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# Well-Being and Posttraumatic Growth Among Syrian Refugees in Jordan

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The Syrian War has created a mass exodus of Syrian citizens to neighboring countries and exposed them to many atrocities. We explored factors affecting well-being and posttraumatic growth (PTG) of refugees residing in Jordan. Participants ($N = 250$) were surveyed via nongovernmental organizations (NGOs). Outcome criteria included a global well-being rating and the Posttraumatic Growth Inventory. Trauma exposure assessment included The Harvard Trauma Questionnaire (HTQ) and The War Events Questionnaire. Ordinary least squares regression examined associations between potential contributors to refugee well-being and PTG, including work, age, sex, income, education, posttraumatic stress disorder (PTSD) severity, physical pain, health, NGO assistance, psychotic/affective mental disorder, and length of residence in Jordan. Mean participant score on the PTSD-HTQ scale was 2.37 ($SD = 0.63$; range: 1 [no symptoms] to 3.88 [extremely severe symptoms]). Additionally, 74.6% of participants received NGO assistance and 92.7% experienced war events. Univariate and multivariate results indicated enhancement of well-being was associated with income, $r = .34$, $\beta = .26$, $p < .001$; health, $r = .35$, $\beta = .26$, $p = .001$; and absence of affective disorder, $r = -.31$, $\beta = -.18$, $p = .012$; and that PTG increased in association with income, $r = .28$, $\beta = .20$, $p = .007$; NGO assistance, $r = .07$, $\beta = .14$, $p = .045$; and absence of psychosis, $r = -.12$, $\beta = -.17$, $p = .013$, and affective disorder, $r = -.26$; $\beta = -.16$, $p = .033$. Findings suggest sufficient income and humanitarian assistance can contribute to Syrian refugees' mental health.

The ongoing Syrian crisis, which began in March 2011, has been called the greatest humanitarian catastrophe of the 21st century. Over 200,000 lives have been lost, while more than 1 million people have been injured. As a result of the political turmoil and destruction, Syrians have been forced to flee to other regions in Syria and to other countries for safety and protection. Their escape from this armed conflict has harmed the Syrians physically, psychologically, socially, and economically (United Nations High Commissioner for Refugees [UNHCR], 2015a). In order to avoid combat and protect their lives, more than half of Syria's population have moved from their homes multiple times, making Syria "the largest displacement crisis globally" (UNHCR, 2015a, p. 2). Approximately 7.6 million Syrians have been internally displaced. As a result of such chaos in the political situation, 4.5 million Syrians, including 1.9 million children, have been forced to flee to the neighboring countries of Turkey, Lebanon, Jordan, Iraq, and Egypt for safety and have requested protection as refugees. In these countries, an estimated 30% of refugees are living in extreme poverty (UNHCR, 2015a). These refugees are vulnerable due to the exhaustion of their economic resources and mental coping mechanisms, and their limited access to shelter, food, water, and health care (Quosh, Eloul, & Ajlani, 2013). For many of these individuals, their vulnerability has been exacerbated by the loss of their homes and family members.

Although approximately 1.4 million Syrian refugees reside in Jordan, which accounts for 20% of Jordan's population (King Abdullah II of Jordan, 2015), only an estimated 689,000 are registered, according to UNHCR's reports (UNHCR, 2016). Almost 80,000 of these refugees have resided in Zaatari, the largest refugee camp in northern Jordan. It is estimated that over 70% of Syrian refugees reside in urban areas outside refugee camps, mostly in central and northern Jordan (i.e., Amman, Irbid, Mafraq, and Zarqa), whereas approximately 30% reside in refugee camps (Achilli, 2015).

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In Jordan, nongovernmental organizations (NGOs) assisting Syrian refugees inside and outside the camps struggle to find the resources to meet even basic needs of refugees, such as food, health care, education, and other social services (Achilli, 2015). According to the UNHCR (2015b), 86% of Syrian refugees who reside in urban areas of Jordan are living in poverty and are forced to beg, drop out of schools, and reduce their food consumption in order to survive. In August 2015, the situation deteriorated due to a shortage of food assistance for the most vulnerable people; this situation resulted in the departure of many Syrians back to Syria.

In addition to survival challenges, the influx of refugees has tremendously increased the demand on schools, sanitation, housing, food, energy, and water in Jordan (Fakih & Ibrahim, 2016), which has resulted in Jordanians, who at first welcomed refugees, becoming increasingly hostile as their resources are tremendously strained. For example, Syrians are not granted work permits in Jordan. Despite this official restriction on working, many refugees work in agriculture, construction, food, and retail. Even though these jobs are traditionally performed by non-Jordanian migrant workers, such as Egyptians, Jordanians often perceive Syrians as direct competitors for jobs, which further enflames the tension between Syrian refugees and Jordanians (Achilli, 2015). In 2016, the Jordanian government pledged to ease the provision of work permits for Syrian refugees and to create up to 200,000 work opportunities over a period of several years in specific sectors that are approved for foreign workers. Despite the welcome change, only 30,000 Syrians have gained work permits since the new regulations were issued (Sarrado & Dunmore, 2017).

