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Stigma, displacement stressors, and psychiatric morbidity among displaced Syrian men who have sex with men and transgender women in Lebanon, 2019

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2020-046996
Article Type:	Original research
Date Submitted by the Author:	16-Nov-2020
Complete List of Authors:	Clark, Kirsty; Yale University School of Public Health, Pachankis, John ; Yale School of Public Health Khoshnood, Kaveh; Yale University School of Public Health Branstrom, R.; Yale University Yale School of Public Health, Department of Chronic Disease Epidemiology; Karolinska Institutet Department of Clinical Neuroscience, Department of clinical neuroscience Seal, David; Tulane University School of Public Health and Tropical Medicine, Global Community Health and Behavioral Sciences Khoury, Danielle; American University of Beirut Fouad, F Barbour, Russell; Yale University School of Public Health Heimer, Robert; Yale University School of Public Health
Keywords:	MENTAL HEALTH, PUBLIC HEALTH, EPIDEMIOLOGY

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9 Stigma, displacement stressors, and psychiatric morbidity among displaced Syrian men who
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11 have sex with men and transgender women in Lebanon, 2019
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ABSTRACT

Background. Displaced Syrians face psychiatric morbidity often resultant from displacement-related stressors (e.g., resource scarcity). Both men who have sex with men (MSM) and transgender women among the displaced Syrians are particularly vulnerable to mental health challenges given that they also often face stigma-related stressors (e.g., discrimination).

Methods. Between January and December 2019 in greater Beirut, 258 Lebanese-born and 230 displaced Syrian MSM and transgender women were recruited via respondent-driven sampling to complete an in-person survey assessing displacement-related stressors, stigma-related stressors, and depression, anxiety, and posttraumatic stress disorder. In the total sample, we first documented the prevalence of psychiatric morbidity; among the displaced Syrians, we then assessed associations among displacement-related and stigma-related stressors and each psychiatric outcome.

Results. Sixty-three percent of Syrian participants met criteria for depression compared to 43.8% of Lebanese participants ($p < 0.001$); 21.3% of Syrians met criteria for severe anxiety compared to 13.1% of Lebanese participants ($p < 0.05$); and 33.0% of Syrians met criteria for posttraumatic stress disorder compared to 18.4% of Lebanese participants ($p < 0.001$). Among Syrian MSM and transgender women, socio-demographic characteristics, displacement-related stressors, and stigma-related stressors were uniquely associated with psychiatric morbidity.

Conclusion. Displaced Syrian MSM and transgender women experience higher levels of psychiatric co-morbidities than Lebanese MSM and transgender women in part due to compounding exposure to displacement-related stressors and stigma-related stressors. Informed by tenets of minority stress theory and intersectionality theory, we discuss mental health intervention implications and future directions.

Strengths and limitations of this study

- This is the first study assessing psychiatric morbidity among Syrian men who have sex with men (MSM) and transgender women displaced by armed conflict in Lebanon.
- Respondent-driven sampling recruited both Lebanese and displaced Syrians, allowing for comparison of prevalence and determinants of psychiatric morbidity between groups.
- Valid and reliable instruments were used to assess stigma, displacement stressors, and psychiatric morbidity.
- The study's cross-sectional design precludes causal inference of determinants of psychiatric morbidity.
- This study assessed discrimination and assault events related to sexual minority status; it did not assess discrimination and assaults events related to gender identity or Syrian nationality.

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INTRODUCTION

Since March 2011, over half of Syria's population has been displaced to escape the ongoing armed conflict, with many taking refuge in neighboring Lebanon. The United Nations High Commissioner for Refugees (UNHCR) has deemed the Syrian refugee crisis the largest humanitarian emergency in modern history. One and half million fled to Lebanon, which prior to the influx of Syrian refugees had a population of no greater than 4.5 million and which now hosts the largest proportion of refugees per capita in the world[1].

Displaced Syrians living in Lebanon face significant psychosocial challenges associated with depression, anxiety, and posttraumatic stress disorder. Recently, two studies documented that the prevalence of depression and posttraumatic stress disorder among samples of displaced Syrians in Lebanon exceeded 27% and 43%, respectively[2-3]. Psychiatric morbidity emerges from a confluence of risk factors including pre-existing mental disorders; conflict-related trauma, violence, loss, and displacement; and maladjustment to a new environment due to poor living conditions, scarcity of resources, and intergroup conflict with host communities[4-5].

Both men who have sex with men (MSM) and transgender women among the displaced Syrians are particularly vulnerable to the mental health challenges of stigma given their dual minority status both as a MSM or transgender woman and displaced person[6]. In addition to fleeing their homes to escape war and political instability, Syrian MSM and transgender women also flee to escape identity-related persecution and violence[7]. Once in Lebanon, however, they often face anti-gay and anti-transgender stigma driven by a conservative legal climate and social attitudes. MSM and transgender women in Lebanon report negative psychosocial outcomes (e.g., concealment, shame) in response to anti-gay and anti-transgender discrimination and

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3 harassment[8-9]. One recent study found that Syrian MSM in Lebanon experienced more than
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5 twice the prevalence of discriminatory or violent events than Lebanese MSM, perhaps owing to
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7 the intersection of their MSM status and Syrian nationality[6].
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11 Minority stress theory posits that discrimination based on sexual or gender identity can lead to
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13 internalized stigmatizing beliefs and associated psychological distress[10]. Due in large part to
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15 these experiences, sexual and gender minorities around the world experience elevated rates of
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17 psychiatric morbidity compared to their heterosexual, cisgender peers[11-12]. Yet to our
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19 knowledge, only two studies have assessed the prevalence of depression among Lebanese MSM
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21 (26%)[13] and transgender women (66%)[9] and neither examined the prevalence or
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23 determinants of mental health problems among displaced Syrian MSM and transgender women.
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25 The lack of studies including displaced Syrian MSM and transgender women hampers
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27 understanding of the relative importance of displacement-related determinants (e.g.,
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29 displacement stressors, resource scarcity, displacement-related discrimination) versus MSM and
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31 transgender-related determinants (e.g., experienced and internalized stigma) on psychiatric
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33 morbidity in this population. Assessing such determinants can inform tailored mental health
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35 interventions deemed critical by UNHCR and other humanitarian organizations for reducing
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37 psychiatric morbidity and associated distress among this vulnerable subgroup of Syrians[6].
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44 Drawing on a large sample of MSM and transgender women recruited by respondent-driven
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46 sampling in Lebanon, the current study sought to: (1) assess and compare the prevalence of
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48 common psychiatric disorders (i.e., depression, anxiety, posttraumatic stress disorder) among
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50 Lebanese and Syrian MSM and transgender women, and (2) among Syrian MSM and
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52 transgender women, examine the relative impact of displacement-specific and MSM and
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3 transgender-specific determinants of psychiatric morbidity. This study represents the first
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5 investigation of prevalence and determinants of psychiatric morbidity among displaced Syrian
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7 MSM and transgender women.
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10 **METHOD**

11 **Participants**

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16 Between January and December 2019, MSM and transgender women in the greater Beirut region
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18 were recruited to complete a biobehavioral survey of socio-demographics, mental health, stigma
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20 experiences, and sexually transmitted infections (STI) focusing on HIV-risk and protective
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22 behaviors[6]. The current manuscript does not report STI-related results. Eligible participants
23
24 had been assigned male sex at birth, reported oral or anal sexual intercourse with a male in the
25
26 past six months, and provided informed consent. Participants were recruited utilizing respondent-
27
28 driven sampling[14] by one of five local non-governmental organizations (NGOs) serving
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30 lesbian, gay, bisexual, transgender, and queer (LGBTQ) populations. Briefly, nine Syrian-born
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32 seed participants were recruited directly by study personnel. Each then received four coupons to
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34 recruit additional participants and successful recruits were then each given four coupons.
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36 Participants received \$20 for completing the survey and \$10 for each subsequently recruited
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38 participant. Surveys were conducted in Arabic via in-person interviews with trained study staff at
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40 local NGOs or LGBTQ-friendly venues (e.g., bars).
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47 MSM and transgender women were included in the current study if they completed any mental
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49 health assessment (i.e., depression, anxiety, and posttraumatic stress) and were either Lebanese-
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51 born or were Syrian-born and migrated to Lebanon after March 15, 2011 when the Syrian
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53 conflict began. For this reason, we can consider all Syrian participants in the current study to be
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3 displaced Syrians. In total, 594 MSM and transgender women were recruited. We dropped from
4 analyses 19 Syrian-born individuals who migrated to Lebanon before March 15, 2011, 27
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6 participants who were born outside of Lebanon or Syria (e.g., Iraq, Jordan, Kuwait), and 60
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8 participants who did not complete any mental health assessments. Our final analytic sample size
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10 was 488. This study was approved by the Yale Human Subjects Committee and the Institutional
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12 Review Board at the American University of Beirut.
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16 17 **Patient and public involvement statement**

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19 Neither patients nor the public was included in the design, conduct, reporting or dissemination
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21 plans of the research. However, local LGBTQ NGOs serving MSM and transgender women in
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23 greater Beirut were involved in study design and participant recruitment.
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27 28 **Measures**

