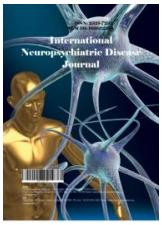

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Mental Health First Aid Training: A Study of Community Members' Pre and Post-training Responses to a 17-Item Questionnaire

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AAAH, HSA and NAQ designed the study and performed the statistical analysis. Author AAAH wrote the protocol. Author NAQ wrote the first draft of the manuscript and managed the analyses of the study. Authors AAAH, HSA and NAQ managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Mental Health First Aid, an important component of metal health educational programs, targets naive community members, public, allied mental health personnel, and mental health experts with specific reference as to how these trained aiders should help people in crisis or with mental health conditions in the community.
Objective: This study aimed to describe pre-to-post-test assessment of those who were trained in MHFA program.
Setting: National Center for Mental Health Promotion, Riyadh, Saudi Arabia.
Methods: Trained mental health professionals organized MHFA courses (n=35) for training self-selected, nonrandomized community members (n=862) who were assessed pre-to-post training by using an adapted 17-item questionnaire for measuring the impact of MHFA course on their mental health knowledge, perception, attitude and practice.
Results: The participants' responses to questionnaire were varied at pre-and post-test evaluation

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and 65% of them showed mild to significant positive changes in their responses, and the rest were not affected positively after this course, possibly attributed to multiple factors related to naïve community trainees, advanced questionnaire, short timeline and dissimilar instructors.
Conclusion: Although all participants well received the MHFA courses, 65% of participants' pre-to-post-test responses improved positively. The preliminary results of this study are not generalizable to the whole community, need to be cautiously interpreted and this research is calling for more studies especially randomized controlled trials in future.

Keywords: Mental health first aid; training course; community members; pre-and post-test design.

1. INTRODUCTION

The concept of Mental Health First Aid (MHFA)was developed by an educator, mental health (MH) consumer and researcher in Australia in year 2000 that echoed the same principles underlying Physical Health First Aid (PHFA) [1,2]. Since then MHFA program has been adopted worldwide to train concerned stakeholders in MHFA to help people in crisis or with MH conditions across the board.Mental health portrays a spectrum of good MH to MH problems [1]. MHFA program is directed towards MH workers, community members and public at large who after training provide firsthand guidance to persons developing a mental disorder [1]. MHFA training has been shown to increase participants' MH knowledge, reduce stigma, discrimination and unfavourable attitudes against mental illness, increase symptoms recognition, early access to healthcare pathways, early interventions, community support, and suicide prevention, the latter determined by multiple sociodemographic factors including means of suicide [3-9], all this could be grouped under the umbrella of MH literacy (MHL). Jorm and colleagues have defined the term MHL as 'the knowledge and beliefs about mental disorders which aid their recognition, management or prevention' [10]. So MHL relates to the ability of a person to recognize mental disorders, to have sufficient information and knowledge of risk factors, causes, self-treatments and seeking professional help available for people with mental disorders [11].

The MHFAManualdeveloped by Kitchener and colleagues described five core steps for helping people with MH problems: assess risk of suicide or harm, listen non-judgementally, give reassurance and information, encourage person to get appropriate MH help and encourage self-help strategies [1]. Different studies have evaluated the impact of MHFA training in diverse settings and among different participants including public, community members, workers, pharmacists, school teachers, and city dwellers and reported consistent results including confidence building of trainees in assisting people in crises [3-7,12-14]. Concerning data analysis of two randomized controlled trials (RCTs)of MHFA involving high school students and public in various workplaces [15,16], Jorm and colleagues reported that training program increases participants' symptoms reporting (masking hypothesis) but does not significantly affect the symptoms scores [17]. This is attributed to the RCTs that increased their willingness to disclose and, hence, provided a strong causal test of the masking hypothesis. Jorm et al. [17] concluded that it is unlikely that changes in willingness to disclose are masking reductions in prevalence in the population. Of note, Youth Mental Health First Aid (YMHFA) training program directed at MH staff and other workforce reported that it increases significantly MHL, confidence building and small reduction in stigma among workers but insignificant changes among MH participants at pre-to-post-training assessment. Therefore, MH professional workforce aiders need advanced course on YMHFA [18]. In a follow-up YMHFA survey, first aiders tend to utilize skills learned during the YMHFA courses which include de-escalating a MH crisis and referring students to MH professionals. In addition, students were more open to discuss their MH with the first aiders [19].In a qualitative study of stories of participants who were trained in MHFA, Jorm and associates (2005) found that majority of them provide support to people with MH problems, and show increased empathy, confidence and enhanced aptitude to manage crises [20]. MHFA program has further scope in non-medical fields as Gabriele et al. (2019) reported several benefits of MHFA training of construction workers in UK [21]. Overall, MHFA program greatly impacts trainees' MHL for helping people with MH crisis has been adopted around the world and producing great results benefitting public and professionals [22-25].

