

Mental distress and psychological disorders related to COVID-19 mandatory quarantine

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Abstract

Background:

Restrictions that were enforced from COVID-19 have affected many people's lifestyles and ability to earn. They caused a distress that even added to the war stress that the Syrian population has encountered for the last 9 years. This study aims to assess this distress and the major concerns of the people related to COVID-19.

Methods:

Online questionnaires were distributed using SPTSS, K10, and MSPSS were used with other demographic, war- and COVID-19-related questions that were taken from The (CRISIS) V0.1 Adult Self-Report Baseline Form.

Results:

Our sample included 5588 with the mean age of 26.84 ± 7.815 years. Of those, only one was a confirmed COVID-19 case. Over 42.7% had two or more positive PTSD symptoms, 42.6% had moderate or severe mental disorder, but only 14.9% had low social support. Higher PTSD and K10 scores overall were seen in females and with most of war variables ($P < 0.05$). Relationship with partner were negatively affected in most and distress from the declined ability to work and provide food were the most prominent.

Conclusions:

The indirect effect of COVID-19 is far more than that of the pathogen itself. Reduced ability to earn and to provide food was the main concerns. Relationships deteriorated mainly in participants with high K10 and PTSD scores who also felt more symptoms and used more hypnotics in the last 4 weeks. Smoking changes were not related to K10 and PTSD. Social support played a role in reducing stress, but with the relationships being affected, lower support was seen.

Background

Further to the ramifications of war the Syrian population has been experiencing since 2011, the spread of the COVID-19 virus has created an additional challenge. With the new restrictions imposed by the government in Syria, the country is on stage 4 full lockdown despite having few confirmed cases; all non-essential business, schools, universities, parks, mosques, churches and other areas of common gathering have closed. A forced lockdown has been enforced from 6 pm to 6 am on weekdays and 12 pm to 6 am on weekends. This of course, has potentially made it even harder for Syrians to cope with the underlying stress caused by years of insecurity, fear and loss. While institutions and governments around the world have designated specific hotlines, projects and support platforms for citizens coping with the stress of changes in their life brought by the pandemic (1–4), such measures in Syria have not taken place. The reason for this can be attributed to the stigma regarding mental health, which is highly prevalent in most

developing countries (5), but also to the difficult nine years of war the country has been experiencing, making any mental health programs now appear unreasonably out of context.

Previous literature in outbreaks has focused on the physical health consequences of the disease and less on the mental health sequela that social distancing can generate. However, disasters, whether they are natural disaster, man-made disaster or industrial disaster have an impact on the social structure of a community, and are therefore known to have a strong impact on the mental health of these communities (5). This impact can cause and aggravate diseases such as post-traumatic stress disorder(PTSD), depression, substance abuse, and a broad range of maladaptive and harmful behaviours such as child and domestic abuse (6). For instance, after hurricane Maria in Puerto Rico, the country had 25 suicides every month in the three months following the hurricane and 19 suicides per month in the 8 following months, which was an increase from the baseline before the hurricane (7). As for PTSD, the disease was diagnosed in 30%–40% of people surviving a disaster compared to the 8% prevalence of the disease in the general population (7).

Studies have tried to understand the impact of disease outbreaks on the mental health of its survivors, proving that survivors of diseases like SARS can result in elevated stress and worry even one year after the disease outbreak (8). While it is very important to understand the ramifications of disease outbreaks on the mental health of community affected directly by the disease, the impact of the crisis goes beyond those who acquire the disease to even the healthiest members of the community (9).

Our study aims to understand that impact in the context and background of war and evaluate how when combined, a disease outbreak and war can have significant consequences on mental health. In this study, we assess the disorder in COVID–19 by asking direct questions related to the outbreak and its effect on life, and indirectly by measuring post-traumatic stress disorder (PTSD), social support, and mental disorders. This study used the same methods in a previous study that was conducted one year before which will allow for comparisons (10). We also compared with other study that was conducted just before the outbreak in population aging 15 to 19 years of age which is around 5 years younger than our sample.

Methods

1) Sampling:

We conducted a cross-sectional study across Syria from 06/04/2020 to 13/04/2019. Online surveys were distributed in Arabic to participants from several Syrian provinces. We only included participants who were living within Syria. The questionnaires were posted online twice each day at 10 AM and 10 PM in online groups that were concerned with different topics.

2) Consent and approval for study:

Informed consent was taken before doing the survey. The informed consent also taken for using and publishing the data. Confidentiality was assured by not asking or publishing any data that may refer to the individual identity.

