Making Strides Towards Better Mental Health Care in Peru: Results from a Primary Care Mental Health Training

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Abstract: Our program attempted to improve attitudes and confidence of Peruvian primary care physicians (PCPs) providing mental health care. The training program underwent an evaluation to determine impact of sustained confidence in performing medical and psychiatric procedures, and application of learned skills. Fifty-two Peruvian primary care practitioners were trained at the Harvard Program in Refugee Trauma (HPRT) over a two-week period. There was significant improvement in PCPs' confidence levels of performing psychiatric procedures (counseling, prescribing medications, psychiatric diagnosis, assessing the risk for violence, and treating trauma victims) when comparing baseline and post-two-week to one year follow-up. When comparing post-two-week and one-year follow-up quantitative measures, confidences levels went slightly down. This may be an implication that the frequency of trainings and supervisions are needed more frequently. In contrast, qualitative responses from the one-year follow-up revealed increase in victims of violence clinical care, advocacy, awareness, education, training, policy changes, accessibility of care, and sustainment of diagnostic tools. This study supports the feasibility of training PCP's in a culturally effective manner with sustainability over time.

Keywords: Primary Care Practitioners (PCPs), Psychiatric Symptoms, Post Conflict, Trauma, Confidence.

INTRODUCTION

Developing nations have been plagued with nearly 200 wars and armed conflicts during the last 50 years, contributing to ill-health, suffering and increased mortality rates [1-3]. Survivors from post-conflict violence are often forcibly displaced from their environments, leaving them with the psychological and social effects of bereavement, torture, rape, starvation, and numerous other forms of trauma [4, 5]. Many survivors are coerced into to exile becoming refugees into foreign culture possessing little understanding of social and medical resources available [1]. According to the United Nations High Commissioner for Refugees (UNHCR) in 2009, approximately 43.3 million people worldwide have been forcibly displaced due to conflict and persecution, which is the highest reported number since the mid-1990s [6]. Post conflict survivors have conveyed a "loss of place," acute and chronic trauma and family disruption [7]. Additionally, post-conflict survivors from countries such as Bosnia and Herzegovina have reported increased rates of depression, feelings of fatigue, listlessness, and constant nervousness [7]. Global effort in understanding the mental health impacts of the afflicted individuals of political violence continues in order to develop more supportive and accessible services for victims.

For over thirty years, Peru has been a country affected by numerous acts of terrorism and violence incited by the communist group, *Sendero Luminoso ("Shining Path")*, with the goal of subverting the existing Peruvian government. The epicenter of the Shining Path was located in Ayacucho, capital city of Humanga Province encompassing the Southern Andes, where many indigenous people suffered the repercussions of terrorism [2, 8]. Over one-third of its inhabitants were forcibly displaced and another 25,000 individuals either disappeared or were killed [3]. On August 28, 2003, after more than two years of investigation, the Peruvian Truth and Reconciliation Commission revealed that 69,280 victims were killed in the internal conflict between 1980 – 2000 [9]. During these decades, emergency medical care remained largely underdeveloped. As such, a national task force was created in order to establish both pre-hospital and in-hospital emergency medicine care, which led to the creation of the first trauma center in Lima in 2003 [9]. Despite these efforts, there are still people suffering from psychological turmoil and there is still a need for culturally-appropriate support to assist survivors with coping with extreme stress [3].

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Research has demonstrated that exposure to traumatic events and violence can elicit depression, anxiety and post-traumatic stress disorder (PTSD) [1, 3, 7, 10]. Reports have revealed a high prevalence of mental illness among the highland Quechua population in Peru whom were exposed to countless forms of violence at the hands of the Shining Path. Pinsamietuwan (worrying thoughts), ñakary (suffering) and llaki (sorrow/sadness) are idioms of distress and suffering expressed by the Quechua population, which they believe are manifested from both past and current events [11]. Approximately one-fourth of the population has reported symptoms compatible with PTSD and two-fifths with anxiety and/or depression [3]. Research has revealed that after the administration of the Harvard Trauma Questionnaire to local communities in Ayacucho, all respondents reported experiencing a combat situation, varying reports of torture (80%), witnessing murders (40%), sexual abuse (30%), and having to defend one's life by killing (20%) [12].