1.1 Aim of the Study

This study aimed to describe the pre-to-post evaluation of trainees who attended MHFA training courses organized by the National Center for Mental Health Promotion (NCMHP), Riyadh, Saudi Arabia.

2. METHODS

2.1 Setting

The MHFA courses were supervised by National Center for Mental Health Promotion, Riyadh.

2.2 Preliminary Preparations

The general supervisor invited Betty Kitchener to visit NCMHP, Riyadh for two days in 2013. She delivered 5-days intensive training to 20 MH professionals in MHFA program. In a number of lectures, brainstorm sessions and workshops, Betty discussed main topics such as types of anxiety disorders, depression, acute psychosis, and alcohol and other substance abuse along with risk factors and basics of MH concepts, definitions, curriculum development, benefits and significance of MHFA courses. The two Australian instructors conducted training of trainers (TOT) in MHFA in year 2017 and 40 MH professionals from different regions of Saudi Arabia were intensively trained over a period of five days (9 hours/day). Later, Saudi trained experts (six of 40) conducted another identical course of TOT for MH allied professionals using the Australian MHFA manual. None of these trained professionals was included in the present study.

2.3 Design

Pre-and post-test design study.

2.4 Participants

A team of trained MH professionals in MHFA trained 862 community members over a period of two years, from 2018 to 2019. The number of participants varied in each course (n=25 to 35) of three to five days. The total MHFA courses conducted by trained MH experts are 35 and the trainees, all Saudi nationals, were invited from 13 regions of Saudi Arabia. Some of these courses were also conducted locally outside Riyadh. The timeline of MHFA courses was advertised using NCMHP website, twitter and Instagram about three to four months before beginning of each course.

2.5 Questionnaire

A team of MH experts translated in Arabic a reliable and valid Australian questionnaire used in many researches around the world [1,10,22-27]. A team of three bilingual experts (Arabic and English) who attended TOT course of MHFA chose 17 items, which addressed core topics concerning MHFA program. A neutral MH consultant reviewed these items and agreed with three experts about the adapted questionnaire. MH experts involved in adapting the questionnaire reached consensus (100% agreed) regarding the Arabic version of the questionnaire. In addition, a sociodemographic semistructured proforma was developed to collect age, sex, education and specialty of trainees.

2.6 Course Contents

MHFA primarily focuses on assisting people in MH crises or with MH problems (not of crisis proportion). The crisis situations that instructors addressed indepth were suicidal thoughts and behavior, acute stress reaction, acute panic attacks with or without depression and acute psychosis. In addition, the MH problems discussed in MHFA courses included mental health definition and concepts, types of depression, anxiety and psychotic disorders and alcohol and other substance disorders. Instructors also briefly focussed on risk factors and causes of mental illnesses. The course trainers also deliberated on psychiatric and physical co-morbidities of MH problems. The trainers further emphasized that the public/community participants should learn to recognize the core symptoms of these disorders, possible risk factors and causes, and where, when and how to effectively provide help to people with crisis or MH problems in the community, and if need arises refer them to primary MH care centre or MH hospitals. Overall, the MHFA training followed the tailored, customized course and all participants were given a hard or soft copy of MHFA manual for further reading and advancing their knowledge in MHFA [1,10,23-27].

2.7 Procedure

The nine-hour course was delivered in Arabic in three sessions, each of three hours daily. The duration of each course varied from 3-5 days a week. MH instructors interactively discussed in detail the crisis situations and MH problems. An action plan consisting of five steps [1,10] was

considered to carry out MHFA training (see Fig. 1). This particular plan was applied to each of the MH problems and crises that were taught to the trainees related to MHFA course. Notably several instructors (TOT) were invited from different regions to teach all the courses and the participants were mostly community members including some allied personnel such as psychologists, social workers, and psychiatric nurses.