Populations who endure war events suffer many traumatizing experiences and develop symptoms associated with posttraumatic stress disorder (PTSD; Goren & Neter, 2016; Kijewski & Freitag, 2016; Kira et al., 2012). Many refugees who are uprooted from their home countries may also endure diverse mental health challenges and difficulties of resettlement (Oda et al., 2017; Steel et al., 2009). However, in recent years, new evidence has emerged on populations who suffer from the negative impacts of war and struggle with the new-reality aftermath of trauma, but may also report a subjective experience of positive psychological changes (Joseph, Linley, & Harris, 2005; Solomon & Dekel, 2007). These positive changes that follow highly challenging life circumstances are defined as posttraumatic growth (PTG) and are expressed in five factors, captured and measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996): Appreciation of Life, New Possibilities, Personal Strength, Relating to Others, and Spiritual Change. Authors of several studies have concluded that PTG and negative posttraumatic impacts can coexist simultaneously and independently (Shakespeare-Finch & Lurie-Beck, 2014; Sleijpen, Haagen, Mooren, & Kleber, 2016).

There are few published academic studies that have examined the mental health of the Syrian refugees who live in the host communities of Jordan. Most studies in this area have delved into Syrian refugees' physical health (Collins et al., 2017; Doocy et al., 2017; Bucak, Almis, Benli, & Turgut, 2017), the pressure on the host countries' health care systems, and the shortage of services provided by humanitarian organizations (Coutts & Fouad, 2013; Coutts, Fouad, & Batniji, 2013; Fakih & Ibrahim, 2016; Quosh et al., 2013). We were unable to find studies related to the traumatic experiences of Syrian refugees who live in the host communities of Jordan, or to the mental health consequences that result from the challenges they face.

The present study aimed to explore the impacts that the new conditions of the host communities in Jordan have on the mental health of the Syrian refugees who live there. Specifically, the study explored Syrian refugees' work, age, sex, income, education, experience of PTSD-associated symptoms, pain, general health status, and usage of NGO services, and sought to understand the contribution these variables have on well-being and PTG. We hypothesized that traumatic experiences of war, PTSD-associated symptoms, and other mental illness would be negatively associated with well-being and PTG. Another hypothesis was that the availability of economic resources would buffer the impact of trauma and mental disorders, and consequently enhance well-being and PTG. We also hypothesized that assistance from NGOs would mitigate refugees' difficulties and elevate their well-being and PTG.

## Method

### Participants and Procedure

After review and approval by the Committee for the Protection of Human Subjects, University of California, Berkeley (CPHS, February 2014), and with the assistance of NGOs in Jordan, Syrian refugees were recruited to participate in the study. The Jordanian organizations that helped in recruiting the participants were Waqea, Jordanian Women's Union, Bader Center, Naher el Rahmeh Charity Organization, The Islamic Charity Center, Ladies of Abu Syah Charity Organization, and Jordanian Women Qualifying and Training Society.

Personnel from the organizations mentioned above invited refugees to participate in the study during routine agency services (i.e., workshops, clinics, lectures, and recreational and educational activities). Individuals who agreed to participate ($N = 250$) were invited to interviews held during the scheduled working hours of the organizations; if they could not attend an interview during those times due to their work or physical condition, interviews took place in the evenings at public settings such as coffee shops and restaurants, or in participants' homes. People who refused to participate stated their disagreement to the inviting organizations during recruitment. We were not told the number of individuals who refused participation. Other participants were recruited via Syrians who volunteered at NGOs and connected researchers to members of the Syrian refugee community. Though the sample size was determined primarily by resource and time constraints, the final sample size ($N = 250$) provided sufficient power to detect a

small-to-medium effect size ($r = .20$), with power (1-β) = .89, for $\alpha = .05$ (two-tailed test; Hulley, Cummings, Browner, Grady, & Newman, 2013).

The interviews were conducted in the Jordanian host communities of Amman (45.6%), Al-Zarqa (18.4%), Mafraq (13.6%), Irbid (11.2%), Ar-Ramtha (10%), and Hiteen (1.2%). Inclusion criteria were being a Syrian refugee living in a Jordanian urban setting during the time of the data collection, 19 years of age and older, and being willing to participate in the study. One participant, who independently completed the survey, was 16 years old; his inclusion was exceptionally approved by the Committee for the Protection of Human Subjects, University of California, Berkeley (CPHS, February 2014), as were all study procedures.