Recognition of aforementioned syndromes remains a challenge, as many largely present somatic complaints including pain, fatigue, and dizziness to primary care physicians (PCPs) [13]. While there are specialized mental health resources available in some rural settings, poverty, negative attitudes toward mental health treatment and traditional values of privacy and autonomy usually result in low utilization rates [14]. Mental health action plans that include a system of primary care physicians, traditional healers, and trained relief workers may provide both cost-effective and good mental health care for resource limited areas [15]. To date, a consensus has not been reached on an evidence-based set of recommendations for interventions during immediate and mid-term post mass trauma phases [16, 17] though treatment of those exposed to mass violence may benefit from mental health services accessibility through primary-care settings in developing countries, as was done in Bosnia-Herzegovina and Cambodia [1, 18-23]. The World Health Organization and other studies suggest that the number one fundamental global healthcare reform recommendation for victims of trauma is to integrate mental health services in primary health care [24-27]. In order to meet this goal, PCPs must be adequately trained with psychiatric skills.

In the present study, we provided Peruvian PCPs a two-week culturally sensitive psychiatry-training program at the Harvard Program in Refugee Trauma (HPRT) in order to teach skills, such as screening patients for mental health issues and treating psychiatric illnesses, and improve their overall confidence in providing mental health services. Data was collected at baseline, 2-week post-training, and 1-year follow-up. The overall aims of the evaluation was (1) to establish the baseline mental health practices of the PCPs and their pre-training confidence levels in providing mental healthcare and (2) to assess the confidence in providing the mental healthcare taught by the two-week training at two time points (two-week post-training and one-year follow-up). This study will contribute to the emerging body of evidence that assesses broad mental health care training programs for primary care physicians post-conflict.

METHODS

Study Sample

Initially, PCPs had to be nominated by district and national Ministers of Health in Peru to participate in the training program. Once nominated, PCPs had to submit an application expressing their interest in participating in the mental health training program. All applications were reviewed by the faculty at HPRT and all PCPs were interviewed by the director of HPRT. Members of HPRT selected 52 PCPs to participate in the training. Applicants were evaluated on their interest in being trained in mental healthcare, their willingness to travel and treat patients in rural areas of Peru, and their potential for future growth in the field. The program's trainers were twenty members from the HPRT, including psychiatrists, clinicians and other individuals trained specifically in trauma care. Confidentiality was maintained for all participants in this study.

Training Approach

The district and national Ministers of Health in Peru officially approved the study. Training was conducted in Cambridge, Massachusetts at the HPRT for a two-week period in January and February of 2006. All travel costs were reimbursed as a part of project expenses. The investigators used lectures and small group discussions model in a 9am to 5:30pm 7-day week. Saturday and Sunday were the only scheduled half-days. The HPRT members conducted the training in English. PCPs were required to read the Human Rights and Mental Health in Peru report by the Mental Disability Rights International prior to attending the training [28]. Lecture presentations were focused on the following areas: Tool kit, Screening Instruments, Depression and Grief, PTSD, Sleep Hygiene, Anthropological Diagnosis and Violence,

Psychopharmacology, Primary Care and Psychiatry, Community Diagnosis, HPRT Train-the-Trainer Model, Team Building and Communication, Drugs and Alcohol, Domestic Violence, Sexual Violence and Women's Health, and Post-Partum Depression. Investigators also provided clinical case-directed training in a small group discussion regarding the lecture topics discussed and role modeling of the different skill sets presented. The lectures and case examples were provided in a culturally sensitive way using simulated Peruvian patient examples. The investigators of the study were responsible for the overall supervision and support of the trainees while they were participating in the training. Additionally, all trainees had access to an in-country Peruvian psychiatrist for in-country supervision after completing the training.