2.8 Evaluation Procedure

The participants included in this study were 862. Each trainee was given self-administered questionnaire for completion 20 minutes prior to the beginning of the first training session (pre-test) and at the end of the last session of 3 or 5 days' course (post-test). No follow-up assessment of participants was carried out. The pre-test questionnaire began by asking about the sociodemographic (SD) characteristics of the participant who were next asked to respond to all 17 items on a 3-point Likert scale, agree (A), disagree (DA) and do not know (DNK). Each participant was also asked to put same identification number on his/her pre- and post-questionnaires. This was necessary to staple both questionnaires together belonging to the same participant. Each participant was given post-test questionnaire that excluded the sociodemographic questions excluding name and was requested to completely fill it. Trainers clarified any query raised by any participants while they were completing the questionnaire prior to the first training session (pre-test assessment). Assistant trainer distributed and collected the questionnaires from each participant and checked for its completion before participants leave the training venue and similar steps were taken post-test assessment. In case of questionnaire is incomplete, the particular participant was called to complete it before leaving the training room.

2.9 Data Management

Data was entered in computer using Statistical Package of Social Sciences (SPSS) version 21.0, was cleaned first and then analyzed. Besides calculating percentage (%) frequency (f) distribution (descriptive statistics), participants' categorical pre-and post-test responses were analyzed using the Chi squared proportion test, and p value was considered significant at the level of <0.05.

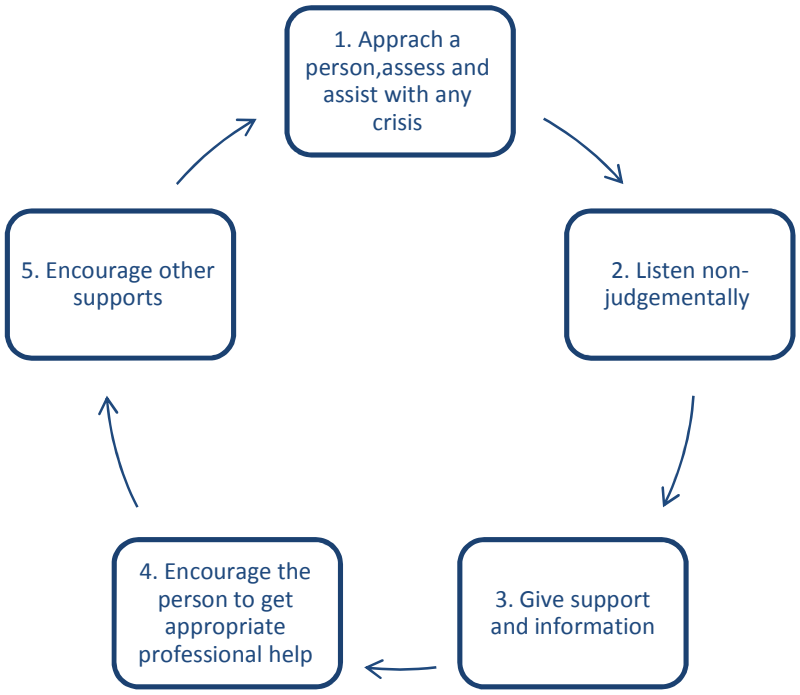

Fig. 1. Five basic steps of MHFA action plan [1]

3. RESULTS

3.1 Sociodemographic Variable

Majority of participants were males (n=552, 64%). Most of the trainees were of middle age (range=30-45, n=578, 67%). All participants were literate community members with different levels of education, from twelfth standard to bachelor to master degree in different disciplines including allied MH workers (n=862,100%).

3.2 Participants Responses to 17 Items Questionnaire (S1 to S17)

People deliberately self-harm (DSH) have weak personality (S1), and threaten to commit suicide do not do so (S2). The correct answers to each statement is disagree (D). Furthermore, trainees' responses to S1 and S2 at pre-and post-evaluation were as follows; correct (D, S1) and wrong (A) answers decreased (<0.05) and increased (>0.05) significantly, respectively and DNK responses decreased insignificantly (>0.05), and correct (D, S2) and wrong (A, S2) responses decreased (<0.05) and increased (<0.05) respectively and DNK responses decreased insignificantly (>0.05), overall negative impact (on S1 & S2). Evidently, exploring and guiding patients with multifactorial DSH linked with borderline and antisocial personality disorders, their comorbidities (depression) and other personality disorders with dysregulated traits enhance their coping abilities that result in the of prevention of DSH, suicidal or nonsuicidal [28-30]. Similarly, patients who threaten to commit suicide (S2) they do so and give warning signals and need timely help and intervention including admission to the psychiatric ward because of high risk of suicide [9,31-33]. The prompt preventive planning including 24-hour close observation, adequate sedation, and followed by comprehensive interviewing along with solving stresses in terms of negative events by psychotherapy and intervention by psychiatric medications lead to better outcome and good quality of life.

