Systematic Review

Mental Health Training Programs for Community Pharmacists in Low Middle-income Countries: A Systematic Review

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Abstract:

Objective*:** This review aimed to explore the potential approachto continuing education and training the community pharmacists to equip them to support mental health consumers in low-middle-income countries. ***Materials and Methods*:** A systematic search strategy was conducted using Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). Search terms related to mental health, training program, and community pharmacist were used in three major databases (i.e.,PubMed, Science Direct, and Scopus), retrieving a total of 5575 articles. Ten studies met the inclusion criteria. ***Results and Discussion*:** There was evidence that short-duration delivery and non-direct contact training with patient diagnosed with mental illness (consumer educator or peer-level-educator) have the same effect as long training delivery and direct contact intervention. Consumer educator or peer-level-educator in mental health training programs are key factors to improved mental health knowledge, attitudes, and pharmaceutical care service of community pharmacists. ***Conclusion: Flexible nondirected delivery methods using video footage of expert and mental health patients were preferred for a low-cost program accessible to a large community pharmacy workforce which can be applicable in developing countries. However, there is an urgent need for further studies to clarify actual changes in the attitude of and daily service by pharmacists after participating in a mental health training program.

Keywords: community pharmacist; low-income countries; mental health; middle-income countries; training program

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Introduction:

The global burden of mental disorders has grown considerably in the past 20 years and continues to increase significantly due to the pandemic covid 19[1-3]. To address these concerns, the United Nation policy recommended a shift away from tertiary institutionalized mental health care and toward the integration of mental health services into primary care with community support[4,5]. Furthermore, the United Nations advocated for adequate training of primary care workers in diagnosing and treating mental illness. Community pharmacists are one of the health workers who work in primary care and are easily accessible by patients.

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Unfortunately, many studies have consistently found that pharmacists are less interactive and less comfortable providing pharmaceutical care services and medication instructions to mentally ill patients than to patients with the majority of other classically "somatic" illnesses[6-11]. Furthermore, medications are a major treatment modality for mental illnesses, and professional pharmacist services, such as counseling and medication reviews, can improve medication adherence and resolve psychotropic medication-related problems[12-14].As consequence, pharmacists are an important target for the intervention to reduce mental health stigma.

Meanwhile, mental health training intervention for pharmacy students and community pharmacists have been established and implemented in high income countries. These program included Mental health First Aid (MHFA) training in Germany, United States, Unites Kingdom, Finlandia, Australia, New Zealand, Japan, Austria, Switzerland, andCanada[15-17]. However, there is a significant gap when it comes to the international applicability of these models and practices due to the lack of representation from low- to middle-income countries in mental health literacy studies.[18] There is an urgent need to find a strategy that may be critical in increasing capacity for mental health delivery across countries, particularly those with small or nonexistent mental health budgets. Therefore, the purpose of this systematic review was to explore the characteristics of mental health training programs to improve knowledge, pharmaceutical care service and attitude toward patients with mental illness for community pharmacists that may be applicable in low- and middle-income countries settings.

Methods:

This systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. (19) To identify articles on mental health training for community pharmacists worldwide, we searched for terms related to mental health OR mental illness, AND training OR educational program AND community pharmacist in the following electronic databases in September 2021: PubMed, Scopus, and Science Direct. No limits on the publication year or type of publication were included in the search. Limits on language were also not included. Although the search was conducted exclusively using English search terms, only articles with at least title and abstract in English were included. All articles retrieved were screened, and duplicates were removed. The eligibility of the article was reviewed by reviewer NF, SAK, WAW and YSP. Hand-searching of all papers included in the review was also searched to identify additional articles. Nonpeer-reviewed material, as well as systematic or scoping reviews, was excluded but was reviewed for potential sources. The search strategy was designed after careful examination of key studies in the literature and by following the Participants, Interventions, Comparators, and Outcomes (PICO) process for evidence-based practice.[20]

Eligibility (PICO)

