

Nursing Students' Attitudes and Stigma toward Mental Health Nursing: A Systematic Review

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Abstract

Purpose: This systematic review seeks to assess undergraduate nursing students' attitudes and stigma beliefs towards mental illness. **Design and Methods:** A systematic review of the literature was performed. **Findings:** Twenty studies met the inclusion criteria. Most of the results show students had poor attitudes and stigmatising beliefs towards mental illness. However, this improved when students exposed to psychiatric course and a greater improvement toward these stigmatizing attitudes was observed in clinical placements than in theory. **Practical Implications:** Mental-health-specific training seems to improve perceptions toward mental health. Clinical placement underpins theory, leading to a decrease in negative attitudes and stigma regarding mental health.

Keywords: Attitudes; Higher education; Nursing student; Systematic review

Introduction

The World Health Organization estimates that there are 450 million people suffering from mental illness in the world. Mentally ill people are one of the most vulnerable populations as they often encounter discriminatory attitudes and stigma from health care professionals.^[1] According to Högberg et al.^[2] not only the general population attach stigma and prejudiced attitudes towards people diagnosed with mental illness, but also health care providers tend to have similar attitudes. Health care professionals' positive attitudes toward people suffering from mental illness are a prerequisite for the provision of quality care.^[3] Mentally ill patients and their caregivers expect doctors and nurses to help and treat them without discrimination or prejudice.^[1] Unfavourable attitudes were demonstrated towards people with mental illness among medical and nursing students.^[4-7] Negative attitudes among health care providers can, in turn, cause mismanagement of patients with mental illness and low attention to patients, affect doctor and nurse interaction, and result in a lack of support and acceptance of patients.^[4] Assess future doctors and nurses' attitudes toward mental illness is crucial.

Mental illness impacts one in every three individuals in European countries which considers as the main challenges encountering mental health care.^[8] Despite the high prevalence of mental health problems, people presenting with this illness are subject to discrimination and exclusion brought on by negative and stigmatizing attitudes in society.^[9] Likewise, various studies confirm that health care professionals also acquire negative and discriminatory attitudes toward mental health, which can determine the treatment and quality of care given to people affected by a mental health problem. These negative attitudes can be passed on to nursing students during their higher education. However, these students believe that the knowledge they acquire over time steers them toward care for, and an understanding of, the emotions manifested by the mentally ill. In Saudi Arabia, nursing students undergo a mandatory psychiatry course where

they receive fundamental knowledge and clinical training in psychiatry hospitals over 16 weeks regardless of their choice of eventual specialization, it is crucial that potential healthcare providers develop a favorable attitude towards psychiatry as they are likely to come into contact with patients with some form of mental illness throughout their professional life. By extension, their attitudes would affect care that people with mental health problems receive in all areas of medicine.

There has been renewed interest in the beliefs and knowledge toward psychiatry among medical students and nursing students, as these students are the future doctors and nursing mental health care, who may be involved in the care of mentally ill patients. Students' understanding of psychiatry may include misconceptions, which may lead to failure or incompleteness in the process of caring for patients. Furthermore, negative beliefs that health care professionals may hold regarding mental illness can hamper effective patient care.^[10] Another important issue in the field of health care is perceived stigma among medical and nursing students. Stigma is a consolidation of lack of knowledge, negative attitudes and discrimination, and the continuation of a process that starts with the unfavourable effects of labelling.^[6] Stigma can may lead the community to prejudice, misunderstanding and discrimination of mental illness and people with mental disorder. In addition, if the quality of undergraduates training improves, it could lead to less stigmatization and better care for patients.^[11]

Furthermore, students expressed a misperceptions and a lack of understanding about patients in the psychiatric setting which contributes to negative opinions and attitudes held towards them.

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^[12] These patients are often viewed as dangerous, unpredictable, incompetent and unlikeable. ^[13] Corrigan ^[14] found that such stigmatizing attitudes towards psychiatric patients seems to be broadly endorsed by the general public in the Western world, including Western European nations and the United States.

The studies reviewed found negative attitudes, beliefs and perceived stigma towards mental illness among university students. In addition, the majority of the studies assessed students' attitudes towards mental illness. There was only one study which measured attitudes and knowledge toward mental illness by utilizing an ad hoc instrument. ^[15] Furthermore, there were limited studies measuring attitudes and perceived stigma among university students toward mental illness. ^[6,11] However, there were no studies assessing stigma and attitudes of nursing students towards mental illness and comparing students who have received a psychiatric course and clinical placement with those who have not. Also, the majority of the studies were considered to be of only moderate quality according to the JBI critical appraisal tool. Moreover, there was only one study which evaluated and compared medical and nursing students' attitudes. ^[1] This is the first study to measure nursing students' attitudes and relationship with their perceived stigma. Much uncertainty still exists about the relationship between students' attitudes and perceived stigma. Furthermore, the study employed valid and reliable instruments to measure attitude and perceived stigma among nursing students and compared nursing students who have received a psychiatric course and clinical placement with those who have not.