Data were collected between March and August 2014. Prior to participating, Syrian refugees provided their verbal consent. Participation was anonymous and written consent was not requested, to enable a safe and secure space for participation. Refugees did not receive incentives for participating in the study. Each interview schedule was sealed in an envelope after completion. The original instruments were translated into Arabic by two independent professional translators and back-translated to English for both accuracy and cultural sensitivity. The "needs" assessment was created for this study according to the Syrian refugees' context of living in the host communities in Jordan. The PTGI (Tedeschi & Calhoum, 1996), which examines a participant's perception and posttrauma positive changes, and the Modified Mini Screen (NYS OASAS, 2014a) for psychotic disorders (based on the Mini-International Neuropsychiatric Interview [M.I.N.I.], Schedule C; Sheehan et al., 1998) were translated and back-translated for this study. In addition, the Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992) was cross-checked against an Arabic version that was used in another study (Shoeb, Weinstein, & Mollica, 2007). The War Events Questionnaire (WEQ; Karam, Al-Atrash, Saliba, Melhem, & Howard, 1999) was used in its original Arabic version, as was the validated K6 (Kessler et al., 2010). We pretested the instruments with 10 native Arabic speakers who worked in NGOs in Jordan, and who were familiar with the Syrian dialect and cultural sensitivities. Their feedback helped with Syrian context adjustments, which ensured validity prior to empanelment.

Refugees were interviewed in the Syrian dialect of Arabic for 60–90 min. In exceptional cases, when multiple traumatic experiences were disclosed, the interviews lasted more than 2 hr. A few participants preferred to fill out the survey independently and were allowed to self-report their responses. Efforts were made to match the gender of the interviewer and the participant, in order to avoid husbands objecting to their wives' participation. In cases in which the matching was not possible, women were always interviewed by women, but men were interviewed by women or men. The first author of this study was responsible for interviewing the majority of participants, and for recruiting research assistants with mental health backgrounds and training them on how to interview traumatized subjects in such a study; she also initiated therapy referrals if self-harm risks were disclosed.

## Measures

**Overview.** Data collection included a sociodemographic questionnaire with general questions on the demographic and psychosocial circumstances of the respondents. The two criterion variables used for the study were measured by a global well-being response question, and the PTGI (Tedeschi & Calhoum, 1996). We used the HTQ (Mollica et al., 1992) and the WEQ (Karam et al., 1999) for major assessments of traumatic experiences associated with PTSD. Mental disorders were assessed using the K6 screen for affective disorders (Kessler et al., 2003) and the M.I.N.I. (Sheehan et al., 1998).

**Well-being.** Following on the experience of the utility of global health ratings (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009), we developed a global rating of well-being for our study. Refugees were asked to assess their well-being by responding to three items on a scale of 1 = *poor,* 2 = *fair*, or 3 = *good.*

**Posttraumatic growth.** The PTGI (Tedeschi & Calhoum, 1996) is a 21-item scale, which is divided into five subscales: Appreciation of Life (three items), New Possibilities (five items), Personal Strength (four items), Relating to Others (seven items), and Spiritual Change (two items). The items examined the participant's perception of, and positive changes they attribute to, the move to Jordan. Responses range from 0 (*I didn't experience*) to 5 (*experienced to a very great degree*). The scale was translated into Arabic and back-translated into English for this study. The total score is calculated by adding all the responses, for a total possible range of 0 to 105. The higher the sum of scores reported, the greater the PTG experienced. The reliability of the total PTGI scores was Cronbach's $\alpha = .89$. The PTGI has demonstrated convergent and discriminant validity, as well as construct validity, in many studies of refugee populations (Chan, Young, & Sharif, 2016; Kroo & Nagy, 2011; Sleijpen et al., 2016) and traumatized populations from the Middle East (Davey, Heard, & Lennings, 2015; Kira et al., 2012; Rizkalla, Zeevi-Barkay, & Segal, 2017).

**PTSD symptoms associated with traumatic experiences.** The HTQ (Mollica et al., 1992) assesses PTSD symptoms associated with traumatic experiences. It is a commonly used scale that has been validated in multiple cultures and languages. The Arabic version of the HTQ was previously used with Iraqi refugees (Shoeb et al., 2007), and was the basis for this study, with minor adjustments made for the context of the Syrian crisis. We used the first 16 trauma-symptom items in the HTQ to assess PTSD symptom severity, as these items have been used with other refugees from different non-Western linguistic populations (Fouchier et al., 2012; Ichikawa, Nakahara, & Wakai, 2006; Lhewa, Banu, Rosenfeld, & Keller, 2007; Wind, van der

Aa, de la Rie, & Knipscheer, 2017). The HTQ total score is an average score, based on a range of responses from 1 (*not at all*) to 4 (*extremely*), with higher scores indicating an ascending level of PTSD symptom severity. Though there has been some dispute regarding the use of HTQ cutoff scores with different cultural groups (Rasmussen, Verkuilen, Ho, & Fan, 2015), a recent investigation of the factor structure and measurement invariance of the HTQ found that "... meaningful comparisons of observed PTSD scale scores on the HTQ between refugee patients with different non-Western linguistic backgrounds can be made" (Wind et al., 2017, p. 8). Reliability of the 16-item HTQ in this study was Cronbach's $\alpha = .89$.