The eligible populations included community pharmacists and pharmacy students. Studies that used nonpharmacy university students and health workers were not included, given these have recently been recently reviewed by Reis et al. in 2021(18)and Liu et al. in 2016[21]. We excluded studies consisting of established, high-cost intervention programs (Mental Health First Aid, The Bloom Program) in this review. The intervention had to be a mental health-related educational program and focused primarily on preparing community pharmacists and pharmacy students to identify, prevent or manage mental disorders and reduce the stigma about these disorders. We included studies providing training for one specific mental illness (e.g. schizophrenia, depression alone). However, we exclude those covering substance abuse (e.g., alcoholism) or mental illnesses secondary to other medical conditions (e.g., HIV/AIDS). Short-length or format-based programs were included. Studies were included only if they described both the training program and its outcomes. We excluded studies if they did not describe all these elements: duration of the training program, trained population, method of instruction, and program content. Studies were excluded if they did not specify an evaluation method, assess the educational program. In line with WHO guidance,[4] we were interested in the efficacy of programs that could be easily administered without extensive training. The eligible outcome was Mental Health Training Program (MHTP) measured through any of its components, including knowledge, attitudes, stigma, and the pharmaceutical care service

Assessment of Evidence Quality

The Newcastle-Ottawa Scale[22], Grading of Recommendations Assessment, Development, and Evaluation[23], and Methodological Index for Non-Randomized Studies(24) based on the methodology framework developed by Liu et al. in 2016[21] was

used to assess the quality of the included articles. It investigates the methods of selection (five criteria) and evaluation (five criteria) in each study. Each of the criteria that a study meets is worth one point (Table 1). This evaluation was carried out by the authors NF and SAK.

Data Extraction

The references found through the search strategy were entered into Mendeley. Duplication, titles and abstracts were independently screened according to the eligibility criteria. Full-text articles containing studies that met the inclusion criteria were obtained and independently double-screened by reviewers SAK and AWW using the same criteria. Entries that matched the criteria of the two reviewers were included. Unmatched entries were only included after they were resolved through discussion.

Ethical of Study

As this was an evidence synthesis of existing research, ethical approval was not required; however, we fully complied with the Declaration of Helsinki on medical research.

Results:

A total of 5575 articles were retrieved from the three databases. After the removal of 1021 duplicates, the title and abstract of 4454 articles were reviewed for eligibility. Ninety-one peer-reviewed studies were selected for full text review. Eighty-one articles were excluded after full text review for not meeting the eligibility criteria (Fig. 1). Ten articles were included for a complete review and their analysis is presented in the following sections: (1) 'Types and content of MHTP offered', answering research question 1; and (2) 'Common Practices, Processes, and Duration', answering research question 2. Research question 3 is addressed in the section 'Effectiveness of interventions.

Quality of Assessment

Of the 10 studies included in this Review, 8 studies used a pre-and-post intervention design[9,12,25-30] with the rest using an after-intervention design. Four of the studies [12,27-29] using a pre-and-post intervention design with a control sample; Three of these used a randomized controlled trial design[12,28,29]. 90% of the studies assessed outcomes immediately after intervention ended. Only one study from 10 interventions did a follow-up evaluation 1 month or more after the intervention[12]. Majority of the studies measured more than one outcome, with the most common outcomes studied being changes in attitude. All studies reported statistical analyses of results. Outcomes reported in the all studies were positive. NF was assessing the studies based on each of the ten methodology criteria, and then was checked by reviewer SAK. As shown in Table 1, the median score of the studies on the ten-point, methodological evaluation scale was six.

Study Characteristics

The characteristics of the included studies and the respective training programs are detailed in Table 2.

Study Design

Of the 10 included studies in this review, one random control trial (RCT) study[28] and two clustered RCT studies[12,29]are included, one 2 groups nonrandomized clustered comparative design[30], one quasi-experimental pre-post design[31], three pre-post intervention design [9,26,32] and one post-education intervention design[13] were identified.