Poreddi et al. ^[1] compared the medical and nursing students' attitudes toward mental illness by using the Attitude Scale for Mental Illness (ASMI). The author suggested that nursing students had more positive attitudes towards mental illness (65.5%) compared with medical students (54.5%). Furthermore, looking at the result of subscale analysis revealed that medical students expressed more favorable attitudes in the separatism domain (25.54) compared to nursing students in the same domain (27.54). Moreover, medical students had less stigmatizing attitude toward mental illness (mean 8.37 versus nursing students 9.27). However, nursing students were more benevolent towards mentally ill patients (mean 15.00 versus medical students 17.00). Concerning pessimistic predication, nursing students showed fewer negative attitudes (mean 11.83) compared to medical students (mean 13.49). The main strength of the study is that researchers used a scale with well-established psychometric properties (Cronbach's Alpha 0.86). Also, the sample size of the study was large, which means that the study was adequately powered. Similarly, Prasad et al. ^[16] evaluated medical intern students' attitudes towards mental illness and compared two groups. The first group (experimental) had completed their posting, which included 15 days of lectures about psychiatry (n=29) and the second group (control) had not completed their posting yet (n=15). The Attitudes to Psychiatry Scale (APS) was administered to assess the beliefs, attitudes and perception of the medical interns towards psychiatry. The results showed that participants in the intervention and control groups held accepted attitudes towards mental illness. However, the main outcome of the study was that there was no significant

difference between groups except in relation of their awareness about significance or value of consolation as well as liaison services has enhancement after completed the posting. A major drawback of the study was the inadequate sample size (n = 44), which may have jeopardised the generalizability of the study findings by reducing the study power.

Hailesilassie et al. ^[17] assessed medical students' attitudes towards mental illness. Their findings indicated that the students' attitudes were linked with the status of attending psychiatry rotation. Specifically, students' scores, as measured by ATP-30, deteriorated after being enrolled in psychiatry rotation (mean 49.75 vs 55.52; $p < 0.05$). The clinical rotation included psychiatry courses for six weeks and involved taking patient histories with their supervisors (psychiatrists). Furthermore, the study indicated that psychiatry clinical rotation affected negatively the participants' attitude, the results showing a decrease in the mean score on the ATP-30 scale after psychiatric rotation. The reason for this result may reflect the disparity between the medical students' expectations of the psychiatry clinical rotation and actual practice. Further study is needed to assess medical students' experiences during psychiatry clinical rotation. A limitation of Hailesilassie et al. ^[17] was that the sample was chosen from one college and only fourth year medical students (n=122). Another reason which might affect the results from the author's perspective is that the ratio of students to psychiatrists might have led students to have insufficient supervision time for their exposure to patients with mental illness.

Aruna et al. ^[15] assessed medical students' perception, knowledge and attitude towards psychiatric disorder. Participants were recruited from three colleges in Karnataka. The result appeared that the participants had limited knowledge and attitudes towards psychiatric disorder. Furthermore, only (25%, n=101) of the students were inclined to accept psychiatry as a profession in future, whereas (50.9%, n=206) were reluctant to be involved in the psychiatric profession, while (24%, n=97) were hesitant to provide answers. Chandramouleeswaran et al. ^[11] assessed physicians' stigma and attitudes towards psychiatric patients and reported that most of the participants (70%) felt patients with mental illness were equally employable and accepted as friends. Moreover, observable stigmatization toward people suffering from schizophrenia with mean scores of AMIQ (-2.14) were found. Similarly, social distance towards schizophrenia patients is higher among Romanian medical students. ^[6] The main drawback of the Chandramouleeswaran et al. ^[11] study is that the sample size was relatively small (n=70), which may have jeopardised the generalizability of the study findings by reducing the study power. Moreover, the reader should bear in mind that the study is based on cross-sectional design which may limit the ability to address causal connections from the study data.

Aim

This review aims to examine the nursing student attitudes towards psychiatry and assess the factors associated with these attitudes.

Materials and Methods

The questions for this study were generated in accordance with PICO questions, defining as the aim of this study: to analyze whether nursing students perceive and/or hold stigmatizing attitudes toward mental illness during theory and/or practical training interventions in the mental-health nursing module.

Design

The method developed by Cochrane Review Dissemination^[18] guided the review. This approach allows for the collection, analysis and integration of separate research findings from quantitative research methods into a meaningful whole the guiding framework is based on five steps: defining the problem, searching for literature, extracting and analyzing data, presenting findings and recommendations

Literature search strategy

The literature review addressed studies that examined the attitude and beliefs toward mental illness among university students. For the purposes of this review, the population was defined as university students. The search was restricted to studies published in English during the period of 2015 to 2018. Applying the Population, Interventions, Comparators, Outcomes, and Designs (PICOTS) format (CRD, 2009), the search employed the following key and related terms:

Population: University students.

Interventions: Any format of delivering the intervention to improve attitude and beliefs toward mental illness.

Outcomes of interest: Students' knowledge level toward mental illness, students' attitude.

Designs: Studies that conducted using any of the following designs were included:

- Randomized controlled studies: Random assignment of participants either to the intervention group or to the control group with follow-up (any format of RCT).
- Quasi-experimental studies.
- Quantitative studies.
- Qualitative studies.
- Mixed Method studies: Including two different methods of data collection (i.e., questionnaires or interviews, focus group).
- Systematic reviews and meta-analysis.

Data sources and screening procedure

A comprehensive literature search was conducted to determine the relevant studies using the following electronic databases: PubMed, MEDLINE, CINAHL and Google Scholar from 2015 to December 2018. Searches were limited to medical students and nursing students. The current study includes papers written either in English during the period of 2015 to 2018. The reason for selecting this period interval was to obtain up-to-date knowledge of this area of research to inform practice.