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31 *Socio-demographics.* We assessed age, household size, gender identity, education level, monthly
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33 income, relationship status, and partner gender.
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37 *Discrimination and assault.* Stigma-related measures assessed experiences related to sexual
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39 minority status; experiences specific to gender minority status were not assessed in this study.
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41 Discrimination was measured by five yes-or-no questions assessing whether an individual had
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43 been refused health care, employment, religious services, restaurant or bar service, or housing in
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45 the past 12 months because they were believed to be a sexual minority. Assault was measured by
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47 three yes-or-no questions assessing if an individual had experienced verbal harassment, physical
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49 abuse, or sexual assault in the past 12 months because they were believed to be a sexual
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51 minority. These questions have been reliably used to measure discrimination and assault
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53 exposure among MSM around the world including in Lebanon[6].
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3 *Internalized stigma.* Two sets of six items measured internalized stigmatizing beliefs regarding
4 one's status as a sexual minority or, if applicable, as a Syrian person. Measures were adapted
5 from a validated instrument of internalized HIV-related stigma[15].
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10 *Displacement-related stressors.* Syrian participants reported on two stressors related to
11 displacement. As a measure of unstable housing, Syrian participants reported how many
12 locations they had lived in since moving to Lebanon. As a measure of legal status, Syrian
13 participants reported whether they had an official visa or permit in Lebanon.
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18 *Mental health.* Depression was measured by the 20-item self-report Center for Epidemiologic
19 Studies Depression Scale (CES-D) with a cutoff score of ≥ 16 suggesting the presence of
20 clinically significant depressive symptoms[16]. Anxiety was assessed by the 21-item self-report
21 Beck Anxiety Inventory (BAI) with a cutoff score of ≥ 26 suggesting the presence of severe
22 anxiety[17]. Posttraumatic stress was measured by the 17-item self-report Posttraumatic Stress
23 Disorder CheckList for Civilians (PCL-C) with a cutoff score of ≥ 50 suggesting probable
24 posttraumatic stress disorder[18]. The CES-D, BAI, and PCL-C have been employed as valid
25 instruments assessing depression, anxiety severity, and posttraumatic stress disorder,
26 respectively, in Arabic-speaking community and displaced populations[19-21].
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42 **Statistical Analysis**

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45 Analyses were conducted in SAS version 9.4 and proceeded in three steps. First, descriptive
46 statistics were used to assess socio-demographic, stigma-related stressors, and mental health
47 differences between Lebanese-born and Syrian-born MSM and transgender women. Second,
48 simple linear regression models examined unadjusted associations between socio-demographic
49 factors, displacement status (Lebanese-born versus displaced Syrian), and each mental health
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outcome. Variables that showed significant associations at $p < 0.05$ in bivariate models were retained in adjusted multivariable linear regression models. Missing covariate data were imputed via multiple imputation procedures[22]. Third, we restricted analyses to displaced Syrians and conducted bivariate and multivariable linear regression analyses to assess the unadjusted and adjusted associations, respectively, between socio-demographic characteristics, displacement-related stressors, stigma-related stressors (i.e., discrimination, assault, internalized sexual minority and Syrian stigma), and each mental health outcome. Supplemental logistic regression analyses mirrored the primary analyses but assessed the presence of psychiatric morbidity utilizing binary indicators of mental health cutoffs as outcomes.

RESULTS

Bivariate analyses showed that displaced Syrians were younger, had less educational attainment, and had lower monthly income than Lebanese participants (see **Table 1**). In total, 86.4% of the sample identified as a man, and 13.6% of participants identified as a woman, transgender woman, or other gender identity.

Table 1. Sample characteristics among Lebanese and displaced Syrian MSM and transgender women recruited through respondent driven sampling in Lebanon, $N = 488$					
Socio-demographic variable	Lebanese ($n = 258$; 52.3%)		Displaced Syrian ($n = 230$; 47.1%)		Chi-sq or t value
	n or Mean	% or SD	n or Mean	% or SD	
Age ($n = 486$)	28.0	7.08	26.0	4.60	3.85***
Household size ($n = 482$)	3.98	2.08	3.72	2.13	1.35
Gender Identity ($n = 420$)					0.74
Man	203	85.7	160	87.4	
Woman or Transgender Woman	26	11.0	19	10.4	
Other	8	3.4	4	2.2	
Education level					28.87***
Did not complete primary school	10	3.9	11	4.8	
Completed primary school	47	18.2	70	30.4	

Completed secondary school	46	17.8	43	18.7	
Some college or university	52	20.2	63	27.4	
Completed university	103	39.9	43	18.7	
Income (monthly, US dollars) ($n = 480$)					93.48***
\$0-500	91	35.7	147	65.3	
\$501-1000	66	25.9	72	32.0	
\$1001-2000	65	25.5	5	2.2	
\$2001-4000	32	12.6	1	0.4	
Greater than \$4000	1	0.4	0	0.0	
Relationship status ($n = 486$)					0.91
Single	168	65.4	159	69.4	
Partnered	89	34.6	70	30.6	
Gender of partner ($n = 159$)					2.61
Cisgender man	78	87.6	63	90.0	
Cisgender woman	2	2.3	1	1.4	
Transgender man	1	1.1	0	0.0	
Transgender woman	4	4.5	5	7.1	
Other (e.g., Gender non-conforming)	4	4.5	1	1.4	
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$					

Prevalence of psychiatric morbidity in the sample was generally high (see **Table 2**). Sixty-three percent of Syrians met or exceeded the cutoff for depression compared to 43.8% of Lebanese participants ($p < 0.001$). Approximately 21.3% of Syrians met criteria for severe anxiety compared to 13.1% of Lebanese participants ($p < 0.05$). Thirty-three percent of Syrians were considered to have posttraumatic stress disorder compared to 18.4% of Lebanese participants ($p < 0.001$). Syrian participants reported higher stigma-related stress including internalized sexual minority stigma and greater exposure to recent discrimination and assault than Lebanese-born participants.

Table 2. Mental health and stigma differences between Lebanese and displaced Syrian MSM and transgender women, $N = 488$					
Mental health or stigma variable	Lebanese ($n = 258$; 52.3%)		Displaced Syrian ($n = 230$; 47.1%)		Chi-sq or t value
	n or Mean	% or SD	n or Mean	% or SD	

Depression ^a (range: 0 - 60)	16.79	14.33	23.15	15.16	4.76***
Depression cutoff ^a (n, %)	113	43.8	145	63.0	18.07***
Anxiety ^b (range: 0 - 63)	11.05	12.32	14.89	13.77	3.25**
Severe anxiety cutoff ^b (n, %)	34	13.1	49	21.3	5.68*
Posttraumatic Stress ^c (<i>n</i> = 468; range: 17 - 84)	32.91	16.57	41.63	17.00	5.62***
Posttraumatic stress disorder cutoff ^c (<i>n</i> = 468; <i>n</i> , %)	45	18.4	74	33.0	13.11***
Internalized sexual minority stigma (range: 6 - 30)	13.27	5.14	16.50	6.37	6.12***
Internalized Syrian stigma (range: 6 - 30)	--	--	13.97	7.23	--
Sexual minority discrimination (range: 0 - 5)	0.50	1.04	0.77	1.13	2.73**
Sexual minority assault (range: 0 - 3)	0.76	0.88	1.16	1.09	4.38***
* <i>p</i> < 0.05 ** <i>p</i> < 0.01 *** <i>p</i> < 0.001					
^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D.					
^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI.					
^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.					

Syrian MSM and transgender women experienced higher levels of depression and posttraumatic stress than Lebanese-born MSM and transgender women in crude and adjusted models (see **Table 3**). The association between displacement status and anxiety did not reach significance after adjusting for socio-demographics. In supplemental analyses, Syrians demonstrated a trend of 1.23 greater odds of both depression and post-traumatic stress disorder than Lebanese-born participants in adjusted models (see **Supplemental Table 1**). Across models, transgender-identified participants demonstrated greater psychiatric morbidity than cisgender participants.