Characteristic of the participant

This systematic review identified that training interventions were implemented in 4 countries: one in Japan, two in Belgium, three in Australia, and four in the United States of America. Sample sizes ranged from 40 to 566 participants, with total data from 1,719 participants. Four studies were conducted with community pharmacists, five studies with pharmacy students, and one study focused on pharmacy staff, involved community pharmacists, and pharmacy technicians. All studies include consumer education or peer-level educator in their studies. Consumer educator is individuals with lived experience of mental health and was occasionally involved in the facilitation of all training sessions, and peer-level presenters are patients with mental illness or family members of these patients.

The main focus of the study

This study found four studies on mental illness, two studies on schizophrenia, two in depression, and two studies on schizophrenia and depression. To assess the effect of the intervention, all studies included at least one follow-up assessment, ranging from immediately to 12 months after baseline data collection. Of these, only one study had follow-ups beyond the 6 months period with mystery shoppers. The most common topic-specific program was anti-stigma programs (n=8) followed by a willingness to provide pharmaceutical care (n=5) and communication focused specifically on increasing intentions to offer a willingness to counsel.

Outcomes Measures

Most of the studies utilized self-report measures to assess the effect of the mental health training intervention. However, there is one study that used mystery shoppers to evaluate the improvement in participants' counseling toward psychiatric patients in real practice. The variety of self-report surveys were used in this study shown in Table 3.

Table 3. Outcome measures characteristic

No	Outcome Measures	Study
Self-Report Knowledge		
1.	Mental Health Knowledge (MHK)	Study by Bamgbade et al. in 2016 [26]
Self-report Attitude		
1.	Social Distance Scale (SDS)	Studies by Bamgbade et al. in 2016 and 2017[26,32],Liekens et al. in 2013[29], Nguyen et al. in 2012[30], Rickles and Dacosta in 2016[13], Bell et al. in 2006[27] and Buhler and Karimi in 2008[9]
2.	Stigma Scale towards Schizophrenia for Community Pharmacists (SSCP)	A study by Fujii et al. in 2021[28]
3.	Depression Attitude Questionnaire (DAQ)	A study by Wheeler et al. in 2018[31]
4.	Attribution Questionnaire	Studies by Nguyen et al. in 2012[30]and Bell et al. in 2006[27]
5.	Pharmacists empathy toward individuals with mental illnesses	A study by Rickles and Dacosta in 2016[13].
Self-Report Pharmaceutical Care Service		
1.	Willingness To Counsel People With Mental Illness	Study by Bamgbade et al.in 2017[32] .
2.	Depression Care Practice and Attitude Scale	Study by Liekens et al. in 2013[29].
3.	Mental Illness Attitude Scale(MIA)	A study by Wheeler et al. in 2018[31].
4.	Provision of pharmaceutical services to consumers with a mental illness	Studies by Nguyen et al. in 2012[30], Rickles and Dacosta in 2016[13], Bell et al. in 2006[27] and Buhler and Karimi in 2008[9].
Observational Pharmaceutical Care Service		
1.	RIAS (Roter Interaction Analysis System)	Study by Liekens et al. in 2014[12].

Study Types, Content, Duration, and Effectiveness of MHTP offered in Community Pharmacists and Pharmacy Students

Characteristic of Study Types Intervention

Study types in this review consisted of direct (n=5) and non-direct contact with consumer education (n=4) or compared the both (n=1). The variety of study types in MHTP is shown in Table 4.

Table 4. Study Interventions Characteristics

No.	Types Intervention	Studies
1.	Educational lecture group (ELG) + Direct contact with Consumer Education/peer level patient presenters	Studies by Liekens et al. in 2013[29] and 2014[12] and Buhler and Karimi in 2008(9).
2.	ELG + Indirect Contact with Consumer Education	Studies by Bamgbade in 2016[26] and 2017[32], Wheeler et al. in 2018[31] and Rickles and Dacosta in 2016[13].
3.	Direct contact VS Indirect Contact with Consumer Education	A study by Nguyen et al. in 2012[30].
4.	ELG VS ELG and contact with Consumer Education	studies from Fujii et al. in 2021(28) and Bell et al. in 2006[27].