All patients with mental illnesses require medical assessment and care as medical diseases are commonly found among them, but the access to care found in many studies is poor and associated with high morbidity and mortality, low quality of life, poor wellbeing, and often worse outcome [34]. This is like doing disservice to the mentally ill patients with physical problems and infringement of their rights [35]. In addition, more than fifty percent of patients with mental disorders do not have access to psychiatric services and a long waiting time is a strong barrier against availing MH services [36]. In either way, patients' mental and physical diseases tend to take chronic course with increasing burden on health care system. Evidently, mental and medical health services for mentally ill population require reform and scaling up around the world. Concerning S3, participants' correct (A), wrong (D) responses improved but insignificantly (>0.05) and DNK responses decrease insignificantly (>0.05), overall mild positive impact on subjects' responses.

Mental health is defined from different perspectives; absence of MH problems, positive psychological wellbeing, and according to WHO "a state of wellbeing of an individual realizing his or her own abilities, coping with normal stresses of life, working productively and fruitfully, and contributing to the communities". MH has multiple dimensions just not free from diseases and mental disorders, and also viewed as a spectrum from having good MH to having mental illness [1,37]. Subjects' correct (D, S4) and wrong (A) responses improved non-significantly (>0.05) and DNK responses decreased (>0.05) reflecting non-significant improvement on participants' knowledge.

The mental illness and its symptoms vary considerably but certainly common across the world. Mental disorders may afflict any person but most frequently susceptible people with multiple risk factors including genetic and overwhelming stresses such as unemployment, disasters, conflicts and others [9,38]. The participants correct (D, S5) and wrong (A) responses decreased and increased significantly (<0.05), respectively and DNK responses decreased (>0.05), negative significant impact on subject's knowledge at post-evaluation.

Persons in different age groups especially adults/older adults with mild to moderate depression respond to different psychotherapies including interpersonal psychotherapy, cognitive behavior therapy and telephone-delivered psychotherapy fairly well [1,39-41]. However, severe or psychotic depression and bipolar depression needs additional drug interventions including use of antipsychotics, lithium, and antidepressants [42]. Concerning statement (S6), participants' correct (D) responses improved significantly (<0.05), and wrong (A) and DKN responses increased and decreased insignificantly (>0.05), respectively.

Table 1. Participants' responses to questionnaire items

For each of the statements below please indicate whether you agree (A), disagree (D) or don't know (DNK). Choose only one option.							
Statements	**CA**	**Pre-T**	**%**	**Post-T**	**%**	**p values***	**EOT****
1. Those people who deliberately harm themselves have weak personality	D	A444	51.5	A 592	68.7	P = 0.0001	Overall –ve
		D 359	41.6	D257	29.8	P = 0.0028	Sig.
		DNK59	6.9	DNK13	1.5	P = 0.4585	
2. Those persons who threaten to commit suicide often do not do so.	D	A 425	49.3	A 588	68.2	P = 0.0001	Overall -ve
		D 371	43.0	D 262	30.4	P = 0.0013	Sig.
		DNK116	7.7	DNK12	1.4	P = 0.4207	
3. Most people suffering from mental disorders do not receive any medical care	A	A 634	73.5	A 662	76.8	P = 0.1693	Mild +ve
		D 154	17.9	D169	19.6	P = 0.6965	effect, NS
		DNK74	8.6	DNK31	3.6	P = 0.3659	
4. Good mental health means person is free from diseases and mental disorders.	D	A 540	62.6	A 570	66.1	P = 0.2237	Overall -ve,
		D 273	31.7	D 277	32.2	P = 0.9000	NS
		DNK49	5.7	DNK15	1.7	P = 0.5277	
5. The mental illness and symptoms are rare and affect those persons who are bad people in the society.	D	A 61	7.1	A 244	28.3	P = 0.0005	Overall –ve
		D761	88.3	D602	69.8	P = 0.0001	Sig.
		DNK40	4.6	DNK16	1.9	P = 0.6373	
6. Depression does not respond to psychotherapy	D	A 37	4.3	A 41	4.8	P = 0.9164	Overall +ve
		D774	89.8	D810	93.9	P = 0.0028	Sig.
		DNK51	5.9	DNK11	1.3	P = 0.5321	
7. An individual with acute psychosis needs strict dealing as to prevent his aggression	D	A 284	32.9	A 289	33.5	P = 0.8789	Overall +ve
		D344	39.9	D542	62.9	P < 0.0001	Sig.
		DNK234	27.2	DNK31	3.6	P = 0.0041	
8. When a person with mental disorder refuses help, he must be forced to do so.	D	A 232	26.9	A 239	27.7	P = 0.8457	Overall +ve
		D483	56.0	D600	69.6	P = 0.0001	Sig.
		DNK147	17.1	DNK23	2.7	P = 0.0741	
9. Antidepressants and Anxiolytics (Antianxiety) control only symptoms.	D	A 288	33.4	A 394	45.7	P = 0.0012	Overall +ve
		D322	37.4	D 416	48.3	P = 0.0031	Sig.
		DNK252	29.2	DNK52	6.0	P = 0.0005	
10. Non-pharmacological interventions are not appropriate for many mental conditions.	D	A 301	34.9	A 227	26.3	P = 0.0349	Overall +ve
		D440	51.1	D594	68.9	P < 0.0001	Sig.
		DNK121	14.0	DNK41	4.8	P = 0.1139	