The WEQ (Karam et al., 1999) contains two parts. The first part, which we used in this study, assesses the occurrence of specific war events, their severity, and whether exposure happened to the participant or to a person close to the participant or if the participant only witnessed the event. Respondents were asked to answer the yes or no question, "Have you had any exposure to the experiences of war?" A "yes" response was followed by a request to describe the experience. The Arabic-language version of this scale was originally developed and validated to assess the extent of Lebanese civilians' exposure to war (Karam et al., 1999).

**Mental disorders.** The K6 (Kessler et al., 2003) was developed to screen for serious mental illness, primarily affective disorders, and has been validated in its Arabic version (Kessler et al., 2010). The K6 responses about symptoms herein are standardized via a 5-point Likert scale ranging from 1 (*none of the time*) to 5 (*all the time*). Scores for the six-item screen have a potential score range from 6 to 30. A K6 score of 19 to 30 is considered a positive screen. The K6 reliability, reported in a previous investigation, has a Cronbach's alpha value of .88; its sensitivity and specificity are 0.36 and 0.96, respectively (Cornelius, Groothoff, Van Der Klink, & Brouwer, 2013).

The Modified Mini Screen (NYS OASAS, 2014a) was used to assess the presence of psychosis. Based on a validation against the Structured Clinical Interview for Diagnosis (SCID), the overall accuracy (i.e., the percentage of "true positives" and "true negatives") of the screen ranged between 0.70 and 0.74 (NYS OASAS, 2014b). Interrater reliability and test–retest reliability of the scale for lifetime psychosis have been assessed at $\kappa = 0.90$ and 0.83, respectively (Sheehan et al., 1997). Three "yes or no" questions addressing negative symptomology associated with schizophrenia were added to the seven positive symptomology questions in the Modified Mini Screen. A score of 6 or more was deemed to place a person "at moderate likelihood of having a mental illness [that required] further clinical assessment" (OASAS, 2014b). The scale is a valid instrument, and its reported sensitivity and specificity are 0.80 and 0.97, respectively (Nienhuis, Van De Willige, Rijnders, De Jonge, & Wiersma, 2010). This scale was translated to Arabic and back-translated into English for this study.

### Data Analysis

Statistical analyses were performed with SPSS version 24. The analysis included univariate descriptive statistics and alpha reliabilities of most scales. We used ordinary least squares (OLS) regression analysis to evaluate two models that were designed to assess the association between the characteristics of the refugees' demographic and psychosocial circumstances and their reported well-being and PTG. We included 12 factors in each of the models, and entered simultaneously: work status, age, sex, sufficiency of income, years of education, HTQ-16 PTSD average symptom score, current physical or somatic pain, general health status, usage of NGO services, K6 positive screen for affective disorder score, positive Modified Mini Screen for psychotic disorder, and time of residence in Jordan. No substitutions were made for missing values, given that missing information was generally retrieved from responders following a review of their interview schedule. Thus, demographics were reported with information on all 250 respondents. For the multivariate models, data were included for between 221 and 222 participants, due to random nonresponse on some questions that some individuals could or would not answer.

## Results

### Demographic Characteristics

Table 1 presents the demographic characteristics and social circumstances of the 250 Syrian-refugee participants. Of the total sample, 63.2% were married, 20.4% were single, 11.2% were widowed, and 5.2% were divorced. The majority of the refugees were Muslim (95.6%), and 4.4% were other religions, including Druze (2.4%) and Christian (0.8%). Regarding their degree of religiosity, 11.3% of participants reported that they were secular, 43.3% reported that they were traditional (i.e., practicing some rituals, social customs, and religious customs, but not all), 36.7% reported that they were religious, and 8.8% reported that they were very religious.

Before they left Syria, most participants lived in Dara'a (33.9%), Homs (23.0%), Damascus (18.1%), Aleppo (4.8%), Damascus countryside (4.8%), and other places in Syria (12.0%), but some of the participants reported having previously lived in other Middle Eastern countries (3.2%). During the journey to Jordan, 45.6% fled with their spouses, while 54.4% came without their partners, who had either stayed to fight in Syria, were imprisoned there, had died, been kidnapped, disappeared, or their situation was unknown and they could not be reached. Another 64.1% of participants came to Jordan with their children, whereas 35.9% had to flee without their children (e.g., parents of married daughters who stayed with their families, sons who stayed to fight or were imprisoned, or children who fled to other countries). Furthermore, 51.2% came with other family members, such as their extended family, and 48.8% crossed the borders alone, or with only their nuclear family (e.g., left their elderly or sick parents in Syria).