Evaluation Approach

The PCPs' confidence levels were evaluated as a proxy measure of clinical performance using the Smith, *et al.* approach, which indicates that a high level of physician's confidence in performing a medical procedure or psychosocial task was closely correlated with actual performance of procedures [21, 22, 29-35]. Smith *et al.* developed an intensive training program for primary care residents in interviewing and related psychosocial topics in medicine. Using a randomized, controlled study design, they found that trained residents, compared with controls, gained more knowledge, confidence, and skill in gathering data, building relationships with patients, managing somatizing patients, and educating patients [32, 33].

Demographics (gender, age, occupation and specialty training) and confidence levels were collected through a questionnaire format at the beginning of training (baseline), end of training (post two weeks), and one year later (follow-up): Medical evaluations, psychiatric diagnosis, prescribing psychotropic medications, providing counseling for psychiatric disorders and treating patients with a history of violence or victims of violence. The self-administered survey took approximately 30 to 40 minutes to complete.

A six point Likert scale (1=not at all confident, 2=slightly confident, 3=somewhat confident, 4=confident, 5=very confident, 6=extremely confident) were used to measure PCPs' confidence in performing psychiatric procedures and mental health services. Additionally, the following open ended question "please write down the most important things that you did in the policy, clinical, education/training and/or research area when you returned to your practice, as a result of the Harvard training" was also asked at the one year follow-up aimed to gather information about sustained skills in these areas. HPRT's Peruvian PCP team traveled to each PCP's health care center to administer the one year follow-up survey.

Data Analysis

Descriptive characteristics were summarized using means (± standard deviation) for continuous variables and counts and percentages for categorical variables. Similar measures of confidence were grouped into clusters. Appendix 1 shows the individual survey items for each cluster and the corresponding baseline Cronbach α coefficient for each cluster. Each cluster shows an acceptable internal consistency as demonstrated by the Cronbach's α [36]. In the analysis, the cluster mean at each visit (baseline, post 2 weeks, one-year follow-up) was used as the primary outcome variable. Since the same individuals were involved in the baseline and follow up surveys, for each outcome variable, a paired samples t-test was used to determine a statistically significant change from baseline to the two follow-up visits. All quantitative data analysis was conducted using SPSS Statistical Software for Windows (SPSS, version 18, Chicago, IL, USA). All p values were two sided and p values $<.05$ were considered evidence of statistical significance.

The one year follow-up evaluation included an open ended question about the most important activities in the areas of policy, clinical care, education, and research. Written responses were translated by a native speaker and an intermediate Spanish-speaking research staff. Translations were compared for discrepancies. All qualitative open-ended responses were coded using content analysis by two coders to ensure inter-coder reliability.

RESULTS

Table **1** provides the PCP's background demographics. Fifty-two PCPs enrolled and completed the training. The mean age was 48.37 (SD=9.13), with an equal distribution of females and males. The majority of the sample had a MD degree (56%) and worked in a Ministry of Health/Government Health Agency setting (77%). The largest percentage (36.5%) was in psychiatry as their medical specialty. As shown in Table **2**, the majority of PCPs had no training during their basic education on survivors of mass violence

Table 1: Demographic Characteristics of Peruvian PCP Participants (N=52)

Characteristic	N (% of pop.)	Mean (SD)
Age		48.37 (9.13)
Years since completion of Training		18.98 (8.72)
Gender		
Male	26 (50)	
Female	26 (50)	
Ethnic Self-Identification		
Mestizos	44 (86.3)	
Indigenous	4 (7.8)	
Caucasian/White	2 (3.9)	
Black/African	1 (2.0)	
Missing	1 (2.0)	
Degree		
Medical Doctor (MD)	29 (55.8)	
Clinical Nurse Specialist (CNS)	9 (17.3)	
Physicians Assistant (PA)	1 (1.19)	
Masters Degree (MA) in Psychology	1 (1.19)	
Other	12 (23.1)	
Medical Specialty		
Psychiatry	19 (36.5)	
General/Adult	6 (11.5)	
Pediatrics	5 (9.6)	
Gynecology/Obstetrics	5 (9.6)	
Psychology	3 (5.8)	
Other	9 (17.3)	
No Specialty	5 (9.6)	
Practice Location		
Lima	42 (80.8)	
Urban City	6 (11.5)	
Rural Area	2 (3.8)	
Italy	1 (1.9)	
National	1 (1.9)	
Work Setting		
Ministry of Health/Gov't Health Agency	40 (76.9)	
Academic Setting/Medical School	11 (21.2)	
Other	1 (1.9)	