For each of the statements below please indicate whether you agree (A), disagree (D) or don't know (DNK). Choose only one option.							
Statements	**CA**	**Pre-T**	**%**	**Post-T**	**%**	**p values***	**EOT****
11. When dealing with a patient with mania, it is better not to offer them multiple options because this will cause more confusion to them.	A	A 520	60.3	A 564	65.4	P = 0.0825	Overall +ve
		D 105	12.2	D251	29.1	P = 0.0007	Sig.
		DNK237	27.5	DNK47	5.5	P = 0.0013	
12. Panic attacks, acute and severe anxiety frequently lead to organic disorders and require urgent medical intervention.	D	A 564	65.4	A 581	67.4	P = 0.4739	Overall +ve
		D144	16.7	D244	28.3	P = 0.0098	Sig.
		DNK154	17.9	DNK37	4.3	P = 0.0394	
13. Most of the time suicide occurs suddenly without any indicators.	D	A 203	23.5	A 236	27.7	P = 0.3149	Mild +ve
		D566	65.7	D602	69.5	P = 0.1660	effect. NS
		DNK93	10.8	DNK24	2.8	P = 0.2277	
14. Patients with generalized anxiety disorder benefit from exercise.	A	A735	85.3	A 777	90.1	P = 0.0044	Overall +ve
		D35	4.1	D 48	5.6	P = 0.7575	Sig.
		DNK92	10.6	DNK37	4.3	P = 0.2550	
15. Individual with mental disorder must be closely monitored so that they do not harm themselves.	D	A 662	76.8	A 733	85.1	P = 0.0001	Overall –ve
		D131	15.2	D 102	11.8	P = 0.4551	Sig.
		DNK69	8.0	DNK27	3.1	P = 0.3878	
16. Most people with mental disorders are unable to make an appropriate decision about their condition.	D	A561	65.1	A 624	72.4	P = 0.0067	Overall –ve
		D201	23.3	D204	23.7	P = 0.9245	Sig.
		DNK100	11.6	DNK34	3.9	P = 0.1906	
17. MH experts can deal with a patient's accusations and delusions without agreeing or reacting to them.	A	A 203	23.5	A 239	27.7	P = 0.3149	Mild +ve
		D566	65.7	D599	69.5	P = 0.1660	effect NS.
		DNK93	10.8	DNK24	2.8	P = 0.2277	

*X^2 Test of proportions [76-78]; CA=Correct answer; **EOT= Effect of training- as to A, D, DNK responses, the significant or insignificant changes at pre- to post-test evaluation will guide about overall positive or negative impact of training on the participants. Sig. = significant*

Mental health first aiders need to be non-judgmental, non-discriminatory and non-coercive when they deal with a person with psychotic excitement and approving or disapproving their problematic behavior is not an accepted norm [1,43-46]. The participants' correct responses (S7, D) increased significantly post-training evaluation (<0.05) and DNK answers decreased significantly (<0.05) but wrong answers (A, S7) increased insignificantly (>0.05) reflecting overall positive significant impact of training. Discriminating and stigmatizing any person with mental disorder including drug abuse is against the human rights, and interventions including hospitalization need to be voluntary linked with better outcome [43,44,46]. In a related development, adolescents with mental illnesses including psychosis, drug abuse and smoking if challenged often cause several adverse consequences [45,47,48]. In context to aggressive patients, the person-centred approach is the best model that guides to understand and identify multiple risks factors underlying distressful agitation. The communication with aggressive patients should be skilled, non-confrontational along with relationship-building and meaningful negotiations to avoid injury to both patient and healthcare providers. Other approaches to manage excited patients are de-escalation, physical restraint and drug treatment with continuous monitoring and aftercare [42,49].