Table 1
*Demographic Characteristics of Syrian Refugees Residing in the Host Communities of Jordan*

| Variable | *n* | % | *M* | *SD* | Range |
|---|---|---|---|---|---|
| Gender | 250[a] | 100.0 | | | |
| Women | 137 | 54.6 | | | |
| Men | 113 | 45.4 | | | |
| Age, years | 247 | | 35.74 | 11.20 | 16.00–75.00 |
| Years of marriage | 247 | | 12.82 | 11.86 | 0.33–50.00 |
| Age at the time of marriage | 177 | | 21.48 | 4.63 | 13.00–36.00 |
| Number of children | 248 | | 3.44 | 3.32 | 0.00–15.00 |
| Number of family members in household | 246 | | 5.94 | 3.16 | 1.00–16.00 |
| Years of education | 246 | | 10.35 | 4.83 | 0.00–24.00 |
| Months in camps prior to moving to host community | 41 | | 2.66 | 2.77 | 0.06–8.00 |
| Months resided in host community in Jordan | 246 | | 14.32 | 7.72 | 0.03–36.00 |

*Note*: [a]Represents the total sample ($N = 250$).

Participants had zero to 15 children ($M = 3.44$, $SD = 3.32$), and the number of family members who resided in the same household ranged from 1 to 16 ($M = 5.94$, $SD = 3.16$). Participants' number of years of education ranged from 0 to 24 years ($M = 10.35$, $SD = 4.83$). In addition, 52.0% of participants reported that their children did not attend schools in Jordan, and only 12.6% of refugee children in our sample attended children's educational programs provided by NGOs.

## Psychosocial Circumstances

Refugees reported that their economic status was one of the major obstacles in coping with their new life in Jordan. More than half (64.8%) of the participants reported being unemployed, while 10.1% reported working full-time, 15.8% reported working part-time, and 9.3% reported volunteering at NGOs. In addition, 31.9% described their economic status as low, and 50.6% reported it as very low, whereas 88.1% of participants reported that their income was insufficient for living, and 86.0% reported their extreme need for economic assistance.

Regarding general health, 20.2% of participants described it as poor, 35.6% as fair, and 44.1% as good. However, 60.7% of participants disclosed that they were suffering from a current pain, whereas 49.8% used medications. Still, 72.8% of participants used physical health clinics, 25.2% used emergency clinics, and only 8.5% used mental health clinics. Among participants in our sample, 74.6% received services provided by NGOs based in Jordan (including diverse medical, recreational, and educational services, and daily basic products), 76.5% received basic assistance of food coupons from the UNHCR, and 57.4% received services from both NGOs and the UNHCR. Nonetheless, 35.2% of refugees were dissatisfied with the services provided by NGOs, whereas 50.6% were moderately satisfied.

According to the WEQ (Karam et al., 1999), 92.7% of Syrian refugees had experienced war events, and the average symptom severity score on the HTQ-16 PTSD scale was 2.37 ($SD = 0.63$), which falls between *a little* and *quite a bit* (score of 2–3 on the scale), and almost covered the entire scale range of 1 to 3.88 (*no symptomology* to *extremely severe*; Mollica et al., 1992). The majority of refugees had experienced multiple traumatic events, such as a combat situation (88.4%), forced evacuation under dangerous conditions (85.9%), economic impoverishment (76.0%), forced separation from family members (73.1%), and confiscation or destruction of personal property (69.9%). More than half ($n = 144$, 57.6%) of the total sample screened positive for mental illness on the K6 measure of affective disorder conditions (Kessler et al., 2003), and 7.6% ($n = 19$) screened positive for a psychotic disorder on the Modified Mini Screen (NYS OASAS, 2014a).

## Well-Being and Growth

Among participants, 42.5% described their well-being as poor, 48.2% as fair, and only 9.3% as good. Of the possible PTGI score range (0 to 105), refugees in our sample scored from 0 to 102. The average total scale score was 51.36 ($SD = 19.90$; Table 2).