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Table 3. Linear regression models regressing mental health on socio-demographic characteristics and displacement status among Lebanese and displaced Syrian MSM and transgender women in Lebanon, $N = 488$

Variable	Depression (CES-D)				Anxiety (BAI)				Post-Traumatic Stress (PCL-C) ($N = 468$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>
Age	-0.22	0.11	-0.03	0.10	-0.04	0.10	--	--	-0.26	0.13	-0.03	0.12
Household Size	-1.14***	0.32	-0.89**	0.29	-0.55†	0.28	-0.33	0.26	-1.68***	0.37	-1.50***	0.38
Gender Identity												
Cisgender	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Transgender or other (e.g., nonbinary)	11.58***	2.01	6.14***	1.87	10.60***	1.73	6.69***	1.67	11.52***	2.34	11.92***	2.57
Education level												
Completed primary school or less	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Completed more than primary school	-10.26***	1.44	-6.38***	1.37	-6.86***	1.28	-3.49**	1.23	-11.06***	1.65	-11.60***	1.69
Income (monthly)												
\$0-500	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
\$501 or more	-11.77***	1.25	-8.01***	1.32	-10.00***	1.10	-7.58***	1.18	-13.52***	1.46	-13.47***	1.49
Relationship status												
Single	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Partnered	-4.70**	1.44	-5.48***	1.28	-4.45***	1.26	-4.84***	1.15	-4.75**	1.66	-4.95**	1.69
Displacement status												
Lebanese (not displaced)	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Displaced Syrian	6.36***	1.33	2.75*	1.26	3.84**	1.18	1.00	1.13	8.35***	1.52	8.73***	1.55

Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Est. = Estimate; *SE* = standard error

CES-D = Center for Epidemiologic Studies Depression Scale; BAI = Beck Anxiety Inventory; PCL-C = PTSD Check List – Civilian Version

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3 Among Syrian MSM and transgender women, socio-demographic characteristics, displacement-
4 related stressors, and stigma-related stressors all served as determinants of psychiatric morbidity
5 as assessed by multiple linear regression models (see **Table 4**). Regarding socio-demographic
6 characteristics, lower monthly income and not being in a relationship were significantly
7 associated with higher levels of depression, anxiety, and posttraumatic stress. In terms of
8 displacement-related stressors, the greater number of locations lived since migrating to Lebanon
9 was associated with higher anxiety ($\beta=.50$; $p < 0.01$) and posttraumatic stress ($\beta=.52$; $p < 0.01$).
10 Participants who did not have legal status reported higher depression ($\beta=3.63$, $p < 0.05$), anxiety
11 ($\beta=4.14$, $p < 0.05$), and posttraumatic stress ($\beta=5.81$, $p < 0.01$) than those with legal status.
12 Exposure to past-year sexual minority discrimination ($\beta=2.16$, $p < 0.05$) and assault ($\beta=2.23$, $p <$
13 0.05) were each associated with higher depression, while internalized sexual minority stigma was
14 marginally associated ($\beta=0.33$, $p < 0.10$) and internalized Syrian stigma was not associated with
15 depression. Exposure to sexual minority discrimination ($\beta=2.29$, $p < 0.01$) and internalized
16 Syrian stigma ($\beta=0.24$, $p < 0.05$) were associated with more severe anxiety. The only stigma-
17 related stressor significantly associated with posttraumatic stress was sexual minority assault
18 ($\beta=2.31$, $p < 0.05$). Supplemental logistic regression analyses demonstrated similar, but
19 somewhat attenuated, results to linear regression analyses perhaps due to limited power (see
20 **Supplemental Table 2**).

Table 4. Linear regression models regressing mental health on socio-demographic characteristics, displacement-related stressors, and stigma-related stressors among displaced Syrian MSM and transgender women in Lebanon, *N* = 230

Variable	Depression (CES-D)				Anxiety (BAI)				Post-Traumatic Stress (PCL-C) (N = 224)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>
Socio-demographic characteristics												
Age	-0.33	0.22	--	--	-0.13	0.20	--	--	-0.51*	0.24	0.12	0.22
Household Size	-0.17	0.47	--	--	-0.04	0.44	--	--	-0.51	0.55	--	--
Gender Identity												
Cisgender	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Transgender or other (e.g., nonbinary)	6.86*	3.23	0.70	3.21	10.25***	2.69	2.89	2.67	9.01*	3.50	1.92	3.36
Education level												
Completed primary school or less	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Completed more than primary school	-6.93***	2.04	-2.95	1.98	-4.49*	1.87	-2.35	1.69	-7.30**	2.31	-3.22	2.21
Income (monthly)												
\$0-500	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
\$501 or more	-7.89***	2.04	-6.02**	1.89	-7.71***	1.83	-5.36**	1.74	-9.14***	2.35	-7.40***	2.19
Relationship status												
Single	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Partnered	-5.00*	2.14	-3.58†	1.88	-3.29†	1.97	-3.73*	1.75	-6.11*	2.43	-5.42*	2.13
Displacement-related stressors												
Number of locations lived since moving to Lebanon	0.74***	0.17	0.37†	0.17	0.86***	0.16	0.50**	0.15	0.91***	0.77	0.52**	0.19
Legal status in Lebanon (e.g., official visa or permit)												
Does not have legal status	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Has legal status	-9.04***	1.97	-3.63*	1.87	-8.70***	1.78	-4.14*	1.71	-11.36***	2.21	-5.81**	2.12
Stigma-related stressors												
Sexual minority discrimination	5.05***	0.82	2.16*	0.92	5.04***	0.73	2.29**	0.83	5.47***	0.95	1.62	1.05
Sexual minority assault	5.76***	0.83	2.23*	0.94	4.40***	0.78	0.57	0.86	6.43***	0.94	2.31*	1.09
Internalized sexual minority stigma	0.51**	0.15	0.33†	0.18	0.19	0.14	--	--	0.54**	0.17	0.30	0.21
Internalized Syrian stigma	0.70***	0.13	0.20	0.16	0.49***	0.12	0.24*	0.12	0.78***	0.15	0.26	0.18

<p>Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ <i>Est.</i> = Estimate; SE = standard error CES-D = Center for Epidemiologic Studies Depression Scale; BAI = Beck Anxiety Inventory; PCL-C = PTSD Check List – Civilian Version</p>

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For peer review only

DISCUSSION

To our knowledge, this study represents the first study to document the prevalence and determinants of psychiatric morbidity among displaced Syrian MSM and transgender women.

Our data, accrued by respondent-driven sampling in 2019, showed substantially elevated prevalence of depression, anxiety, and posttraumatic stress disorder among displaced Syrian MSM and transgender women compared to Lebanese MSM and transgender women.

Findings from the current study are consistent with prior research showing that depression, anxiety, and posttraumatic stress disorder are elevated among both MSM and transgender women and individuals displaced by armed conflict[2-4,10-12]. In support of minority stress theory[10] and intersectionality theory,[23] displaced Syrian MSM and transgender women in the sample experienced a confluence of stigma-related and displacement-related stressors in response to their interlocking minority statuses as both a sexual or gender minority and displaced person. Exposure to such stressors can influence psychiatric morbidity through underlying cognitive processes[24]. For example, the learned helplessness theory of depression posits that individuals who experience an aversive, uncontrollable event can become helpless due to feeling a lack of control over their circumstances[25]. Those who attribute the cause of such an aversive, uncontrollable event to internal (i.e., due to the person themselves), global (i.e., affecting the person's whole life), and stable (i.e., unchangeable) factors are most likely to become depressed[25]. Stigma-related stress events – including discrimination on the basis of minority or displacement status – can be viewed as uncontrollable and global[24]. When an individual believes themselves the cause of stigma-related stress events, they are more likely to develop

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3 depression. Among displaced Syrian MSM and transgender women in the current study, sexual
4 minority-related discrimination and assault and internalized sexual minority stigma were
5 associated with greater depression while internalized Syrian stigma was not associated with
6 greater depression. Displaced Syrian MSM and transgender women might view their sexual or
7 gender identity status as having an internal cause (i.e., being innate) versus their displaced Syrian
8 status as having an external cause (i.e., war); MSM and transgender-related stigma might,
9 therefore, be more strongly associated with depression than displacement-related stigma.

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12 Research on the etiology of anxiety disorders suggests that accounting for contextual influences
13 is critical for understanding how aversive events (e.g., stigma-related discrimination and
14 violence) can lead to anxiety or posttraumatic stress disorder[26]. Modern learning theorists
15 suggest that differences in individual factors affect the strength of fear that is conditioned by
16 aversive events[26]. Such individual-level differences include previous exposure to traumatic or
17 aversive events, the context of the aversive event (e.g., whether the event is controllable or
18 uncontrollable), and post-event experiences (e.g., an inflation effect such that the strength of
19 milder fears can be inflated by subsequent traumatic events). On average, almost two-thirds of
20 displaced Syrians in the current study reported experiencing at least one form of verbal
21 harassment, physical abuse, or sexual assault due to their sexual minority status in the past 12
22 months. We theorize that such stigma-related stress events are especially likely to lead to anxiety
23 and posttraumatic stress disorder due to the perception of stigma-related stressors as pervasive
24 and uncontrollable. Further, the mental health toll of such stigma-related events might be inflated
25 by displaced Syrian MSM and transgender women's likely exposure to previous traumatic or
26 aversive events due to their intersecting statuses[7,24]. In support of this theory, displaced Syrian
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3 MSM and transgender women demonstrated substantially higher risk of posttraumatic stress
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5 disorder than Lebanese MSM and transgender women.
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9 The high prevalence of psychiatric co-morbidities in this study delineates the need for mental
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11 health support for displaced Syrian MSM and transgender women. UNHCR and other
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13 humanitarian programs have emphasized that mental health interventions for vulnerable
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15 subgroups of displaced Syrians are critical to reducing psychiatric morbidity and associated
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17 distress, yet very few exist[4]. For displaced Syrian MSM and transgender women, mental health
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19 interventions should be attuned to the unique intersections of sexual or gender minority and
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21 displacement status that include coping with stigma and trauma while increasing personal
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23 mastery in the face of unchangeable stressors (e.g., stigmatizing societal attitudes) and
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25 uncertainty (e.g., regarding legal status). Promising qualitative results were recently published
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27 from a pilot study assessing the first mental health/HIV intervention for transgender women in
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29 the Middle East. Named Baynetna and conducted in Lebanon, it includes six modules conducted
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31 in a weekly, peer-led, group-based format covering topics including transphobia, violence,
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33 family rejection, self-esteem as well as psychoeducational content related to sexual risk[27]. In a
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35 sample of 16 transgender women (including three displaced individuals), preliminary results
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37 showed that Baynetna was feasible, acceptable, and promising trends emerged in increasing
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39 social support and reducing mental health symptoms. While only a randomized-controlled trial
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41 can confirm the efficacy of Baynetna, results from the pilot study suggest that mental health
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43 interventions targeting MSM and transgender women in Lebanon might benefit from engaging
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45 members through a support group-based format. Recent qualitative evidence from a social
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47 support group for LGBTQ refugees in Canada further bolsters the promise of such group-based
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49 formats for delivering mental health intervention content in a supportive space to normalize
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3 stigmatizing experiences, share coping skills and material resources (e.g., employment
4 opportunities), build social support and community connectedness, and buffer feelings of
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6 isolation and loneliness associated with poor mental health[28]. Mental health interventions for
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8 displaced Syrian MSM and transgender women might incorporate tenets of cognitive-behavioral
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10 treatment from minority-stress-mental-health treatments that have recently demonstrated efficacy
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12 in reducing depression and anxiety symptoms among gender-diverse populations of sexual
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14 minorities in the US[29] including in a group-based format with racial/ethnic minority MSM that
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16 was adapted based on the framework of intersectionality theory (Skyler Jackson, et al., 2020,
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18 unpublished manuscript).