(66%), on migrants and immigrants (74.5%) and on culturally diverse patients (58.3%). However, a large percentage had a moderate amount of training on drugs and alcohol (40%). After post education, 43.8% of participants received little training on survivors of mass violence. More than one third (39.6%) of participants reported having 61-100 patients with mental health problems and 32.6% had a least 1 patient who was a violence survivor (Table **3**). Almost a third of participants (31.9%) saw at least one patient a month with a serious mental illness and 34% saw at least one patient a month who were female victims of sexual violence.

Table 2: Training Completed During and Post Medical and Graduate Education of Peruvian PCP Participants (N=52)

	During Medical and Graduate Education	Post Medical and Graduate Education
	N (%)	N (%)
Training on Domestic Violence Victims		
None	13 (25)	6 (11.5)
A Little	21 (40.4)	24 (46.2)
Moderate Amount	15 (28.8)	19 (36.5)
A Great Deal	3 (5.8)	3 (5.8)
Training on Survivors of Mass Violence		
None	31 (66)	17 (35.4)
A Little	12 (25.5)	21 (43.8)
Moderate Amount	4 (8.5)	8 (16.7)
A Great Deal	0 (0)	2 (4.2)
Training on Migrants and Immigrants		
None	35 (74.5)	23 (48.9)
A Little	9 (19.1)	19 (40.4)
Moderate Amount	3 (6.4)	3 (6.4)
A Great Deal	0 (0)	3 (4.3)
Training on Drugs and Alcohol		
None	8 (16)	11 (22)
A Little	14 (28)	15 (30)
Moderate Amount	20 (40)	15 (30)
A Great Deal	8 (16)	9 (18)
Training on Culturally Diverse Patients		
None	28 (58.3)	23 (46.9)
A Little	8 (16.7)	16 (32.7)
Moderate Amount	9 (18.8)	7 (14.3)
A Great Deal	3 (6.3)	3 (6.1)

Confidence Clusters

Table **4** provides the PCPs' mean confidence in performing eight medical and psychiatric aspects of treatment at baseline, 2-week post-training, and one-year follow-up. Mean baseline confidence was above

Table 3: Patient Characteristics as Reported by Peruvian PCP Participants (N=52)

Characteristic	N (% of pop.)
Percent of patients who have Mental Health Problems	
0	4 (8.3)
1-5	7 (14.6)
6-10	6 (12.5)
11-20	2 (4.2)
21-40	3 (6.3)
41-60	7 (14.6)
61-100	19 (39.6)
Percent of patients who have Depression	
0	2 (4.2)
1-5	4 (8.3)
6-10	6 (12.5)
11-20	7 (14.6)
21-40	8 (16.7
41-60	10 (20.8)
61-100	11 (22.9)
Percent of patients who are Indigenous	
0	3 (7.1)
1-5	13 (31)
6-10	4 (9.5)
11-20	8 (19)
21-40	2 (4.8)
41-60	3 (7.1)
61-100	9 (21.4)
Percent of patients who are Violence Survivors	
0	3 (6.5)
1-5	15 (32.6)
6-10	5 (10.9)
11-20	4 (8.7)
21-40	6 (13)
41-60	11 (23.9)
61-100	2 (4.3)
Percent of patients who are Migrant or Immigrant	
0	4 (8.9)
1-5	9 (20)
6-10	6 (13.3)
11-20	8 (17.8)
21-40	6 (13.3)
41-60	10 (22.2)
61-100	2 (4.4)

4.0 (somewhat confident) in most areas except for prescribing psychotropic medications (3.34 $\pm$ 1.87) and treating patients with a history of violence (3.42 $\pm$ 1.44). Overall, there was a significant improvement in PCPs' confidence in all confidence clusters comparing baseline to 2-week post-training and comparing baseline to one-year follow-up. However, comparing 2-week post-training to the one-year follow-up, all confidence levels went down, though there was only a statistically significant decrease in mean confidence in assisting with patient care and social issues, prescribing psychotropic medication, self-care, understanding cultural impact, and collaboration.