The general keywords used in the search were attitudes, beliefs, mental illness, nursing students, and medical students. The characteristics for inclusion and exclusion of studies in the inclusive literature review are abridged in Figure 1. The studies' titles and abstracts were first screened in contradiction of inclusion criteria to identify potentially relevant studies. In the case of ambiguity of content, the full texts of the articles were consulted to determine content relevancy for the existing study. All repeated studies from varied databases were excluded. Reference lists of all included studies were assembled and examined to identify additional relevant works.

Results

Data extraction

The preliminary screening of the abstracts yielded 1255 studies regarding the attitudes and beliefs toward mental illness among university students, of which 1183 studies were excluded after reviewing their titles or being duplicated from different databases. Abstracts were then reviewed, and other studies were also excluded because they did not meet the inclusion criteria, such as:

- Published outside the timeframe for inclusion (n= 12)
- Sample was not students or interns (n=24)
- Published in a language other than English (n = 16)

The full texts of 20 studies were reviewed comprehensively to identify gaps in the literature. In addition, 20 articles were ultimately included in the review, having met the inclusion criteria to learn more about the nature of these studies. The study selection process is outlined in Figure 1.

Date of retrieval and synthesis

The following information was culled from each of the studies included in this systematic review: year of publication, to ensure it came within the time frame of the review; sample size, to gauge its representativeness; type of study design, assessment instruments and results, to assess the characteristics in which the stigmatizing attitudes and their subsequent results were analyzed [Table 1].

Analysis and quality assessment

15 of the reviewed studies were a cross-sectional. These studies were appraised using the Joanna Briggs Institute (JBI) checklist. It has been measured that cross-sectional studies assessed >7 as high quality, 4-6 as moderate quality and <3 as poor quality. Of these cross-sectional, 13 studies were assessed as being of moderate quality. Also, 2 studies were evaluated as poor quality.^[15,19] JBI findings revealed most of the studies were evaluated as being at risk of bias. The sample sizes diverse from 29.^[20,21]

Applying the JBI checklist for the non-randomized studies discovered that two studies were rated as being of moderate quality.^[3,20,22-24] It has been assumed that non-RCT studies rated >8 as high quality, 5-7 as moderate quality and < 4 as poor quality. Most identified studies do not have blind assessors for participants' results: neither researchers nor contributors

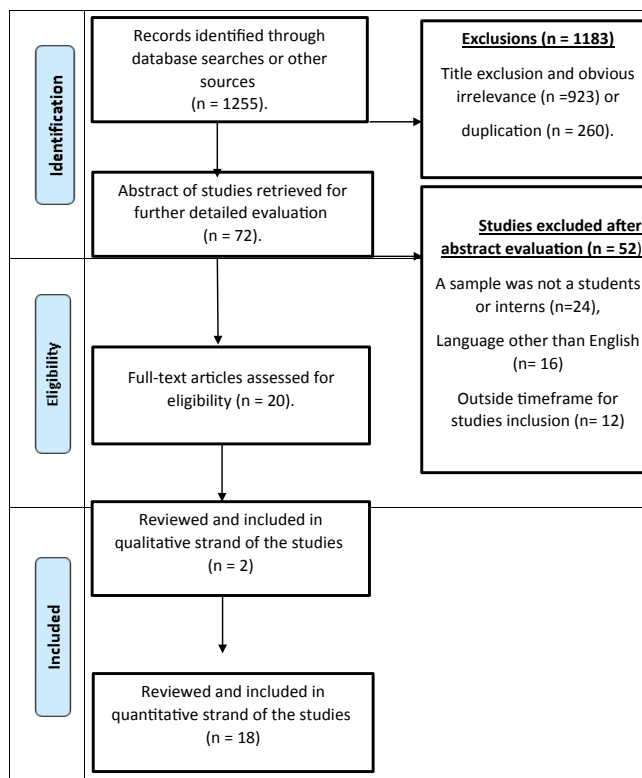


Figure 1: Flow diagram of the data retrieved at each stage of the review.

were blinded to the group assignment due to the study nature, which required an active interaction amongst investigators and participants. One study was evaluated as poor quality.^[10] The sample sizes varied from 45 to 115.^[3,6]

Two of the reviewed studies were qualitative. These researches were appraised using the JBI checklist. It has been measured that qualitative studies evaluated >9 as high quality, 5-8 as moderate quality and <4 as poor quality. The two studies were evaluated as being of moderate quality. Sample sizes varied from 14^[25] to 70.^[26] However, that the result of methodological qualities appears that the majority of previous studies are moderate or poor quality. The main reason behind this is that small sample size and employed unreliable instrument. The quality of studies based on JBI that directed university students' attitudes toward mental illness is presented.

Discussion

From the comprehensive literature review, a large and growing body of literature has investigated attitudes toward mental illness among university students. A literature search made three years ago showed that there were 20 studies published relevant to this area. Of these, 15 studies employed the cross-sectional study design, three studies utilized the single group pre-test post-test experimental design, and two studies employed qualitative related design.

Poreddi et al.^[1] compared the medical and nursing students' attitudes toward mental illness by using the Attitude Scale for Mental Illness (ASMI). The author suggested that nursing students had more positive attitudes towards mental illness (65.5%) compared with medical students (54.5%).