Regression models that considered the contributions the refugees' demographic and social circumstances made to their well-being and PTG are shown in Table 3. Both models were significant. For well-being, model statistics were $R = .513$, adjusted $R^2 = .221$; $F(12, N = 209) = 6.21$, $p < .001$. For PTG, they were $R = .429$, adjusted $R^2 = .137$; $F(12, N = 209) = 3.93$, $p < .001$. Univariate (zero-order correlation coefficients) and multivariate results (multiple-partial standardized slopes), respectively, that addressed the strength of association and its relative importance among all factors in the model indicated that enhancement of well-being was associated with income, $r = .34$, $\beta = .26$, $p < .001$; health, $r = .35$, $\beta = .26$, $p = .001$; and the absence of a major affective disorder, $r = -.31$, $\beta = -.18$, $p = .012$. In the second model, PTG was positively associated with income, $r = .28$; $\beta = .20$, $p = .007$; NGO assistance, $r = .07$, $\beta = .14$, $p = .045$; and the absence of psychosis

Table 2
*Posttraumatic Growth Inventory (PTGI) Scale Scores and Scale Characteristics for Syrian Refugees in the Host Communities of Jordan*

| PTGI Scale | *M* | *SD* | Cronbach's α | Number of Items | Range[a] |
|---|---|---|---|---|---|
| Relating to Others | 17.19 | 8.39 | .77 | 7 | 0–35 |
| New Possibilities | 11.01 | 4.87 | .83 | 5 | 0–25 |
| Personal Strength | 10.45 | 4.30 | .76 | 4 | 0–20 |
| Appreciation of Life | 7.82 | 3.06 | .48 | 3 | 0–15 |
| Spiritual Change | 5.02 | 2.71 | .77 | 2 | 0–10 |
| Total Scale | 51.36 | 19.90 | .89 | 21 | 0–105 |

*Note*. $N = 228$.
[a]Possible score range.

($r = -.12, \beta = -.17, p = .013$) and affective disorder ($r = -.26$, $\beta = -.16, p = .033$).

## Discussion

This study contributes to the understanding of the impact war has on refugee mental health in the Middle East, adds information on the challenges refugees encounter when they are displaced and resettled in a new country, and provides new insight into how to assist refugees heal and grow in their new environment. In addition, this study exposed the extreme economic, health, and mental health vulnerabilities of Syrian refugees who live in the host communities of Jordan. The poverty of demographic and social circumstance described in this sample appears to validate refugees' reported global ratings of well-being as generally "poor" to "fair," with less than 10% reporting it as "good." Enhanced well-being, after taking into account other model characteristics, was primarily associated with higher income and better physical health, followed by the absence of affective disorder.

As a way of providing some reference for understanding the meaning of the PTGI scores, Figure 1 compares the refugees' scores on the total PTGI scale and its subscales with PTGI scores of active U.S. Army soldiers with war zone deployment in Iraq and Afghanistan (Lee, Luxton, Reger, & Gahm, 2010). Though the populations are quite different, they share war exposure, and it appears that their scale profiles show little difference in terms of reaction to war exposure. For the refugees, after taking all other characteristics in the model into account, enhanced PTG was associated with (in order of importance) better income, a greater use of NGO services, and, to a lesser degree, the absence of psychosis and affective disorder. Ironically, average HTQ-16 PTSD symptom scores were not a significant factor, all else considered, in either self-assessed well-being or PTG.

In this study, we assumed that the well-being of refugees and potential growth would be associated with traumatic war experiences, PTSD symptom scores, and affective disorders. It was surprising to discover that the most salient factor in both models was sufficiency of income. A common assumption made by

Table 3
*Ordinary Least Squares Regression Analyses Evaluating Contributors to Well-Being and Posttraumatic Growth of Syrian Refugees*

| | Well-Being[a,c] ($n = 221$) | | | | | | | Posttraumatic Growth[b,c] ($n = 222$) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent Variable | *B* | *SE* | β | *t* | *p* | *r* | $r_p$ | *B* | *SE* | β | *t* | *p* | *r* | $r_p$ |
| Work | −0.02 | .04 | −.03 | −0.39 | .697 | .19 | −.04 | 1.58 | 1.39 | .08 | 1.14 | .255 | .18 | .08 |
| Age | −0.01 | .00 | −.11 | −1.59 | .112 | −.22 | −.11 | 0.08 | 0.13 | .04 | 0.58 | .562 | −.03 | .04 |
| Sex | −0.04 | .08 | −.03 | −0.50 | .619 | .00 | −.03 | 5.24 | 2.66 | .13 | 1.96 | .051 | .12 | .13 |
| Income | 0.22 | .06 | .26 | 3.76 | <.0011 | .34 | .25 | 5.30 | 1.95 | .20 | 2.73 | .007 | .28 | .18 |
| Education | −0.02 | .05 | −.03 | −0.47 | .638 | .07 | −.03 | 1.52 | 1.59 | .06 | 0.96 | .340 | .09 | .07 |
| HTQ-16-score | −0.04 | .07 | −.04 | −0.55 | .584 | −.22 | −.04 | −3.96 | 2.38 | −.12 | −1.66 | .098 | −.19 | −.11 |
| Pain | 0.09 | .10 | .07 | 0.84 | .403 | −.21 | .06 | −0.42 | 3.45 | −.01 | −0.12 | .902 | −.09 | −.01 |
| Health | 0.22 | .07 | .26 | 3.26 | .001 | .35 | .22 | −1.36 | 2.20 | −.05 | −0.62 | .535 | .08 | −.04 |
| NGOs | 0.14 | .10 | .09 | 1.37 | .172 | .05 | .09 | 6.62 | 3.28 | .14 | 2.02 | .045 | .07 | .14 |
| M.I.N.I.—Psychotic Disorder | −0.10 | .16 | −.04 | −0.61 | .545 | −.02 | −.04 | −13.12 | 5.22 | −.17 | 2.52 | .013 | .12 | .17 |
| K6—Affective Disorder | −0.23 | .09 | −.18 | −2.52 | .012 | −.31 | −.17 | −6.62 | 3.06 | −.16 | −2.14 | .033 | −.27 | −.15 |
| Months in Jordan | 0.00 | .00 | .06 | 1.01 | .315 | .14 | .07 | 0.00 | 0.18 | .00 | 0.03 | .979 | .09 | .00 |

