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# MENTAL HEALTH AND WELL-BEING OF ADULT SYRIAN REFUGEES AND HOST POPULATION IN JORDAN

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DATA REPORT

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## ABBREVIATIONS

CMD	Common mental disorders
LMIC	Low- and middle-income countries
MHPSS	Mental health and psychosocial support
PTE	Potentially traumatic event
PTSD	Posttraumatic stress disorder

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## EXECUTIVE SUMMARY

Jordan host approximately 1.3 million Syrians, with around 670,000 registered Syrian refugees. Per capita, this makes Jordan the second largest refugee hosting country in the world. Although rates of common mental disorders (CMDs) have varied in the literature, research suggests that as many as one-third of adult Syrian refugees may experience symptoms of post-traumatic stress disorder (PTSD) and depression (Peconga & Høgh Thøgersen 2019), typically attributed to exposure to potentially traumatic war-related events (PTEs) and ongoing adversity related to living in displacement.

Many Jordanians are also faced with adversity, with approximately 15% living below the poverty line (World Bank Group 2020) and high rates of unemployment. More than half of Jordanian households report some level of food insecurity (UNHCR 2020). The COVID-19 pandemic worsened the situation for both the host population and Syrian refugees in Jordan due to the economic loss and increased psychosocial stressors. Like in other parts of the world, there have been increases in reports of violence against women and children in Jordan, particularly during lockdowns (Massad et al. 2020).

Numerous studies have examined the mental health status of adult Syrian refugees. Systematic research on Jordanian adults, however, is lacking, despite growing awareness of psychosocial difficulties in everyday life both before and after the COVID-19 pandemic. Existing research on both populations has focused on symptoms of emotional distress, with relatively little attention to somatic or physical symptoms. However, research shows high levels of somatic distress among populations affected by conflict and other adversity in low- and middle-income countries (LMICs) (McGrath et al. 2020). Somatic symptoms tend to co-occur with symptoms of CMDs, however research suggests they independently predict impaired functioning (Comellas 2015), reduced quality of life (Kounou 2017), and increased healthcare costs. Somatic distress, including physical pain, is often the reason people with mental health conditions first seek healthcare. As such, it is important to understand the prevalence of somatic distress, including persistent pain, and how it correlates with symptoms of CMDs, to inform mental health and psychosocial programming.

The purpose of this study was to document the prevalence of somatic and emotional distress among adult Syrian refugees and Jordanians, and to examine both risk and protective factors associated with distress. Additionally, we were interested in understanding where these populations turn for help with emotional distress and physical pain (e.g., formal, or informal sources). The study addressed important gaps in the literature with the inclusion of somatic symptoms, including persistent pain, and by providing systematic data on the mental health of adult Jordanians in addition to the refugee population of Jordan.

## Methodology

The Institutional Review Board at the King Hussein Cancer Center approved the study. Data were collected from adult male and female Jordanians and Syrian refugees in Jordan's four governates with the highest percentages of Syrian refugees (Amman, Mafraq, Irbid, and Zarqa) in the first quarter of 2021. A second round of data collection was completed in the second quarter of 2022 in the two refugee camps in Jordan (Za'atari and Azraq) housing Syrian refugees.

The sample frame for the governates was the Population and Housing Census of 2015, provided by the Jordanian Department of Statistics. A stratified multistage block sample design was used, with random selection of residential blocks, households, and adults in the household. The same sampling procedure was used in the camps, with residential blocks from 12 districts of Zaatari and four of the 6 villages of Azraq. Two villages in Azraq were excluded from the permit for security reasons.

Data were collected through face-to-face household interviews. Responses were recorded by enumerators on electronic tablets equipped with SurveyCTO data collection software. Interviews lasted approximately 45 minutes to 1 hour.

## Key Findings

- Nearly all participants had been exposed to some form of potentially traumatic event (PTE). Among Jordanians the most reported event was the traumatic, unexpected death of a family member. Among Syrian refugees the most common event was fleeing the country due to war.
- Data were disaggregated by nationality, gender, and location (camp vs. urban). Rates of probable PTSD diagnosis among Syrians were lower than in previous studies, and similar to those for Jordanians.
- Depression was exceptionally high across all subgroups in the sample, with 36 to 60% of participants likely meeting criteria for a diagnosis.
- Rates of somatic symptoms among Syrian refugees ranged from 8.4 % (males living in refugee camps) to 31.5% (females in urban locations) and were also high among Jordanians (35.4% females & 27.8% males). Among the subgroups of the sample 10.4% to 23% reported a previous diagnosis of chronic pain by a medical professional, and 13% to 20% reported experiencing physical pain, daily, for more than three months.
- Most (66.7%) participants with a probable diagnosis of PTSD also had elevated symptoms of depression. There was considerable overlap between having a probable diagnosis of depression and having moderate to severe somatic symptoms, but somewhat less so for PTSD. Of the 212 participants reporting chronic pain, approximately half also had a likely diagnosis of depression and 21.69% met criteria for PTSD. Symptom scores for PTSD, depression, and somatic symptoms were all significantly associated.
- Females had more severe symptoms across all three symptom types than males, and Jordanians had higher symptoms than Syrians. Age was only significantly related to somatic symptoms, with older participants reporting more severe distress. Both economic strain and total number of PTEs emerged as significant risk factors.
- Social support and support from family was negatively associated with depression, meaning more support was linked with lower symptoms. Social support from friends and family was not a protective factor for symptoms of PTSD. For somatic symptoms, only support from family was associated with lower symptoms.
- The study highlights the mental health treatment gap for both Syrian refugees and Jordanians, as few people had received professional help despite high distress. 21.4 to 32.7% of people had sought help for emotional distress from anyone, most commonly this was a family member. Only 1.3% to 9.5% stated they would seek help from a professional first. However, between 33% and 53% of participants said they would be willing to seek help for emotional distress or psychosocial problems from a mental health professional such as a counselor or psychologist in the future.