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21 While several aspects of the current study represent notable strengths, including a large sample
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23 recruited by respondent-driven sampling and validated measures assessing psychiatric morbidity,
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25 the current study is limited in its cross-sectional design that precludes causal inference of
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27 determinants of psychiatric morbidity. Studies employing a prospective design are warranted to
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29 identify longitudinal predictors and uncover mediators of poorer mental health among displaced
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31 Syrian MSM and transgender women. Additionally, the study was designed for MSM, and, while
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33 the relatively large proportion of transgender women we recruited represents a relative strength,
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35 the study measures did not assess stigma-related stressors specific to gender identity. Future
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37 studies should incorporate measures assessing experiences related to identifying as a transgender
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39 woman versus MSM. Last, measures assessing external stigma-related experiences (i.e.,
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41 discrimination and assault) asked about events related to sexual minority status and did not
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43 assess discrimination or assault related to Syrian nationality. Assessing the relative impact of
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45 discrimination or assault based on MSM and transgender women status versus displaced Syrian
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3 status can further clarify the influence of stigma attribution on psychiatric morbidity in this
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5 population.
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8 In support of minority stress theory and aligned with intersectionality theory, displaced Syrian
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10 MSM and transgender women experience higher levels of depression, anxiety, and posttraumatic
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12 stress disorder than Lebanese MSM and transgender women in part due to identity-related
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14 stigmatization and displacement-related stressors. Mental health interventions are needed among
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16 displaced Syrian MSM and transgender women and might incorporate tenets of cognitive-
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18 behavioral science and modern learning theory including stigma-coping and personal mastery
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20 content. Such content should focus on building resilience and tackle underlying cognitive
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22 processes among those who have faced recurrent, uncontrollable, adverse events (e.g., identity-
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24 related assault and rejection, conflict-related trauma and displacement) based on their dual-
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26 minority status as an MSM or transgender women and a displaced person. Mental health
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28 interventions for displaced Syrian MSM and transgender women delivered in a support group
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30 format may be well-poised to offer a supportive, community-based environment while also
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32 representing a cost-effective modality.
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ACKNOWLEDGEMENTS

This project was funded by the National Institute of Child and Human Development (R21HD089820).

DATA SHARING

Data is available by emailing Robert Heimer at Robert.Heimer@yale.edu or corresponding at Robert Heimer, Yale School of Public Health, 60 College St., PO Box 208034, New Haven, CT, USA 06520-8034

AUTHOR CONTRIBUTION STATEMENT

KAC, JEP, RBränström, and RH conceptualised the manuscript. KK, FMF, DWS, and RH supervised the study. DK collected data. KAC and RBarbour ran the analyses. KAC prepared the first draft of the Article and revised it based on feedback from JEP, RBränström, KK, DK, DWS, and RH. All authors reviewed and approved the Article.

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Supplemental Table 1. Partial results from logistic regression models regressing mental health on socio-demographic characteristics and displacement status among Lebanese and displaced Syrian MSM and transgender women in Lebanon, $N = 488$

Variable	Clinical Depression ^a				Severe Anxiety ^b				Post-Traumatic Stress Disorder ^c ($N = 468$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI
Displacement status												
Lebanese (not displaced)	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Displaced Syrian	2.19***	1.52; 3.15	1.23†	1.00 1.52	1.78*	1.10; 2.88	1.14	0.87; 1.50	2.18***	1.42; 3.34	1.23†	0.97; 1.57

Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
 Multivariable models adjusted for: age, household size, gender identity, education, income and relationship status.
 OR = odds ratio; aOR = adjusted odds ratio; 95% CI = 95% confidence interval
^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D.
^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI.
^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.

Supplemental Table 2. Partial results from logistic regression models regressing mental health on displacement-related stressors and stigma-related stressors among displaced Syrian MSM and transgender women in Lebanon, $N = 230$

Variable	Clinical Depression ^a				Severe Anxiety ^b				Post-Traumatic Stress Disorder ^c ($N = 224$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI
Displacement-related stressors												
Number of locations lived since moving to Lebanon	1.12*	1.00; 1.26	1.00	0.91; 1.11	1.10**	1.02; 1.19	1.05	0.97; 1.12	1.20**	1.07; 1.35	1.11†	0.99; 1.25
Legal status in Lebanon (e.g., official visa or permit)												
Does not have legal status	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>
Has legal status	0.33***	0.19; 0.59	0.76	0.53; 1.10	0.25***	0.11; 0.57	0.65†	0.40; 1.05	0.24***	1.20; 0.47	0.72	0.48; 1.09
Stigma-related stressors												
Sexual minority discrimination	2.66***	1.77; 4.00	1.96*	1.17; 3.27	2.11***	1.60; 2.78	1.56*	1.08; 2.25	1.71***	1.32; 2.21	1.05	0.73; 1.52
Sexual minority assault	2.51***	1.82; 3.47	1.36	0.91; 2.05	1.76***	1.31; 2.36	1.25	0.84; 1.85	2.01***	1.53; 2.65	1.37	0.93; 2.01
Internalized sexual minority stigma	1.06**	1.02; 1.11	1.10*	1.02; 1.18	0.98	0.93; 1.03	1.03	0.96; 1.11	1.07**	1.02; 1.11	1.05	0.99; 1.12
Internalized Syrian stigma	1.13***	1.08; 1.19	1.03	0.95; 1.11	1.03	0.99; 1.08	0.98	0.91; 1.06	1.10***	1.05; 1.14	1.04	0.96; 1.12
Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ Multivariable models adjusted for: age, household size, gender identity, education, income and relationship status. OR = odds ratio; aOR = adjusted odds ratio; 95% CI = 95% confidence interval ^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D. ^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI. ^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.												

STROBE (Strengthening The Reporting of OBServational Studies in Epidemiology) Checklist

A checklist of items that should be included in reports of observational studies. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

Section and Item	Item No.	Recommendation	Reported on Page No.
Title and Abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	
Introduction			
Background/Rationale	2	Explain the scientific background and rationale for the investigation being reported	
Objectives	3	State specific objectives, including any prespecified hypotheses	
Methods			
Study Design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	

Section and Item	Item No.	Recommendation	Reported on Page No.
Data Sources/ Measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study Size	10	Explain how the study size was arrived at	
Quantitative Variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical Methods	12	(a) Describe all statistical methods, including those used to control for confounding	
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive Data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	
Outcome Data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time	
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure	
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	

Section and Item	Item No.	Recommendation	Reported on Page No.
Main Results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other Analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key Results	18	Summarise key results with reference to study objectives	
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other Information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

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Stigma, displacement stressors, and psychiatric morbidity among displaced Syrian men who have sex with men (MSM) and transgender women: A cross-sectional study in Lebanon

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2020-046996.R1
Article Type:	Original research
Date Submitted by the Author:	12-Apr-2021
Complete List of Authors:	Clark, Kirsty; Yale University School of Public Health, Pachankis, John ; Yale School of Public Health Khoshnood, Kaveh; Yale University School of Public Health Branstrom, R.; Yale University Yale School of Public Health, Department of Chronic Disease Epidemiology; Karolinska Institutet Department of Clinical Neuroscience, Department of clinical neuroscience Seal, David; Tulane University School of Public Health and Tropical Medicine, Global Community Health and Behavioral Sciences Khoury, Danielle; American University of Beirut Fouad, F Barbour, Russell; Yale University School of Public Health Heimer, Robert; Yale University School of Public Health
Primary Subject Heading:	Public health
Secondary Subject Heading:	Mental health, Epidemiology, Global health
Keywords:	MENTAL HEALTH, PUBLIC HEALTH, EPIDEMIOLOGY

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9 Stigma, displacement stressors, and psychiatric morbidity among displaced Syrian men who
10 have sex with men (MSM) and transgender women: A cross-sectional study in Lebanon
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ABSTRACT

Background. Displaced Syrians face psychiatric morbidity often resultant from displacement-related stressors (e.g., resource scarcity). Both men who have sex with men (MSM) and transgender women among the displaced Syrians are particularly vulnerable to mental health challenges given that they also often face stigma-related stressors (e.g., discrimination).

