*Original Article*

موضوع أصيل

# POST-TRAUMATIC STRESS DISORDER: INTERVENTIONAL TRAINING OF PRIMARY HEALTH CARE PHYSICIANS IN DISPLACED CAMPS

# اضطراب الإجهاد ما بعد الصدمة: التدريب التداخلي لأطباء الرعاية الصحية الأولية في مخيمات النازحين

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**ملخص البحث**

**هدف البحث:** الأشخاص المشردون داخلياً هم أشخاص يضطرون إلى الفرار من ديارهم ولكنهم على عكس اللاجئين فهم يظلون داخل حدود بلادهم. قد تنجم هذه الهجرة عن نزاع مسلح، حالات عنف عام، انتهاكات لحقوق الإنسان، كوارث طبيعية أو من صنع الإنسان. تبين أن أطباء الرعاية الأولية يفتقرون إلى التدريب اللازم للقيام بالتشخيص والعلاج المناسب لاضطراب الإجهاد ما بعد الصدمة. بالإضافة إلى ذلك فإنهم يبلغون عن شعورهم بعدم الاستعداد وعدم التأكد في عملهم مع الناجين من الصدمات النفسية. تهدف هذه الدراسة إلى تحسين أداء أطباء الرعاية الصحية الأولية في الكشف المبكر وإعادة تأهيل المرضى الذين يعانون من اضطراب ما بعد الصدمة لدى الأشخاص النازحين داخلياً في إقليم كردستان العراق.

**طرق البحث:** تم إجراء دراسة تداخلية (قبل وبعد الاختبار) في مراكز الرعاية الصحية الأولية في مخيمات النازحين في مدينة أربيل في إقليم كردستان–العراق، خلال الفترة من 1 تشرين الثاني 2017 حتى نهاية شباط 2018، 67 طبيباً بتخصصاتٍ مختلفة من جميع مراكز الرعاية الصحية الأولية وافقوا على المشاركة في الدراسة. تم جمع البيانات من خلال استبيان يدار ذاتياً من قبل الأطباء، يتكون هذا الاستبيان والتقييم من ثلاث أوراق (اجتماعية، ديموغرافية، معلوماتية).

**النتائج:** بلغ متوسط عمر المشاركين وسنوات ممارستهم للمهنة 38.6±6.9 سنة و13.7±5.6 سنة على التوالي. شكل الذكور 64.2% من المشاركين. كانت النتيجة الإجمالية للمعرفة قبل التدريب 0.24، ثم ازدادت إلى 0.68 بعد اختبار التدريب الأول، وإلى 0.62 بعد اختبار التدريب الثاني. كانت النتيجة الإجمالية للمعرفة بعد التدريب الأول (0.68) أعلى بكثير وبدلالةٍ إحصائية من القيمة ما قبل التدريب (0.24) والقيمة بعد التدريب الثاني (0.62). بالإضافة إلى ذلك، كانت الدرجات بعد التدريب الثاني أقل بكثير من الدرجات بعد التدريب الأول.

**الاستنتاجات:** من الواضح أن المعرفة باضطراب الإجهاد ما بعد الصدمة لدى الأطباء قبل التدريب كانت سيئة، إلا أنها كانت كافية لإحالة الحالات المشتبه فيها إلى الأطباء النفسيين، أما بعد التدريب فقد تحسنت معرفة الأطباء حول اضطراب ما بعد الصدمة بشكلٍ ملحوظ.

## ABSTRACT

***Objective:*** *Internally displaced persons are people who are forced to flee their homes but unlike refugees, they remain within their country's borders. This migration may result from armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters. Primary care physicians have been shown to lack the necessary training to provide appropriate diagnosis and treatment for post-traumatic stress disorder. In addition, they report feeling unprepared and unsure in their work with*

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*trauma survivors. The aim of this study was to improve the knowledge of primary health care physicians in early detection and rehabilitation of patients with posttraumatic stress disorder among internally displaced persons in Kurdistan region, Iraq.*

***Methods:*** *An interventional (pre, post-test) study was conducted in primary health care centers in the camps of internally displaced persons in Erbil city in Kurdistan region-Iraq, during the period from the 1st of November 2017 to the end of February 2018, were 67 physicians with different specialties from all primary health care centers who agree to participate in the time of the study were included. Data were collected through self-administered questionnaire by physicians. This questionnaire and assessment are comprises two papers (socio-demographic and knowledge paper).*