*Note.* HTQ = Harvard Trauma Questionnaire; NGO = nongovernmental organization; M.I.N.I = Mini-International Neuropsychiatric Interview. [a]Well-being model statistics: $R = .513$; adjusted $R^2 = .221$; $F(12, N = 209) = 6.21, p < .001$. [b]Posttraumatic Growth model statistics: $R = .429$; adjusted $R^2 = .137$; $F(12, N = 209) = 3.93, p < .001$. [c]Partial Correlation = $r_p$; no tolerances close to zero and no variance inflation factors (VIFs) are above 2, indicating a lack of multicollinearity.

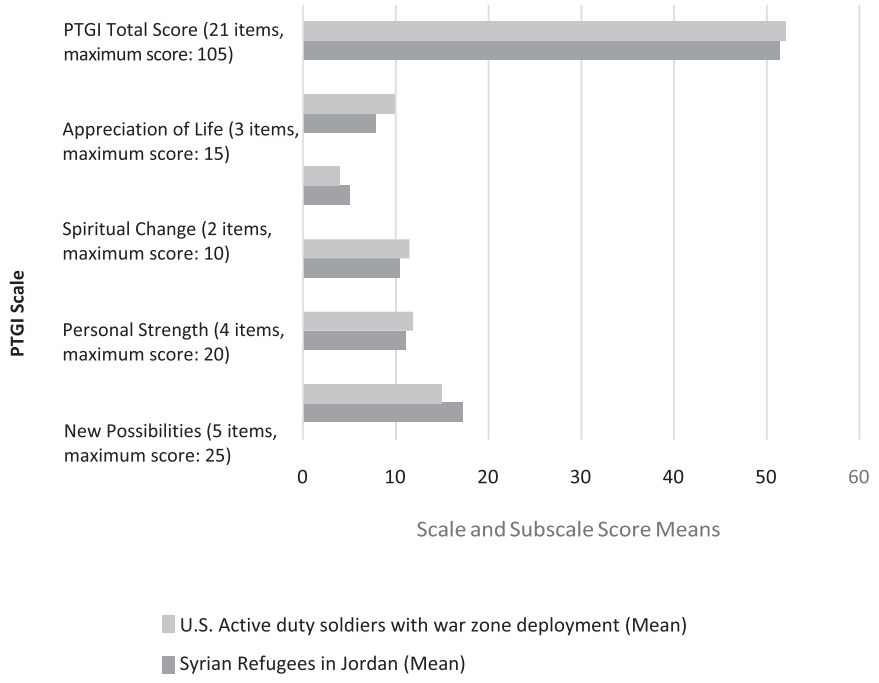


*Figure 1.* Posttraumatic Growth Inventory (PTGI) mean scores by subscale. Comparison with U.S. active duty soldiers ($N = 3{,}537$), taken from Lee et al. (2010). Confirmatory factor analysis of the PTGI with a sample of soldiers who had been previously deployed in support of the Iraq and Afghanistan wars (*Journal of Clinical Psychology, 66,* 813–819).

authors of many studies is that PTG is closely associated with traumatic experiences. Yet, findings from other studies similar to this one have not shown a correlation between PTG and PTSD (Kira at al., 2012; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003), but have found a correlation between PTG and affective disorders (Kira at al., 2012). Findings related to the correlation between PTG and PTSD have been mixed; some researchers have found a positive correlation (Tedeschi & Calhoun, 1996; Solomon & Dekel, 2007), some have found a negative correlation (Davey et al., 2015; Salo, Qouta, & Punamäki, 2005), and others have suggested a nonlinear model (i.e., quadratic curve; Kira et al., 2013; Powell et al., 2003; Shakespeare-Finch & Lurie-Beck, 2014), in which low and high levels of PTSD are associated with the lowest levels of PTG, whereas moderate PTSD levels are associated with the highest PTG (Kira et al., 2013; Solomon & Dekel, 2007).