Characteristic of the Contents Intervention

All the contents of the study were general, including a combination of general knowledge about mental health knowledge and experience story of mental health patient (consumer educator or peer-level educator). In this review, our finding has three main content characteristic intervention. First, Educational Lecture Group (ELG).The contents of ELG in this study consist of psychiatric disorders, epidemiology, various symptoms of each patient, effects of the disease on social activities diagnostic criteria, treatment methods based on the latest evidence, treatment effects, main side effects, and prognosis of prevalence of mental illness prevalence and drug adherence. Some studies' content includes psychotherapy and non-drug treatment options for mental disorders and basic skills in communication [12,29].

Second, Direct Contact with Consumer Education or Peer-Level Presenters. Direct contact contents in this study this review involved face-to-face interaction between community pharmacists or future pharmacists with mental health patients[9,12,27-30]. Mental health patient who is consumer and career educators shared their lived experiences of their journeys of recovery from mental illness. One study by Buhler and Karimi in 2008[9] used peer-level presenters in their study whose 'peer-level' status was achieved using presenters with graduate-level education or work history as a healthcare professional.

Lastly, Indirect Contact with Consumer Education. Nondirected contact with consumer education in this review in this study is include mental health patients in videos or on-line web media. One program In

Our Own Voice (IOOV) delivered by Rickles & DaCosta in 2016,[13] consisted of trained consumer educators telling their stories about living with a mental illness following five segments: (1) dark days; (2) acceptance; (3) treatment; (4) coping skills; and (5) successes, hopes and dreams. The web-based intervention in Wheeler et al. (2018)[31] involved educators from a variety of backgrounds: (1) health professionals including psychiatrists, psychologists, and pharmacists; and (2) consumers and careers who had lived experiences of mental illness (particularly depression and anxiety). Consumer and career educators shared their lived experiences of their journeys of recovery from mental illness. The other used presentations, videos, discussion, and active-learning exercises.[25,30] The presentations focused on the prevalence of mental illness prevalence, signs and symptoms of depression and schizophrenia, and study findings from the pharmacy and mental health literature.

Duration of Interventions

The duration of MHTP interventions (the amount of time spent on intervention activities) ranged from 1 hour to 30 hours. Two studies did not explicitly (N/E) state duration of intervention. One study only mention intensive one day training[12] and another particularly did not mention the number of intervention hours of educational lecturer group. This study just mentioned that training was conducted for one day include 75 minutes interaction with consumer education[29].

MHTP interventions in five studies were considered to be "short duration" for 4 hours or less intervention[13,26,28,31,32] and three study was considered "long duration" for more than 8 hours of intervention because these studies included pharmacy students of the required mental health curriculum with four 2-hours a day of workshop direct contact and 90 minutes non direct contact with consumer education[30], three 6-hours a day of educational lecturer group with 1,5-hour direct contact with peer-level presenter(9) and five 2-hours a day of intervention training[27]. Five studies of mental health training intervention for community pharmacists in this review included in intensive one day training or short duration of intervention.

Effectiveness of Interventions

The effectiveness of interventions is reviewed below based on the most common outcome measures assessed in included studies: (1) mental health knowledge; (2) attitudes and stigma; (3) willingness to service pharmaceutical care. All studies reported a statistically significant increase in outcome measures. The program In Our Own Voice (IOOV) has been evaluated and shown to be effective in reducing stigma in college students.[13] After participating in an online web-based study, staff about mental health had changed in a positive direction; their confidence and skills when working with consumers and their careers had increased overall, although support staff remained less confident than pharmacists.[31] The other non-direct contact study related to the anti-stigma intervention was successful in improving the willingness of pharmacy students' to counsel in depression and schizophrenia.[25] A direct contact-based study delivered by Fujii et al., (2021) showed the stronger stigma-reducing effect achieved in the contact-based intervention group than in the educational lecture group.[28] The study found that a single lecture was sufficient to reduce stigma among community pharmacists and additional contact-based interventions further increased the effect (p<0,001).