The areas that showed the greatest change from baseline to the 2-week post-training were confidence in treating patients with a history of violence (mean Δ = -1.40 $\pm$ 1.4, p=<0.001), prescribing psychotropic medication (mean Δ = -1.34 $\pm$ 1.58, p=<0.001), and self-care (mean Δ = -1.25 $\pm$ 1.26, p=<0.001). The areas that showed the greatest improvement from baseline to one-year follow-up were also treating patients with a history of violence (mean Δ = -1.19 $\pm$ 1.4, p=<0.001) and performing a psychiatric diagnosis (mean Δ = -1.00 $\pm$ 1.12, p=<0.001).

Impact of Gender

There were no clear evidence of gender differences by age, number of patients seen per day, baseline confidence scores on the all the clusters and no difference on the mean confidence clusters at the 2-week follow-up. However, at the one year follow-up there was a statistically significant mean difference on prescribing psychotropic medication where men reported a significantly (p=0.047) higher confidence level (mean=4.73 $\pm$ 1.31) compared to women (mean=3.68 $\pm$ 1.66).

Content Analysis from One-Year Follow-Up

Trainees reported an increase in educational, clinical care and policy activities one year post training. They also reported limitations and struggles they have faced within the past year. All trainees reported involvement in educational activities such as transferring knowledge to faculty and students in universities, creating new curriculums, developing trauma awareness campaigns, and implementing research. PCPs were also engaged in clinical treatment for various forms of violence and for specific populations such as patients who are victims of social, political, and family violence and patients with psychotic disorders who committed a crime. Additionally, PCPs reported maintaining clinical evaluations, diagnostic tools, and regulatory screening

Table 4: Peruvian PCP Mean Change in Confidence Comparing Baseline to Post-Training and One Year Follow Up (N=52)

	Visit	Mean	*SD*	Mean Δ	*SD*	*N*	*SE*	CI	t	*p*
Psychiatric Diagnosis	Baseline	4.00	1.44			52				
	Post-training	5.09	0.94	-1.10	1.34	50	0.19	-1.48, -0.72	-5.81	<0.0001
	Follow-up	4.90	1.05	-1.00	1.12	40	0.18	-1.36, -0.64	-5.64	<0.0001
	PT *vs.* FP						0.14	-0.07,0.50	1.51	0.1370
Assist w/Patient Care & Social Issues	Baseline	4.43	1.16			52				
	Post-training	5.35	0.69	-0.94	1.08	49	0.15	-1.24,-0.63	-6.09	<0.0001
	Follow-up	5.04	0.77	-0.70	0.85	41	0.13	-0.97,-0.43	-5.22	<0.0001
	PT *vs.* FP						0.11	0.10,0.55	2.92	0.0060
Prescribe Psychotropic Meds	Baseline	3.34	1.87			43				
	Post-training	4.74	1.34	-1.34	1.58	40	0.27	-1.89, -0.79	-4.95	<0.0001
	Follow-up	4.27	1.54	-.077	1.71	34	0.31	-1.40, -0.15	-2.53	0.0170
	PT *vs.* FP						0.17	0.10, 0.79	2.61	0.0140
Treating Trauma	Baseline	4.08	1.27			47				
	Post-training	5.14	0.87	-1.01	1.18	42	0.19	-1.39, -0.63	-5.36	<0.0001
	Follow-up	5.01	0.95	-0.94	0.90	37	0.15	-1.24, -0.63	-6.20	<0.0001
	PT *vs.* FP						0.17	-0.30, 0.39	0.25	0.8070
Treating Violence	Baseline	3.42	1.44			51				
	Post-training	4.78	0.97	-1.40	1.40	48	0.21	-1.81, -0.98	-6.81	<0.0001
	Follow-up	4.58	1.12	-1.19	1.44	39	0.23	-1.66, -0.73	-5.17	<0.0001
	PT *vs.* FP						0.18	-0.04, 0.70	1.80	0.0790
Self-Care	Baseline	4.05	1.14			51				
	Post-training	5.31	0.81	-1.25	1.26	49	0.18	-1.62,-0.88	-6.86	<0.0001
	Follow-up	4.86	0.97	-0.94	1.23	40	0.19	-1.32,-0.55	-4.84	<0.0001
	PT *vs.* FP						0.14	0.17,0.72	3.30	0.0020
Understanding Cultural Impact	Baseline	4.10	1.34			51				
	Post-training	5.20	0.79	-1.09	1.21	49	0.17	-1.44,-0.74	-6.26	<0.0001
	Follow-up	4.81	0.98	-0.83	1.04	41	0.16	-1.16,-0.50	-5.12	<0.0001
	PT *vs.* FP						0.14	0.08, 0.64	2.61	0.0130
Collaboration	Baseline	4.88	1.19			50				
	Post-training	5.64	0.70	-0.78	1.16	50	0.17	-1.12, -0.45	-4.68	<0.0001
	Follow-up	5.31	0.76	-0.43	1.10	39	0.18	-0.80, -0.07	-2.39	0.0220
	PT *vs.* FP						0.13	0.12, 0.65	2.92	0.0060