Furthermore, looking at the result of subscale analysis revealed that medical students expressed more favorable attitudes in the separatism domain (25.54) compared to nursing students in the same domain (27.54). Moreover, medical students had less stigmatizing attitude toward mental illness (mean 8.37 versus nursing students 9.27). However, nursing students were more benevolent towards mentally ill patients (mean 15.00 versus medical students 17.00). Concerning pessimistic predication, nursing students showed fewer negative attitudes (mean 11.83) compared to medical students (mean 13.49). The main strength of the study is that researchers used a scale with well-established psychometric properties (Cronbach's Alpha 0.86). Also, the sample size of the study was large, which means that the study was adequately powered.

Similarly, Prasad et al.^[16] evaluated medical intern students' attitudes towards mental illness and compared two groups. The first group (experimental) had completed their posting, which included 15 days of lectures about psychiatry (n=29) and the second group (control) had not completed their posting yet (n=15). The Attitudes to Psychiatry Scale (APS) was administered to assess the beliefs, attitudes and perception of the medical interns towards psychiatry. The results showed that participants in the intervention and control groups held accepted attitudes towards mental illness. However, the main outcome of the study was that there was no significant difference between groups except in relation of their awareness about significance or value of consolation as well as liaison services has enhancement after completed the posting. A major drawback of the study was the inadequate sample size (n = 44), which may have jeopardized the generalizability of the study findings by reducing the study

Table 1: Summary of the reviewed studies investigating attitudes towards mental illness among university students.

Author/ Setting	Purpose	Sample/Design	Interventions	Outcome measures	Results
Aruna et al. [15] India Medical students	To assess attitude and knowledge and perceptions towards mental disorder patients among medical students.	500 undergraduate medical students. Descriptive, cross-sectional	Not available.	Attitudes and knowledge were assessed by semi structured prevalidated questionnaire (ad hoc measure). Consists of 25 questions to assess knowledge and beliefs about mental disorders and attitude and opinions about psychiatry and professionals.	There was significant limitation in the participants' knowledge and attitude towards psychiatric disorders. Namely, the first-year students had least knowledge about mental illness. The results indicated that participants had positive opinions about psychiatrists and professionals.
Amini et al. Iran Medical students	Compared attitudes of undergraduate medical students between two different psychiatry clerkships to patients suffering from mental disorder.	211 4 th -year medical students. A quasi-experimental Non-Equivalent Groups	Low exposure (n=115) consists of session-based teaching of psychiatric theories and 4-week training in outpatient clinics and psychiatric ward. High-exposure (n=96) consists of integration of the clinical clerkship with education of the theoretical in 4 week course and raising the clinical encounter in outpatient clinics two times more than low exposure, students work two days of every week in inpatient services and three days in outpatient department and one day in emergency ward.	Measured the attitude towards mental illness consists of 22 questions (AMI).	No difference between the two groups was reported and they did not show any significant changes before and after psychiatric clerkship, except the concepts of aetiology of the mental illness had improved after the low exposure (P=0.011) and high-exposure (P=0.024) in both groups.
Tambag[10] Turkey Nursing students	Exploring the impact of psychiatric nursing course on undergraduate students' attitudes and beliefs toward people with mental illness.	(n=56) 4 th year nursing students Single group pre-test post-test design	Intervention group (n=56) received psychiatric nursing course during full semester, 12-weeks of lectures and 12 hours per week of clinical practice.	Beliefs toward mental illness scale (BMIS), 21 items evaluating shame and dangerousness, poor social and interpersonal skills.	There was significant increase in students' awareness and positively influenced their beliefs towards psychiatric disorder and patients (P<0.05).
Poreddi[1] India Nursing and medical students	Exploring the difference between nursing and medical students' attitudes towards people with mental illness.	(n=154) medical students (n=168) nursing students Comparative, cross-sectional	Not available	Attitude scale for mental illness (ASMI). It includes 34 items evaluating separatism, stereotyping, restrictiveness, benevolence and pessimistic prediction and stigmatization.	Medical students (54.5%) and nursing students (64.8%) had positive attitudes toward psychiatric disorders. However, medical students had more positive attitudes against separatism and stigmatization than nursing students. nursing students had better positive attitudes in benevolence and against pessimism.
Gamez et al. Spain Nursing students	Examined undergraduate nursing students attitudes and beliefs toward psychiatric disorders before and after clinical practice.	(n=194) nursing students (G1) 124 of students knew or had known persons with mental illness. (G3) 70 of students had no relationship or knew people with mental illness. Descriptive, cross-sectional	Not available	Questionnaire of beliefs regarding MH: consisted of 10 open questions that evaluated beliefs on the causes and consequences of mental disorder. Attitudes in the scope of MH: the tool was used the attribution questionnaire of MH AQ-27.	Significant variations were not found (P=.12) between the two groups regarding the concept of mental disorder. Moreover, participants who had suffered mental illness showed lower values on some items than those who had not, for instance, fear (P<.05), dangerousness (P=.05), and coercion (P=.05). Additionally, no significant variations were found in both groups regarding AQ-27 questionnaire factors scores.

