



Sex Differences on Quality of Life and Mental Health Outcomes When Using a Brief Cognitive-Behavioral Skill Building Intervention with Adolescent Syrian Refugees: A Secondary Analysis

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Received: 27 January 2019 / Accepted: 7 September 2019 / Published online: 12 September 2019
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Abstract

Little is known about how sex as a biological variable may contribute to differences in quality of life (QOL) and mental health outcomes following a brief intervention among adolescent Syrian refugees. This paper explores the results of a secondary data analysis to investigate differences by sex on self-reported QOL and mental health outcomes among Syrian refugees who participated in a 7-session cognitive behavioral skills building intervention. A one group pretest–posttest design was used to deliver the intervention to 31 adolescent refugees (13–17 years; 15 male, and 16 female). At baseline, there were no significant differences between males and females on mean scores of depression, anxiety, or QOL. Post-intervention, self-reported scores for QOL and mental health were significantly different between sexes. Males demonstrated a significant decrease in anxiety scores compared to females. Among males only, significant decreases in depression and anxiety scores were observed with significant improvement in total QOL.

Keywords Adolescent anxiety depression quality of life · Mental health · Refugees

The progressive influx of asylum seekers and refugee populations worldwide has significant social, economic, and public health implications (Turrini et al. 2017). Armed conflict has been associated with increased psychological distress, behavioral disorders, and increased prevalence of mental illnesses such as post-traumatic stress disorder, depression, and anxiety (Tol et al. 2013; Sijbrandij et al. 2017). The association between armed conflict, forced displacement, and psychological disorders among refugees has been well

documented in the literature (Hassan et al. 2016; Li et al. 2016; Morina et al. 2018; Sijbrandij et al. 2017; Turrini et al. 2017; Wells et al. 2016). Although depression and anxiety are leading mental disorders in the Eastern Mediterranean region, the rates among females are almost twice that of men (Charara et al. 2017). When controlling for trauma variables, parental psychology has been shown to significantly predict Syrian refugee children's general mental health, emotional, and conduct problems (Erucay et al. 2018).

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Children and Adolescent Refugees

Decades of armed conflicts in the Middle East have particularly affected the mental health of children and adolescents from war torn regions (Dimitry 2012). Children and adolescents displaced by armed conflict are vulnerable to developing mental health problems (Gómez-Restrepo et al. 2018). Mental health issues affect 10–20% of children and adolescents globally and are often neglected in low- and middle-income countries (Kleiling et al. 2011). Yet, around 80% of refugees originate from low- and middle-income countries and about half are children (Sen 2016). The poor mental health and well-being of children and adolescent

refugees fleeing the conflict in Syria has been documented through various emotional, physical, behavioral, and social responses such as grief, sadness, anxiety, fear, hopelessness, aggressiveness, and withdrawal (Hassan et al. 2015; IMC & UNICEF 2014; El Masri et al. 2013). In a recent study analyzing the Global School Based Student Health Survey from 19 low- and middle-income countries, 34.6% of the sample reported having symptoms of depression, i.e. feeling sad or hopeless more than 2 weeks in the past year (Fleming and Jacobsen 2010). Another study conducted with Syrian refugees living in Turkey revealed that 44% of adolescents exhibited symptoms of depression and reported symptoms of posttraumatic stress disorder (Sirin and Rogers-Sirin 2015). Similarly, nearly half of Syrian refugee children living in Turkey showed clinically significant levels of anxiety (Cartwright et al. 2015). Furthermore, females and older adolescents living in Saudi Arabia are more likely than males to report feeling sad, hopeless, worried, and having a poor relationship with their mothers or fathers (AlBuhairan et al. 2015). As the number of refugees continues to rise, the psychological well-being of refugee populations highlights an urgent need for mental health services, particularly among developing children and teens.