Our study ethical aspect was approved by Damascus University deanship in Damascus, Syria.

3) Questionnaires:

Socioeconomic status (SES):

It was assessed by asking whether the place of living was owned, rented, or living in friends' house or given by the government. We also asked whether the family income was adequate for essentials or not, or allowed to buy more items.

Screening for mental disorder:

An Arabic version of Kessler 10 + LM (K10 + LM) was used to screen and measure the severity psychological distress (11-13). K10 is a self-reported measure that allow assessment of anxiety and depression in the last 4 weeks with scores ranging from 10 to 50 and each question has five possible responses.

Social support:

We used the Arabic version of Multidimensional Scale of Perceived Social Support (MSPSS) (14, 15) to assess the social support from friends, significant other, and family with 4 questions for each source. We used scores as total (not means) for comparisons with other variables.

PTSD:

The Screen for Posttraumatic Stress Symptoms (SPTSS) tool of diagnostic and statistical manual of mental disorders (DSM) IV was used. It contains 3 clusters of avoidance, arousal, and re-experience. The first two responses of "Not at all" and "1 or 2 times" representing the score 0 and other responses representing the score 1. When scoring 3 or more on avoidance, 2 or more on arousal, and 1 or more on re-experience, that cluster is considered positive. Although it is based on DSM IV, it is somewhat close to what is used in in the International Classification of Disease 11 (ICD-11) criteria and can be reliable to screen for PTSD.

COVID-19 questions:

We used questions that involved COVID-19 from The CoRonavlrus Health Impact Survey (CRISIS) V0.1 Adult Self-Report Baseline Form (16) and we translated them and used extra questions. Questions involved Health/Exposure status in the last 2 weeks, distress from COVID-19, feeling new symptoms that not attributed to allergies, distress from different aspects, smoking, relationships, and earning money being affected. These questions answers prevalence is demonstrated in **(Table 1)**.

Other Questions:

Basic demographic questions were included that were around gender, age, educational level, being currently a student or not, province of current living and having consanguineous parents. We asked about whether being distressed from war noises, or had to change place of living due to war and number of that changes.

Definitions:

Consanguinity was defined as third-degree consanguinity when the parents are first cousins, fourth-degree consanguinity when the parents are second cousins, or second cousins once removed. We defined IT work type as engineering that is around computer, IT, web design, or communication engineering that require programming. We defined engineering work type as civil, electrical, and, mechanical engineering and architecture.

We defined retail worker as a job require selling the costumer products, either in stores, or being a salesman. Medical engineering was part of "other health worker". Working in television, radio, show business or journalism was defined as "media" work type. We defined "office" work type as any work in office either in a company or private practice such as accounting, and law. Photographer or any job involving music, painting, or design except for web design in "Art and music" category.

4) Data Process:

Data was processed using IBM SPSS software version 26 for Windows (SPSS Inc, IL, USA). Chi-square, one-way analysis of variance (ANOVA), linear regression and independent-t tests were performed to determine statistical significance between the groups. Pearson correlation was also calculated. Through the same software, odds ratios (ORs) and the 95% confidence intervals for the groups were calculated using Mantel–Haenszel test. Values of less than 0.05 for the two-tailed P values were considered statistically significant.

Results

Our sample comprised of 5588 participants from all across Syria with 3892 (69.6%) females. The mean age was 26.84 ± 7.815 years. Of the sample 37.8% were well according to K10, but 27.6% had probable severe mental disorder. Approximately 37% did not report positive SPTSS item, 23.3% met criteria for probable PTSD. Characteristics of subjects, their responses to COVID-19 questions, war variables, and other nominal variables are demonstrated in **(Table 1)**. Age, PTSD, MSPSS, K10 scores and results with other war and numeral variables are demonstrated in **(Table 2)**. COVID-19 questions, war, and other variables correlation with SPTSS items and total scores are demonstrated in **(Table 3)**, with each social support and total MSPSS support scores are demonstrated in **(Table 4)**, and with K10 + LM scores and days are demonstrated in **(Table 5)**. PTSD, and K10 scores distributions in districts by gender and according to type of work are demonstrated in **(Figure 1)**.

PTSD:

Avoidance, arousal, and total PTSD scores differed according to district ($P=0.009$, $P=0.060$, and $P=0.020$, respectively). These PTSD scores differences were demonstrated in (Figure 1). All PTSD item had no correlation with consanguinity ($P>0.05$). PTSD items and total scores differed according to district and type of work or being unemployed ($P<0.05$), with total PTSD score differences having ($P<0.001$) and demonstrated in **(Figure 1)**.