Note: PT: Post-Training; FP: Follow-up.

procedures to identify victims of violence and an overall improved knowledge of diagnosing patients. PCPs reported training clinical professionals on caring for victims of violence and developing and standardizing treatment guidelines in the hospitals and clinics throughout the country. Lastly, PCPs reported being more involved with the Ministry of Health, Human Rights Institute, local NGOs, and National Health Strategy. Table **5** summarizes the trainees' responses in the one-year follow-up survey.

DISCUSSION

Our findings were similar to two previous reports that measured the impact of mental health training of PCPs in post-conflict Cambodia and Bosnia and Herzegovina [21, 22]. From a cohort of 52 Peruvian PCPs throughout rural and urban areas in Peru, we found that the PCPs at pre-training baseline had a moderate orientation and confidence in providing mental health services. In addition, the data suggests that when culturally appropriate mental health training is provided, PCPs are able to learn and improve their confidence in caring for mentally ill and traumatized patients.

Studies have shown that western and Australian PCPs trained on mental health skills improved their ability to identify and treat mental problems more so than colleagues who had not received training [24, 37]. Trainees expressed significant improvement in all mental health confidence areas comparing baseline to

Table 5: Peruvian PCP responses on the open ended question "please write down the most important things that you did in the policy, clinical, education/training and/or research area when you returned to your practice, as a result of the Harvard training" in the one-year follow-up

Long-Term Impact of HPRT Training	
Educational Activities	Taught students and faculty Created new mental health curriculums Developed trauma awareness campaigns Trained clinical personnel such as general doctors and nurses Replicated the HPRT training program
Engagement in Clinical Treatment	Cared for patients who are victims of violence Cared for children and adolescents with mental health issues Increased community outreach to post-conflict rural areas Increased clinical evaluations, diagnostic tools, and regulatory screening procedures at hospitals
Policy	Advocated to regional authorities Became involved with the Ministry of Health, Human Rights Institute, NGOs and National Health Strategy
Strengthening Collaborations	Participated in reunions, conferences and coordination with other hospitals such as coordinated mobile care teams for victims of violence in urban and rural areas
On-going Limitations	
Funding	Lack of funding for research
Access to Resources in Rural Areas	Lack of psychotropic medications No hospital to make referrals for difficult cases

post-training, including performing aspects of medical evaluation, formulating a psychiatric diagnosis, assisting with patient care and social issues, treating patients with a history of violence, understanding the cultural implication, ease in collaborating with mental health system when necessary, and understanding the importance of self-care for the prevention of burnout.

Interestingly, when comparing these same quantitative confidence measures two-weeks post-training and at one-year follow-up, PCPs had lost some of the initial confidence gained in assisting patients with social issues and in treating patients with a history of violence, perhaps suggesting the need for more periodic training to reinforce the skills learned. Though confidence decreased after the one-year follow-up, PCPs written responses indicated that they were still providing care for various forms of violence, disseminating knowledge to colleagues and students, and being active in changing health policies.

