knowledge and self-confidence in the face of mental illness, thereby maintaining their mental health. Yet, the study only considered the effect of MHFA training on nursing students' mental health, this piece will consider how improving knowledge can help nursing students' mental health. Further, the findings of Young (2012) showed that pet therapy was also able to reduce test anxiety in nursing students. Expanding, this paper considers that improving the overall environment will help nursing students' emotional stability. To this end, this article will, through a review of relevant literature, sort out and find interventions for research on mental health support and mental health promotion for nursing students.

## **2 Background**

### **2.1 Nursing education and nursing students**

Nursing students are those who are learning how to provide holistic care to patients and are constantly simulating clinical situations and practicing nursing practices (PR Newswire, 2020). The American Association of Colleges of Nursing (AACN, 2021) defines nursing students as those engaged in a nursing program that prepares them for admission into the nursing profession. These may include nursing programs leading to a diploma, an associate degree, a bachelor's degree, a master's degree, or a doctorate. To acquire the information, skills, and competencies needed to

provide safe and effective patient care, nursing students typically complete both academic coursework and clinical training. Different countries define this in different ways; in the United States the National Council of State Boards of Nursing (NCSBN, 2020) defines a nursing student as a student engaged in a nursing education program that prepares them for licensure as a registered nurse (RN) or licensed practical nurse (LPN). In order to obtain a nursing license, nursing students should meet specific educational and clinical practice standards within their state (Valvira, 2022).

Various approaches to nursing education have been incorporated into researcher's investigation and practice of nursing education today. Ironside (2015) argues that teaching through the use of vivid examples or reductive dialogue models is beneficial for the critical thinking of nursing students, which leads to greater application of theory and practice in clinical care. The use of simulations in which the teacher narrates a specific event or scenario can bring nursing students closer to the clinical situation and thus better develop their independent thinking skills (Ironside & Cerbie, 2012, as cited in Ironside, 2015). Leidl et al. (2020) found that blended learning in nursing education can better enhance nursing students to become more familiar with the skills of health education for patients, as well as increase the fun of teaching and learning to improve overall student engagement. The blended learning model is particularly more effective for students who are not active learners (Gagnon et al., 2013, as cited in Lei et al., 2020). Teachers also look for instructional videos from YouTube to incorporate into blended learning, making biology more accessible and more enjoyable for students (Johnston et al, 2018, as cited in Lei et al, 2020). Leidl et al (2020) found that nursing students learning through blended approaches significantly improved their communication skills. Simulated scenario-based teaching to develop nursing students' interest and competences is now a mainstream approach to teaching nursing.

## **2.2 Mental health promotion**

Mental health is not just the absence of mental disorders. People who are able to cope with the difficulties they encounter in life, who have a proper understanding of their personal strengths and weaknesses and use and view them in a rational way, who are able to do what they are supposed to do within their role and who are able to contribute to society are said to have a healthy mental state. Mental health is our right as human beings and a person's mental health is very important as it helps us to make sound judgements and decisions in life, helps us to build relationships with others and helps us to learn to live in the world (WHO, 2022).

The World Health Organization (WHO, 2022) believes that the environment in which we live, our personal upbringing and genetic factors all have an impact on mental health. A child's mental health and later family formation can be influenced by past experiences, whether good or bad (Daines et al., 2021). The novel coronavirus pandemic has caused acute stress, anxiety, depression, mood disorders, insomnia, fear, distress and other psychiatric problems in health care workers. The impact of such public health emergencies on mental health are particularly pronounced in a high-risk population such as health care workers (Brier et al., 2020).

In today's society, people's mental health can be affected in many ways. Ohrnberger et al. (2017) found through their research that indirectly the biggest influence on people's mental health is physical health, especially for people over the age of fifty. Also, dietary patterns can have an impact on mental health, for example a high sugar diet can alleviate depressive symptoms to some extent (O'Neil et al., 2014). A survey by Knight and Hester (2016) found that 20-30% of older people had experienced physical or emotional domestic violence, with a higher proportion of women. Older adults exposed to this high-risk environment for long periods of time are more likely to suffer from physical and mental illness (Knight & Hester, 2016). Gunnell et al. (2018) discuss how the generation born between 1995, 2000 were the first exposed to our modern era of advanced online media and the era of the Great Recession. In this era of social media, the mental health of adolescents is affected by common factors that affect mental health such as trauma and violence experienced in childhood, but also by social platforms that bring about: the desire for public attention or adverse physical and mental health conditions such as online violence (Gunnell et al., 2018).

### **2.3 Interventions for mental health promotion**

Interventions for the general population to ensure mental health need to address risk factors such as social isolation, poverty, and discrimination, which can lead to poor mental health outcomes. Also, resilience building techniques are important for maintaining mental health, such as fostering social support systems and effective coping mechanisms. Secondly, telehealth services and online support groups can help promote mental health by effectively reaching a wider population (Purtle et al., 2020). Therefore, population-based strategies improve mental health outcomes by addressing risk factors, encouraging resilience, and utilizing a number of strategies.

The WHO (2013) believes that a focus on primary prevention can effectively address the huge burden that mental illness places on countries (WHO, 2013, as cited in Enns, J et al., 2016). Building the capacity to cope with things can improve resilience and therefore reduce risk. Having a positive mindset or the ability to act as "resilient metal bending and bouncing back (instead of breaking)", thus working through adversity can better protect you from stress (Fletcher et al., 2013, p5). According to the WHO (1998) "reducing inequalities, building social capital, creating health gains, and reducing health expectancy gaps between countries and groups" are major determinants of mental health promotion (WHO, 1998, as cited in Enns, J et al., 2016, p70-80).