In addition, a study by Buhler and Karimi (2008) showed outcomes in pharmacy students including (1) understanding of the medical nature of each disease, (2) understanding of patient behavior, (3) belief in the efficacy of treatment with p=0.042, p=0.019, p=0.013, respectively.[9] However, there was no significant difference in any initial measure of social distance measure between the two groups of students in this study. Three studies conducted by Bell et al. (2006), Nguyen et al. (2012), and Liekens et al. (2013) showed that the intervention was an effective strategy to decrease stigma among community pharmacists and pharmacy students toward people with mental disorders and increase their practice of self-reported service care.[27, 29, 30]

Change in clinical practice

The study findings in Liekens et al. (2014) suggest that the training not only improved the verbal communication of pharmacists but also their nonverbal communication skills even after 8 months after training.[12] The intervention resulted in longer pharmacy consultations, in which pharmacists who underwent training asked the mystery shopper significantly more questions about their therapeutic regimen and medical condition, as well as lifestyle and psychosocial concerns than pharmacists not exposed to training (p=0.001).

Discussion

This review aimed to determine mental health training programs to improve knowledge, attitudes, and pharmaceutical care service toward psychiatric patients among community pharmacists and future pharmacists that can be applied in low-middle income countries. Ten studies were identified and only three of those were designed with Random Control Trial (RCT). The quality of the methodological showed that ten articles that met the inclusion criteria were, on average, moderate to high. Most studies had methodological limitations, particularly with respect to the absence of controlled evaluations and the use of short-term assessments for outcomes. In addition, half of the studies evaluated self-report in the pharmaceutical care service and only one study investigated the outcomes of clinical practices outcomes.

Existing research yields several themes. First, four studies-type interventions are included in this finding. Six studies in this review used mixed educational techniques with consumer education. Educational techniques are face to face educational lecture group or audio-visuallecture group. Existing studies do not examine whether this online educational technique is more effective or resource efficient than face-to-face educational lecture group technique, but its wide use suggests that both studies-type intervention is feasible. In addition, there is one study that compared respondents who met with consumer education directly and indirectly, where the measurement results after the intervention are the both methods were equally effective in reducing stigma.

Second, consumer education and peer education are the key strategy to address mental health stigma. Mental health consumer educator is a person who has previously received mental health care and works to inform and educate members of the wider community on mental illness and its effects on individuals, families and society.[30] Peer-level patient presenters are patients with mental illness or family members of these patients, while the words ''Peer-level'' indicates that the presenter has what the respondents perceive as a social status equal to or greater than their own.[9] Our study found that including sessions with consumer educators in training sessions has the potential to change stigma among community pharmacists and future pharmacists. As stigma reduction is considered one of the most important elements in improving mental health, including consumer educators may be one of the best options to improve patient-pharmacist contacts and hence make a positive difference in the level of patient care

Third, the content of the intervention of consumer educators in this study is the same in nature. Even in the positive impact of indirect contact with consumer education, the positive impact of indirect contact suggests that stigma reduction may depend on transcendent messages contributed by consumers facilitating the contact experience rather than the medium of contact itself. It told about how consumer educators shared their lived experiences of their journeys of recovery from mental illness. Consumer educators gave an introduction to themselves and their history with mental illness and the drug they were taking. They also shared their dark days, acceptance, coping skills, and successes, hopes, and dreams. Fourth, in this review, the eligible studies are all from high-income countries. Similar to Melton and Lai, (2017) and Reis et al. (2021) reviews that all eligible studies were from high income countries, which stated the lack of representation from low to middle-income countries in mental health studies presents a significant gap in knowledge internationally.[18,33] However, there is a systematic review study from countries in Africa.[21] Unfortunately, their studies not only consisted of extensive training (more than ten days) for general health workers, but also included nerve diseases in their content material. Although, the WHO did not define a suggested length for short mental health training courses, leading to varied interpretations of duration and method. Community pharmacists already have a high workload responsibility in their practice. As a consequence, the flexibility of delivery is important to optimize each course to its particular cultural setting and available resources and follows WHO's exemplary 'best practice' vignettes that encourage context-specific integration of mental health into primary care. This finding is in line with a review by Wheeler et al. (2014), which stated for a large community pharmacy workforce, flexible online delivery methods with video footage of expert and consumer education are preferable.[34] Therefore, a cost-effective program in effective mental health training is also beneficial and applicable for community pharmacists in low and middle-income countries as a tool to implement the WHO program to bridge the gap in mental health.