***Results:*** *The mean±(SD) age and years of practice of participants was 38.6±6.9 years and 13.7±5.6 years, respectively. Male constituted 64.2% of the participants. Before training the overall mean knowledge score was 0.24, which increased to 0.68 after training, and also increased to 0.62 after the second round of testing after training. The overall knowledge score of first round of testing after training, (0.68), was significantly higher than before training (0.24), and the second round of testing after training (0.62). In addition, the scores after the second round of testing after training was significantly lower than that after the first round of testing after training ($p<0.001$).*

***Conclusions:*** *The knowledge regarding post-traumatic stress disorder for physicians before training are obviously poor and were only enough for referral of suspected cases to psychiatrists, and after training the post-traumatic stress disorder knowledge of physicians were improved.*

## INTRODUCTION

Internally displaced persons (IDPs) are people who are forced to flee their homes but unlike refugees, they remain within their country's borders. This migration may result from armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters. In Syria and Iraq, the mental health and psychosocial impacts of conflict, disaster and displacement have been widely recognized.[1] There are currently nearly 20 million IDPs worldwide, roughly twice the total number of refugees. It was shown that approximately 70% and 80% of all IDPs were women and children.[2] Most IDPs live in low-income countries experiencing a war; their psychosocial health has not been well addressed.[3]

During the acute phase of an emergency, mental health interventions to reduce traumatic stress are often put in place. In addition to syndromes often associated with conflict such as post-traumatic stress disorders (PTSDs),[5] other disorders also occur, such as depressive or anxiety disorders.[6]

Primary care physicians (PCPs) have been shown to lack the necessary training to provide appropriate diagnosis and treatment for PTSD.[6] In addition, they report feeling unprepared and unsure in their work with trauma survivors.[7] The most common reason of increased PTSD cases was failure of PCPs to recommend treatment.[8] Thus, PTSD patients presenting in primary care often go unrecognized and untreated, which can lead to the chronic psychosocial, occupational, and functional impairments commonly associated with PTSD.[9]

This study was conducted to assess and improve the performance of PCPs in early detection and rehabilitation of patients with PTSD among IDPs in Kurdistan region, Iraq.

## METHODS

This is an interventional (pre, post-test) study was conducted in (PHCCs) in the camps of IDPs in Erbil city in Kurdistan region-Iraq, during the period from the 1st of November 2017 to the end of February 2018. There are five camps of IDPs in Erbil city; (Baharka, Harsham, Debka, Khazer and Hassan-Shami camps). There are more than 250000 IDPs living in camps, originated mainly from Ninawa, in addition to Anbar and Salah Al-din governorates. There are 7 PHCCs in these five camps. Sixty seven physicians from all PHCS with different specialties (general practitioners, family

medicine specialists, internal medicine, pediatricians, and community medicine physicians) who agreed to participate in the study were included. Data were collected through self-administered questionnaire form which was filled by physicians. This questionnaire and assessment papers are designed by the researcher and supervisor based on available literatures.[10] The researcher explained the aims of the study to the doctors and answered the question of them regarding the study. English language was used by the researcher for communication with the participants. Doctors were assured that the information collected would have no bearing on their overall working assessment.

The questionnaire comprises two papers which will include the followings (Appendix B, two papers):

1. Socio demographic characteristics: Age, gender and recent displacement, (First paper).
2. Occupational characteristics: Years of professional experience and experience with PTSD, (First paper).
3. Knowledge assessment of PTSD before and after training, (Second paper)

**Interventional training:** The data in the questionnaire comprises three sections (Appendix B):

1- Socio-demographic data and professional characteristic (years of experience, work focus …etc.).
2- Knowledge assessment before training.
3- Knowledge assessment after training.