Methods. Between January and December 2019 in greater Beirut, 258 Lebanese-born and 230 displaced Syrian MSM and transgender women were recruited via respondent-driven sampling to complete an in-person survey assessing displacement-related stressors, stigma-related stressors, and depression, anxiety, and posttraumatic stress disorder. In the total sample, we first documented the prevalence of psychiatric morbidity; among the displaced Syrians, we then assessed associations among displacement-related and stigma-related stressors and each psychiatric outcome.

Results. Sixty-three percent of Syrian participants met criteria for depression compared to 43.8% of Lebanese participants ($p < 0.001$); 21.3% of Syrians met criteria for severe anxiety compared to 13.1% of Lebanese participants ($p < 0.05$); and 33.0% of Syrians met criteria for posttraumatic stress disorder compared to 18.4% of Lebanese participants ($p < 0.001$). Among Syrian MSM and transgender women, socio-demographic characteristics, displacement-related stressors, and stigma-related stressors were uniquely associated with psychiatric morbidity.

Conclusion. Displaced Syrian MSM and transgender women experience higher levels of psychiatric co-morbidities than Lebanese MSM and transgender women in part due to compounding exposure to displacement-related stressors and stigma-related stressors. Informed by tenets of minority stress theory and intersectionality theory, we discuss mental health intervention implications and future directions.

Strengths and limitations of this study

- This is the first study assessing psychiatric morbidity among Syrian men who have sex with men (MSM) and transgender women displaced by armed conflict in Lebanon.
- Respondent-driven sampling recruited both Lebanese and displaced Syrians, allowing for comparison of prevalence and determinants of psychiatric morbidity between groups.
- Valid and reliable instruments were used to assess stigma experiences, displacement stressors, and psychiatric morbidity.
- The study's cross-sectional design precludes causal inference of determinants of psychiatric morbidity.
- This study assessed discrimination and assault events related to sexual minority status; it did not assess discrimination and assaults events related to gender identity or Syrian nationality.

peer review only

INTRODUCTION

Since March 2011, over half of Syria's population has been displaced to escape the ongoing armed conflict, with many taking refuge in neighboring Lebanon. The United Nations High Commissioner for Refugees (UNHCR) has deemed the Syrian refugee crisis the largest humanitarian emergency in modern history. One and half million fled to Lebanon, which prior to the influx of Syrian refugees had a population of no greater than 4.5 million and which now hosts the largest proportion of refugees per capita in the world[1].

Displaced Syrians living in Lebanon face significant psychosocial challenges associated with depression, anxiety, and posttraumatic stress disorder. Recently, two studies documented that the prevalence of depression and posttraumatic stress disorder among samples of displaced Syrians in Lebanon exceeded 27% and 43%, respectively[2-3]. Psychiatric morbidity emerges from a confluence of risk factors including pre-existing mental disorders; conflict-related trauma, violence, loss, and displacement; and maladjustment to a new environment due to poor living conditions, scarcity of resources, and intergroup conflict with host communities[4-5].

Both men who have sex with men (MSM) and transgender women among the displaced Syrians are particularly vulnerable to the mental health challenges of stigma given their dual minority status both as a MSM or transgender woman and displaced person[6]. In addition to fleeing their homes to escape war and political instability, Syrian MSM and transgender women also flee to escape identity-related persecution and violence[7]. Once in Lebanon, however, they often face anti-gay and anti-transgender stigma driven by a conservative legal climate and social attitudes. The Lebanese penal code has been used to criminalize same-sex sexual behavior through Article 534 which condemns "sexual intercourse against nature" and gender expression and identity

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2
3 through Article 521 which prohibits men from “masquerading” as women. In 2018, a district
4 appeals court in Lebanon ruled that consensual sex between people of the same sex is not
5 unlawful; Article 534, however, has not been repealed. MSM and transgender women in
6 Lebanon report negative psychosocial outcomes (e.g., concealment, shame) in response to anti-
7 gay and anti-transgender discrimination and harassment[8-9]. One recent study found that Syrian
8 MSM in Lebanon experienced more than twice the prevalence of discriminatory or violent
9 events than Lebanese MSM, perhaps owing to the intersection of their MSM status and Syrian
10 nationality[6].
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22 Minority stress theory posits that discrimination based on sexual or gender identity can lead to
23 internalized stigmatizing beliefs and associated psychological distress[10]. Due in large part to
24 these experiences, sexual and gender minorities around the world experience elevated rates of
25 psychiatric morbidity compared to their heterosexual, cisgender peers[11-12]. Yet to our
26 knowledge, only two studies have assessed the prevalence of depression among Lebanese MSM
27 (26%)[13] and transgender women (66%)[9] and neither examined the prevalence or
28 determinants of mental health problems among displaced Syrian MSM and transgender women.
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The lack of studies including displaced Syrian MSM and transgender women hampers
understanding of the relative importance of displacement-related determinants (e.g.,
displacement stressors, resource scarcity, displacement-related discrimination) versus MSM and
transgender-related determinants (e.g., experienced and internalized stigma) on psychiatric
morbidity in this population. Assessing such determinants can inform tailored mental health
interventions deemed critical by UNHCR and other humanitarian organizations for reducing
psychiatric morbidity and associated distress among this vulnerable subgroup of Syrians[6].

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3 Drawing on a large sample of MSM and transgender women recruited by respondent-driven
4 sampling in Lebanon, the current study sought to: (1) assess and compare the prevalence of
5 common psychiatric disorders (i.e., depression, anxiety, posttraumatic stress disorder) among
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Drawing on a large sample of MSM and transgender women recruited by respondent-driven sampling in Lebanon, the current study sought to: (1) assess and compare the prevalence of common psychiatric disorders (i.e., depression, anxiety, posttraumatic stress disorder) among Lebanese and Syrian MSM and transgender women, and (2) among Syrian MSM and transgender women, examine the relative impact of displacement-specific and MSM and transgender-specific determinants of psychiatric morbidity. This study represents the first investigation of prevalence and determinants of psychiatric morbidity among displaced Syrian MSM and transgender women.

METHOD

Participants

Between January and December 2019, MSM and transgender women in the greater Beirut region were recruited to complete a biobehavioral survey of socio-demographics, mental health, stigma experiences, and sexually transmitted infections (STI) focusing on HIV-risk and protective behaviors[6]. The current manuscript does not report STI-related results. Eligible participants had been assigned male sex at birth, reported oral or anal sexual intercourse with a male in the past six months, and provided informed consent. Participants were recruited utilizing respondent-driven sampling[14] by one of five local non-governmental organizations (NGOs) that offer psychosocial health services, HIV/STI counseling and testing, basic needs (e.g., food banks), and legal advocacy for lesbian, gay, bisexual, transgender, and queer (LGBTQ) populations. These five NGOs represent the sites providing the most LGBTQ-related services in Lebanon; the NGOs are secular and based in Beirut, but have partnerships across Lebanon including within refugee camps, allowing for geographically diverse recruitment of MSM and transgender

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3 women. Briefly, nine Syrian-born seed participants were recruited directly by study personnel.
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5 Each then received four coupons to recruit additional participants and successful recruits were
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7 then each given four coupons. Participants received \$20 for completing the survey and \$10 for
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9 each subsequently recruited participant. Surveys were conducted in Arabic via in-person
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11 interviews with trained study staff at local NGOs or LGBTQ-friendly venues (e.g., bars).
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15 MSM and transgender women were included in the current study if they completed any mental
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17 health assessment (i.e., depression, anxiety, and posttraumatic stress) and were either Lebanese-
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19 born or were Syrian-born and migrated to Lebanon after March 15, 2011 when the Syrian
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21 conflict began. For this reason, we can consider all Syrian participants in the current study to be
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23 displaced Syrians. In total, 594 MSM and transgender women were recruited. We dropped from
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25 analyses 19 Syrian-born individuals who migrated to Lebanon before March 15, 2011, 27
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27 participants who were born outside of Lebanon or Syria (e.g., Iraq, Jordan, Kuwait), and 60
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29 participants who did not complete any mental health assessments. Our final analytic sample size
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31 was 488. This study was approved by the Yale Human Subjects Committee and the Institutional
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33 Review Board at the American University of Beirut.
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39 **Patient and public involvement statement**

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41 Stakeholders from local LGBTQ NGOs in greater Beirut, including service providers and MSM
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43 and transgender community members, were involved in study development including finalizing
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45 study measures and RDS seed participant recruitment.
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49 **Measures**