Regressing gender, educational level, the house living in being rented, type of work, having chronic medical condition, marital status, monthly income adequacy, distress from war noises, and changing place of living due to war on PTSD scores using forward linear regression was significant ($P<0.001$) with having chronic condition ($R^2=3.2\%$), gender ($R^2=1.4\%$), monthly income adequacy ($R^2=1.3\%$), marital status ($R^2=0.3\%$), changing place of living due to war and educational level ($R^2=0.2\%$) contributing to the variance. SPTSS items score correlations are demonstrated in **(Table 3)**.

MSPSS:

Family, friends, significant other, and total support were significantly correlated with type of work and district ($P<0.001$), but with consanguinity ($P>0.05$).

Regressing gender, educational level, the house living in being rented, type of work, having chronic medical condition, marital status, monthly income adequacy, distress from war noises, and changing place of living due to war on total MSPSS score using forward linear regression was significant ($P<0.001$) with social status ($R^2=2.4\%$), monthly income adequacy ($R^2=1.8\%$), having chronic medical condition ($R^2=1.3\%$), and educational level ($R^2=1\%$) while living in a house being rented, type of work, and distress from war noises ($R^2=0.2\%$) and ($P<0.05$) contributing to the variance.

K10:

Around 20% contributed their negative feeling from their problems with their physical health most or all the times. K10 had no correlation with consanguinity ($P>0.05$). K10 total score was different according to district and type of work or being unemployed ($P<0.05$), with total PTSD score differences having ($P<0.001$) and demonstrated in **(Figure 1)**.

When Regressing gender, educational level, the house living in being rented, type of work, having chronic medical condition, marital status, monthly income adequacy, distress from war noises, and changing place of living due to war on total K10 score by using forward linear regression, ($P<0.001$) for gender ($R^2=2.2\%$), and having chronic condition (1.7%), monthly income adequacy ($R^2=0.8\%$), and social ($R^2=0.6\%$) while change place of living due to war ($R^2=0.4\%$) and educational level ($R^2=0.3\%$) for ($P<0.05$). When using forward linear regression on total days of not being able to work with the same previous variables, ($P<0.001$) for type of work ($R^2=1.5\%$), gender ($R^2=0.8\%$), marital status ($R^2=1\%$), having chronic medical condition ($R^2=0.8\%$), and monthly income adequacy ($R^2=0.6\%$).

COVID-19 variables:

When regressing gender, educational level, the house living in being rented, type of work, having chronic medical condition, marital status, monthly income adequacy, distress from war noises, changing place of living due to war, along with other COVID-19 variables of distress from losing the job, decreased income, passing away, distress of being infected or a family member, distress of the job, studies, and food being affected on total SPTSS score by using forward linear regression, ($P < 0.001$) for distress that providing food will be affected ($R^2 = 8\%$), distress from friend or family being infected ($R^2 = 2.6\%$), having chronic condition ($R^2 = 1.9\%$), studies being affected ($R^2 = 1.6\%$), gender ($R^2 = 1.4\%$), job being affected ($R^2 = 1\%$), and passing away ($R^2 = 0.6\%$) while losing job, and being infected ($R^2 = 0.4\%$), and educational level [$R^2 = 0.2\%$, $P < 0.05$].

When regressing the same previous variables on total MSPSS score, ($P < 0.001$) for social status ($R^2 = 3.3\%$), monthly income adequacy ($R^2 = 1.6\%$), having chronic condition ($R^2 = 1\%$), passing away ($R^2 = 0.8\%$), and educational level ($R^2 = 0.7\%$) while decreased income, type of work, and distress from work noise [$R^2 = 0.3\%$, $P < 0.05$]. When regressing the same previous variables on total K10 score with the same previous variables, ($P < 0.001$) for distress that providing food being affected ($R^2 = 6.6\%$), gender ($R^2 = 2.5\%$), studies being affected ($R^2 = 1.7\%$), a friend or family being infected ($R^2 = 1.3\%$), having chronic medical condition ($R^2 = 1\%$), and losing job ($R^2 = 0.7\%$) while job being affected ($R^2 = 0.3\%$), educational level, distress being infected and passing away [$R^2 = 0.2$, $P < 0.05$]. When regressing the same previous variables on total days of not being able to work with the same previous variables, ($P < 0.001$) for distress that studies will be affected ($R^2 = 3\%$), gender ($R^2 = 1\%$), distress of food being affected ($R^2 = 0.9\%$) and type of work ($R^2 = 0.8\%$) while having chronic medical condition ($R^2 = 0.6\%$), marital status ($R^2 = 0.3\%$), and decreased income ($R^2 = 0.4\%$), and educational level ($R^2 = 0.3\%$) for ($P < 0.05$).