**Schedule of training:** The training program was based on modules obtained from the literature.[11,12] Privacy was considered in training and assessment. The duration of the training was one month in a schedule of five days/week. The included staff in each department will be divided into four groups. Each group will be trained for one week to avoid interruption with staff duties in PHCC. The training course includes:

First day: introduction to PTSD, Second day: diagnostic criteria of PTSD and early detection of PTSD in PHCC (screening tool), Third day: comorbidities with PTSD (e.g. depression), Fourth day: Pharmacological management of PTSD allowed in PHCC and Fifth day: Psychotherapy management of PTSD which is the cornerstone of PTSD management.

The training was incorporate short sessions of PTSD screening among IDPs that were be performed by the researcher in front of the participants. The researcher was use four screening question for early identification of PTSD cases. The IDPs experienced a disaster in last months. They were be asked the following screening questions:[13]

1. Did you have nightmares about the disaster or you always think about it?
2. Do you had efforts to stop thinking about disaster or tried to avoid situations remind you?
3. Always vigilant, had a defense behavior, or easily amazed?
4. Felt paralyzed or dissociated from others, activities, or surroundings?

**Knowledge assessment** (Appendix B; Second paper): The assessment of knowledge about PTSD was done a week before training (pre-training baseline assessment), one week and one month after training (post-training assessment) by direct interview. The assessment will include material of training modules (definition, epidemiology, screening, diagnosis and management). The scores were 1 for right answer and 0 for wrong answer.

**Instruments and tools:**

- The data relevant to the study purpose will be collected through especially designed questionnaire (Appendix B).
- Knowledge assessment paper (Appendix B: Second paper).
- The training module (Appendix A) used was based on some contents web-based training module of USA Department of Veterans Affairs,[12] that is designed for training of medical doctors. The training of physicians was aiming in developing the knowledge, increasing self-efficacy and improving practice related to cognitive behavioral therapy (CBT) techniques.

Data of all participants were checked and analyzed using the statistical package for social sciences (SPSS) version 24. Descriptive statistics were expressed as mean, standard error of mean, frequencies and proportions. Responses of the participants were presented as frequencies and proportions, then Knowledge scores

were adopted depending on the responses of participants where the correct response scored one and the incorrect response scored zero. The mean score was calculated for each individual participant by summation of the scores for each knowledge item divided by the total number of items, (n=18), the calculated mean score ranged between zero and one, the higher value of the score the better the knowledge. Level of significance was set at ≤0.05 as a cutoff point, below or equal to which the difference is significant. Finally results and findings were presented in tables and figures with an explanatory paragraph for each, using Microsoft Office Word software version 2010 for windows.

## RESULTS

A total of 67 physicians were enrolled in this study, their demographic characteristics are shown in Table 1. The mean (SD) age and years of practice of participants was 38.6 (6.9) years and 13.7 (5.6) years, respectively. Additionally, almost half of the participants were in the fourth decade of life and majority of them were in practice for more than 10 years. Male constituted 64.2% of the participants. Among the 67 participants, general practitioner were 46.3%, family medicine doctors were 26.8%, internal medicine physicians were 16.4%, pediatricians and community medicine specialists constituted only 7.5% and 3.0%, respectively.

Table 2 summarizes the responses and mean scores of the participants knowledge of each items of questionnaire before training. The mean score which was calculated according to the participants responses for each item ranged between 0.06 to 0.55, and the overall mean score was 0.24. After training, there was an improvement in the knowledge of participants in all items of knowledge questionnaire resulted in a higher overall knowledge score of 0.68, ranging from 49.3% for correct knowledge that PTSD is the result of large number of different combinations of "risk" and "protective" factors to 88.1% for correct knowledge that low interest or participation in significant activities was a significant symptom of autism, Table 3.

| Variable | | No. | % |
|---|---|---|---|
| Age (years)* | <30 | 11 | 16.4 |
| | 30-39 | 35 | 52.2 |
| | 40-49 | 14 | 20.9 |
| | ≥50 | 7 | 10.4 |
| Gender | Male | 43 | 64.2 |
| | Female | 24 | 35.8 |
| Profession | General practitioner | 31 | 46.3 |
| | Family medicine | 18 | 26.8 |
| | Internal medicine | 11 | 16.4 |
| | Pediatrics | 5 | 7.5 |
| | Community medicine | 2 | 3 |
| Years of practice** | ≤10 | 18 | 26.9 |
| | 11-15 | 29 | 43.3 |
| | 16-20 | 12 | 17.9 |
| | >20 | 8 | 11.9 |
| Total | | 67 | 100.0 |
| *Mean age (std. deviation) = 38.6±6.9 | | | |
| **Mean years of practice (std. deviation) = 13.7±5.6 | | | |