Prevention and interventions can be designed for individuals or specific groups (WHO, 2022). Sri Lanka managed to reduce the number of suicides associated with pesticides through restrictions on their use (Knipe et al., 2017). The WHO (2022) considers this a cost-effective suicide prevention intervention. Keeping toxic chemicals under lock and key can go a long way towards preventing suicide (Vijayakumar et al., 2013). Improving the mental health of children and adolescents can be achieved by introducing laws and policies that combine the family, school, and social environments to promote and protect mental health (WHO, 2022). Further, the ability of primary care physicians to identify and treat depression can go some way towards preventing suicide (Mann et al., 2021; WHO, 2022).

Interventions and preventive measures such as making the elderly feel more positive, addressing their basic needs, involving them in community activities and providing them with home care can all be effective in ensuring their mental health (Nielsen et al., 2019). Markle-Reid et al. (2018) improved self-management and quality of life with significant improvements in depressive symptoms following a 6-month community-based intervention for older patients with type 2 diabetes.

Elderly patient's families are the main caregivers after hospital discharge, but the mental health of the family is also very important. Zhao et al. (2019) found that internet-based interventions could help improve anxiety and depression in people caring for those with dementia. Studies have found that hospice care can reduce grief and depression in families of cancer patients following the death of a family member (Hayashi et al., 2022).



Resilience training aims to help individuals develop skills and strategies to cope with stress and adversity. A study by Mealer et al. (2014) found that resilience training interventions were effective in improving healthcare workers' symptoms of burnout, thereby promoting mental health. Supporting this, a meta-analysis by Poghosyan et al. (2010) found that social support interventions were also effective in reducing healthcare workers' symptoms of burnout. In Melnyk et al.'s (2020) study, it was mentioned that behaviours that improve the well-being, mental health, lifestyle and physical health of healthcare workers can help them reduce anxiety, sleep, mood and other problems. Doctors' anxiety was shown to reduce through the use of "stress management and resilience training"(Melnyk et al., 2020, p8).

Maintaining good mental health is essential for teachers to be able to provide high quality education and support to their students. Exercise has been shown to have a positive impact on mental health, reducing symptoms of anxiety and depression (Callaghan, 2004). Harris et al. (2016) found that yoga interventions increased teachers' well-being and improved their psychological health. Workload management interventions reduced teachers' stress and increased teachers' well-being. Research by Pagán-Castaño et al. (2021) found that Human Resource Management (HRM) benefited schools and that teachers' physical and mental health improved.

For reducing stress among university students in higher education, Harrer et al. (2018) suggests that the most effective way to intervene is through the internet and mobile devices, to grab the attention of students suffering from depression. Xu et al. (2021) studied the effects of yoga on stress in university students and found that yoga exercise reduced their stress levels. Herbert (2020) found that aerobic exercise reduced their levels of depression and stress, and that the use of short-term aerobic exercise could help relieve mental stress.

### **3 Aim, purpose and research question**

The aim of this study:

- Discover interventions for mental health support for nursing students.

The purpose of this study:

- Promoting nursing students mental health.

Research question:

- What are mental support interventions for nursing students?

### **4 Methodology**

#### **4.1 Literature review**

Literature reviews allow researchers to 'enter the discourse' by providing context, describing techniques, acknowledging innovations, reducing duplication of research, and ensuring that professional standards are met. As mentioned in the Patel et al. (2022) article, the conclusions drawn from a literature review are as reliable as the research in the article. Literature reviews help researchers articulate clear objectives, demonstrate appropriate preparation, select acceptable techniques, communicate relevant findings, and reflect critically (Peterson et al., 2017). Literature review is the basis of a research project or study, since it helps to identify essential research topics and provides context for the investigation (Stratton, 2019). In addition, Peterson et al. (2017) found that it also helps researchers to identify knowledge gaps, make recommendations for future areas of research and ultimately contribute to the knowledge development of their profession.

The literature reviewed searched for articles relevant to their paper, identifying, analyzing and collecting the searched articles according to the purpose of the study (Hewitt-Taylor, 2017). The following stages were a basic guide to completing a thorough and successful literature evaluation. When beginning a literature evaluation, the author should have a clear idea of the research question of the paper or the area of focus of the article. This helps to sharpen the focus of the search for the article and ensures that the material selected for it is relevant. Techniques for defining the search for this article: Identify acceptable databases (e.g., PubMed), search terms, and inclusion and exclusion criteria to develop a search policy. Sub-topics or research questions (e.g., depression, anxiety) were used as keywords to search for papers, books and other relevant resources. Relevant articles, books and other resources that answer the research question or topic of this paper were found through the use of search techniques. Search methods were recorded, and search results were saved. The searched resources were evaluated: the abstract, introduction and conclusions of each resource were examined to determine its applicability to the research question or topic of this paper, for example, does it contain interventions that were effective for the mental health of nursing students. These resources were assessed for the quality of the research and the methods used to conduct it.

After appropriate sources were selected, data from these articles were extracted and the results were synthesized and analyzed. This included the main topics and patterns in the literature being identified and the research data being assessed. Next, the literature review was applied to this article, which needs to ensure that it is well structured, cohesive and based on relevant, high-quality sources. The literature was critically evaluated, and research gaps needed to be highlighted for additional research to be conducted. During the research of this article, the search strategy will be refined and updated as the project progresses as the literature review was an ongoing process.