No significant difference between gender and smoking changes in quarantine ($P > 0.05$). However, females had more distress from war noises, felt more symptoms in the last two weeks, worried more that a friend or family may have it, worried less that job will be affected or providing food will be affected, committed more to quarantine, their relationships worsened less with friends but more with family in the house and other family member, and took more medications than males ($P < 0.05$). No significant difference between gender in the relationship with partner or studies being affected ($P > 0.05$).

Being single was correlated with decreasing amount smoked in quarantine more ($P < 0.011$) and was correlated with less distress from war ($P < 0.001$). Being married was correlated with less distress of family or friend having COVID-19 when compared to being single ($P < 0.001$), but with more distress of job being affected ($P = 0.009$). No significant different in distress of not being providing food in COVID-19 and being single or married ($P > 0.05$).

Younger ages was insignificantly correlated with being distressed from acquiring COVID-19 ($P = 0.082$), significantly correlated with being distressed that a family may have it, a job affected, studies, and providing food being affected from COVID-19 ($P < 0.05$). Relationship with friends was more stable in the older age as the younger tended to improve or deteriorate ($P < 0.001$) while relationship with housemates

either was not affected or improved dramatically more frequently in the older age than the younger who had their relationship deteriorate more frequently ($P < 0.001$). Moreover, the relationship with other family members and partner improved more frequently in the older ages ($P < 0.001$).

Discussion

COVID-19:

This study assessed the psychological distress caused by quarantine and the new social and financial challenges caused by the pandemic, rather than by the illness itself, as less than 10 cases were confirmed in Syria at the time of the study. Our results show that psychological distress and PTSD symptoms are more common in men who have weak social support, problems at work and challenges in the provision of food. Although our study showed decrease in overall frequency of smoking in both genders, there was no significant change in smoking habits among genders. This can be explained by increase prices of smoking during the lockdown or simply because of warnings of smoking effect on COVID-19.

Regular habits and war exposure in Syria were found to be related to unusual exposures to different substances (17). This exposure has led to an increase to different medical conditions compared to other countries such as allergic rhinitis (18) and Laryngopharyngeal Reflux Disease (19), and both were related to distress from war noises.

Regarding familial relationships, almost half of the participants reported a difference in the relationship with their housemates but over 70% did not report a change in the relationship with other family members and friends.

COVID-19 with PTSD and mental disorder:

The provision of food during the lockdown was a big stressor identified by the participants, associated with higher SPTSS and K10 scores. Higher PTSD and mental disorder scores were observed in subjects with reduced relationship with the family, housemates, and friends functioning. This could of course be that the reduced supports impact on mental health or alternatively that participants with higher PTSD and mental disorder scores may suffer from more fragile relationships and therefore tend to deteriorate.

Although participants who tested positive for COVID-19 were few, higher PTSD and mental disorder scores were seen amongst them and their family members. A quarter of the participants did not report having flu like symptoms but those who had symptoms had not been diagnosed yet. Higher scores of PTSD and mental distress were also observed in subjects who self-isolated when a symptomatic compared to an asymptomatic family member had. Higher scores were seen when the housemates' ability to earn was affected, more than when a family member's ability to earn money was affected. This could be explained as females represent over two-thirds of our sample and in Syria a large quantity of females rely on their housemates to earn money.

Lower PTSD and mental disorder scores were observed in those that ignored quarantine instructions and were able to go out and buy household essentials. Patients with higher scores reported using hypnotics more frequently. Interestingly, social support decreased in participants in who did not smoke or used to smoke and commenced using shisha which could be from this habit affecting housemates or the irritability from leaving cigarette smoking. Higher social support was found in participants with relationships not being affected or ameliorated in the quarantine while higher PTSD scores were seen in participants whose relationships deteriorated with their partners.