Table 1. Demographic variables of 67 physicians the PHC centers, in the camps of IDPs in Erbil city of Kurdistan region-Iraq, 2017.

| Item | | Before training | | | | | First test after training | | | | | Second test after training | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Correct | | Incorrect | | Mean Score | Correct | | Incorrect | | Mean Score | Correct | | Incorrect | | Mean Score |
| | | n | % | n | % | | n | % | n | % | | n | % | n | % | |
| Q1 | The PTSD is a syndrome characterized by persistent anxiety-related symptoms provoked by a traumatic event. | 24 | 35.8 | 43 | 64.2 | 0.36 | 52 | 77.6 | 15 | 22.4 | 0.78 | 44 | 65.7 | 23 | 34.3 | 0.66 |
| Q2 | PTSD is the result of large number of different combinations of "risk" and "protective" factors | 4 | 6.0 | 63 | 94.0 | 0.06 | 33 | 49.3 | 34 | 50.7 | 0.49 | 32 | 47.8 | 35 | 52.2 | 0.48 |
| Q3 | The age is considered as common risk factor for development of PTSD. | 20 | 29.9 | 47 | 70.1 | 0.30 | 53 | 79.1 | 14 | 20.9 | 0.79 | 48 | 71.6 | 19 | 28.4 | 0.72 |
| Q4 | The men are more venerable to PTSD than women. | 13 | 19.4 | 54 | 80.6 | 0.19 | 46 | 68.7 | 21 | 31.3 | 0.69 | 39 | 58.2 | 28 | 41.8 | 0.58 |
| Q5 | Previous traumatic events and/or previous PTSD episode had no effect on development of new PTSD episode. | 20 | 29.9 | 47 | 70.1 | 0.30 | 53 | 79.1 | 14 | 20.9 | 0.79 | 45 | 67.2 | 22 | 32.8 | 0.67 |
| Q6 | Family history of PTSD among individuals is considered as a risk factor for PTSD development. | 18 | 26.9 | 49 | 73.1 | 0.27 | 44 | 65.7 | 23 | 34.3 | 0.66 | 39 | 58.2 | 28 | 41.8 | 0.58 |
| Q7 | PTSD prevalence rates are largely similar across countries, regardless the post conflict settings. | 8 | 11.9 | 59 | 88.1 | 0.12 | 48 | 71.6 | 19 | 28.4 | 0.72 | 44 | 65.7 | 23 | 34.3 | 0.66 |
| Q8 | Internal displacement is regarded as the most common risk factor for PTSD development. | 21 | 31.3 | 46 | 68.7 | 0.31 | 52 | 77.6 | 15 | 22.4 | 0.78 | 46 | 68.7 | 21 | 31.3 | 0.69 |
| Q9 | Recurrent experiencing of trauma and recurrent nightmares among are the first presenting symptoms of PTSD. | 24 | 35.8 | 43 | 64.2 | 0.36 | 50 | 74.6 | 17 | 25.4 | 0.75 | 45 | 67.2 | 22 | 32.8 | 0.67 |
| Q10 | The phobia from places and persons reminding with trauma symptoms are highly related to depression than PTSD. | 5 | 7.5 | 62 | 92.5 | 0.08 | 37 | 55.2 | 30 | 44.8 | 0.55 | 32 | 47.8 | 35 | 52.2 | 0.48 |
| Q11 | Low interest or participation in significant activities was a significant symptom of autism. | 37 | 55.2 | 30 | 44.8 | 0.55 | 59 | 88.1 | 8 | 11.9 | 0.88 | 55 | 82.1 | 12 | 17.9 | 0.82 |
| Q12 | Sleeping problems, irritability, anger feelings and poor concentration are the common symptoms of PTSD. | 20 | 29.9 | 47 | 70.1 | 0.30 | 40 | 59.7 | 27 | 40.3 | 0.60 | 38 | 56.7 | 29 | 43.3 | 0.57 |
| Q13 | The main screening question of PTSD is if having nightmares only. | 7 | 10.4 | 60 | 89.6 | 0.10 | 38 | 56.7 | 29 | 43.3 | 0.57 | 42 | 62.7 | 25 | 37.3 | 0.63 |
| Q14 | Depression is the only differential diagnosis of PTSD. | 19 | 28.4 | 48 | 71.6 | 0.28 | 42 | 62.7 | 25 | 37.3 | 0.63 | 35 | 52.2 | 32 | 47.8 | 0.52 |
| Q15 | Specific phobia and psychosis symptoms are different from PTSD symptoms. | 11 | 16.4 | 56 | 83.6 | 0.16 | 56 | 83.6 | 11 | 16.4 | 0.84 | 52 | 77.6 | 15 | 22.4 | 0.78 |
| Q16 | Individual with PTSD are more likely to have a comorbid diagnosis of depression. | 9 | 13.4 | 58 | 86.6 | 0.13 | 35 | 52.2 | 32 | 47.8 | 0.52 | 33 | 49.3 | 34 | 50.7 | 0.49 |
| Q17 | The psychotherapy is the first line treatment of PTSD. | 14 | 20.9 | 53 | 79.1 | 0.21 | 39 | 58.2 | 28 | 41.8 | 0.58 | 41 | 61.2 | 26 | 38.8 | 0.61 |
| Q18 | Anti-depressants are the common medications used for PTSD patients. | 11 | 16.4 | 56 | 83.6 | 0.16 | 44 | 65.7 | 23 | 34.3 | 0.66 | 42 | 62.7 | 25 | 37.3 | 0.63 |
| Overall | | | | | | 0.24 | | | | | 0.68 | | | | | 0.62 |