The sustainability of mental health training in primary health care is a major issue [38]. A recommendation to future programs is to provide periodic training and on-site supervision [39]. An extensive review of the literature on such studies suggests that a combination of educational methods such as consultations, didactics, academic detailing, and role play of optimal treatment, can be an applicable method to teaching how to incorporate effective psychiatric diagnostic competency into clinical practice [40]. The chronic nature of the psychiatric disorders most prevalent in the refugee population highlights the need for long-term training of PCPs [41]. The implementation of a local mental health in medical education programs would provide the opportunity for continued growth in mental health skills for PCPs' trainees while also impacting PCPs who did not participate in the training [22].

Following the HPRT training program, Peruvian PCPs demonstrated a significant increase in their ability to understand how and when to correctly prescribe psychotropic medications two-weeks post-training. As such, confidence increased in prescribing psychotropic medications for generalized anxiety, acute grief reactions, depression, PTSD, and insomnia. Though still increased from their baseline, PCPs' confidence in prescribing psychotropic medications at one-year post-training significantly decreased compared to their confidence scores at two-weeks post-training. As discussed above, this result is consistent with the idea of mental health retraining. Furthermore, the availability of psychotropic drugs in a post-conflict society is complex and is necessary for PCPs to provide effective care to patients with mental

illness. In the present study, PCPs expressed difficulties in accessing resources and making referrals for patients due to rural location of practice. Thomas *et al*. had similar results when investigating mental health services in rural Canadian communities [42]. Referral systems, collaborations with hospitals and ways of accessing psychotropic medications must still be addressed.

Unlike similar work performed in Bosnia [21], the data gathered in Peru suggested that there were no gender differences present in initial reporting of baseline confidence or at the 2-week post-training follow-up across the psychiatric clusters, in age, or in the number of patients seen per day. However, there was a statistically significant mean difference on prescribing psychotropic medication, whereby men reported a higher confidence level compared to women. In fact, the decline in confidence in prescribing psychotropic medications seen in the time period between two-week post-training and one-year follow-up was largely due to the decline in confidence as reported by female PCPs. As suggested in the earlier work from Bosnia, female PCPs may be more comfortable expressing a lower level of confidence than male PCPs post-training.

As in most post-conflict societies, physician stress and burnout may be high due to emotional difficulties in caring for victims of violence. Programs should be sensitive to their needs and provide skills on dealing with their own trauma experiences. In training Peruvian PCPs, concepts were introduced to provide psychological reinforcements and address PCPs' trauma experiences. In the future, for PCPs directly affected by violence, educators and policy makers must give specific attention to the needs of PCPs so that they can continue to be productive and uphold their self-esteem [43].

Consistent with previous studies, research still needs to be conducted in post-conflict societies, including Peru [44]. According to Gallo, Latin American research limitations include lack of funding, trained staff, and a research culture in institutions [44]. Research in Latin America has been growing since 2004 but is most concentrated in Brazil, Mexico, Argentina, Colombia, and Chile. With this in mind, strengthening Peru's contribution to research is a challenge to face and sustain over the years to come.

LIMITATIONS

While confidence does not necessarily define one's competence, self-belief in one's ability to perform certain procedures may approximate this [32, 34, 35]. In one study that used questionnaires to examine self-confidence in five skill areas, it was found that trained residents expressed higher self-confidence in all five areas of psychosocial skills, anticipated more positive outcomes for emotional sensitivity, managed somatization and facilitated patient communication, and were more strongly committed to being emotionally sensitive compared with the untrained residents [32]. As such, they concluded that intensive psychosocial training improved residents' self-confidence in their ability regarding key psychosocial behaviors and increased their knowledge of psychosocial medicine. Their increased confidence, however, may merely reflect changes in attitudes.

In another study by Abas *et al*., the authors examined the effects of 16 hours of mental health training for primary healthcare nurses over a five week period [45]. Three years after training, there was no direct long-term evidence of significant change in the diagnosis of depression or the use of antidepressants. The authors point out that the results may have been related to the bureaucratic limitations such as the lack of mental illness diagnostic codes. In a self-assessment of perceived competence, 95% of respondents felt average or above average competence in the recognition of depression, while 32% felt that they were below average in its treatment.