<p>Prasad et al. [16] India Medical interns</p>	<p>Evaluates the attitude of the medical interns psychiatry and professionals and people with mental disorder.</p>	<p>(n= 29) medical interns had already completed their posting in psychiatry which consisted of 15 days. (n= 15) medical interns had not finish their posting and still waiting their turn.</p>	<p>Not available</p>	<p>Attitudes and beliefs of the interns to psychiatry, mental health, psychiatric disorder and (Bulbena et al. questionnaire). including questions on efficacy of psychiatry and role definition and functioning of psychiatrists and it had questions about the interns' psychiatry posting.</p>	<p>They found modestly good attitude toward mental illness between both groups. Moreover, no significant variation between the two groups regarding to the scale (Bulbena et al. questionnaire), except the participants who had completed their posting, for their awareness of consultation liaison services and thought that psychiatrists as a professional have the authority and influence in mental health field more than others.</p>
<p>Popescu et al. [6] Romania Medical students</p>	<p>Investigated the attitudes of first year medical students toward mentally ill people.</p>	<p>(n= 133) medical students from the Romanian section. (n= 189) medical students from the English section.</p>	<p>Not available</p>	<p>Measured psychiatric disorder and beliefs about the reasons of mental illnesses and the appropriateness of treatment choices that the vignette individual could choose by three vignettes were inspired by the ones described by Link and by Kupin, Carpiano.</p>	<p>Medical students from the Romanian section and English had comparatively negative attitude towards people with mental disorder. Moreover, more positive attitude toward mental illness was associated with prior experience with mental problems. Furthermore, the participants in both groups had stigmatizing attitudes towards people who suffering from mental illness.</p>
<p>Haileslassie et al. [17] Ethiopia Medical students</p>	<p>Described the attitude towards psychiatry of medical students.</p>	<p>(n= 122) 4th year medical students</p>	<p>Not available</p>	<p>Measured Attitude towards psychiatry by questionnaire (ATP-30).</p>	<p>Medical students who did not take psychiatry clinical rotation had extra positive attitude toward psychiatry than those who finished psychiatry clinical rotation and the study suggested that the psychiatry clinical rotation had affected participants' attitude. Moreover, female medical undergraduates had more positive attitude than males toward psychiatric disorder.</p>

Al-Darmaki et al. [26] UAE College students	Explored the mental health beliefs among female Emirati college students. (n= 70) female students' college Descriptive qualitative study.	Not available	Beliefs about mental illness and causation and attitudes and suitable treatment seeking (Perceptions of mental illness survey) including 12-item open-end questionnaire established in Arabic).	Misconceptions and limited the knowledge of the role of psychologists and treatment or mental illness and lack of awareness of psychological health difficulties between the participants.
Connaughton and Gibson [28] Australia Physiotherapy students	Assessed the attitude toward psychiatry and mental disorder of Notre Dame Austrailia physiotherapy undergraduate students. Descriptive, cross-sectional	Not available	Questionnaire (ATP-30) was employed to measure attitude towards mental illness.	Findings had demonstrated that undergraduate students had commonly a positive attitude about mental health problems and patients with mental illness, females had significantly more positive attitudes toward mental illness than male participants.
Bharathy et al. [29] Malaysia Medical students	Examined the impact of social interaction sessions on attitudes of undergraduate medical students. (n = 14) medical students. Qualitative design with focus group and in-depth interview	Chat and connect (C&C) programme. Content: warm-up exercise, collaborative games and karaoke singing and dancing with the patients, two hours weekly during eight weeks and participants joined without their white coat but as volunteers.	Measured the demographic and basic information about the participants questionnaire. A topic guide with a list of pre-determined questions and provided in advance to participants about attitude to mental illness.	Found that medical students had enhanced and improved attitude after participated in activity programme with people suffering from mental disorder.
Chandramouleeswaran et al. [11] India Postgraduate trainees physicians	Studied stigma and attitudes towards psychiatric patients amongst postgraduate Indian physicians who did not work in psychiatric hospital. (n= 57) Postgraduate trainee physicians. Descriptive, cross-sectional	Not available	Perceived Stigma was measured by the questionnaire (PSQ). Attitude towards mental illness questionnaire (AMIQ), including 5-items self-reported survey. Attitude scale was used to assess the attitudes towards mental illness (ASMI). It has 34 items assessing separatism, stereotyping, restrictiveness, benevolence and pessimistic prediction and stigmatization.	There was significant positive attitude toward people with mental disorder among the participants. In addition, it was a negative attitude towards patients with schizophrenia.
Sreeraj et al. [7] India Nursing students	Assessed and compared attitudes toward mental illness and patients with mental illness among nursing students. (n= 100) nursing students. Descriptive, cross-sectional	Not available	Attitude towards mental illness questionnaire (AMIQ), including 7 different short case vignettes, describing person with depression with suicidal attempt, alcohol dependence, heroin abuse, schizophrenia. And translated to Indian culture by researchers.	High negative attitude towards people with mental disorders among nursing students because the study reported higher benevolence (3.7+0.6), stereotype (3.1=0.8), and pessimistic prediction (3.4=0.9) and person with criminal background (3.4=307). Also, there was negative attitudes toward with schizophrenia associated with pessimistic prediction (P=<0.05).
Economou et al. [29] Greek Undergraduate psychology students	Explored and evaluated attitudes toward depression and recognized major symptoms. (n= 167) Undergraduate psychology students Descriptive, cross-sectional	Not available	Depression Stigma scale-personal (DSS-Personal) including 9-items rated on a five-point Likert Scale.	Findings indicated that participants (98.2%) could identify that the sample has a mental illness, (6.6%) students failed to classify the sample as suffering from eating disorder or anxiety. Their knowledge and attitudes toward mental disorder was rather crude.