Table 2. Distribution of responses of 67 physicians towards items of knowledge about PTSD questionnaire before training and (first and second tests) after training at PHC centers, in the camps of IDPs in Erbil city of Kurdistan region-Iraq, 2017.

| Item | Knowledge score | | | | | | Repeated measures LSD P. values* | | |
|---|---|---|---|---|---|---|---|---|---|
| | Before Training | | After Training T1 | | After Training T2 | | | | |
| | Mean | SD | Mean | SD | Mean | SD | P1 | P2 | P3 |
| Q1 | 0.36 | 0.059 | 0.78 | 0.051 | 0.66 | 0.058 | < 0.001 | < 0.001 | 0.004 |
| Q2 | 0.06 | 0.029 | 0.49 | 0.062 | 0.47 | 0.061 | < 0.001 | < 0.001 | 0.568 |
| Q3 | 0.3 | 0.056 | 0.79 | 0.050 | 0.72 | 0.055 | < 0.001 | < 0.001 | 0.058 |
| Q4 | 0.19 | 0.049 | 0.69 | 0.057 | 0.58 | 0.061 | < 0.001 | < 0.001 | 0.007 |
| Q5 | 0.3 | 0.056 | 0.79 | 0.050 | 0.67 | 0.058 | < 0.001 | < 0.001 | 0.004 |
| Q6 | 0.27 | 0.055 | 0.63 | 0.058 | 0.52 | 0.061 | < 0.001 | < 0.001 | 0.034 |
| Q7 | 0.12 | 0.040 | 0.72 | 0.055 | 0.66 | 0.058 | < 0.001 | < 0.001 | 0.045 |
| Q8 | 0.31 | 0.057 | 0.78 | 0.051 | 0.69 | 0.057 | < 0.001 | < 0.001 | 0.013 |
| Q9 | 0.36 | 0.059 | 0.75 | 0.054 | 0.67 | 0.058 | < 0.001 | < 0.001 | 0.022 |
| Q10 | 0.07 | 0.032 | 0.55 | 0.061 | 0.48 | 0.061 | < 0.001 | < 0.001 | 0.024 |
| Q11 | 0.55 | 0.061 | 0.88 | 0.040 | 0.82 | 0.047 | < 0.001 | < 0.001 | 0.103 |
| Q12 | 0.3 | 0.056 | 0.62 | 0.060 | 0.59 | 0.061 | < 0.001 | < 0.001 | 0.484 |
| Q13 | 0.1 | 0.038 | 0.63 | 0.061 | 0.57 | 0.060 | < 0.001 | < 0.001 | 0.045 |
| Q14 | 0.28 | 0.055 | 0.66 | 0.060 | 0.58 | 0.061 | < 0.001 | < 0.001 | 0.021 |
| Q15 | 0.16 | 0.046 | 0.84 | 0.046 | 0.78 | 0.051 | < 0.001 | < 0.001 | 0.159 |
| Q16 | 0.13 | 0.042 | 0.52 | 0.061 | 0.49 | 0.062 | < 0.001 | < 0.001 | 0.484 |
| Q17 | 0.21 | 0.050 | 0.61 | 0.061 | 0.58 | 0.060 | < 0.001 | < 0.001 | 0.321 |
| Q18 | 0.16 | 0.046 | 0.66 | 0.058 | 0.63 | 0.060 | < 0.001 | < 0.001 | 0.153 |
| Overall | 0.24 | 0.044 | 0.68 | 0.048 | 0.62 | 0.045 | < 0.001 | < 0.001 | < 0.001 |
| P. values* | | | | | | | | | |
| P1: Before training vs. after training T1, P2: Before training vs. after training T2, P3: After training T1 vs. after training T2 | | | | | | | | | |