## **4.2 Literature research**

The literature search was conducted from two electronic databases, PubMed and CINAHL. The use of "AND" and "OR" as concatenation of keywords for the literature search. The keywords used were Nursing students, Undergraduate student nurses, Interventions, Mental health, Depression, from which articles related to the research questions were selected. The language of the selected articles was English, and they were published between 2013-2023. This article used a Population Intervention Comparative Outcomes Study Design (PICOS) to initially select articles that addressed

the research questions in this article by using full-text articles searched from the JAMK library. (See Table 1)

Table 1. PICOS Criteria

<b>P</b> (Problem or Patient or Population)	Nursing students OR Undergraduate student nurses
<b>I</b> (Interest)	Interventions
<b>CO</b> (Context)	Mental health OR Depression
<b>S</b> (Study design)	English Literature, published between 2013-2023, Peer reviewed, Full text access to JAMK students

The following process was used to screen the literature: firstly, 2185 articles were searched in PubMed and CINAHL using the PICOS method. Secondly, after adding the criteria, 321 articles were retained. In the third step, only 33 articles were retained after browsing through the article abstracts. Finally, after browsing through the full text of the articles, 28 articles were excluded since they did not answer the research question, so five articles were selected for data analysis. Figure 1 illustrates the article selection process.

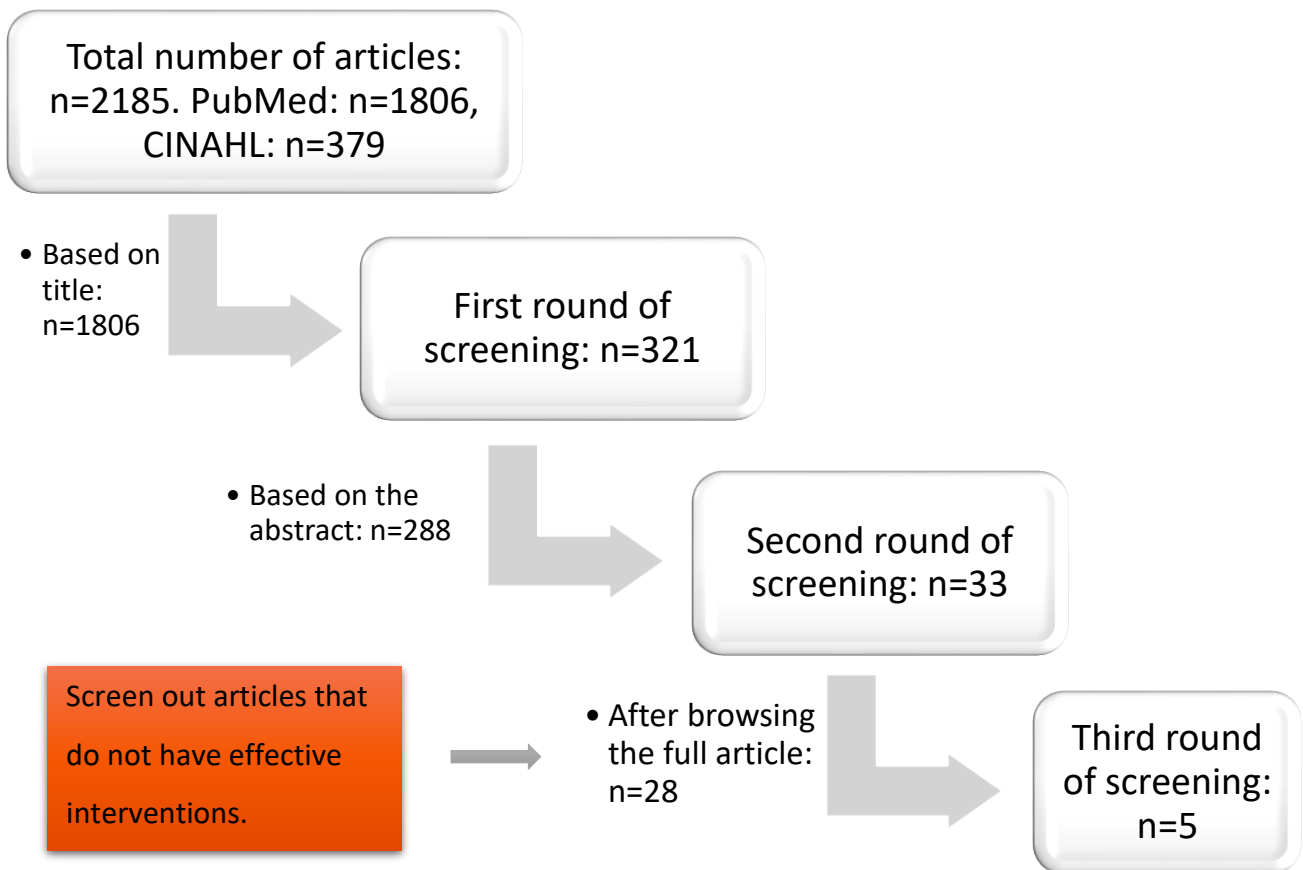


Figure 1. Screening process for selecting research articles

### 4.3 Data analysis

As this essay is based on conclusions drawn from previous articles, the topic and the method chosen for this essay is more appropriate for the inductive method (Lauri & Kyngäs 2005). Usually, the deductive method is a way to validate the results of previous research, and this essay is not a test of previous theoretical results, so the deductive method is not appropriate (Kyngäs & Vanhanen, 1999).