Poreddi et al. [1] Indian Medical students	Evaluate and compare medical students' attitudes towards people suffering from mental illness.	(n= 176) Medical students	Not available	Attitude scale for mental illness (ASMI) has 34 items assessing separatism, stereotyping, restrictiveness, benevolence and pessimistic prediction and stigmatization.	Findings showed an enhancement in students' attitude who had psychiatric course or clinical placement to mental illness in benevolent (P<0.013) and stigmatization (P=<0.009) domains. The result suggested that psychiatric education evidenced to be effective in modifying the attitudes towards mental illness.
Thongpriwan et al. [31] USA Nursing students	Examined nursing students' attitudes towards psychiatric nursing and the impact of the attitude in their professional career choices.	(n=229) nursing students	Not available	Measured attitudes about mental health nursing used Psychiatric/Mental Health Clinical Placement Survey for First Day Placement Scale(Hayman-white and Happel,2005).	There was no significant variation between students' knowledge and attitudes toward mental illness, students who interested in externship had more information and good attitude toward mental illness (P=0.0368). Participants who had no experience with mental illness had reported higher negative stereotype of mental illness more than who had experienced, P-values of 0.0147 and 0.0018.
Yildirim et al. [27] Turkey Physiotherapy students	Assess the beliefs of Turkish physiotherapy students towards mental illness.	(n=524) Physiotherapy students	Not available	Measured the beliefs towards mental illness with The Beliefs towards Mental Illness Scale (BMI) developed by Hirai and Clum (2000). Including 21 items and consisting of three subscales, dangerousness, shame and poor social and interpersonal skills.	There was a significant positive attitude towards mental disorders among physiotherapy undergraduates. Additionally, it showed more positive attitudes towards mental illness among those who had consulted a psychiatrist for any mental problem or who had relationship with a person diagnosed with a mental problem.
Hemanthkumar et al. [19] Indian interns in a tertiary care teaching hospital	Compare the attitude of medical interns toward mental illness, Diabetes Mellitus and AIDS.	(n=130) interns in a tertiary care teaching hospital.	Not available	Assess the attitude of interns towards psychiatry and Diabetes Mellitus and AIDS (MCRS). Is specific scale to evaluate expectations of various medical conditions and emotions, biases.	Medical intern students' attitudes towards psychiatric disorders was more favourable than that towards AIDS. Also, their attitude towards psychiatric illness was comparable to those diagnosed with DM.
Patra and Patro [5] Indian medical Teaching specialists	Evaluate the attitudes of medical teaching specialists toward psychiatry.	(n= 88) medical Teaching specialists.	Not available	Questionnaire (ATP-30) was employed to measure Attitude towards mental illness.	The findings of the study indicated that most of the participants had negative attitudes toward psychiatry, standard deviation was 6.64. and the mean score of ATP scale was 88.60. Moreover, positive attitudes have showed (ATP score>90) between female having a relative with mental problem.
Bingham and Obrien [24] New Zealand Undergraduate nursing students	Examined if the educational intervention effectiveness on stigma beliefs towards people suffering from	(n=45) first year nursing students. Single group pre-test post-test design	Intervention group: the educational intervention lasted 3 weeks. 4 hours per week. Participants attending theoretical lectures coordinated by specialist mental health and provided supervised face to face interactions with patients with mental problems.	Attribution questionnaire (AQ-27) encompasses a brief vignette about an individual with schizophrenia, followed by 27 items classified on a nine-point Likert survey.	There was significant positive alteration in final scores in dangerousness where was preintervention mean (11.2) and postintervention (8.24), avoidance where was preintervention mean (11.87) and post intervention (8.75), fear preintervention mean was (10.51) and postintervention (7.43). Moreover, significant positive alteration in segregation where was pre-test mean (9.73) and post-test (8.97) with p-values (0.44), help pre-test mean was (4.87) and post-test mean (4.48) with p-values (0.71). Non-significant negative differences in blame where was pre-test mean (8.95) and post-test (9.44) with p-values (0.59), and coercion where was pre-test mean (14.7) and post-test mean (15.36) with (p=0.61).

power.

In India, Hemanthkumar et al. [19] demonstrated that medical intern students' attitudes were significantly more accepting of mental illness than AIDS/HIV at ($p = 0.001$), as reflected in Medical Condition Regard Scale (MCRS) scores. Moreover, students' attitudes towards mental illness were similar to those diagnosed with Diabetes Mellitus. This was evident from the similarity in the obtained scores on MCRS for both types of diseases ($p=0.591$). However, further studies focusing on the effect of medical training on stigma and attitudes toward psychiatric illness, diabetes mellitus and HIV/AIDS need to be conducted.

A descriptive, cross-sectional study by Yildirim et al. [27] demonstrated that the total scores on the Beliefs Towards Mental illness scale (BMI) were 46.5 ± 14.5 . It suggested that the study participants showed positive attitudes towards mental illness. Similarly, in the same year, the study of Connaughton and Gibson [28] measured physiotherapy students' attitudes towards mental illness using the Attitudes towards Psychiatry scale (ATP-30). The authors concluded that the participants illustrated positive attitudes towards mental illness. This scale has good psychometric properties. For instance, Cronbach's Alpha of 0.84. However, the main drawback in Connaughton and Gibson's study is that participants were recruited from one setting in Australia, so the sample cannot be representative of all university students. It is recommended that further studies should include more colleges and more programmes to draw clear evidence about Australian students' attitudes towards mental illness. Another limit found is that cross-sectional design delimits the ability to determine causality relationship between the variables.