Table 3. Comparison of mean values of knowledge scores for different items about PTSD before and after training of 67 physicians at PHC centers, in the camps of IDPs in Erbil city of Kurdistan region-Iraq, 2017.

| Pair comparison | Mean Difference | SD | p-value | 95% CI for difference | |
|---|---|---|---|---|---|
| | | | | Lower limit | Upper limit |
| Before training - T1 | -0.444 | 0.016 | <0.001 | -0.476 | -0.412 |
| Before training - T2 | -0.388 | 0.019 | <0.001 | -0.426 | -0.350 |
| T1 - T2 | 0.056 | 0.013 | <0.001 | 0.031 | 0.082 |

Table 4. Pairwise comparisons of overall mean knowledge scores before and after training of 67 physiciansat PHC centers, in the camps of IDPs in Erbil city of Kurdistan region-Iraq, 2017.

However, the second round of testing after training, test for the knowledge to assess the preservation of knowledge among the participants, revealed a relative decrease in the overall knowledge scores. The mean score was 0.62 out of one which are slightly lower than that at first test after training and much higher than that before training, Table 4.

To assess the significance of differences in the overall mean score of knowledge, this overall mean scores (before training, after training (T1) and after training (T2)) were compared in all items of knowledge questionnaire in addition to the overall mean, using the general linear model, repeated measures and multiple comparison using least significant difference (LSD) post Hoc tests. These analyses revealed that the mean knowledge score in all items of questionnaire at T1 and T2 were significantly ($p<0.001$) higher than their corresponding values before training in all comparisons. Comparison of T1 with the T2 knowledge scores revealed that T2 scores, generally, lower than T1. However, the reduction in knowledge scores was statistically significant in 10 items only out of the 18 questions. From another point of view, pair wise comparison of overall mean knowledge scores before and after training revealed that the overall knowledge score T1, (0.68), was significantly higher than before training (0.24), and T2, (0.62). In addition, the scores after training (T2) was significantly lower than that after T1 training ($p<0.001$). Details are shown in Table 3 and 4 and Figure 1.

The means age of included physicians in PTSD training was 38.6 years, with predominance of age group 30-39 years. This finding is similar to results of Hosuglu et al[13] study in Iraq which reported that most of health care workers in Erbil specifically doctors were within age range of 30-39 years. This age distribution is attributed to fact that high proportion of physicians in Iraq are proceeding in medical career path in earlier and middle age groups and working in primary health care centers in slums and internally displaced persons camps. About two thirds of trained physicians in current study were males. The gender difference among Iraqi physicians was previously reported in Squires et al[14] study which found that 71% of Iraqi physicians in Iraqi Kurdistan were males. Gender differences in medical occupation, career path and specialty preferences were common in Iraq with reasons related to cultural and social factors.[15]

This study revealed that 46.3% of the trained physicians were general practitioners, while the others were specialists in different medical branches. The