## Recommendations

- The high level of exposure to PTEs and distress indicate the need for mental health awareness campaigns that target adult Syrians refugees and the host population in Jordan. It is recommended that these campaigns highlight the impacts of trauma and adversity on mental and physical well-being as well as awareness of existing MHPSS services. Given that most participants reported they would turn to a family member for help first, there should be an emphasis on recognizing symptoms of distress in others, and strategies for supporting someone who is suffering from mental health difficulties.
- The link between exposure to PTEs and elevated symptoms highlight the need for trauma informed MHPSS interventions. Given the considerable overlap among symptom categories, it is recommended that transdiagnostic treatments be implemented to address high prevalence of depression, posttraumatic stress, and other symptoms.
- It is important to culturally adapt outreach and MHPSS interventions, to ensure their acceptability among the populations. It may be beneficial to address stigma, as previous research has shown stigma to affect help-seeking for mental health problems. It is encouraging that over 1/3 of participants stated they would be willing to seek help from a mental health professional. However, because willingness does not always translate into behavior, it may be beneficial to examine and address context-specific barriers to accessing MHPSS.
- Given the prevalence of somatic distress and physical pain across the subgroups, it may be beneficial to implement interventions that directly target these symptoms. The considerable co-occurrence of somatic symptoms and emotional distress highlight the importance of taking somatic distress into consideration and monitoring whether physical symptoms remit with treatment for depression or PTSD.
- Like previous research, women in this study were more distressed than men, although the reason why could not be determined. It is recommended that additional research into the unique psychosocial stressors affecting women's mental health be carried out in this context and used to inform gender sensitive MHPSS programming.

## BACKGROUND

The Syrian civil war began more than 11 years ago and continues to have devastating impacts. More than half the country's population has been forcibly displaced with approximately 6.7 million internally displaced persons and another 6.8 million refugees. Those who have fled the country are primarily residing in neighboring countries of Turkey, Lebanon, and Jordan.

Jordan host approximately 1.3 million Syrians, with around 670,000 registered Syrian refugees. Per capita, this makes Jordan the second largest refugee hosting country in the world. Just under 20% of Syrians live in refugee camps, with the majority residing in urban areas of Amman, Irbid, and Al Mafrq. Refugees have likely been exposed to multiple potentially traumatic events (PTEs) related to the war and being forced to flee the country. Daily life is stressful for the majority, with 80% of Syrian refugees in Jordan living below the poverty line, and 60% in extreme poverty. Opportunities for gainful employment are limited and many families have resorted to taking children out of school, sending family members to beg in the street, and early marriage of girls to cope with financial hardships (UNHCR 2020). According to UNHCR, only 2% of refugee households in Jordan can meet their basic food needs (UNHCR 2020). Research suggests domestic violence is prevalent among Syrian refugees in Jordan (Singh et al 2022).

Many Jordanians are also faced with adversity, with approximately 15% living below the poverty line (World Bank Group 2020). Unemployment is high, around 25% according to figures from 2021, with youth unemployment at just over 48% (Karasapan 2022). More than half of Jordanian households report some level of food insecurity (UNHCR 2020). The COVID-19 pandemic worsened the situation for both the host population and Syrian refugees in Jordan due to the economic loss and increased psychosocial stressors. Like in other parts of the world, there have been increases in reports of violence against women and children, particularly during lockdowns (Massad et al. 2020).

A growing number of studies have focused on the mental health status of Syrian refugees since the start of the civil war. Although rates of common mental disorders (CMDs) have varied in the literature, research suggests that as many as one-third of adult Syrian refugees may experience symptoms of post-traumatic stress disorder (PTSD) and depression (Peconga & Høgh Thøgersen 2019). Systematic research on the mental health status among Jordanians is sparse; existing evidence suggests the burden of mental disorders is likely high (Charara 2017). COVID-19 related stressors appear to have worsened the mental health status of both Jordanians and Syrian refugees (Abdel Jalil et al. 2020, Abu Kamel 2022, Al-Shannaq et al. 2021, Massad et al. 2020, Naser et al. 2020).

The bulk of the research on Syrian refugees and Jordanians has focused on symptoms of emotional distress, with relatively little attention to somatic or physical symptoms. However, research shows high levels of somatic distress among populations in low- and middle-income countries (LMICs) (McGrath et al. 2020). A recent study with Syrian refugees in Turkey, for example, found 41.7% were experiencing high levels of somatic distress (McGrath et al. 2020). Although they are positively correlated with symptoms of common mental disorders, somatic symptoms independently predict impaired functioning (Comellas 2015), reduced quality of life (Kounou 2017), and increased

healthcare costs. Somatic distress, and physical pain in particular, is often the reason people with mental health conditions in LMICs first seek healthcare (Kohrt et al 2018).

Evidence from high-income settings suggests that somatic symptoms among trauma-affected populations may persist following treatment even when other symptoms improve (Hijazi et al. 2014) and that pain interferes with treatment outcome (Nordin & Perrin 2019). As such, it is important to understand the prevalence of somatic distress, including persistent pain, and how it correlates with symptoms of CMDs, to inform mental health and psychosocial programming.