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52 *Socio-demographics.* We assessed age, household size, gender identity, education level, monthly
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54 income, relationship status, and partner gender.
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3 *Discrimination and assault.* Stigma-related measures assessed experiences related to sexual
4 minority status; experiences specific to gender minority status were not assessed in this study.
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8 Discrimination was measured by five yes-or-no questions assessing whether an individual had
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10 been refused health care, employment, religious services, restaurant or bar service, or housing in
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12 the past 12 months because they were believed to be a sexual minority. Assault was measured by
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14 three yes-or-no questions assessing if an individual had experienced verbal harassment, physical
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16 abuse, or sexual assault in the past 12 months because they were believed to be a sexual
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18 minority. These questions have been reliably used to measure discrimination and assault
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20 exposure among MSM around the world including in Lebanon[6].
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24 *Internalized stigma.* Two sets of six items measured internalized stigmatizing beliefs regarding
25
26 one's status as a sexual minority or, if applicable, as a Syrian person. Measures were adapted
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28 from a validated instrument of internalized HIV-related stigma[15].
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32 *Displacement-related stressors.* Syrian participants reported on two stressors related to
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34 displacement. As a measure of unstable housing, Syrian participants reported how many
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36 locations they had lived in since moving to Lebanon. As a measure of legal status, Syrian
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38 participants reported whether they had an official visa or permit in Lebanon.
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42 *Mental health.* Depression was measured by the 20-item self-report Center for Epidemiologic
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44 Studies Depression Scale (CES-D) with a cutoff score of ≥ 16 suggesting the presence of
45
46 clinically significant depressive symptoms[16]. Anxiety was assessed by the 21-item self-report
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48 Beck Anxiety Inventory (BAI) with a cutoff score of ≥ 26 suggesting the presence of severe
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50 anxiety[17]. Posttraumatic stress was measured by the 17-item self-report Posttraumatic Stress
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52 Disorder CheckList for Civilians (PCL-C) with a cutoff score of ≥ 50 suggesting probable
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3 posttraumatic stress disorder[18]. The CES-D, BAI, and PCL-C have been employed as valid
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5 instruments assessing depression, anxiety severity, and posttraumatic stress disorder,
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7 respectively, in Arabic-speaking community and displaced populations[19-21].
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10 **Statistical Analysis**

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13 Analyses were conducted in SAS version 9.4 and proceeded in three steps. First, descriptive
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15 statistics were used to assess socio-demographic, stigma-related stressors, and mental health
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17 differences between Lebanese-born and Syrian-born MSM and transgender women. Second,
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19 simple linear regression models examined unadjusted associations between socio-demographic
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21 factors, displacement status (Lebanese-born versus displaced Syrian), and each mental health
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23 outcome. Variables that showed significant associations at $p < 0.05$ in bivariate models were
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25 retained in adjusted multivariable linear regression models. There were generally very little
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27 missing covariate data (see **Table 1** for all individual variable sample sizes); nonetheless,
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29 missing data in regression models were handled via multiple imputation procedures with fully
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31 conditional specification, pooling results from five multiply imputed datasets[22]. Third, we
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33 restricted analyses to displaced Syrians and conducted bivariate and multivariable linear
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35 regression analyses to assess the unadjusted and adjusted associations, respectively, between
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37 socio-demographic characteristics, displacement-related stressors, stigma-related stressors (i.e.,
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39 discrimination, assault, internalized sexual minority and Syrian stigma), and each mental health
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41 outcome. Supplemental logistic regression analyses mirrored the primary analyses but assessed
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43 the presence of psychiatric morbidity utilizing binary indicators of mental health cutoffs as
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45 outcomes. Supplemental logistic regression analyses mirrored the primary analyses but assessed
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47 the presence of psychiatric morbidity utilizing binary indicators of mental health cutoffs as
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49 outcomes.
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53 **RESULTS**

Bivariate analyses showed that displaced Syrians were younger, had less educational attainment, and had lower monthly income than Lebanese participants (see **Table 1**). Notably, nearly two-thirds of Syrian participants reported a monthly income of \$0-\$500 USD compared to approximately one-third of Lebanese participants. In total, 86.4% of the sample identified as a man, and 13.6% of participants identified as a woman, transgender woman, or other gender identity.

Table 1. Sample characteristics among Lebanese and displaced Syrian MSM and transgender women recruited through respondent driven sampling in Lebanon, $N = 488$

Socio-demographic variable	Lebanese ($n = 258$; 52.3%)		Displaced Syrian ($n = 230$; 47.1%)		Chi-sq or t value
	n or Mean	% or SD	n or Mean	% or SD	
Age ($n = 486$)	28.0	7.08	26.0	4.60	3.85***
Household size ($n = 482$)	3.98	2.08	3.72	2.13	1.35
Gender Identity ($n = 420$)					0.74
Man	203	85.7	160	87.4	
Woman or Transgender Woman	26	11.0	19	10.4	
Other	8	3.4	4	2.2	
Education level					28.87***
Did not complete primary school	10	3.9	11	4.8	
Completed primary school	47	18.2	70	30.4	
Completed secondary school	46	17.8	43	18.7	
Some college or university	52	20.2	63	27.4	
Completed university	103	39.9	43	18.7	
Income (monthly, US dollars) ($n = 480$)					93.48***
\$0-500	91	35.7	147	65.3	
\$501-1000	66	25.9	72	32.0	
\$1001-2000	65	25.5	5	2.2	
\$2001-4000	32	12.6	1	0.4	
Greater than \$4000	1	0.4	0	0.0	
Relationship status ($n = 486$)					0.91
Single	168	65.4	159	69.4	
Partnered	89	34.6	70	30.6	
Gender of partner ($n = 159$)					2.61
Cisgender man	78	87.6	63	90.0	
Cisgender woman	2	2.3	1	1.4	
Transgender man	1	1.1	0	0.0	

Transgender woman	4	4.5	5	7.1	
Other (e.g., Gender non-conforming)	4	4.5	1	1.4	
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$					

Prevalence of psychiatric morbidity in the sample was generally high (see **Table 2**). Sixty-three percent of Syrians met or exceeded the cutoff for depression compared to 43.8% of Lebanese participants ($p < 0.001$). Approximately 21.3% of Syrians met criteria for severe anxiety compared to 13.1% of Lebanese participants ($p < 0.05$). Thirty-three percent of Syrians were considered to have posttraumatic stress disorder compared to 18.4% of Lebanese participants ($p < 0.001$). Syrian participants reported higher stigma-related stress including internalized sexual minority stigma and greater exposure to recent discrimination and assault than Lebanese-born participants.

Mental health or stigma variable	Lebanese ($n = 258$; 52.3%)		Displaced Syrian ($n = 230$; 47.1%)		Chi-sq or t value
	n or Mean	% or SD	n or Mean	% or SD	
Depression ^a (range: 0 - 60)	16.79	14.33	23.15	15.16	4.76***
Depression cutoff ^a (n, %)	113	43.8	145	63.0	18.07***
Anxiety ^b (range: 0 - 63)	11.05	12.32	14.89	13.77	3.25**
Severe anxiety cutoff ^b (n, %)	34	13.1	49	21.3	5.68*
Posttraumatic Stress ^c ($n = 468$; range: 17 - 84)	32.91	16.57	41.63	17.00	5.62***
Posttraumatic stress disorder cutoff ^c ($n = 468$; n, %)	45	18.4	74	33.0	13.11***
Internalized sexual minority stigma (range: 6 - 30)	13.27	5.14	16.50	6.37	6.12***
Internalized Syrian stigma (range: 6 - 30)	--	--	13.97	7.23	--
Sexual minority discrimination (range: 0 - 5)	0.50	1.04	0.77	1.13	2.73**
Sexual minority assault (range: 0 - 3)	0.76	0.88	1.16	1.09	4.38***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$
^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D.
^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI.
^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.

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3 Syrian MSM and transgender women experienced higher levels of depression and posttraumatic
4 stress than Lebanese-born MSM and transgender women in crude and adjusted models (see
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6 **Table 3**). The association between displacement status and anxiety did not reach significance
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8 after adjusting for socio-demographics. In supplemental analyses, Syrians demonstrated a trend
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10 of 1.23 greater odds of both depression and post-traumatic stress disorder than Lebanese-born
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12 participants in adjusted models (see **Supplemental Table 1**). Across models, transgender-
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14 identified participants demonstrated greater psychiatric morbidity than cisgender participants.
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Table 3. Linear regression models regressing mental health on socio-demographic characteristics and displacement status among Lebanese and displaced Syrian MSM and transgender women in Lebanon, $N = 488$

Variable	Depression (CES-D)				Anxiety (BAI)				Post-Traumatic Stress (PCL-C) ($N = 468$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>
Age	-0.22	0.11	-0.03	0.10	-0.04	0.10	--	--	-0.26	0.13	-0.03	0.12
Household Size	-1.14***	0.32	-0.89**	0.29	-0.55†	0.28	-0.33	0.26	-1.68***	0.37	-1.50***	0.38
Gender Identity												
Cisgender	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Transgender or other (e.g., nonbinary)	11.58***	2.01	6.14***	1.87	10.60***	1.73	6.69***	1.67	11.52***	2.34	11.92***	2.57
Education level												
Completed primary school or less	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Completed more than primary school	-10.26***	1.44	-6.38***	1.37	-6.86***	1.28	-3.49**	1.23	-11.06***	1.65	-11.60***	1.69
Income (monthly)												
\$0-500	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
\$501 or more	-11.77***	1.25	-8.01***	1.32	-10.00***	1.10	-7.58***	1.18	-13.52***	1.46	-13.47***	1.49
Relationship status												
Single	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Partnered	-4.70**	1.44	-5.48***	1.28	-4.45***	1.26	-4.84***	1.15	-4.75**	1.66	-4.95**	1.69
Displacement status												
Lebanese (not displaced)	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Displaced Syrian	6.36***	1.33	2.75*	1.26	3.84**	1.18	1.00	1.13	8.35***	1.52	8.73***	1.55

Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Est. = Estimate; *SE* = standard error

CES-D = Center for Epidemiologic Studies Depression Scale; BAI = Beck Anxiety Inventory; PCL-C = PTSD Check List – Civilian Version

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3 Among Syrian MSM and transgender women, socio-demographic characteristics, displacement-
4 related stressors, and stigma-related stressors all served as determinants of psychiatric morbidity
5 as assessed by multiple linear regression models (see **Table 4**). Regarding socio-demographic
6 characteristics, lower monthly income and not being in a relationship were significantly
7 associated with higher levels of depression, anxiety, and posttraumatic stress. In terms of
8 displacement-related stressors, the greater number of locations lived since migrating to Lebanon
9 was associated with higher anxiety ($\beta=.50$; $p < 0.01$) and posttraumatic stress ($\beta=.52$; $p < 0.01$).
10 Participants who did not have legal status reported higher depression ($\beta=3.63$, $p < 0.05$), anxiety
11 ($\beta=4.14$, $p < 0.05$), and posttraumatic stress ($\beta=5.81$, $p < 0.01$) than those with legal status.
12 Exposure to past-year sexual minority discrimination ($\beta=2.16$, $p < 0.05$) and assault ($\beta=2.23$, $p <$
13 0.05) were each associated with higher depression, while internalized sexual minority stigma was
14 marginally associated ($\beta=0.33$, $p < 0.10$) and internalized Syrian stigma was not associated with
15 depression. Exposure to sexual minority discrimination ($\beta=2.29$, $p < 0.01$) and internalized
16 Syrian stigma ($\beta=0.24$, $p < 0.05$) were associated with more severe anxiety. The only stigma-
17 related stressor significantly associated with posttraumatic stress was sexual minority assault
18 ($\beta=2.31$, $p < 0.05$). Supplemental logistic regression analyses demonstrated similar, but
19 somewhat attenuated, results to linear regression analyses perhaps due to limited power (see
20 **Supplemental Table 2**).
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Table 4. Linear regression models regressing mental health on socio-demographic characteristics, displacement-related stressors, and stigma-related stressors among displaced Syrian MSM and transgender women in Lebanon, N = 230

Variable	Depression (CES-D)				Anxiety (BAI)				Post-Traumatic Stress (PCL-C) (N = 224)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
Socio-demographic characteristics												
Age	-0.33	0.22	--	--	-0.13	0.20	--	--	-0.51*	0.24	0.12	0.22
Household Size	-0.17	0.47	--	--	-0.04	0.44	--	--	-0.51	0.55	--	--
Gender Identity												
Cisgender	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Transgender or other (e.g., nonbinary)	6.86*	3.23	0.70	3.21	10.25***	2.69	2.89	2.67	9.01*	3.50	1.92	3.36
Education level												
Completed primary school or less	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Completed more than primary school	-6.93***	2.04	-2.95	1.98	-4.49*	1.87	-2.35	1.69	-7.30**	2.31	-3.22	2.21
Income (monthly)												
\$0-500	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
\$501 or more	-7.89***	2.04	-6.02**	1.89	-7.71***	1.83	-5.36**	1.74	-9.14***	2.35	-7.40***	2.19
Relationship status												
Single	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Partnered	-5.00*	2.14	-3.58†	1.88	-3.29†	1.97	-3.73*	1.75	-6.11*	2.43	-5.42*	2.13
Displacement-related stressors												
Number of locations lived since moving to Lebanon	0.74***	0.17	0.37†	0.17	0.86***	0.16	0.50**	0.15	0.91***	0.77	0.52**	0.19
Legal status in Lebanon (e.g., official visa or permit)												
Does not have legal status	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Has legal status	-9.04***	1.97	-3.63*	1.87	-8.70***	1.78	-4.14*	1.71	-11.36***	2.21	-5.81**	2.12
Stigma-related stressors												
Sexual minority discrimination	5.05***	0.82	2.16*	0.92	5.04***	0.73	2.29**	0.83	5.47***	0.95	1.62	1.05
Sexual minority assault	5.76***	0.83	2.23*	0.94	4.40***	0.78	0.57	0.86	6.43***	0.94	2.31*	1.09
Internalized sexual minority stigma	0.51**	0.15	0.33†	0.18	0.19	0.14	--	--	0.54**	0.17	0.30	0.21
Internalized Syrian stigma	0.70***	0.13	0.20	0.16	0.49***	0.12	0.24*	0.12	0.78***	0.15	0.26	0.18

<p>Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ <i>Est.</i> = Estimate; SE = standard error CES-D = Center for Epidemiologic Studies Depression Scale; BAI = Beck Anxiety Inventory; PCL-C = PTSD Check List – Civilian Version</p>

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For peer review only

DISCUSSION

To our knowledge, this study represents the first study to document the prevalence and determinants of psychiatric morbidity among displaced Syrian MSM and transgender women.

Our data, accrued by respondent-driven sampling in 2019, showed substantially elevated prevalence of depression, anxiety, and posttraumatic stress disorder among displaced Syrian MSM and transgender women compared to Lebanese MSM and transgender women.

Findings from the current study are consistent with prior research showing that depression, anxiety, and posttraumatic stress disorder are elevated among both MSM and transgender women and individuals displaced by armed conflict[2-4,10-12]. In support of minority stress theory[10] and intersectionality theory,[23] displaced Syrian MSM and transgender women in the sample experienced a confluence of stigma-related and displacement-related stressors in response to their interlocking minority statuses as both a sexual or gender minority and displaced person. Exposure to such stressors can influence psychiatric morbidity through underlying cognitive processes[24]. For example, the learned helplessness theory of depression posits that individuals who experience an aversive, uncontrollable event can become helpless due to feeling a lack of control over their circumstances[25]. Those who attribute the cause of such an aversive, uncontrollable event to internal (i.e., due to the person themselves), global (i.e., affecting the person's whole life), and stable (i.e., unchangeable) factors are most likely to become depressed[25]. Stigma-related stress events – including discrimination on the basis of minority or displacement status – can be viewed as uncontrollable and global[24]. When an individual believes themselves the cause of stigma-related stress events, they are more likely to develop depression. Among displaced Syrian MSM and transgender women in the current study, sexual

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3 minority-related discrimination and assault and internalized sexual minority stigma were
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5 associated with greater depression while internalized Syrian stigma was not associated with
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7 greater depression. Displaced Syrian MSM and transgender women might view their sexual or
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9 gender identity status as having an internal cause (i.e., being innate) versus their displaced Syrian
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11 status as having an external cause (i.e., war); MSM and transgender-related stigma might
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13 therefore be more strongly associated with depression than displacement-related stigma.
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17 Research on the etiology of anxiety disorders suggests that accounting for contextual influences
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19 is critical for understanding how aversive events (e.g., stigma-related discrimination and
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21 violence) can lead to anxiety or posttraumatic stress disorder[26]. Modern learning theorists
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23 suggest that differences in individual factors affect the strength of fear that is conditioned by
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25 aversive events[26]. Such individual-level differences include previous exposure to traumatic or
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27 aversive events, the context of the aversive event (e.g., whether the event is controllable or
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29 uncontrollable), and post-event experiences (e.g., an inflation effect such that the strength of
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31 milder fears can be inflated by subsequent traumatic events). On average, almost two-thirds of
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33 displaced Syrians in the current study reported experiencing at least one form of verbal
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35 harassment, physical abuse, or sexual assault due to their sexual minority status in the past 12
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37 months. We theorize that such stigma-related stress events are especially likely to lead to anxiety
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39 and posttraumatic stress disorder due to the perception of stigma-related stressors as pervasive
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41 and uncontrollable. Further, the mental health toll of such stigma-related events might be inflated
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43 by displaced Syrian MSM and transgender women's likely exposure to previous traumatic or
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45 aversive events due to their intersecting statuses[7,24]. In support of this theory, displaced Syrian
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47 MSM and transgender women demonstrated substantially higher risk of posttraumatic stress
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49 disorder than Lebanese MSM and transgender women.
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3 The high prevalence of psychiatric co-morbidities in this study delineates the need for mental
4 health support for displaced Syrian MSM and transgender women. UNHCR and other
5 humanitarian programs have emphasized that mental health interventions for vulnerable
6 subgroups of displaced Syrians are critical to reducing psychiatric morbidity and associated
7 distress, yet very few exist[4]. A recent Cochrane review of mental health promotion, prevention,
8 and treatment for displaced people including refugees and asylum seekers found that existing
9 interventions focus primarily on PTSD and trauma-related symptoms rather than anxiety,
10 depression or co-morbid mental health problems; few assess cultural appropriateness or
11 acceptability of mental health interventions for displaced populations[27]. For displaced Syrian
12 MSM and transgender women, mental health interventions should be attuned to the unique
13 intersections of sexual and/or gender minority and displacement status that include coping with
14 stigma and trauma while increasing personal coping in the face of unchangeable stressors (e.g.,
15 stigmatizing societal attitudes) and uncertainty (e.g., regarding legal status). Promising
16 qualitative results were recently published from a pilot study assessing the first mental
17 health/HIV intervention for transgender women in the Middle East. Named Baynetna and
18 conducted in Lebanon, it includes six modules conducted in a weekly, peer-led, group-based
19 format covering topics including transphobia, violence, family rejection, self-esteem as well as
20 psychoeducational content related to sexual risk[28]. In a sample of 16 transgender women
21 (including three displaced individuals), preliminary results showed that Baynetna was feasible,
22 acceptable, and promising trends emerged in increasing social support and reducing mental
23 health symptoms. While only a randomized-controlled trial can confirm the efficacy of
24 Baynetna, results from the pilot study suggest that mental health interventions targeting MSM
25 and transgender women in Lebanon might benefit from engaging members through a support