A strength of this systematic review isthe quality of studies between moderate to high, which presented statistically significant improvements in mental health training; therefore, this review may be able to

use as evidence to support mental health programs as prevention strategies to address reducing stigma and improving the pharmaceutical service of community pharmacists in low and middle-income countries**.** However, due to the variety of study designs included and the lack of consistent measures used in the included studies, a meta-analysis of the findings was not possible. Another strength of this review is that no dates were placed on dates in the search process. The limitations are related to the studies identified, which generally reporting onEnglish. The other is that the majority of outcome measures assessed were evaluated immediately after the intervention. Only one study evaluated the effect after eight months after the intervention with mystery shoppers. Therefore, future studies are needed to examine the duration of the effects of contact-based educational interventions for community pharmacists, as well as the effectiveness of indirect measures of repeated interventions of actual practice and whether booster training is necessary.

Conclusion:

Thisreview showed that in addition to education, contact with mental health consumers in a training setting, whether through direct, face-to-face interactions or indirectly through filmed media, can have a significant impact on key constructs of attitude. Flexible and readily available indirect contact interventions may be a powerful method of improving the knowledge of community pharmacists' knowledge, providing pharmaceutical care services, and reducing mental health stigma that is not only implementable in high-income countries, but also cost-effective and applicable in low- and middle-income countries. Future research should focus on the Temima of indirect contact and whether the observed changes in primarily attitudinal constructs translate into actual behavior change in actual practices.

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Conflict of interest

None

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Authors' contributions

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Table 1. Methodological assessment for Intervention Studies (Liu et al., 2016).

Training Sample							Evaluation of Intervention					
No	Author (year)	Number of trainees >30?	Training cohort sufficient detail representative of target training population?	Sufficient detail given for selection of training sample?	A control cohort?	Random assignment to a cohort?	The selection of the evaluation sample clearly described?	A preintervention assessment of outcome measures made?	Is the evaluation fully reported and representative of the training sample?	Is there masked evaluation	Long-term post-evaluation (1 month) of outcomes?	Total score
1.	Bambgade (2016)	1	1	1				1	1			6
2.	Bambgade et al. (2017)	1	1	1			1	1	1			6
3.	Bell et al. (2006b)	1	1	1	1		1	1	1			7
4.	Buhler and Karimi (2008)	1	1	1			1	1	1			6
5.	Fujii et al. (2021)	1	1	1	1	1	1	1	1			8
6.	Liekens et al. (2013)	1	1	1	1	1	1	1	1			8
7.	Liekens et al. (2014)	1	1	1	1	1	1	1	1		1	9
8.	Nguyen et al. (2011)	1	1	1			1		1			5
9.	Rickles and Dakota (2016)	1	1	1			1		1			5
10.	Wheeler et al.(2017)	1	1	1			1	1	1			6
	Total Number	10	10	10	4	3	10	8	10		1	66
	A point was given for each of the criteria that a study satisfied. 0= no criteria meet; *Median of total score : 6											