The purpose of this study was to document the prevalence of somatic and emotional distress among adult Syrian refugees and Jordanians, and to examine both risk and protective factors associated with distress. Additionally, we were interested in understanding where the populations turn for help with emotional distress and physical pain (e.g., formal, or informal sources). The study addressed important gaps in the literature with the inclusion of somatic symptoms, including persistent pain, and by providing systematic data on the mental health of adult Jordanians in addition to the refugee population of Jordan.

# METHODOLOGY

## Ethical Considerations

The study design and procedure were approved by the Institutional Review Board at the King Hussein Cancer Center. Enumerators were trained in a two-day workshop that covered ethical considerations and research methods. All participants provided informed consent. Interviews were carried out in locations where participants' privacy could be ensured, most commonly inside the participants' homes. Prior to inquiring about more sensitive topics (e.g., exposure to violence), the enumerator reminded participants they were free to skip any questions they did not want to answer. Enumerators were provided with guidelines and trained on situations requiring referral including participants with elevated psychological distress and any reporting of suicidal ideation. Referrals were sent directly to a clinical professional at the Institute for Family Health on a weekly basis.

## Sampling and Procedures

Data were collected from adult male and female Jordanians and Syrian refugees in four governates across Jordan (Amman, Mafraq, Irbid, and Zarqa) in the first quarter of 2021. These governates were selected because they have the highest number of Syrian refugees according to the most recently available data from UNHCR. Because it was difficult to recruit enough Syrian refugees in the urban setting, a second round of data collection was carried during the second quarter of 2022 in the two refugee camps (Za'atari and Azraq) housing Syrian refugees.

The sample frame for the governates was the Population and Housing Census of 2015, provided by the Jordanian Department of Statistics. A stratified multistage block sample design was used, with random selection of residential blocks, households, and adults in the household. The same sampling procedure was used in the camps, with residential blocks from 12 districts of Zaatari and four of the 6 villages of Azraq. Two villages in Azraq were excluded from the permit for security reasons.

Data were collected through face-to-face household interviews. Responses were recorded by enumerators on electronic tablets equipped with SurveyCTO data collection software. Interviews lasted approximately 45 minutes to 1 hour.

## Measures

A demographic questionnaire was created for the purpose of this study to assess characteristics of the sample (age, marital status, education etc.) as well as economic strain, disability status and history of diagnosis of certain physical and mental health conditions.

Exposure to traumatic stress was assessed with a modified version of the Stressful Life Events Scale used in the World Mental Health Survey (Kessler & Üstün, 2004). Distress was assessed with the International Trauma Questionnaire (posttraumatic stress symptoms; Cloitre et al., 2018) the Hopkins Symptom Checklist (depression; Derogatis et al., 1974) and the Patient Health Questionnaire 15 (somatic symptoms; Kroenke et al.,

2002). The Brief Pain Inventory (Cleeland et al., 1994) was used to assess the presence and severity of persistent physical pain. Social support from spouse, friends and family was assessed with the Multidimensional Scale of Perceived Social Support (Zimet et al., 1998) and attitudes towards help seeking was assessed with the General Help Seeking Questionnaire (Wilson et al., 2005).

Most measures used in the study were previously translated into Arabic. The demographic questionnaire and the Multidimensional Scale of Perceived Social Support were translated for the purposes of this study. Prior to beginning data collection, cognitive interviewing was carried out with representatives from each target group to ensure all items were understood.



# RESULTS

## Sample characteristics

Data were collected from 572 participants living in urban locations and 371 participants in the two refugee camps. Basic demographic information and participant characteristics for each subsample are shown in Table 1.

TABLE 1. PARTICIPANT BACKGROUND INFORMATION

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
<b>Age</b>						
M (SD)	45.37 (16.34)	40.65 (12.92)	36.13 (11.14)	35.73 (12.29)	38.61 (12.95)	35.44 (10.53)
<b>Employment</b>						
Currently employed outside the home	75 (35.9%)	27 (12.3%)	37 (52.9%)	7 (9.6%)	77 (43%)	15 (7.8%)
<b>Highest level of education completed</b>						
None	7 (3.3%)	15 (6.8%)	9 (12.9%)	10 (13.7%)	9 (5%)	24 (12.5%)
Primary	100 (47.8%)	75 (43.1%)	54 (77.1%)	55 (75.3%)	124 (69.3%)	130 (67.7%)
Secondary	59 (28.2%)	91 (41.4%)	3 (4.3%)	8 (11%)	31 (17.3%)	24 (12.5%)
Higher	42 (20.1%)	39 (17.7%)	4 (5.7%)	0	15 (8.4%)	14 (7.3%)
<b>Disability status</b>						
Self-report physical disability	14 (6.7%)	2 (0.9%)	4 (5.7%)	2 (2.7%)	17 (9.5%)	5 (2.6%)
<b>Household's economic situation</b>						
Very good	5 (2.4%)	12 (5.5%)	0	0	3 (1.7%)	3 (1.6%)
Good	38 (18.2%)	41 (18.6%)	1 (1.4%)	3 (4.1%)	11 (6.1%)	28 (14.6%)
Average	52 (24.9%)	83 (37.7%)	1 (1.4%)	37 (50.7%)	60 (33.5%)	97 (50.5%)
Bad	114 (54.5%)	84 (38.2%)	58 (82.9%)	33 (45.2%)	105 (58.7%)	64 (33.3%)

## Exposure to Potentially Traumatic Events (PTEs)

Participants were asked whether they had experienced potentially traumatic events (PTEs) at some point in their lifetime. The list included events that would qualify as potentially traumatic according to the ICD-11, including different types of violence as well as accidents and natural disasters, the full list of events is included in Appendix A. As shown in Table 2, nearly all participants had experienced at least one PTE. For Jordanian males and females, the most frequently experienced event was the unexpected and traumatic death of a family member, whereas the most common event for Syrian refugees was being forced to flee their homes because of war. The numbers and percentages of participants from each subsample reporting having experienced torture, sexual violence, and partner violence are shown in Table 2. Jordanians were not asked about torture. Because disclosure of trauma is a sensitive topic, participants were asked if there was an event mentioned that they had experienced but did not disclose; number and percentages are also shown in Table 2.