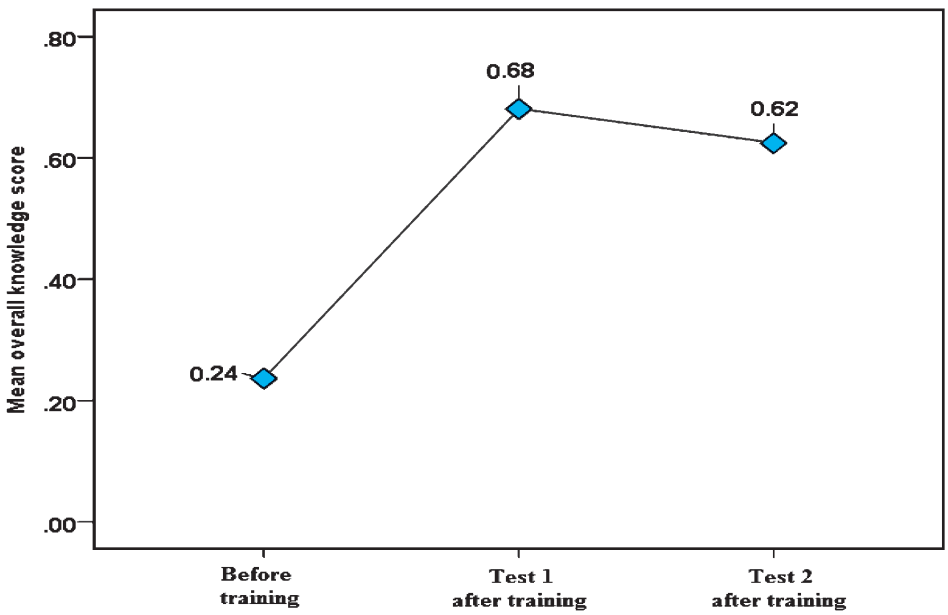


Figure 1. Overall mean knowledge scores before and after training of 67 physicians at PHC centers, in the camps of IDPs in Erbil city in Kurdistan region-Iraq, 2017.

World Health Organization (WHO) stated that 45% of medical doctors in Iraq are general practitioners. The WHO recommended training of Iraqi general practitioners on special family medicine program to strengthen the capacity of national health system.[16] Mean years of practice of studied physicians in present study was 13.7 years. This finding is higher than results of Shabila et al[17] study in Iraq which documented mean practice years of physicians in Erbil as 7 years. This difference might be due to discrepancy in inclusion criteria between two studies, in addition to fact that physicians in present study were mainly from Ninawa Health Directorate which have a long and irregular medical career path caused by poor security situations in Mosul city.

The overall mean knowledge regarding PTSD of included physicians before training was 0.24. This finding is close to results of Munro et al[18] study in UK, which conducted a survey on PTSD knowledge among general practitioners and psychiatrists working in two Scottish regions. They revealed that only 28.3% of studied physicians had enough knowledge to put the PTSD on their differential diagnosis list. Cowan et al[19] conducted study in India on 46 doctors to assess their knowledge and attitudes regarding provision of mental health care and revealed the importance of evidence-based skilling programs in incorporating mental health to primary health care.

In Iraq and before 2003, the mental health program was held by one hundred psychiatrists providing mental health services through consultancy clinics in some general hospitals in addition to few specialized psychiatrist hospitals.[20] After 2003, the new health polices faced big problems in many health aspects specifically the neglected mental health care and redesigned the basis of this health program to make it available to all country population.[20] For that, many mental health units inside hospitals had been created in Iraqi cities in addition to increase the capacity of staff with new psychologists and psychotherapist.[21]

As already described, PTSD is a syndrome resulted from exposure to severe stressful events that provokes fear, horror or helplessness[22] and its diagnosis depends mainly on symptoms of person experiences to short-lived trauma.[23] Iraqi population suffered from wars, sanction, violence and displacement in last year's made them vulnerable for many mental health problems especially PTSD and depression.[24] In spite of these disasters, few studies were conducted on the effect of exposure to wars and conflicts on the mental health of Iraqi population.[25] For that, it was supposed that knowledge of physicians in our country would be high, but inversely present study showed lower scores of knowledge that might be attributed to different reasons like weakness in mental health educational programs in undergraduate curriculum in schools of medicine and lack of training and continuing medical education for postgraduate physicians in addition to shortening of national health administrative polices in dealing with disasters.