Mental health professionals should *encourage* rather than coerce a person with mental illness including depression, anxiety disorders, and acute psychosis, to seek help from MH experts in MH care settings [1,43-46]. Participants' correct responses (D, S8) improved significantly at post-test evaluation (<0.05). At the same time, post-test wrong responses (A) increased insignificantly (>0.05) and DNK responses were insignificantly decreased (>0.05). Overall there was positive impact on participants' knowledge at post-evaluation.

Concerning antidepressants, anxiolytics and other psychotherapeutics not only improve symptoms of anxiety disorders but also achieve remission in these conditions [1,50,51]. The participants' correct responses (D, S9) and wrong responses increased significantly (<0.05) and DNK responses decreased significantly (<0.05) which reflected overall mild impact on the knowledge of trainees.

Evidently non-drug interventions including psychotherapies, rehabilitation measures, and family and social supports improve psychotic and mild mental disorders [39-41,52-55]. The participants' correct responses (D,S10) increased significantly (<0.05),wrong answers (A) decreased significantly (<0.05) and DNK answers decreased insignificantly at post-test evaluation reflecting positive effect on participants' knowledge.

Patients with any psychosis including mania may not select the best choice from given treatment options and may even refuse the treatment as well as admission attributed to their lack of judgment, poor insight and cognitive dysfunctions [42,56]. However, the decision making capacity must be assessed carefully as to respect the patients'' rights concerning involuntary admission and refusal of treatment [57]. The trainees' correct responses (A, S11) increased insignificantly (>0.05), wrong answers (D) significantly increased at post-test evaluation (<0.05), and DNK responses decreased significantly (<0.05).

Notably, panic attacks, acute and severe anxiety often does not cause organic disorders but patients with acute panic and its respiratory subtype, and other severe anxiety disorders often presents with chest pain, fear, dyspnea, palpitations, perspiration, gut symptoms, tremors and feeling of death with normal angiography and comorbid with medical diseases including asthma, diabetes, coronary artery diseases, fibromyalgia, epilepsy, cerebral palsy, irritable bowel syndrome and require integrated psychiatric and medical interventions [58,59]. The participants' correct (D, S12) and wrong (A) responses improved significantly (<0.05) and increased insignificantly (>0.05), respectively and DNK responses decreased significantly (<0.05).

Evidently, those patients who take their life suddenly always give prior warnings/indicators, which include making plan, buying guns, communicate suicidal ideas with past suicidal attempts and mental illness [9]. Regarding this item (S13), the participants' correct (D, S13) and wrong (A, S13) responses increased insignificantly (>0.05) and DNK answers decreased (>0.05). Evidently questionnaires with direct questions about suicidal behavior and plans including warning indicators [9] tend to help especially nurses identify at-high risk patients and timely intervene in such cases [31-33] with better outcome and good quality of life. Although some nurses worry that raising the issue may "put ideas" into a patient's head, research has shown that discussing suicide does not increase

the risk of suicidal behaviors [60,61]. Most importantly, patients at risk for suicide need a more comprehensive evaluation to assess severity reflecting suicidal intent, plans for deliberate self-harm, suicidal ideation and communication (expression) and other suicidal behaviors [33,62]. Converging evidence informs that intentional self-injurious behaviors perform a variety of functions such as reduction both in negative affect (affect regulation) and arousal and relief after injury [63,64]. In some studies, psychiatric nurses dealing with patients injuring themselves repeatedly tend to develop negative attitudes such as aversion and distancing and isolation [65] and such attitudes of health professionals need drastic change. In addition, loved ones may express positive or negative attitude towards those who intentionally self-inflict themselves [66]. Overall deliberate-self harm behavior evokes a variety of positive and negative perceptions of healthcare givers and providers that should be the matrix for discussion during MHFA treatment interventions and training sessions.

Evidently exercise helps in relieving not only anxiety disorders but diverse mental disorders such as depression, post-partum disorder, eating disorders, substance use disorders, schizophrenia, and attention-deficit hyperactivity disorder [67,68] and conversely sedentary lifestyle leads to anxiety disorders including depression and medical diseases [69]. In this context (S14), trainees' correct responses (A) increased significantly (<0.05), wrong responses (D) increased insignificantly (>0.05) and no significant change was observed concerning DNK responses, which also decreased (>0.05).