TABLE 2. EXPOSURE TO POTENTIALLY TRAUMATIC EVENTS (PTE)

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
% Exposed to at least one PTE	89%	85%	98%	97.3%	100%	100%
Torture	N/A	N/A	13 (18.6%)	1 (1.4%)	21 (11.7%)	3 (1.6%)
Sexual violence	6 (2.9%)	0	0	0	2 (1.1%)	2 (1%)
Partner violence	6 (2.9%)	2 (0.9%)	0	5 (6.8%)	0 (0%)	9 (4.7%)
Did not disclose	68 (32.5%)	82 (37.3%)	17 (24.3%)	19 (26%)	36 (20.1%)	21 (10.9%)

Note. Did not disclose = Participant was exposed to one of the events mentioned but did not disclose it to the interviewer.

## Distress and Impaired Functioning

Descriptive data for posttraumatic stress disorder (PTSD) are shown in Table 3. Participants who reported at least one PTE were assessed for symptoms of PTSD using the International Trauma Questionnaire. The means and standard deviations are also shown in Table 3. Scores on the ITQ can range from zero to 24, with higher scores indicating more severe symptoms. Probable diagnosis of PTSD was calculated using the symptom criteria of the ICD-11 and scoring procedures for the ITQ. Participants were also asked if they had ever been diagnosed with PTSD by a healthcare professional.

TABLE 3. PTSD SYMPTOMS

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
M (SD)	7.55 (6.20)	9.8 (6.89)	9.19 (6.10)	10.52 (5.88)	6.2 (5.36)	6.84 (5.16)
Probable diagnosis	35 (16.7%)	40 (18.2%)	11 (15.7%)	10 (13.7%)	32 (17.9%)	33 (17.25%)
Missing	48	42	11	10	0	0
Previous diagnosis	19 (9.1%)	13 (5.9%)	0	3 (3,8%)	9 (5%)	13 (6.8%)

Note. Probable diagnosis of PTSD indicates participants met full IDC-11 criteria for PTSD on the self-report ITQ.

On the ITQ, respondents are asked to rate the degree to which symptoms of PTSD affect their ability to function in interpersonal relationships, daily work (including home, work, school etc.) and any other area of life. The percentage of participants who rated symptoms as moderately to severely interfering with their lives is shown in Table 4.

TABLE 4. PTSD SYMPTOMS AND FUNCTIONING

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
Social functioning	103 (49.3%)	103 (46.8%)	30 (42.9%)	38 (52.1%)	35 (19.6%)	47 (24.5%)
Missing	48	41	11	10	31	25
Work functioning	95 (45.5%)	100 (45.5)	33 (47.1%)	25 (34.2%)	49 (27.4%)	37 (19.3%)
Missing	48	41	11	10	31	26
Functioning other areas	88 (42.1%)	88 (40%)	33 (47.1%)	34 (46.6%)	28 (15.6%)	34 (17.7%)
Missing	48	43	11	10	31	25

Scores on the Hopkins Symptom Inventory depression scale can range from 1 to 4 after an average of the scores on all items is calculated. A cut-off score of 2.01 was used to identify cases with a probable diagnosis of depression because this value has been



validated with another conflict-affected Arabic speaking population (Mahfoud et al. 2013). As shown in Table 5, rates of a probable depression diagnosis were high across all subsamples, particularly among Syrian and Jordanian women living in urban settings with rates of 60.3% and 52.3% respectively. Participants were not asked if they had a previous diagnosis of depression from a professional.

TABLE 5. DEPRESSION SYMPTOMS

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
M (SD)	1.96(0.75)	2.09 (0.66)	1.99 (0.62)	2.25 (0.67)	1.80 (0.61)	1.83 (0.52)
Probable diagnosis	77 (36.8%)	115 (52.3%)	31 (44.3%)	44 (60.3%)	57 (31.8%)	64 (33.3%)

Note. Did not disclose = Participant was exposed to one of the events mentioned but did not disclose it to the interviewer.

Results show a high co-occurrence of depression and PTSD. Of the 161 participants from the total sample that met all criteria for PTSD, nearly 3/4 also met criteria for depression. In contrast, of the 382 participants who met criteria for depression, less than half (45%) had a likely co-occurrence of PTSD.