Induction entails open coding, the formation of categories, and abstraction. Open coding entails adding comments and headings to the text as it is being read. The written material is reread, and

the necessary headings are written in the margins to describe every aspect of the content (Burnard 1991, 1996; Hsieh & Shannon 2005). At this stage, headings were extracted from the margins and entered into a coding document (Cole 1988, Downe-Wamboldt 1992, Dey 1993), and categories were generated arbitrarily (Burnard 1991). Following this open coding, the list of categories was classified under headings of higher level of abstraction (McCain 1988, Burnard 1991). The objective of data aggregation is to reduce the number of categories by consolidating similar or dissimilar categories into broader higher-order categories (Burnard 1991, Downe-Wamboldt 1992, Dey 1993). However, creating categories can involve more than simply grouping similar or related observations, but rather categorising data as 'belonging' to a particular group, to be compared with other observations that do not fall into the same category (Dey, 1993; Cavanagh, 1997). Creating categories can provide a way of describing phenomena for this article in order to improve the comprehension and generate knowledge for this article (Cavanagh, 1997). By generalising the content of these five articles and analyzing and developing the themes and subcategories that, it is possible to identify and explain which items lie within the same category (Dey, 1993).

A closer reading of these articles revealed two articles that were essentially interventions into the area of changing nursing students' mindsets (Chen et al., 2021; Guo et al., 2017). One was an intervention in improving nursing students' knowledge to improve their mental health (Crawford & Burns, 2020). One article was on relaxation modalities to enable nursing students to reduce psychological stress (Aksu & Ayar, 2023). An article included interventions for relaxation modalities, upgrading relevant knowledge and improving the environment (Quinn & Peters, 2017). Based on the above approach, the literature was categorized according to the topic of interventions to effectively maintain the psychological state of nursing students. Four themes were categorised to include interventions for nursing students' mindsets, upgrading relevant knowledge, relaxation methods and changing the surroundings. The main points of the content of each theme were also further refined.

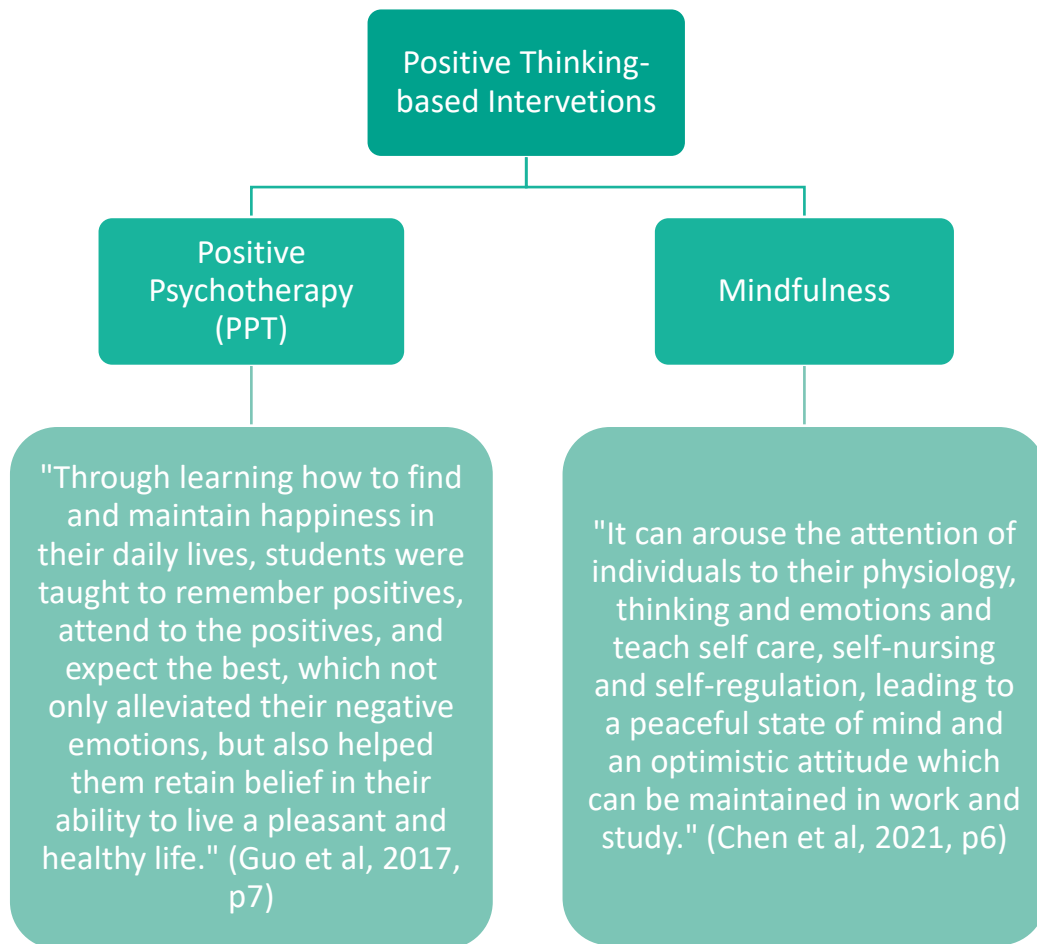


Figure 2. Example of the analysis of this study

## 5 Results

After carrying out the data analysis, the results obtained in these five articles were divided into four themes: Positive thinking-based interventions, upgrading relevant knowledge, ways of relaxing and changing the surroundings. The diagram below shows how the data was analysed, and the text below contains a detailed explanation of the themes.