Several studies reported that all patients with mental disorder do not require close surveillance because mostly they do not harm themselves or others and do not require admission [1]. Mentally ill patients, 3% to 20%, especially with severe depression, acute psychosis, substance abuse, borderline personality disorders, dementia, suicidal or homicidal intents, auditory hallucinations and absconding behavior may require admission and special observations [1,70-72]. Regarding 15S, participants' correct (D, 15S) and DKN responses decreased insignificantly (>0.05) and wrong (A, 15S) responses increased significantly (<0.05) means negative impact on trainees' knowledge and practice.

Evidently most people with mental disorders are reported to make an appropriate decision or shared-decision about their conditions especially anxiety disorders and depression and obsessive-compulsive disorder with exception to any form of psychosis, and seek MH treatment, admission and regular follow-up [1,73]. Regarding S16, participants' correct (D, S16) and wrong (A) responses increased insignificantly (>0.05) and significantly (<0.05), respectively and DNK answers decreased insignificantly (>0.05) at post-test evaluation meaning thereby negative impact of training on their knowledge.

Mental health experts must deal non-reactively with patients entertaining persecutory delusions and accusations directed towards others people [1,43-46]. The trainees correct (A, 17S) and wrong (D) responses increased insignificantly (>0.05) and DNK responses decreased insignificantly (>0.05) post-test evaluation. Research evidenced that mostly delusions linked with reasoning bias or deficit have social themes that cause tremendous distress to delusional persons and arguing/reasoning with them often lead to hostile behavior [74,75]. Overall, the bottom-line is that community participants' three types of responses (A-D-DNK to S1-S17) before and after training course were variable possibly attributable to a bit difficult questionnaire and their meager knowledge, perceptions, attitude and practice of mental health problems and crisis situations.

4. DISCUSSION

This pre-and post-test assessment study of Mental Health First Aid training course described indepth the community members' responses to an adapted 17-item questionnaire. According to sociodemographic data (SD), the proportion of male participants was more than females, and most of them were adults with bachelor/master degrees in different disciplines including some from allied mental health. These SD findings support partially the results of other studies [79-81]. The important implications of these findings include easing cultural barriers to women to participate in MH researches, and though their educational level is rapidly increasing with job opportunities expanding speedily, postgraduate professional education needs scaling up in Saudi Arabia. In specific terms, MHFA training of community members needs to be mandatory in Saudi Arabia and possibly other Gulf Countries. Consequently, trained personnel in MHFA could appropriately help people with crises and MH problems, and guide them to seek early MH interventions for better outcome and good quality

of life. As mental health problems are rising rapidly in teenagers (17%) [82], community members need to be trained in MHFA program customized to meet the needs of young population not only in Gulf countries but also across the world.

According to this study, community members' responses improved, mild to significant levels, after MHFA training and substantiated the findings of other researches; evidently patients with mental disorders do not get proper medical care [34-36]; exercise helps improvement of mild to moderate anxiety and depression [67-69,83]; MH workers should encourage rather than force a patient with mental disorders to seek help in mental health settings [1,43-46]; many mental disorders including anxiety disorders, depression and also other disorders improve with non-drug therapies including CBT [39-41,52-55], and remit with antidepressants and anxiolytics [1,50,51]; anxiety and panic disorders do not cause medical diseases but often present with symptoms micking medical diseases [58,59]; strong approval or disapproval of patients aggressive behaviors due to culturally unacceptable lifestyles is against prevailing norms and human rights, and of course prejudiced and stigmatized [1,43-46]; exploring non-judgmentally suicidal behavior including indicators of suicide does not increase the risk of suicide rather prevent it [28,31-33,60-62,83,84]; immediate discussion and debriefing individuals with acute psychosis due to acute trauma or other reasons such as drug abuse does not help them rather worsen their condition, and they need positive and motivational approach [1,74,75,85,86]; patients with severe psychosis cannot select the best from given treatment options and may refuse treatment attributed to a lack of judgment, poor insight and cognitive dysfunctions [56]; and persons' delusions mostly linked with reasoning bias or deficit have social themes and, hence, arguing/reasoning with them often lead to hostile behavior [87,88]. In a review article, Ranjbar and colleagues described the advantages and dynamics of exercise including its underlying biochemical mechanisms, and characteristics of mental ill patients who respond to exercise as a natural alternative intervention [89]. According to several studies, stigma against patients with mental disorders is a major barrier to receiving effective MH care and other adverse consequences including poor adherence to treatment, isolation, and poor outcome [90-92] and also interference with professional practice [93]. Conversely, reduction in stigma against mental illness has many implications including a greater willingness to disclose mental illness, good drug adherence, and better recovery [94]. To find out effective stigma reduction strategies, time is calling for conducting methodologically robust research to explore knowledge, attitude and practice of mentally ill persons concerning stigma and discrimination they perceive in the community [95,96].