TABLE 6. SOMATIC AND CHRONIC PAIN SYMPTOMS

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
<b>Somatic Symptoms</b>						
M (SD)	8.97 (7.32)	10.97 (6.58)	8.82 (6.07)	11.13 (6.48)	6.55 (5.28)	8.45 (5.26)
n (%) Minimal symptoms	84 (40.2%)	44 (21.1%)	19 (27.1%)	13 (17.8%)	76 (42.5%)	50 (26%)
n (%) Low symptoms	28 (13.4%)	55 (26.3%)	22 (31.4%)	18 (24.7%)	54 (30.2%)	68 (25.4%)
n (%) Moderate symptoms	39 (18.7%)	47 (22.5%)	17 (24.3%)	19 (26%)	33 (18.4%)	46 (24%)
n (%) High symptoms	58 (27.8%)	74 (35.4%)	12 (17.1%)	23 (31.5%)	15 (8.4%)	27 (14.1%)
<b>Chronic Pain Symptoms</b>						
n (%) Previous diagnosis of chronic pain	48 (23%)	30 (13.6%)	11 (15.7%)	16 (21.9%)	25 (14%)	20 (10.4%)
n (%) Self-report chronic pain (more than three months)	59 (28.2%)	43 (19.5%)	15 (21.4%)	20 (27.4%)	45 (25.1%)	30 (15.6%)

Note. Minimal symptoms = 0-4, Low Symptoms = 5-9, Moderate Symptoms = 10-14, High Symptoms = 15+ on the PHQ-15.

As shown in Table 6, somatic symptoms were relatively high across all groups, with more than one quarter of all participants reporting moderate to high symptoms. A substantial percentage of participants also reported experiencing physical pain, daily, for more than three months.

Of the 410 participants with moderate to high somatic symptoms, over two thirds (67.71%) had a likely diagnosis of depression and just over one quarter (25.97%) met criteria for PTSD.

There was also an overlap between distress and self-reported chronic pain. Of the 212 participants reporting they experienced pain every day for the past three months,

approximately half also had a likely diagnosis of depression (50.47%), 21.69% met criteria for PTSD, and more than two thirds (69.81%) had moderate to high somatic symptoms in general.

## Main Analyses

A table showing bivariate correlations between study variables is included in Appendix B. Three multiple regression analyses were conducted to explain variance in the three types of symptoms, PTSD, depression, and somatic, analyzed as continuous variables. Predictors included demographic factors, risk, and protective factors. For social support, we excluded support from spouse, because 25% of the sample was not currently married. Results are shown in Table 7.

TABLE 7

	Dependent Variables					
	PTSD Symptoms (N = 934)		Depression Symptoms (N = 940)		Somatic Symptoms (N = 938)	
Predictors	B (SE)	p	B (SE)	p	B (SE)	p
Sex	<b>2.54</b> (.385)	<b>.001</b>	<b>0.236</b> (0.04)	<b>.001</b>	<b>3.321</b> (0.371)	<b>.001</b>
Age	.01 (.015)	.96	-.001 (.001)	.619	<b>0.034</b> (0.014)	<b>.016</b>
Nationality	<b>-3.14</b> (.428)	<b>.001</b>	<b>-.308</b> (.043)	<b>.001</b>	<b>-3.531</b> (.414)	<b>.001</b>
Economic strain	<b>1.35</b> (.252)	<b>.001</b>	<b>.21 (.025)</b>	<b>.001</b>	<b>2.14</b> (.243)	<b>.001</b>
Total number PTEs	<b>0.88</b> (.078)	<b>.001</b>	<b>.089</b> (.008)	<b>.001</b>	<b>.875</b> (.075)	<b>.001</b>
Support friends	-0.13 (.089)	.15	<b>-0.03</b> (.009)	<b>.007</b>	.022 (.086)	.800
Support family	-0.23 (.133)	.09	<b>-.062</b> (0.013)	<b>.001</b>	<b>-.446</b> (.126)	<b>.001</b>

Note. Sex was coded 1 = Male, 2 = Female. Nationality was coded 1 = Jordanian, 2 = Syrian PTEs = Potential traumatic events. Support = Perceived support from family and friends. Values in bold are statistically significant.

The full model predicting PTSD was statistically significant [ $F(7, 934) = 32.95, p = .001$ ] and accounted for approximately 19% of the variance in symptoms. As shown in Table 7, sex of participants was statistically significant, with females having higher scores than males. Nationality was also significant, indicating Jordanians had more severe symptoms than Syrians overall. A higher number of PTEs reported and more household

economic strain were associated with more severe symptoms. Social support from friends and family were not significantly related to PTSD symptoms.

The full model predicting depression scores was also statistically significant, [ $F(7, 940) = 46.81, p = .001$ ] accounting for approximately 25% of the variance. Sex and nationality were again statistically significant, with females reporting higher symptoms than males, and Jordanians reporting higher symptoms than Syrians. Age was not related to depression. Higher number of PTEs reported and more household economic strain were also associated with more severe symptoms. Social support from family and friends both emerged as protective factors, with more support being associated with lower depression severity.

The full model predicting somatic symptoms was significant [ $F(7, 938) = 50.88, p = .001$ ], accounting for approximately 27% of the variance. Sex, age, and nationality were significant predictors of somatic symptom severity, meaning females, older participants and Jordanians reporting more severe symptoms. PTEs and more household economic strain were also associated with more severe symptoms. Social support from family, but not friends was associated with lower somatic symptoms.

## Help-Seeking

We asked participants if they had sought help for any of the emotional difficulties or psychosocial stressors, they had experienced. Those who answered "yes" were asked where they had sought help. As shown in Table 8, few participants had received help from a mental health professional. When asked where they turn first for help, most participants reported they would first consult a family member. However, when asked directly if they would be willing to consult a professional between 33% and 50% said they would be likely or extremely likely to do so.