In the current study, the mean total PTGI score was 51.36 ($SD = 19.90$), which indicates a modest-to-moderate degree of PTG. These scores were similar to those found in a study of Palestinian adults in Gaza ($M = 55.54$, $SD = 26.84$; Kira et al., 2012; Kira et al., 2013); participants in the latter study experienced diverse traumatic war experiences, with 46.9% screening positive for PTSD, which was similar to the rate among Syrian refugees in this study (42.3%). Powell et al. (2003) also reported similar PTGI scores ($M = 48.54$, $SD = 23.00$) among refugees of the former Yugoslavia, who endured multiple traumatic war experiences, including genocide. Such similar PTSD levels can provide an indication of the magnitude of atrocities the Syrian refugees experienced.

The Cronbach's alpha value for the Appreciation for Life subscale was the lowest of all PTGI subscales (Cronbach's $\alpha = .48$), and was similar to the value found in a study by Kroo and Nagy (2011) of Somali refugees (Cronbach's $\alpha = .52$), and a study by Salo et al. (2005) of male Palestinian former prisoners from Gaza (Cronbach's $\alpha = .50$). Other studies have reported higher alpha values for this subscale (e.g., Joseph et al., 2005, reported Cronbach's $\alpha = .74$; Kira et al., 2012, reported Cronbach's $\alpha = .77$). However, this subscale yielded the lowest alpha value compared to other subscales of the PTGI, perhaps due to shared variance with (i.e., it is loaded onto) other factors. Authors of other studies merged this subscale with others after conducting factor analysis. It could be that the Appreciation of Life subscale yields a low alpha value herein due to the recent resettlement of Syrian refugees in Jordan, or that this subscale is associated with internal change aftermath of trauma that needs further time to be recognized. Other subscales may focus more on spiritual, familial, and social-community aspects, which are the strengths and emphasis of Middle Eastern societies.

Refugees' unemployment and underemployment have been frequently associated with poor mental health outcomes for both men and women (Dahi, 2014; Dalgard & Thapa, 2007; Segal, Khoury, Salah, & Ghannam, 2018; Sood & Seferis, 2014), whereas socioeconomic factors were associated with PTG (Salo et al., 2005). Therefore, the authors of many studies have recommended creating livelihood opportunities for refugees, even if their stay or resettlement is perceived as temporary (Dahi, 2014; Segal et al., 2018; Sood & Seferis, 2014). It would appear that enhanced positive outcomes for refugees

in their new host communities in Jordan can best be promoted with the issuance of work permits and the development of work opportunities. The legalization of work permits for all Syrian refugees in Jordan is likely to make a significant contribution to increased income, which will potentially contribute to increasing both refugee well-being and promoting PTG.

The issues of health, NGO support services, and the negative effects of mental illness on well-being and PTG are also evident in our results, and would appear to need redress given their associations with well-being and PTG. There is a substantial health care infrastructure in Jordan, which provides free-of-charge services to refugees inside the camps. However, the majority of refugees who live in the host communities must pay out of pocket for costly services and medications, a situation which prevents them from accessing such services (Al Jazairi, 2015; El-Khatib, Scales, Vearey, & Forsberg, 2013). Refugees often do not know about free services offered by the Jordanian government (El-Khatib et al., 2013), and utilization of mental health clinics and assistance is very low (8.0%).

Despite the belief that refugees will return home (Sood & Seferis, 2014), the Syrian war has entered its seventh year and its end is not foreseen. Host countries like Jordan need to prepare for a longer stay by refugees, and rethink integration and its impact on both the refugees and locals in the long term (Dalgard & Thapa, 2007; Lee et al., 2010; Segal et al., 2018). As noted herein, Jordan is being overwhelmed by the influx of this refugee population, and there is a need to develop working opportunities, health services, and social service structures to facilitate their integration. Jordan will need international support to move forward and implement the recommendations given on these issues.

This study was cross-sectional, and used a convenience sample. We thus could not establish causal direction of associations, and the study's generalizability is limited to refugees who have sought assistance from NGOs and others known to the helping community. We did not include the most vulnerable populations with severe mental illnesses, or disabled individuals who could not reach NGOs for assistance, nor did we include refugees from southern Jordan or diverse religious backgrounds. Furthermore, though each interviewer had a mental health background, different styles of interviewing may have diversified participants' responses. The scales we used were originally developed for Western societies, and the PTGI and the Modified Mini Screen for psychotic disorders were especially translated to Arabic for this study. It is possible that the use of more validated scales with additional adjustment for the sociocultural context of Middle Eastern societies would have resulted in more accurate findings.

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