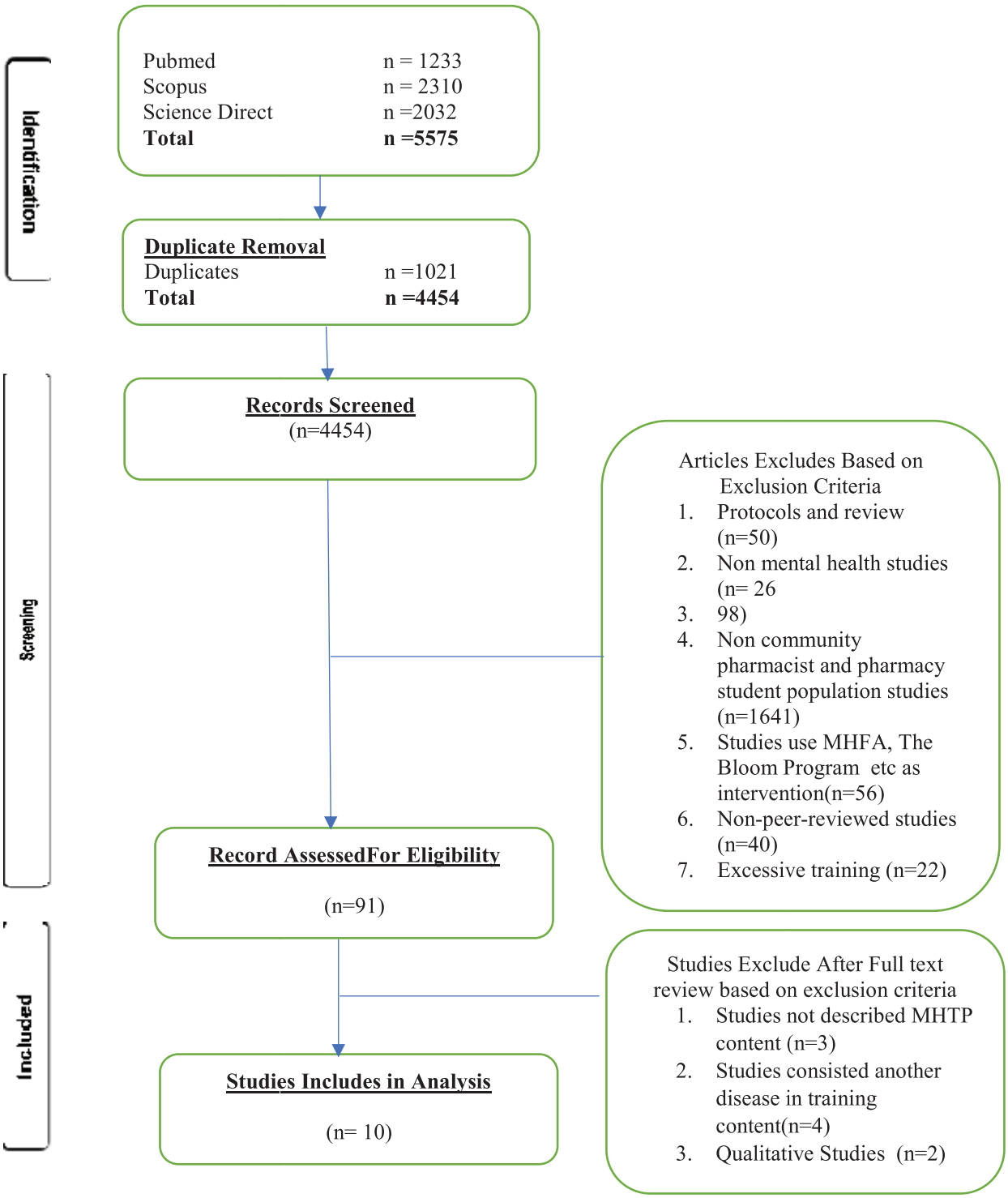

Figure 1. PRISMA diagram of this review

Table 2. Interventions from studies include in Systematic Review

No	Author (year)	Location	Study Design	Main Focus	Participants	MHTP Duration	Training content	Training Strategy	Outcome Measure	Effectiveness
1	Fujii et al. (2021)	Japan	RCT	Schizophrenia	120 community pharmacist	60-minute lecture and a 20-minute interview with participant	general knowledge, pharmacotherapy, treatment gaps, medication adherence strategies, the associated stigma	Educational lecture group and contact-based intervention group	stigma (social distance scale and attitude toward mentally ill)	(p< 0.001)
2.	Bambgade et al. (2016)	USA	one group pre-post interventional design	Mental illness	120 pharmacy students	2,5 hour	pharmacist and mental illness literature, anti-stigma videos, depression and schizophrenia vignette case	Educational lecture group and active learning exercise	knowledge and stigma	knowledge and stigma (p < 0.001)
3.	Bambgade et al. (2017)	USA	one group pre-post intervention study	Schizophrenia and Depression	88 pharmacy student	2,5 hour	presentations, videos, discussion, and active-learning exercise	non-contact based learning	willingness to counsel	(p<0,01)
4.	Bell et al. (2006b)	Australia	2 group, non-randomized, clustered, comparative design	Mental illness	229 pharmacy student	5x 2-hours	. Consumer educators who received ongoing treatment for illnesses such as schizophrenia, bipolar disorder, and major depression participated in small group work, case-study discussions, and role plays with pharmacy students in the intervention group	Educational lecture group and contact-based intervention group	social distance scale, attribution, pharmaceutical service delivery, and stigma	(SDS p<0,02, stigma p<0,005
5.	Buhler and Karimi (2008)	USA	A pre-post-intervention design	Schizophrenia and depression	48 pharmacist student	3x 6-hours educational lecture group and 1.5 -hour peer-level presenter	(1) standard didactic presentation of current neurophysiological theories of mental illness and pharmacology, (2) presentations by a clinical psychiatrist, and (3) peer-level patient/family presenters	Educational lecture group and contact basedintervention group	(1) understanding of the medical nature of each disease, (2) understanding of patient behavior, (3) belief in the efficacy of treatment, and (4) social distance	(all area p<0,05)