TABLE 8

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
<b>Have you sought help for emotional distress?</b>						
Yes	53 (25.4%)	21 (30%)	72 (32.7%)	17 (23.3%)	35 (19.6%)	41 (21.4%)
<b>Where did you go for help?</b>						
MH clinician	6 (2.9%)	0	0	2 (2.7%)	2 (1.1%)	2 (1%)
Medical provider	1 (.5%)	1 (1.4%)	1 (.5%)	1 (1.4%)	2 (1.1%)	1 (1%)
Religious leader	3 (1.4%)	0	0	0	0	0
Family	25 (12%)	11 (15.7%)	55 (25%)	13 (17.8%)	23 (12.8%)	30 (15.6%)
Friends	17 (8.1%)	12 (17.1%)	23 (10.5%)	2 (2.7%)	11 (6.1%)	8 (4.2%)
Other	6 (2.9%)	0	4 (1.8%)	0	0	0
<b>Who is the first person you would turn to for help with emotional distress?</b>						
Family member	170 (81.3%)	196 (89.1%)	59 (84.3%)	64 (87.7%)	148 (82.7%)	169 (88%)
Friend/neighbor	20 (9.6%)	15 (6.8%)	4 (5.7%)	6 (8.2%)	5 (2.8%)	3 (1.6%)
Specialist	10 (4.8%)	3 (1.4%)	2 (2.9%)	1 (1.4%)	17 (9.5%)	12 (6.3%)
Other	9 (4.3%)	6 (2.7%)	5 (7.1%)	2 (2.7%)	0	3 (1.6%)
<b>How likely is it you would seek help from a mental health professional?</b>						
Unlikely	110 (52.6%)	132 (60%)	39 (55.7%)	41 (56.2%)	30 (16.8%)	33 (17.2%)
Neutral	6 (2.9%)	11 (5%)	2 (2.9%)	6 (8.2%)	11 (6.1%)	16 (8.3%)
Likely	93 (44.5%)	73 (33.2%)	29 (41.4%)	26 (35.6%)	90 (50.3%)	71 (37%)

Participants who reported symptoms of chronic pain were asked about help-seeking for pain and the outcome of treatment. Results are shown in Table 9.

TABLE 9

	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
<b>Help-seeking Pain</b>						
Sought help for pain n (%)	45 (50.6%)	17 (63%)	47 (54%)	17 (54.8%)	40 (22.3%)	30 (15.6%)
Most common provider	MD (77.8%)	MD (52.9%)	MD (63.8%)	MD (82.4%)	MD (72.5%)	MD (86.7%)
Most common treatment (%)	Meds (64.4%)	Meds (82.5%)	Meds (72.3%)	Meds (82.5%)	Meds (90%)	Meds (86.7%)
% Treatment helped	64.4%	82.4%	74.5%	76.5%	67.5%	60%
% Reporting pain returned	51.7%	50%	25.7%	76.9%	59.3%	38.9%

Note. MD = Medical doctor. Meds = Medication.

# DISCUSSION

## Key Findings

Nearly all participants had been exposed to some form of potentially traumatic event. This is consistent with results from the World Mental Health Survey that found just over 70% of adults had a lifetime experience of at least one event (Kessler et al., 2017). Among Jordanians the most reported event was the traumatic, unexpected death of a family member. Among Syrian refugees, as would be expected, the most common event was fleeing the country due to war.

Contrary to previous research with Syrian refugees (Singh et al., 2022) and Jordanians (Massad et al. 2020), few participants in this study reported having experienced partner violence. This could potentially be underreporting due to the sensitivity of the topic. Notably, more than 30% of the total sample reported they had not disclosed an event because they did not want to talk about it.

Regarding emotional distress, as shown in Table 3 rates of probable PTSD among Syrians were lower than found in other samples; for example, a recent study involving a representative sample of adult Syrian refugees in Turkey found approximately 19% had a likely diagnosis of PTSD (McGrath et al. 2020). The reason for the discrepancy is unclear but could potentially be related to different levels of exposure to trauma among the sampled populations or characteristics of the research designs. We were unable to find existing systematic research on trauma and PTSD among Jordanians for comparison; it is notable that rates for probable PTSD is similar between refugees and Jordanians. Depression was exceptionally high across all subgroups, with 36 to 60% of participants likely meeting criteria for a diagnosis.

Results showed the sample was also experiencing physical distress. Rates of somatic symptoms among Syrian refugees were somewhat lower than previous research (McGrath, et al., 2020) but still ranged from 8.4 % (males living in refugee camps) to 31.5% (females in urban locations). There was no comparison for Jordanians available; a substantial number in this study also reported high somatic symptoms (35.4% females; 27.8% males). Among the subgroups of the sample 10.4% to 23% reported a previous diagnosis of chronic pain by a medical professional, and 13% to 20% reported experiencing physical pain, daily, for more than three months.

Consistent with other research, results demonstrate co-occurrence of symptoms across categories. Most (66.7%) participants with a probable diagnosis of PTSD also met criteria for depression. Previous research has documented a co-occurrence between PTSD and physical pain and somatic distress; in this sample, however the association was more prominent for depression than PTSD. Additionally, of the 212 participants reporting they experienced pain every day for the past three months, approximately half also had a likely diagnosis of depression (50.47%), whereas only 21.69% met criteria for PTSD. When examining the symptom scores for PTSD, depression, and somatic symptoms as continuous variables, all three had significant correlations, again demonstrating the tendency for symptoms across types to co-occur (see Appendix B).