Fewer working hours were observed in married participants which could explained by schools being closed and parents having to stay home to look for their children. Higher mental disorders scores and fewer working days were observed in participants who increased their smoking habits. Furthermore, the higher the K10 score, the more symptomatic the participants felt. Interestingly, subjects with decreased working hours had more social support and therefore a better relationship status. Most of the changes in PTSD scores were observed in mental disorder, and days of being unable to work with a correlations of ($r=0.682$), and ($r=0.415$) respectively. Interestingly, mental disorders and days of being unable to work had an insignificant correlation ($P=0.159$).

PTSD, MSPSS and K10 with other variables:

As PTSD needs at least 4 weeks to develop, we used the symptoms of PTSD score as a probable indicator rather than formal diagnostic assessment Therefore, we used SPTSS as it assesses the symptoms of PTSD rather than just setting cut-off points. Having certain medical conditions was correlated with higher scores in SPTSS and K10, especially when having a family member with chronic medical conditions like asthma. This may indicate the need to address the psychological effect of the chronic medical condition not only on the affected member, but other house members. Participants who did not own the house they lived in and had an inadequate monthly income had higher SPTSS and K10 score which indicates the role of financial burden. Avoidance scores were higher when losing a housemate while other PTSD symptom scores increased more when losing a family member. This could be explained by the stereotype brought to a widowed woman in the community that makes her feel isolated. Another theory can be from the moral of the widowed being dropped considering losing the partner is a trauma and the possibility of losing social and financial support of the partner.

Mental distress and PTSD has been identified in many studies as more common in females, particularly from war noises (10). Distress in school children aging 15 years and more was also more common in females, But males had more tendency to smoke (20) which is similar to adults in Syria (21). The high prevalence of PTSD or severe mental distress is not new and even less than a previous study that used the same materials and same scales (10) which found that 60.8% of the sample had two positive PTSD clusters or more according to DSM IV and 61.2% of the sample had moderate to severe mental disorder according to K10. It was also less what was found in schools (20) which was (53%). This may indicate that war may have more severe effect than the pandemic although all lives were affected by COVID-19 by some extent,

Limitations

PTSD according to strict definition needs 4 weeks to develop, and therefore we used scoring symptoms rather than diagnosing cut-off – perhaps more indicative of an acute stress disorder. This study was online and mainly involved participants who had free time to fill in the survey which may neglect the truly affected population. Days of less productivity questions in K10-LM may not be fully understandable for some participants and therefore was not mentioned in the discussion. This study is questionnaire based rather than medical diagnosis which would have been more accurate.

Conclusion

Although full quarantine can be an effective method of preventing the spread of pandemic disease such as COVID-19, this study indicates that it causes severe distress reflected in mental distress and PTSD symptoms even in countries which were originally affected from wars, as they can obstruct the lifestyle and ability to earn and provide daily food. Social support has a role in some extent to reduce the amount of stress either on PTSD or directly on distress from COVID-19. Widowed, low SES, low social support, and living in rented house were the most prone to distress as ability to earn and to provide food were the most common stressors. Having high K10 and PTSD scores were correlated with feeling more symptoms of COVID-19 despite not being exposed to it. PTSD and severe mental distress was prevalent in the Syrian community due to the psychological effects of war in the previous 9 years. Positive PTSD clusters in this study are less prevalent compared to previous studies in Syria.

Abbreviations

ANOVA	Analysis of variance
CI	Confidence Interval
COVID-19	Coronavirus disease of 2019.
CRISIS	The CoRonavlrU S Health Impact Survey
DSM	Diagnostic and statistical manual of mental disorders
ICD	International Classification of Disease
K10	Kessler
MSPSS	Multidimensional Scale of Perceived Social Support
NMIH	National Institute of Mental Health
PTSD	post-traumatic stress disorder
SES	Socioeconomic status
SPSS	Statistical Package for the Social Sciences
SPTSS	Screen for Posttraumatic Stress Symptoms

Declarations

Ethics approval and consent to participate:

Online informed consent was taken before proceeding with the survey for participating in the research, and for using and publishing the data. We assured to maintain confidentiality and asked no questions that might reveal the person's identity. No subjects were under age of 14. For subjects under age of 16 years, an online informed consent was taken that the guardian agreed that the subjects can participate in the survey as this method was agreed in the study protocol.

Our study protocol and ethical aspects were reviewed and approved by Damascus University deanship, Damascus, Syria.

Consent for publication:

Online consent for using and publishing the data were taken before participating in the research.

Availability of data and materials:

The data can be made available upon reasonable request.

Competing interests:

We have no conflict of interest to declare.

Funding:

We did not receive any support in forms of grants, equipment or drugs.