We do not know whether the PCPs in this present study were effectively treating patients with mental health issues in their primary healthcare centers. While PCPs were observed evaluating and treating psychiatric patients during training, with limited funding, there were no objective measures of whether any patient actually improved. There were also no objective measures of whether PCPs' self-report of stress improved following the training. Additionally, only a one-year follow-up assessment was performed and the long-term effectiveness, as a result, is unknown. Furthermore, PCPs' confidence in certain areas may represent changes in attitude and not reflect changes in clinical skills.

CONCLUSION

There are few studies examining mental health training in primary care medicine where patient outcomes have been measured. The HPRT chose to train PCPs that were providing care in community health facilities throughout rural and urban areas in Peru. Integration of mental health care into general

health services has proven to have some advantages. Some of these advantages include: less stigmatization of patients and staff as mental and behavioral disorders are seen and managed alongside physical health problems; improved screening and treatment, particularly improved detection rates for patients with vague somatic complaints related to mental and behavioral disorders; the potential for improved treatment of the physical problems of those suffering from mental illness, and vice versa; and better treatment of mental aspects associated with physical problems [38].

Primary care medicine is at the center of care for those suffering from the effects of war and violence [46]. As such, primary care physicians must provide essential elements of effective care for patients suffering from mental illness [24, 47]. PCPs, however, are not prepared to deal with the medical and psychological aspects of war. The WHO argues, "General health personnel need to be trained in the essential skills of mental healthcare. Such training ensures the best use of available knowledge for the largest number of people and makes possible the immediate application of interventions" [38].

The WHO strongly supports the role of mental health in primary care settings, which was recommended in the Declaration of Alma Ata and a more recent WHO document [38, 48]. However, little discussion of the feasibility in conflict and post-conflict societies is available. In post-conflict societies, PCPs should be trained in a culturally effective manner and with on-site supervision. Research programs are necessary to fully examine the outcome of such training programs in a primary care setting. Objective behaviors and the sustainability of change in clinical outcomes must be the gold standard [43]. Randomized

Appendix 1: Peruvian Primary Care Practitioners' Confidence*

Perform psychiatric diagnosis (Alpha=.95; 5 items)	Diagnose and treat grief reactions Diagnose and treat generalized anxiety disorder Diagnose and treat depression Diagnose and treat PTSD Diagnose and treat Insomnia
Assist with patient care and social issues (Alpha=.90; 6 items)	Reinforce and teach positive coping behaviors Recommend altruism, work, and spiritual activities Reduce patients high risk behaviors Provide close and scheduled follow-up visits Help patients with disability related to financial/money/food problems in violence victims Involve family members in the treatment of a patient
Prescribe psychotropic medication (Alpha=.98; 5 items)	Prescribe psychotropic medications for generalized anxiety Prescribe psychotropic medications for grief reactions Prescribe psychotropic medications for depression Prescribe psychotropic medications for PTSD Prescribe psychotropic medications for insomnia
Treat a patient with a history of trauma (Alpha=.75; 3 items)	Ask about the patient's trauma story Identify concrete physical and mental effects of trauma Effectively use medications for symptoms of PTSD in violence victims
Treat patients with a history of violence (Alpha=.73; 2 items)	Intervene with a patient threatening to hurt others Treat a patient who has committed an atrocity or human rights violation
Self-care (Alpha=.77; 2 items)	Reduce the physical and emotional stress in your daily practice associated with caring for the torture/trauma survivors Prevent burnout by discussion with colleagues
Understand cultural impact (Alpha=.89; 4 items)	Be culturally attuned to differences in meaning and interpretation Treat a patient who is from a different ethnic group from your own Work effectively with an interpreter Understand the folk diagnosis given by the community to the patient
Collaboration (Alpha=.74, 2 items)	Contact a psychiatrist and discuss a case Refer a patient to a psychiatrist, social worker, nurse or job counselor

*Alpha taken from baseline.

trials of trained versus non-trained PCPs are also needed.

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