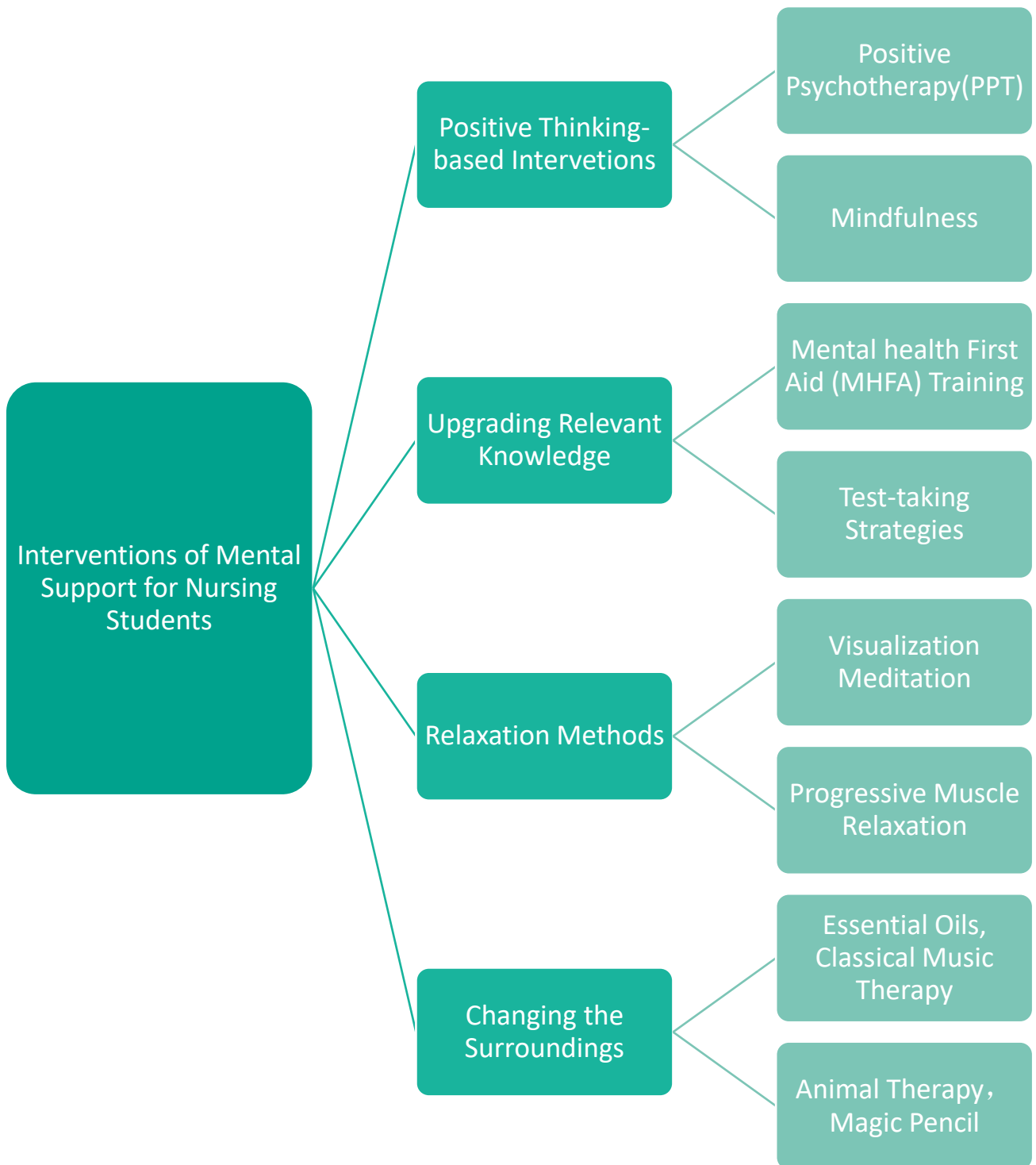


Figure 3. Interventions of Mental Support for Nursing Students



## 5.1 Positive thinking-based interventions

Positive thinking-based interventions through **positive psychotherapy (PPT)** can maintain the mental health of nursing students. The experimental results Guo et al's (2017) study showed that **positive psychotherapy (PPT)** had an impact on depressive symptoms, and that **positive psychotherapy (PPT)** enhanced nursing students' self-identity by helping them to re-perceive their strengths, prompting them to actively engage in their studies and thus gain a sense of engagement and achievement. Current research has found that positive thinking interventions can allow students to be more aware of their emotional problems and thus learn how to regulate their emotions and find a balance between the stresses of life and study. This research suggests that positive thinking interventions can increase the level of positive thinking in nursing students and have a significant impact on their anxiety, depression, and stress (Chen et al, 2021). Meanwhile, in a study by Guo et al (2017), the importance of self-identity for nursing students was identified, with students identifying themselves as worthy and actively helping others, and the sense of achievement this generated helped to alleviate symptoms of depression and increase their self-efficacy (a person's subjective judgment of whether they can do something successfully). Regarding nursing students' mental health, according to Guo et al's (2017) experiment, it was found that nursing students' learning **positive psychotherapy (PPT)**, having a positive attitude towards life and learning, focusing on positive things and expecting good things to happen, could make them physically and mentally happy and promote mental health. A similar conclusion was reached in an analysis of Chen et al.'s (2021) experiment, where nursing students in the experimental group were trained in **positive thinking meditation**, which led them to develop optimistic thinking habits, reducing their levels of anxiety, depression and stress while also increasing their levels of positive thinking. Through **positive thinking meditation**, positive thinking yoga and positive thinking cognitive training, positive thinking stress reduction therapy (MBSR), positive thinking cognitive therapy (MBCT), acceptance and commitment therapy (ACT) and dialectical behavioural therapy (DBT) **mindfulness**-based interventions with nursing students, their levels of positive thinking were increased, and their anxiety, depression and stress were alleviated, thus supporting their mental health. The positive thinking intervention was also found to contribute to the students' pain relief and improved performance (Chen et al, 2021).