Results of the analysis also showed that females had more severe symptoms across all three symptom types than males, and that Jordanians had higher symptoms than Syrians. Age was only significantly related to somatic symptoms, with older participants reporting more severe distress. Both economic strain and total number of PTEs emerged as significant risk factors. Specifically, participants rating their household's economic situation as poor also reported more PTSD, depression, and somatic distress. Additionally, there was a dose-response association between exposure to PTEs and all forms of distress.

Social support and support from family was negatively associated with depression, meaning more support was linked with fewer symptoms. Contrary to previous research, social support from friends and family was not a protective factor for symptoms of PTSD. For somatic symptoms, only support from family was associated with lower symptoms.

The findings highlight the mental health treatment gap for trauma-affected Syrian refugees and Jordanians in this context. Despite high levels of emotional distress, few participants had sought help for from a mental health or medical provider. Across the subgroups only 21.4% to 32.7% of people had sought help from anyone, most commonly a family member. When asked to whom they would turn first if they were experiencing distress, family was again the most common response, with only 1.3% to 9.5% stating they would seek help from a professional first. However, between 33% and 53% of participants said they would be willing to seek help for emotional distress or psychosocial problems from a mental health professional such as a counselor or psychologist. We did not ask why participants had not or would not go to a professional for emotional distress. For this reason, it is not possible to know whether it is stigma about seeking help, lack of awareness, or lack of available services. Previous research with a Jordanian sample found both cultural beliefs and stigma influenced attitudes towards seeking professional help (Ali et al., 2017) and this could play a role with this sample as well.

We also asked about help-seeking for symptoms of chronic pain. Relatively more participants had sought help for physical distress, most commonly consulting a medical doctor. Most reported they took medication for their symptoms and that it helped. However, the symptoms returned for 38.9% to 76.9% of participants.

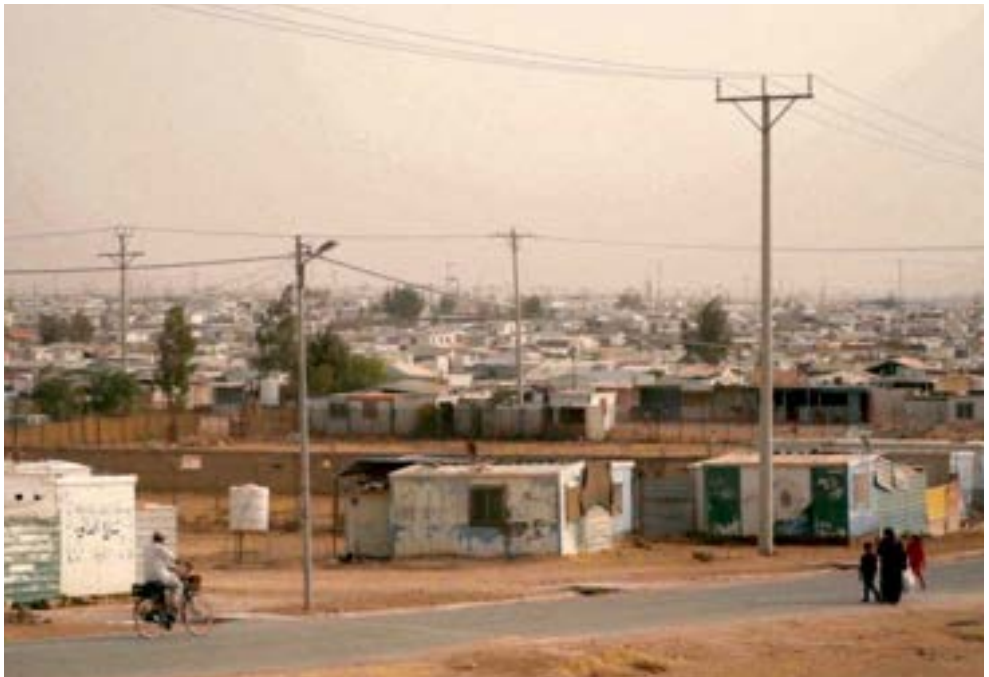


## Limitations

Key findings must be interpreted in light of the study's limitations. Data collection in the urban setting took place in the first quarter of 2021 and data collection in the refugee camp took place in the second quarter of 2022. It is likely that the results were influenced by the COVID-19 pandemic and associated social and economic factors. Data were collected at one point in time; thus, it is not possible to draw conclusions on the direction of effects. For example, we do not know if the economic strain is causing distress, or participants have experienced more strain because their mental health difficulties have made it more difficult for them to engage in income generating activities.

Although the data collection strategy was designed to recruit a representative sample of both Syrians and Jordanians, because interviews took place during the daylight hours on weekdays when some individuals are likely working outside the home, the sample might not represent the population.

Most measures utilized in the study had been translated and previously used with trauma-affected Arabic speaking populations. However, the measures are based on constructs from the global north. It is possible that there are differences in the way symptoms are expressed or how social support is experienced and described, for example.



# CONCLUSION AND RECOMMENDATIONS

Despite these limitations, the study provides an important contribution by including systematic data on trauma and mental health for both Jordanians and Syrian refugees, and by examining both emotional and somatic distress. Results highlight the need for trauma-informed mental health and psychosocial support for both Syrian refugees and the host population in Jordan. Findings also highlight the prevalence of somatic distress and physical pain among the populations. The population may benefit from interventions designed to target these symptoms simultaneously. Specific recommendations are listed below.