Hailesilassie et al. [17] assessed medical students' attitudes towards mental illness. Their findings indicated that the students' attitudes were linked with the status of attending psychiatry rotation. Specifically, students' scores, as measured by ATP-30, deteriorated after being enrolled in psychiatry rotation (mean 49.75 vs 55.52 ; $p < 0.05$). The clinical rotation included psychiatry courses for six weeks and involved taking patient histories with their supervisors (psychiatrists). Furthermore, the study indicated that psychiatry clinical rotation affected negatively the participants' attitude, the results showing a decrease in the mean score on the ATP-30 scale after psychiatric rotation. The reason for this result may reflect the disparity between the medical students' expectations of the psychiatry clinical rotation and actual practice. Further study is needed to assess medical students' experiences during psychiatry clinical rotation. A limitation of Hailesilassie et al. [17] was that the sample was chosen from one college and only fourth year medical students ($n=122$). Another reason which might affect the results from the author's perspective is that the ratio of students to psychiatrists might have led students to have insufficient supervision time for their exposure to patients with mental illness.

Conversely, Bharathy et al. [25] found that medical students' attitude was improved after engagement in a social interaction

programme which involved chatting and contact with mental ill patients. The program involved a set of collaborative games, warm up exercises, karaoke singing and dancing for two hours daily for eight weeks with people with mental illness. Also, students attended without their white coats and introduced as volunteers to the patients, facilitated by a clinical psychologist. Perhaps the most serious limitation of this study was the small sample size which might have led to under-power ($n=14$). Another limitation of the Bharathy et al. [25] study is that the research was conducted immediately after the psychiatry posting, so the long-term influence on the attitudes of the participants remains in question.

Similarly, in a recent study conducted in Turkey by Tambag [10] who investigated the impact of a 12-week psychiatric nursing course, including 6 hours per week of lectures and 12 hours per week of psychiatry clinical practice, on nursing students' beliefs and attitudes towards mental illness. The Beliefs towards Mental Illness Scale (BMIS) was used to evaluate social interpersonal skills, shame and dangerousness. The authors concluded that there was significant improvement in the students' beliefs, and it was positively influenced by student's awareness towards people with mental illness ($p < 0.05$). Moreover, a significant association was found between positive attitudes and age. From the author's perspective, increasing awareness acquired through aging positively influences attitudes.

Another study supported the conclusion of Bharathy et al. [25] and Tambag [10] compared medical students' attitudes towards mental illness. The comparison was between those who had not been exposed to psychiatry theory and training ($n=115$) and those who had experienced psychiatry theory and clinical rotation ($n=61$). ASMI was employed to assess the attitudes towards mental illness among medical students. The author concluded that there was an improvement in students' attitude concerning the benevolence ($p < 0.013$) and stigmatization ($p \leq 0.009$) domains after attending psychiatry theory and clinical rotation group compared with comparator group. Also, the pessimistic predication, stereotyping, restrictiveness and separatism domains were not significantly different between both groups at post-test compared with baseline data. However, a convenience sample from one university made it difficult to generalize the findings of the study. Another weakness was that the research does not take into account the fact that the time of measuring the intervention effectiveness was short, this likely to show significant improvement in the study findings after receiving intervention.

Beliefs toward mental illness

Recently, researchers have shown an increased interest in assessing university students' beliefs towards mental illness and mentally ill patients. Of these, 6 studies evaluated knowledge about mental illness or beliefs or perception by using several outcomes measures, for instance, the Beliefs toward Mental Illness Scale (BMIS) and the Beliefs toward Mental Illness Scale (BMI).

Aruna et al. [15] assessed medical students' perception, knowledge

and attitude towards psychiatric disorder. Participants were recruited from three colleges in Karnataka. The result appeared that the participants had limited knowledge and attitudes towards psychiatric disorder. Furthermore, only (25%, n=101) of the students were inclined to accept psychiatry as a profession in future, whereas (50.9%, n=206) were reluctant to be involved in the psychiatric profession, while (24%, n=97) were hesitant to provide answers.

Similarly, Popescu et al.^[6] found that half of Romanian medical students did not consider depression to be a mental illness and only 4 out of 5 students recognize and consider schizophrenia a mental illness. The study showed lack of knowledge about mental illness among Romanian medical students. This result has an impact on the diagnosis, treatment and the outcomes of the patients. The major drawback of the Aruna, et al.^[15] study is that the author assessed and evaluated perception, knowledge and attitudes by ad hoc measures that lacked psychometric properties. As a result, it is difficult to generalize the study's findings.

A descriptive, cross sectional study by Economou et al.^[29] reported that Greek psychology students' knowledge about major depression was considered poor. Furthermore, 98% of the participants recognized that the person has a mental illness. The Depression Stigma Scale-Personal (DDS-Personal) was employed to assess students' knowledge and attitudes towards major depression (Cronbach alpha=0.72). However, the research does not take into account the fact that students belonged to different years of study which is expected to show variation in their responses.