## 5.2 Upgrading relevant knowledge

Improving the self-confidence of nursing students and reducing their anxiety levels can be helped by upgrading knowledge: **mental health first aid (MHFA)** training and learning **test-taking Strategies**. Learning about the subject can help nursing students to reduce emotional problems. In Crawford & Burns (2020), some of the nursing students who participated in the experiment reported that learning about mental health helped them to communicate with people with psychological problems and to be able to provide better assistance to these people. The study by Crawford & Burns (2020) found that nursing students learning about **mental health first aid (MHFA)** to enhance their professional skills led them to believe that they could provide better care to patients and improved their self-confidence. Also, participants in the experiment described their desire to identify and help people with precursors of mental illness earlier because of their own experiences of mental problems. Many of the participants in this experiment felt that the expansion of their knowledge would help others as well as enhance their own professional skills in nursing. The study also found that "taking the time to listen to their problems" was effective in helping people with psychological problems (Crawford & Burns, 2020, p18). Meanwhile, learning **strategies** related to coping with exams can reduce exam-related anxiety. By reciting what they have memorised three times a day for every two hours before the test to convince nursing students that they are capable of coping with the test, self-confidence is increased, thus reducing test anxiety (Quinn & Peters, 2017).

## 5.3 Relaxation methods

**Progressive muscle relaxation** and **visualisation meditation** can help nursing students to reduce anxiety and increase their motivation and self-efficacy to study, thus supporting mental health. Quinn & Peters (2017) showed that nursing students' anxiety due to exams can be helped by **progressive muscle relaxation**. The study found that students themselves correctly guiding themselves through relaxation exercises also reduced nursing students' elevated heart rates due to anxiety. A similar finding was made by Aksu & Ayar (2023), who found that **visualisation meditation** could help nursing students to relax their brains, improve their sense of well-being and maintain their mental health by imagining positive and beautiful things in their brains. Nursing students generate positive emotions by imagining things they like, which increased student motivation and

self-efficacy. Self-efficacy initiates self-healing abilities in the human brain that contribute to students' mental health, and this was also found in this study. The results of the experiment showed that **visualisation meditation** reduced the mean values of the sub-dimensions of depression, anxiety and stress scales measured. Based on the results of the experiment it was concluded that **visualisation meditation** increased the level of achievement motivation in nursing students and also helped with addiction problems in adolescents. Another important finding of the study was that **visualisation meditation** relieved patients' pain and reduced preoperative anxiety, as well as relieving the anxiety of the nursing students. The findings suggest that **visualisation meditation** has a positive impact on the treatment of post-traumatic stress disorder (PTSD, Aksu & Ayar, 2023).

#### 5.4 Changing the surroundings

The intervention of using **essential oils** in the exam room, playing **classical music**, placing **magic pencils** and engaging with **pets** before the exam can help nurse students' mental health by reducing their exam anxiety. **Essential oils, pet therapy, classical music** and **magic pencils** can reduce the negative emotions that exams bring to nursing students. In their study, Quinn & Peters (2017) found four ways to improve the environment around nursing students that had an impact on them. Using lemon **essential oil** in the exam room significantly reduced nursing students' anxiety during the exam. Nursing students who **petted** the library's resident dog prior to the exam found it helpful for their subsequent exams. The results of the Spielberg State Anxiety Inventory and Test Anxiety Inventory (TAI,  $p < 0.01$ ) feedback from the experiment indicated that **classical music** had a mitigating effect on exam-related anxiety. By placing a **pencil** in the examination room for visual cueing, nursing students' subjective descriptions revealed that the pencil was able to alleviate their anxiety, hence this termed it the **magic pencil** (Quinn & Peters, 2017).

## 6 Discussion

### 6.1 Discussion of results

The aim of this article was to discover interventions for mental health support for nursing students, this has been done by using a literature review to analyse five articles screened using an inductive approach. Four areas of intervention were found to be effective in maintaining the mental health of nursing students. Positive thinking-based interventions; Upgrading relevant knowledge; Relaxation methods; Changing the surroundings.

The detailed interventions found from these five articles: positive psychotherapy (PPT) and mindfulness; mental health first aid (MHFA) training and test-taking strategies; visualization meditation and Progressive muscle relaxation; essential oil, classical music, pet therapy, and magic pencil.

Nursing students were able to reduce stress by changing the way they think. A study by Zhao et al (2022) found that self-compassion increased resilience and optimism in nursing and medical students, thereby reducing their perceptions of stress and depressive symptoms. This is consistent with the findings of other studies. Self-compassion, common humanity and positive thinking are key to self-compassion in Buddhist philosophy (Neff, 2003). Self-compassion is also a way to reduce worry by treating negative emotions and thoughts as normal physiological phenomena (Neff, 2011; Marsh et al; 2018). It also confirms the findings of this paper. Getting students to change their mindset and think positively is a much less costly yet effective intervention.

The analysis of Castellano-Rioja et al (2022) found that nursing students' participation in geriatric care training increased knowledge of geriatric-specific care and thus increased motivation to care for older people. Qualified mentors were provided in the training to help nursing students plan their careers. Although the findings related to the mental issues of nursing students in geriatric training were not explicitly stated in this study, the study's findings of increased nursing student motivation for geriatric care and assistance with career development are consistent with the findings of this piece, in terms of nursing student expectations of mental health first aid training. So, it also shows that improving nursing students' relevant knowledge can promote mental health.