On the other side, the present study post-MHFA training resulted in negative effects on participants' responses and did not support the results of other researches. Intentional self-injurious behaviors are not linked with weak personality but commonly with borderline personality disorder [28-30] and those who threat of committing suicide they do so [9,31-33]. However, DSH behaviors reduce negative affect (affect regulation), arousal, distress, and suicidal behaviors [63,64]. MH experts must calm down aggressive patients with DSH by non-confrontational approach, de-escalation technique, physical restraint and appropriate use of drug treatment with continuous monitoring and aftercare [49]. Notably, participants' knowledge concerning the concept and definition of MH did not improve [1,37] and likewise mental disorders are not rare and afflict those who are genetically vulnerable and have multiple overwhelming stresses including conflicts and wars [9,38]. Most patients with mental disorders do not require hospitalization and special observation as they do not harm themselves or others, and they have abilities to make correct decision about their mental health problems [1,70-73]. At global level, MHFA trained participants have benefitted in the following ways; increase knowledge in MH concepts, early recognition of symptoms of mental illness, knowing risk factors of mental illness, early MH seeking pathways, early referral to specialist care, use of early intervention linked with good recovery, reduced stigma and social distance with other favorable attitudes, enhanced confidence in delivering services including utilizing social and family supports to patients with mental illness/ crisis and physical diseases [13,20,25,93,97].

The current study raises some important questions and one of them is; why all participants' responses to the 17-items on the questionnaire did not significantly improve at pre-to-post evaluation? A number of components might contribute to our results; adapted questionnaire, low level of MHL of community members, not same instructors in all courses and

trained instructors' teaching methods. The questionnaire might be a bit difficult to be answered correctly by the community members, and, on the contrary, MH professionals will do the same job excellently. If this is the case, questionnaire needs to be less advanced especially reforming those six items with pre-to-post evaluation negative effect on participants' MHL. This is necessary because community member is not at par with MH professionals' level of MHL. In addition, questionnaire might be well modified and compatible but trainees may not present fulltime during all lectures, thus missing many items on the questionnaire clearly discussed by instructors. Some may argue that it is not necessary that participants must answer all the items on the questionnaire at pot-test. Lastly, teaching experience and methods of teaching of diverse trainers might also affect negatively the trainees understanding of MHFA courses. Other factors that might explain the pros and cons of this study include non-randomized, self-selected sample, not representing the larger community members but possibly satisfied, heterogeneous participants. All aforesaid challenges of MHFA course directed towards naïve public or communities are distinctively discussed and highlighted in various related studies [3-11,14,18,20,25-27]. Another caveat of this study is that its results cannot be generalized to all the communities of Saudi Arabia. The strength of this study is the fact that 65% of participants showed mild to significant positive changes can be a demonstration that the course was efficient. In a formation in education, it is not expected that substantial changes happen so fast. Overall, all participants well received the MHFA training course, around 65% learned several lessons from this module, and we recommend that MHFA courses need to be continued as it is happening currently and repeated in future in order to further enhance knowledge, attitude and practice of community members concerning Mental Health First Aid in Saudi Arabia.

5. CONCLUSION

To 17-item questionnaire at pre-to post-test in summary, this pre-and post-design study of community members who received three to five days training in Mental Health First Aid found greater positive impact on their responses evaluation. In other words, not all but more than sixty five percent of participants showed improvement in their MHL immediately after MHFA training. In future, besides repeat course of MHFA for already trained community members, randomized controlled studies should be conducted for assessing the effectiveness of MHFA course on trainees' mental health literacy.

CONSENT AND ETHICAL APPROVAL

This study received ethical waiver as this research appeared not to have any health risk to study subjects. The participants were informed about the aims and objectives of this research in advance in nontechnical language and any query raised by them was clarified by one delegated assistant researcher. The trainees were informed that the completion of questionnaire will not take more than 20 minutes and no other person except the research team will have access to the collected data. Furthermore, all participants gave oral voluntary consent to participate in this study provided researchers anonymized their personal identity and no third party is allowed to have access to their data. The participants were also told that the data submitted for publication in scientific journal will also be anonymized.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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