In a similar vein, Al-Darmaki et al.^[26] explored beliefs and perception toward mental health problems amongst female college students (n=70) from a national university in the UAE. The author reported that the participants lacked knowledge about mental health problems. Moreover, most participants indicated misconceptions about treatment or mental health services. Likewise, Granados-Gómez et al.^[30] indicated that nursing students who had no experience with mental illness or knew a mentally ill person had shortcomings in knowledge about mental illness. The main weakness of the Al-Darmaki et al.^[26] study is that the sample size was comparatively small, and the majority of the study participants were females. Moreover, another weakness is that participants were employed in a qualitative method (open-end questionnaire). This probably did not provide participants with the opportunity to further clarify their responses. So, further study conducting in-depth interviews is needed.

Thongpriwan et al.^[31] found that nursing students of different experience, nursing program, nursing level, age and gender did not express different knowledge and attitudes towards mental illness. Moreover, there were greater negative stereotypes of mental illness from nursing students who reported no experience with mental illness, with p-values of 0.0147 and 0.0018. There are relatively few studies in the area of stigma towards mental illness among medical students and nursing students. Stigma towards mental illness is the major source of anxiety among

nursing students.^[32] According to Högberg et al.^[2] not only general population attaches stigma and prejudiced attitudes to people diagnosed with mental illness, but also health care providers tend to have similar attitudes.

Stigma towards mental illness

Another outcome infrequently measured in previous research is stigma towards mental illness. Out of 20 reviewed studies, only 3 studies addressed stigma towards mental illness. Bingham and O'Brien^[24] examined the effectiveness of short educational intervention, 4 hours weekly over 3 weeks, on nursing student stigma and beliefs about people diagnosed with mental illness. Single group pre-test post-test design was employed in the study. Educational intervention included attending theoretical lectures delivered by mental health specialists face to face and supervised interaction with patients diagnosed with mental illness. The author concluded that there was significant improvement in the average score of stigma scale, namely pity (mean 19.90 versus post intervention 17.19, p=0.01), avoidance (mean 11.78 versus post intervention 8.75, p=0.00), dangerousness (mean 11.02 vs post intervention 8.24, p=0.01), fear (mean 10.51 versus post intervention 7.43, p=0.00) and anger (mean 6.25 compared to post intervention 5.19, p=0.06) at post-test compared with baseline scores. However, at post-test, there was no significant change in the mean level in the coercion and blame subscale of stigma compared with baseline data. From my perspective, this study has several shortcomings. Firstly, the sample size was very small. This indicates that the study was under-powered so the probability of producing type II error increased. Secondly, another important drawback in the study is social desirability bias. Finally, the time of measuring the intervention effectiveness was short, which exaggerates the significance of the improvement in the study outcomes after receiving the intervention. Taken together, it suggests a need for a further study with large sample size and longer follow up time to draw conclusive conclusions about the stigma perception.

An interesting Indian postgraduate study by Chandramouleeswaran et al.^[11] assessed physicians' stigma and attitudes towards psychiatric patients and reported that most of the participants (70%) felt patients with mental illness were equally employable and accepted as friends. Moreover, observable stigmatization toward people suffering from schizophrenia with mean scores of AMIQ (-2.14) were found. Similarly, social distance towards schizophrenia patients is higher among Romanian medical students Popescu et al.^[6] The main drawback of the Chandramouleeswaran et al.^[11] study is that the sample size was relatively small (n=70), which may have jeopardised the generalizability of the study findings by reducing the study power. Moreover, the reader should bear in mind that the study is based on cross-sectional design which may limit the ability to address causal connections from the study data.

Limitations

The main limitation of this review was conditioned by the very context of a systematic review, in which the search result ends

up limiting and excluding papers that could provide relevant information and characteristics, but since they do not meet all the inclusion criteria, their contents are not analyzed in depth. The results obtained show that the wide heterogeneity in the instruments contrasted generated different variables that are not homogeneous among them, leaving the results open to different interpretations. Thus, it was not possible to perform meta-analysis of the systematic review itself. Only leading bibliographic search engines in the field of health were used, although others, which might have yielded some new research, were omitted for reasons of the exclusion criteria. To ensure high impact publication levels, the papers included in the present review were in English.

Conclusion

According to the data collected, clinical placements, especially in field of mental health, are essential for promoting positive changes in student nurses' attitudes and stigma attitudes toward mental health. These results suggest that, from an academic point of view, there is a need for rigorous control-centered studies could enable the analysis of negative attitudes toward people suffering from a mental health problem. Such studies should use the same assessment instruments and similar population samples, evaluating curricula that follow lines of comparable content, both in the theory and in the learning timeframe, as well as in the characteristics of the clinical placement, including the location and time spent there. This would facilitate the generation of contrastable and valid results that could determine whether change is long lasting. Furthermore, it would also be interesting to consider a reorientation in curricula in which, beyond the specific subject of mental health, a global and holistic value could be afforded to this type of illness. Finally, given that all students taking health-related studies start with the same university education grounding, such as medicine, psychology, physiotherapy, among others, the indicators analyzed in this systematic review could be applied to studies in other health fields.

Implications for Nursing Practice

The scant research into mental health, both in the field of health care and in the academic sphere, would be relevant to introduce the knowledge intended for mental health care delivery during university nursing education in an integrated and transversal manner, and thus orientate measures of prevention, care, and follow-up.

Competing Interests

The authors declare that they have no competing interests.

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