Increasing relevant knowledge to reduce emotional problems has been researched among new nurses. Stress and anxiety are reduced by giving novice nurses induction, postgraduate, and residency courses along with other support strategies to increase their self-confidence and expertise (Edwards et al., 2015).

Progressive muscle relaxation and listening to music prior to exams relieved exam stress and improved exam performance for the nursing students studied (Gallego-Gómez et al., 2020). Likewise, training in progressive relaxation was found to reduce stress and burnout in nursing trainees on clinical placements (Pelit-Aksu et al., 2021). In one study, nursing students felt happy, happy and relaxed and had improved mental health after eight weeks of Meditation on Twin Hearts (MTH, Meena et al., 2021). There has been research on relaxation modalities to reduce anxiety in nursing staff, and the Benson relaxation method helps to reduce anxiety in female nurses working in clinical settings (Sajadi et al., 2017).

While a study by Son et al. (2019) found that the use of aromatherapy and music therapy prior to exams enhanced nursing students' basic nursing skills and alleviated exam anxiety and stress (Son et al., 2019). Consistent with the findings of the study music was found to enhance the quality of sleep of students, thus reducing depressive symptoms (Harmat et al., 2008). Experiments consistent with the findings of this article were also found, where nursing students receiving pet therapy before an exam could change their perceptions of an exam, thus reducing test anxiety but also improving test scores (Anderson & Brown, 2021). However, consideration needs to be given to the possibility that students and teachers may be allergic to certain interventions (such as aromatherapy or pet therapy).

A discussion of the findings revealed the effectiveness of each intervention in supporting nursing students' spirituality, assuming that being able to implement all of these in combination should go a long way in reducing anxiety, depression and stress levels and promote mental health. The Kinchen & Loerzel (2019) experiment found that trainee nursing students found holistic therapy both necessary and acceptable.

## 6.2 Critical appraisal, ethical considerations, reliability and validity

Critical evaluation is a method for enhancing knowledge of the limitations and strengths of a study (Duffy, 2005). This procedure enables nurses to recognize proof through the use of organised as well as verified reports (Melnyk & Fineout-Overholt, 2015). The five articles selected for this paper were assessed using the assessment framework from Hawke et al. (2002). Under this framework the following factors are considered: author, title and abstract, introduction and aims, methods and data, sampling, data analysis, ethics and bias, results transferability or generalizability. implications and usefulness. Each section is scored on a scale of 1-4, with 4 representing good, 3 fair, 2 poor, and 1 very poor. With all essays receiving an overall score, with higher scores representing better content in that section. Appendix 1 presents the full assessment of the five papers within this literature review.

The Helsinki Declaration (1964) contains some basic principles of research ethics: such as the requirement for informed consent, the need for a favorable risk-benefit ratio and the obligation to protect the privacy and confidentiality of research participants. The importance of informed consent, minimising harm and ensuring that the benefits and burdens of research are equitably distributed are highlighted in the three key ethical principles (respect for persons, beneficence and justice) identified by the Belmont Report (1979). Using these authoritative texts to critique the concept of research ethics in articles, researchers can ensure that their research is conducted in a respectful, responsible and transparent manner. Using these authoritative texts to critique the concept of research ethics in articles and ensure that their research is conducted in a respectful, responsible and transparent manner is crucial. Adherence to these ethical principles can help protect the rights and welfare of research participants and promote the integrity of the research process (World Medical Association, 2013; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Through these prescriptive documents, it was found that the basic principles, guidelines and regulations of ethics were reflected in the research methods of most of the articles in this paper. Ethics committee's gave approval to the articles and consent forms were signed by most of the participants in the study, while most of the participants participated in the study. The research methodology (literature review) for this paper will also be done in accordance with the principles of research ethics. Citations and sources in the text are authentic and follow the standards of the American Psychological Association (APA, 7th edition).

The reliability of the research data in this article is demonstrated by the fact that the data were obtained from databases freely available from JAMK (PubMed, CINAHL). These articles were written in English between 2013-2023 and are freely available with the permission of JAMK, which reflects the limitations of this study and also explains the limited data in this article. The country of origin of the participants was not considered in the data analysis, however the wide range should prove representative with the range of origins including China, the USA, Sweden, South Korea, India, Thailand, Jordan, Australia and Turkey according to the authors' description of the participants in the article. There was also one article that used a literature review research method for the study and was unable to access the specific country of origin of the participants in their research data, so there was some variability in these interventions. As some of the interventions involve investment in educational resources, there are many countries and regions of the world that lack excellent educational resources, or even countries and regions that do not have regular educational resources at all, so there is limited capacity to enact or test such interventions (WHO,2010). This paper therefore lacks consideration of the economic aspects of these interventions.

Future research could consider the impact of financial aspects on nursing students' spiritual support and find less costly and more effective interventions. Further research could also be undertaken in more languages to continue the research on this topic and consider the impact of exercise on the mental health of nursing students and find more interventions for the mental support of nursing students. These interventions could also be implemented with nursing students from different countries to observe their effectiveness with ethnically diverse nursing students, and the resulting findings could be considered for future application to international nursing students.