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3 group-based format. Recent qualitative evidence from a social support group for LGBTQ
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5 refugees in Canada further bolsters the promise of such group-based formats for delivering
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7 mental health intervention content in a supportive space to normalize stigmatizing experiences,
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9 share coping skills and material resources (e.g., employment opportunities), build social support
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11 and community connectedness, and buffer feelings of isolation and loneliness associated with
12
13 poor mental health[29]. Mental health interventions for displaced Syrian MSM and transgender
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15 women might incorporate tenets of cognitive-behavioral treatment from minority-stress-mental-
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17 health treatments that have recently demonstrated efficacy in reducing depression and anxiety
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19 symptoms among gender-diverse populations of sexual minorities in the US[30] including in a
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21 group-based format with racial/ethnic minority MSM that was adapted based on the framework
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23 of intersectionality theory (Skyler Jackson, et al., 2020, unpublished manuscript).
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29 While several aspects of the current study represent notable strengths, including a large sample
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31 recruited by respondent-driven sampling and validated measures assessing psychiatric morbidity,
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33 the current study is limited in its cross-sectional design that precludes causal inference of
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35 determinants of psychiatric morbidity. Studies employing a prospective design are warranted to
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37 identify longitudinal predictors and uncover mediators of poorer mental health among displaced
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39 Syrian MSM and transgender women. Additionally, the study was designed for MSM, and, while
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41 the relatively large proportion of transgender women we recruited represents a relative strength,
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43 the study measures did not assess stigma-related stressors specific to gender identity. Future
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45 studies should incorporate measures assessing experiences related to identifying as a transgender
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47 woman versus MSM. Last, measures assessing external stigma-related experiences (i.e.,
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49 discrimination and assault) asked about events related to sexual minority status and did not
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51 assess discrimination or assault related to Syrian nationality. Assessing the relative impact of
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3 discrimination or assault based on MSM and transgender status versus Syrian nationality can
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5 further clarify the influence of stigma attribution on psychiatric morbidity in this population.
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8 In support of minority stress theory and aligned with intersectionality theory, displaced Syrian
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10 MSM and transgender women experience higher levels of depression, anxiety, and posttraumatic
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12 stress disorder than Lebanese MSM and transgender women in part due to identity-related
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14 stigmatization and displacement-related stressors. Mental health interventions are needed among
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16 displaced Syrian MSM and transgender women and might incorporate tenets of cognitive-
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18 behavioral science and modern learning theory including stigma-coping and personal mastery
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20 content. Such content should focus on building resilience and tackle underlying cognitive
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22 processes among those who have faced recurrent, uncontrollable, adverse events (e.g., identity-
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24 related assault and rejection, conflict-related trauma and displacement) based on their dual-
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26 minority status as an MSM or transgender women and a displaced person. Mental health
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28 interventions for displaced Syrian MSM and transgender women delivered in a support group
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30 format may be well-poised to offer a supportive, community-based environment while also
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32 representing a cost-effective modality.
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ACKNOWLEDGEMENTS

This project was funded by the National Institute of Child and Human Development (R21HD089820).

DATA SHARING

Data is available by emailing Robert Heimer at Robert.Heimer@yale.edu or corresponding at Robert Heimer, Yale School of Public Health, 60 College St., PO Box 208034, New Haven, CT, USA 06520-8034

AUTHOR CONTRIBUTION STATEMENT

KAC, JEP, RBränström, and RH conceptualised the manuscript. KK, FMF, DWS, and RH supervised the study. DK collected data. KAC and RBarbour ran the analyses. KAC prepared the first draft of the Article and revised it based on feedback from JEP, RBränström, KK, DK, DWS, and RH. All authors reviewed and approved the Article.

COMPETING INTERESTS

None declared.

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Supplemental Table 1. Partial results from logistic regression models regressing mental health on socio-demographic characteristics and displacement status among Lebanese and displaced Syrian MSM and transgender women in Lebanon, $N = 488$

Variable	Clinical Depression ^a				Severe Anxiety ^b				Post-Traumatic Stress Disorder ^c ($N = 468$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI
Displacement status												
Lebanese (not displaced)	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>
Displaced Syrian	2.19***	1.52; 3.15	1.23†	1.00 1.52	1.78*	1.10; 2.88	1.14	0.87; 1.50	2.18***	1.42; 3.34	1.23†	0.97; 1.57

Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
 Multivariable models adjusted for: age, household size, gender identity, education, income and relationship status.
 OR = odds ratio; aOR = adjusted odds ratio; 95% CI = 95% confidence interval
^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D.
^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI.
^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.

Supplemental Table 2. Partial results from logistic regression models regressing mental health on displacement-related stressors and stigma-related stressors among displaced Syrian MSM and transgender women in Lebanon, $N = 230$

Variable	Clinical Depression ^a				Severe Anxiety ^b				Post-Traumatic Stress Disorder ^c ($N = 224$)			
	Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)		Unadjusted (Bivariate)		Adjusted (Multivariable)	
	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI
Displacement-related stressors												
Number of locations lived since moving to Lebanon	1.12*	1.00; 1.26	1.00	0.91; 1.11	1.10**	1.02; 1.19	1.05	0.97; 1.12	1.20**	1.07; 1.35	1.11†	0.99; 1.25
Legal status in Lebanon (e.g., official visa or permit)												
Does not have legal status	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>	<i>ref</i>	<i>ref</i>	<i>ref</i>	<i>Ref</i>
Has legal status	0.33***	0.19; 0.59	0.76	0.53; 1.10	0.25***	0.11; 0.57	0.65†	0.40; 1.05	0.24***	1.20; 0.47	0.72	0.48; 1.09
Stigma-related stressors												
Sexual minority discrimination	2.66***	1.77; 4.00	1.96*	1.17; 3.27	2.11***	1.60; 2.78	1.56*	1.08; 2.25	1.71***	1.32; 2.21	1.05	0.73; 1.52
Sexual minority assault	2.51***	1.82; 3.47	1.36	0.91; 2.05	1.76***	1.31; 2.36	1.25	0.84; 1.85	2.01***	1.53; 2.65	1.37	0.93; 2.01
Internalized sexual minority stigma	1.06**	1.02; 1.11	1.10*	1.02; 1.18	0.98	0.93; 1.03	1.03	0.96; 1.11	1.07**	1.02; 1.11	1.05	0.99; 1.12
Internalized Syrian stigma	1.13***	1.08; 1.19	1.03	0.95; 1.11	1.03	0.99; 1.08	0.98	0.91; 1.06	1.10***	1.05; 1.14	1.04	0.96; 1.12

Notation and bolding used to denote significance: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Multivariable models adjusted for: age, household size, gender identity, education, income and relationship status.

OR = odds ratio; aOR = adjusted odds ratio; 95% CI = 95% confidence interval

^a Depression measured by the Center for Epidemiological Studies Depression (CES-D). Clinical depression cutoff denoted by a score of 16 or greater on the CES-D.

^b Anxiety assessed by the Beck Anxiety Inventory (BAI). Severe anxiety cutoff denoted by a score of 26 or greater on the BAI.

^c Posttraumatic Stress measured by the PTSD Check List – Civilian Version (PCL-C). Posttraumatic stress disorder cutoff denoted by a score of 50 or greater on the PCL-C.

STROBE (Strengthening The Reporting of OBservational Studies in Epidemiology) Checklist

A checklist of items that should be included in reports of observational studies. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

Section and Item	Item No.	Recommendation	Reported on Page No.
Title and Abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	
Introduction			
Background/Rationale	2	Explain the scientific background and rationale for the investigation being reported	
Objectives	3	State specific objectives, including any prespecified hypotheses	
Methods			
Study Design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	

Section and Item	Item No.	Recommendation	Reported on Page No.
Data Sources/ Measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study Size	10	Explain how the study size was arrived at	
Quantitative Variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical Methods	12	(a) Describe all statistical methods, including those used to control for confounding	
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive Data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of interest	
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	
Outcome Data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time	
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure	
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	

Section and Item	Item No.	Recommendation	Reported on Page No.
Main Results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other Analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key Results	18	Summarise key results with reference to study objectives	
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other Information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.