The highest mean score of PTSD knowledge of physicians before training was regarding low interest or participation in significant activities was a significant symptom of autism (0.55), while the lowest mean score of PTSD knowledge was regarding main screening question of PTSD is if having nightmares only (0.1). These findings are similar to results of Ehlers et al[26] study in UK which carried out on 720 general practitioners in South London and reported that majority of those general practitioners were underestimating the prevalence of PTSD and most of them were neglecting the common screening symptoms of PTSD. This could be attributed to fact that patients are always unable to express their symptoms or failed to inform physicians regarding their PTSD symptoms. Additionally, PTSD patients sometimes had another comorbid conditions like depression, insomnia, somatic complaints or chronic pain which needs precise diagnosis of accompanied symptoms.[27]

This study revealed a significant increase in physicians PTSD knowledge score after training in comparison to their PTSD knowledge score before training ($p<0.001$). The overall mean knowledge score of physicians regarding PTSD have been increased from (0.24) before training to reach (0.68) after training. This finding coincides with results of Brijnath et al[28] study in Australia which stated that education and training of

physicians would increase their recognition ability to catch PTSD cases in primary health care centers.

Many non-governmental organizations in Iraq encouraged the training in mental health programs by logistic support and training for staff, in addition to community based support programs.[8] Although this support, the mental disorders incidence continued to evolve over all the world, including Iraq,[29,30] which needs developing of national health polices to incorporate highly qualified mental health services to primary health care system and training of medical staff in order to achieve global objectives of health for all population.[20] This incorporation of mental health programs facilitate the access of patients to health care provider and help in overcoming the stigma of visiting psychiatric hospitals and clinics. Moreover, this incorporation and training would facilitate the early diagnosis and treatment, good environment, high qualified collaboration with specialized services and effective supervision and follow-up of chronic patients.[30]

The WHO had suggested 8 basic principles to confront cases suspected with PTSD in disastrous situations: First; contingency planning before disastrous events, second; rapid assessment, third; use of a long-term perspective, fourth; collaboration with other agencies, fifth; provision of treatment in primary health care settings, sixth; access to services for all, seventh; training and supervision and eighth; monitoring indicators. Additionally, the WHO urges on presence of mental health professionals who work with other disciplines, especially in the context of social intervention.[31]

This study showed a significant decline in physicians PTSD knowledge score after second training test (T2) in comparison to their PTSD knowledge score after training first test (T1), $p<0.001$. The overall mean knowledge score of physicians regarding PTSD have been declined from (0.68) after training test (T1) to reach (0.62) after second training test (T2). This decline is normal phenomena occurred due to effect of time and forgetting some training information that is consistent with results of Riney et al[32] study in USA which documented that the impact of longer time on training questions is slightly reduced from immediate training questions. This decline in mean knowledge score might be attributed to fact that some included physicians failed to retain the information regarding PTSD, a finding that is consistent with previous study conducted in India by Sankar et al.[33] However, current study revealed that mean physicians knowledge regarding PTSD after training test (T2) of (0.62) was significantly higher than mean score knowledge of physicians before training of (0.24), $p<0.001$. This finding is consistent with results of Samuelson et al[10] study in USA which used Web-based training on

PTSD for 73 primary care providers and found that knowledge score of primary care providers regarding PTSD among veterans was significantly increased after two training tests in comparison to before training test, with significant decline in knowledge score after training test (T2) in comparison to knowledge score after training test (T1). After implementing wide survey on mental health of veterans in USA, the researchers declared that physicians do not have enough knowledge and training required for appropriate diagnosis and treatment for PTSD.[6] For that reason, American veterans affairs developed the staff training policies to increase the quality of mental health services. However, many authors who explored the effectiveness of these mental health programs in USA reported that incidence of metal health problems continued to rise.[34] They explained this increase in incidence as related to defect in services attributed to lack of PTSD-related competency and engagement among PCPs.[10]

## CONCLUSIONS:

The knowledge regarding post-traumatic stress disorder for physicians before training are obviously poor and were only enough for referral of suspected cases to psychiatrists, and after training the post-traumatic stress disorder knowledge of physicians were improved.

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