Authors' contributions:

AK: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Supervision; Resources; Validation; original draft; Writing - review & editing.

AF: Review & editing; original draft; Investigation; Software; Resources.

LM: Original draft, writing - review & editing.

AG: Conceptualization; Project administration; Editing; Software.

RAZ: Project administration; Investigation; Resources.

All authors have read and approved the manuscript.

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Tables

Due to technical limitations, the tables are only available as a download in the supplemental files section.

Figures

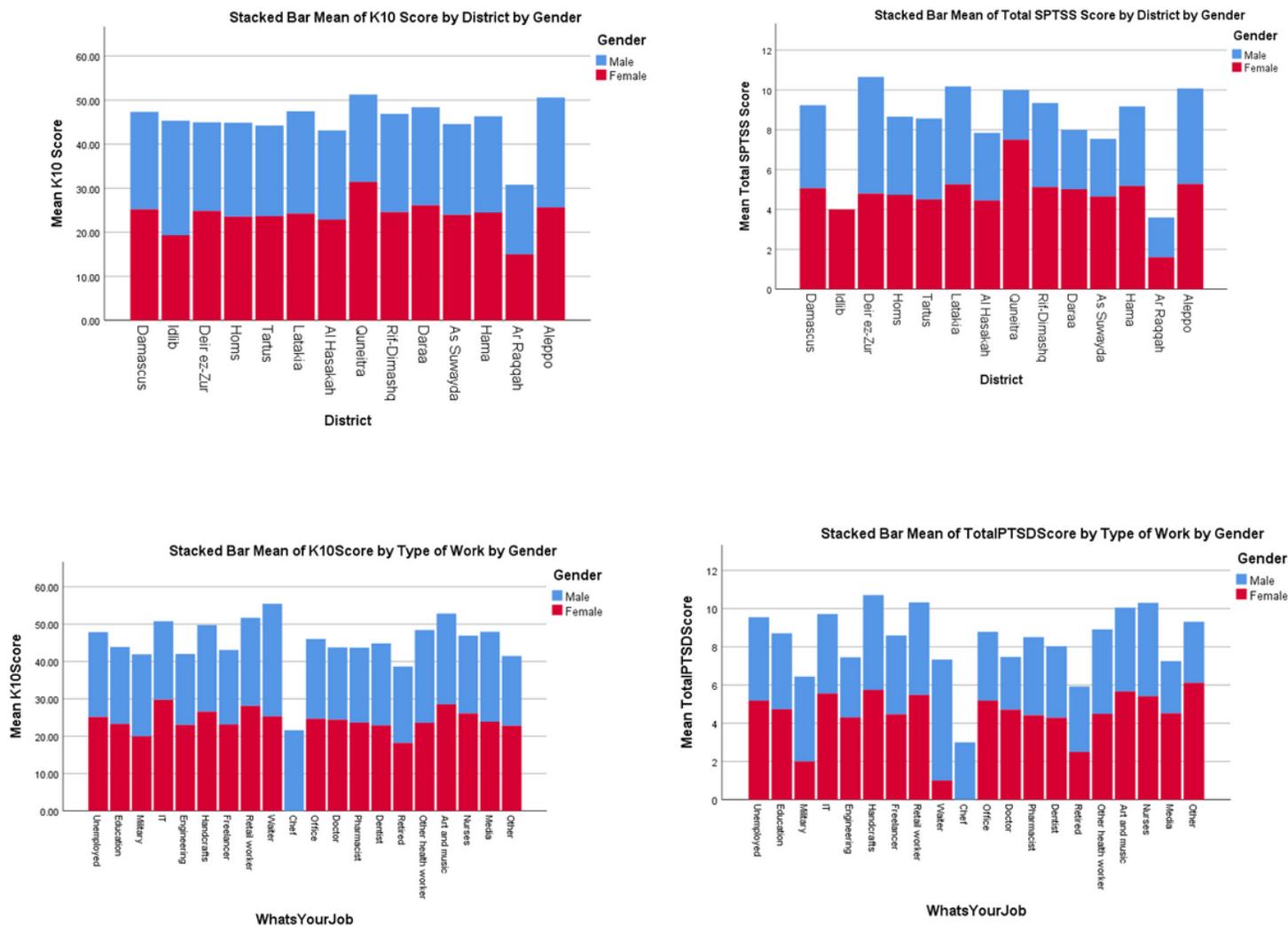


Figure 1

Demonstrating SPTSS and K10 scores by gender distribution according to type of work and districts.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Tables.pdf](#)