6.	Liekens et al. (2013)	Belgium	Cluster RCT	Depression	181 community pharmacist	1-day training (75 minutes with consumer educator)	pharmaceutical care, pharmacotherapy, psychotherapy, basic communication skills, participation in consumer education participation	Educational lecture group and contact-based intervention group	Stigma and professional service delivery by pharmacists	(p<0,05)

No	Author (year)	Location	Study Design	Main Focus	Participants	MHTP Duration	Training content	Training Strategy	Outcome Measure	Effectiveness
7.	Liekens et al. (2014)	Belgium	Cluster RCT	Depression	40 community pharmacists (21 intervention and 19 control)	1-day training	pharmaceutical care, pharmacotherapy, psychotherapy, consumer educator interaction, exercise communication, and empathy skills for practicing counseling	Educational lecture group and contact-based intervention group	communication (patient education and counseling) measured after 8 months post-intervention with mystery shopper	Effective ($p < 0.01$)
8.	Nguyen et al. (2011)	Australia	A two-group, non-randomized, comparative study	Schizophrenia	278 direct-contact and 198 nondirected contact pharmacy student	4x 2-hours of workshop direct contact and 90 minutes nondirected contact	Direct (personal experiences of mental illness with small groups of students) and nondirected(development of a learning module to engage students with video footage of mental health consumers)	direct and non-directed contact	social distance scale, attribution toward mental illness and stigma	(SDS p<0,001, attribution p<0,005, stigma p<0,005)
9.	Rickles and Dacosta (2016)	USA	Pre educational/ post educational intervention design	Mental illness	50 community pharmacist	2 hour	Discussion and present IOOV program	Contact-based intervention group	stigma, attitude, and willingness to provide service	(stigma mean =18, perceived towards mental illness mean=13,3, willingness to provide service mean= 23,2)
10.	Wheeler et al. (2017)	Australia	Quasi experimental pre-post design	Mental illness	566 pharmacy personnel (357 pharmacists, 209 pharmacy technicians)	4 hours for pharmacist, 2 hours for pharmacy technician	Overview of mental illness including prevalence and description of common conditions, consumer lived experiences and recovery journeys, and communication skills	online web-based intervention	stigma, attitude, confidence	(depression attitude p<0,001, stigma (mental illness attitude) p< 0,001, confidence p< 0,004

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