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## Appendices

### Appendix 1. Critical appraisal of the articles (Hawker et. al 2002)

Author	abstract /title	Introduction and aims	methods and data	sampling	Data analysis	Ethics and bias	Results	Transferability or generalizability	Implications and usefulness	total
Aksu, Ç., & Ayar, D. (2023)	4	4	4	4	4	4	3	4	4	<b>35</b>
Quinn B., & Peters A. (2017)	4	4	4	4	4	3	4	4	4	<b>35</b>
Crawford, G., & Burns, S. (2020)	4	4	4	4	4	4	4	3	3	<b>34</b>
Guo, Y., Zhang, X., Plummer, V., Lam, L., Cross,	4	4	4	3	4	4	4	4	4	<b>35</b>



W., & Zhang, J. 4(2017)										
Chen, X., Zhang, B., Jin, S.X., Quan, Y.X., Zhang, X.W., & Cui, X.S. (2021)	4	4	4	4	4	3	4	3	3	<b>33</b>

## Appendix 2. Summary of reviewed articles

Number	Author(s) (Year) Title	Aim(s) of the study	Research methods	Sample (n)	Result	Critical appraisal (Hawker et. al 2002)
1	Aksu, Ç., & Ayar, D. (2023). The ef- fects of visualiza- tion meditation	Examines the effects of visualization med- itation on nursing students' levels of depression, anxiety,	The study used a quasi- experimental design in which 79 nursing stu- dents were randomly assigned to either the experimental group	n=79	The results of the study showed that the experi- mental group showed a sig- nificant improvement in their levels of depression, anxiety and stress after the	35

	on the depression, anxiety, stress and achievement motivation levels of nursing students.	stress and achievement motivation.	(n=39) or the control group (n=40). The experimental group received an eight-week visualization meditation training, while the control group did not receive any intervention. Researchers used four standardized scales to measure participants' levels of depression, anxiety, stress and achievement motivation at baseline, four weeks and eight weeks post-intervention.		eight-week intervention compared to the control group. In addition, the experimental group showed a significant increase in their levels of achievement motivation after the intervention compared to the control group.	
2	Quinn B., & Peters A. (2017). Strategies to Reduce Nursing Student Test Anxiety: A Literature Review.	The aim was to review the literature on test anxiety in nursing students, identify effective strategies to reduce test anxiety, and provide recommendations for nursing	Literature Review. A search was conducted for articles on strategies to reduce test anxiety in nursing students. The search was limited to articles published in English between 2000 and 2020. The authors analyzed these articles for common themes	n=7	Cognitive behavioral interventions, academic preparation, test-taking strategies and supportive learning environments are effective strategies for reducing test anxiety in nursing students. The authors recommend that nursing educators implement these strategies to help their students succeed	35

		educators to implement these strategies.	and effective strategies.		academically and to reduce stress and anxiety.	
3	Crawford, G., & Burns, S. (2020). Confidence and motivation to help those with a mental health problem: Experiences from a study of nursing students completing mental health first aid (MHFA) training.	The aim was to explore the impact of Mental Health First Aid (MHFA) training on nursing students' confidence and motivation to help people with mental health problems.	The study used a qualitative approach to conduct semi-structured interviews with nursing students who had completed the mental health first aid (MHFA) training programmed. The researcher used purposive sampling to recruit participants and analyzed the data thematically.	n=181	The results of the study suggest that mental health first aid (MHFA) training can have a positive impact on nursing students' confidence and motivation to help people with mental health problems. Participants reported feeling more comfortable discussing mental health issues, having a greater understanding of the signs and symptoms of mental health problems and being more confident in their ability to provide assistance to those in need.	34
4	Guo, Y., Zhang, X., Plummer, V., Lam, L., Cross, W., & Zhang, J. (2017). Positive psychotherapy for depression and self-efficacy	The aim was to determine the impact of positive psychotherapy on depression and self-efficacy in undergraduate nursing students and	The authors conducted a randomized controlled trial involving undergraduate nursing students at a university in China. Participants were randomly assigned to either the	n=85	Positive psychotherapy (PPT) is a promising intervention to reduce depression and promote self-efficacy in undergraduate nursing students, and it may have important implications for the mental	35

	in undergraduate nursing students: A randomized, controlled trial.	to explore the mediating role of self-efficacy in the relationship between positive psychotherapy (PPT) and depression.	positive psychotherapy (PPT) group or the control group. The positive psychotherapy (PPT) group received 10 weekly sessions of active psychotherapy, while the control group did not receive any intervention. The authors used the Beck Depression Inventory (BDI) and the General Self-Efficacy Scale (GSES) to assess depression and self-efficacy before and after the intervention. The authors also analyzed the data using a structural equation modelling (SEM) approach to explore the mediating role of self-efficacy in the relationship between PPT and depression.		health and well-being of nursing students.	
5	Chen, X., Zhang, B., Jin, S.-X., Quan, Y.-X.,	The aim is to systematically review and meta-analysis	The study used a meta-analysis approach,	n=10	Positive mindfulness-based interventions interventions are effective in improving	33

	<p>Zhang, X.-W., &amp; Cui, X.-S. (2021). The effects of mindfulness-based interventions on nursing students: A meta-analysis.</p>	<p>the impact of positive thinking-based interventions on nursing students.</p>	<p>whereby relevant studies that met the inclusion criteria were systematically searched across multiple electronic databases. The researchers included randomized controlled trials examining the impact of a positive thinking-based intervention on nursing students' outcomes of stress, anxiety, depression and positive thinking.</p>		<p>the mental health and positive thinking of nursing students. The analysis found that nursing students who participated in the mindfulness-based interventions intervention showed significant improvements in stress, anxiety, depression and positive thinking compared to students who did not receive the intervention or who did not receive the mindfulness-based interventions intervention.</p>	
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