- The high level of exposure to PTEs and distress indicate the need for mental health awareness campaigns that target adult Syrians refugees and the host population in Jordan. It is recommended that these campaigns highlight the impacts of trauma and adversity on mental and physical well-being as well as awareness of existing MHPSS services. Given that most participants reported they would turn to a family member for help first, there should be an emphasis on recognizing symptoms of distress in others, and strategies for supporting someone who is suffering from mental health difficulties.
- Findings highlight the mental health treatment gap for both Syrian refugees and Jordanians affected by trauma and adversity in this context. The link between exposure to PTEs and elevated symptoms highlights the need for trauma informed MHPSS interventions. Given the considerable overlap among symptom categories, it is recommended that transdiagnostic treatments is implemented to address high prevalence of depression, posttraumatic stress, and other symptoms.
- It is important to culturally adapt outreach and MHPSS interventions, to ensure their acceptability among the populations. It may be beneficial to address stigma, as previous research has shown stigma to affect help-seeking for mental health problems. It is encouraging that over a third of the participants stated they would be willing to seek help from a mental health professional. However, because willingness does not always translate into behavior, it may be beneficial to examine and address context-specific barriers to accessing MHPSS services.
- Given the prevalence of somatic distress and physical pain across the subgroups, it may be beneficial to implement interventions that directly target these symptoms. The considerable co-occurrence of somatic symptoms and emotional distress highlights the importance of taking somatic distress into consideration and monitoring whether physical symptoms remit with treatment for depression or PTSD.
- Like previous research, women in this study were more distressed than men, although the reason why could not be determined. Additional research into the unique psychosocial stressors affecting women's mental health is recommended to be carried out in this context and used to inform gender sensitive MHPSS programming.



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## APPENDIX A

Exposure to potentially traumatic events (PTE)						
	Jordanians		Syrians Urban		Syrians Camps	
	Male (n = 209)	Female (n = 220)	Male (n = 70)	Female (n = 73)	Male (n = 179)	Female (n = 192)
Torture	N/A	N/A	13 (18.6%)	1 (1.4%)	21 (11.7%)	3 (1.6%)
Sexual violence	6 (2.9%)	0	0	0	2 (1.1%)	2 (1%)
Partner violence	6 (2.9%)	2 (0.9%)	0	5 (6.8%)	0 (0%)	9 (4.7%)
War zone/ conflict	28 (13.4%)	4 (1.8%)	17 (24.3%)	12 (16.4%)	179 (100%)	192 (100%)
Refugee	N/A	N/A	58 (82.9%)	65 (89%)	179 (100%)	192 (100%)
Kidnapping	1 (0.5%)	0	8 (11.4%)	0	16 (8.9%)	2 (1%)
Car accident	52 (24.9%)	12 (5.5%)	12 (17.1%)	3 (4.1%) (4 missing)	27 (15.1%)	9 (4.7%)
Other accident	62 (29.7%)	10 (4.5)	10 (14.3%)	3 (4.1%)		
Natural disaster	13 (6.2%)	5 (2.3%)	3 (4.3%)	3 (4.1%)	7 (3.9%)	2 (1%)
Illness	45 (21.5%)	27 (12.3%)	7 (10%)	4 (5.5%)	24 (13.4%)	12 (6.3%)
Abuse as child	39 (18.7%) (6 missing)	18 (8.2%)	5 (7.1%)	10 (13.7%) (1 missing)	17 (9.5%)	14 (7.3%)
Other violence	5 (2.4%)	15 (6.8%)	9 (12.9%)	3 (4.1%)	13 (7.3%)	2 (1%)
Mugged or Threatened	29 (13.9%)	14 (6.4%)	10 (14.3%)	4 (5.5%)	20 (11.2%)	11 (5.7%)
Traumatic/ unexpected death of family member	106 (50.7%)	139 (63.2%)	30 (42.9%)	48 (65.8%)	87 (48.6%)	90 (46.9%)
Child illness/ injury	40 (19.1%)	29 (13.2%) (76 missing)	17 (24.3%) (12 missing)	8 (11%) (22 missing)	32 (17.9%)	29 (15.1%)
Witnessed family violence as a child	28 (13.4%) (6 missing)	18 (8.2%)	6 (8.6%)	12 (16.4%)	8 (4.5%)	17 (8.9%)
Witnessing death/serious injury	45 (21.5%)	28 (12.7%)	22 (31.4%)	18 (24.7%)	67 (37.4%)	40 (20.8%)
Did not disclose	68 (32.5%)	82 (37.3%)	17 (24.3%)	19 (26%)	36 (20.1%)	21 (10.9%)

Note. MD = Medical doctor. Meds = Medication.

## APPENDIX B

Bivariate Correlations for All Study Variables										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Age	--									
2. Gender	-.127**	--								
3. Nationality	-.229**	.003	--							
4. Economic strain	.156**	-.187**	.128**	--						
5. PTE total	.081	-.161**	.361**	.240**	--					
6. Support friends	.056	-.021	.059	-.168**	-.088*	--				
7. Support family	.058	-.087**	.131**	-.078*	-.084*	.245**	--			
8. PTSD	.068*	.121**	-.101**	.178**	.419**	-.134**	-.146**	--		
9. Depression	.057	.088**	-.090**	.275**	.361**	-.203**	-.242**	.535**	--	
10. Somatic	.152**	.156**	-.136**	.262**	.341**	-.107**	-.194**	.508**	.682**	--

Note. MD = Medical doctor. Meds = Medication.









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POPULATION IN JORDAN**

By Jessica E. Lambert & Amalie Skovengaard

Data Report is prepared in collaboration between the authors, Mindset and Danish Arab Partnership Program - DAPP.

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