Syrian Refugees Influence in Lebanon

The crisis in Syria has specifically contributed to massive increases in the number of refugees seeking asylum in Syria's neighboring countries (Sijbrandij et al. 2017). Of the approximately five million Syrian refugees, of which approximately half are children, Turkey hosts roughly 3.6 million Syrian refugees, Lebanon hosts nearly 1.5 million refugees, and Jordan hosts about 670,000 refugees (UNHCR 2018). Lebanon, a country of just 4.4 million is hosting more than 1.5 million Syrian refugees making it the country with the highest per-capita concentration of refugees worldwide, where one person out of four is a refugee (UNHCR 2018). In recent years, hospitals in Lebanon have become increasingly short of financing, medication, and human resources to meet the needs of Syrian refugees, despite assistance from United Nation (UN) agencies and emergency funds allocated from the Lebanese Ministry of Public Health (Chammay and Ammar 2014). A UN High Commissioner for Refugees Report highlighted a need for coordinated services to address the mental health of Syrian refugees living in Lebanon (Chammay and Ammar 2014). This resulted in the Mental Health and Psycho-Social Support (MHPSS) task force jointly chaired by the Lebanese Ministry of Public Health, UNICEF, and the World Health Organization. The goal of MHPSS was to mainstream assessment and harmonize services across all sectors (e.g. education, protection, shelter) in a culturally sensitive manner, adopting international methods

and guidelines (Chammay and Ammar 2014). A comprehensive follow-up report was released in 2018 that provided specific recommendations using a public health approach to guide local organizations in the design of MHPSS interventions (Hansen et al. 2018). Among the recommendations (but not limited to), the authors concluded that MHPSS should: (a) focus on empowerment and self-reliance; (b) introduce interventions that focus on pain, coping strategies, and physical resilience; (c) increase service accessibility and outreach services; (d) diversify MHPSS activities to different target groups, including men and women (Hansen et al. 2018).

Mental Health Interventions for Refugees

Despite documented psychological and mental health disorders, currently, most refugees do not have access to mental health services due to multiple barriers across health systems and limited numbers of qualified mental health professionals (Sijbrandij et al. 2017). In addition, stressful situations in host countries, such as poverty, forced migration, separation from family and communities compounds the ability for self-help and communal support (Budosan et al. 2016; Sijbrandij et al. 2017).

Interventions effective in addressing mental health disorders traditionally delivered in high-resource settings have also been shown to be effective in low-resource settings among migrant populations. Such interventions may include: cognitive behavioral therapy, narrative exposure therapy, and eye movement desensitization and reprocessing (Sijbrandij et al. 2017). Based on the limited available literature, psychosocial interventions and cognitive behavioral interventions have demonstrated positive outcomes (versus no treatment) on common mental disorders among adult and children refugees (Doumit et al. 2018; Turrini et al. 2017). However, these interventions often require systematic adaptation to accurately reflect population's cultural meanings and values (Sijbrandij et al. 2017). In the same light, research on the mental health of refugee adolescents remains very limited and challenging due to ethical and consent issues, high mobility of refugee populations, complex cultural differences, and possible distrust or embarrassment associated with mental health disorders (Fazel and Betancourt 2018; Hassan et al. 2016). Little is known about how developing refugee children and adolescents respond to cognitive behavioral interventions to promote well-being and how these responses may vary according to sex. Therefore, we conducted a secondary analysis to explore differences by sex among a group of adolescent Syrian refugees living in Lebanon that participated in a program assessing the feasibility and preliminary effects of a cognitive behavioral intervention on depression, anxiety, and quality of life.

Methods

Trial Design

Data used for this secondary analysis stems from a pre-experimental study design using a 7-session cognitive-behavioral intervention (Creating Opportunities for Patient Empowerment [COPE]) with a sample adolescent Syrian refugees living in Lebanon. COPE is an evidence-based Research-Tested Intervention Program (National Cancer Institute 2015) that utilizes cognitive behavioral skills building and has demonstrated effectiveness in reducing mental health disorders among adolescent populations (Melnyk et al. 2009, 2015a, b). The study protocol was approved by the Institutional Review Board from a Lebanese university and the administrator from the community center. Details regarding the rationale, theory, intervention, methods, and main findings have been previously reported in detail (Doumit et al. 2018).

Sample and Setting

Briefly, participants were eligible for the study if they ranged in age from 13 to 17 years in age, able to read and write in Arabic. With written, informed consent and assent, the final sample consisted of 31 adolescent Syrian refugees (16 females and 15 males) who completed all aspects of the program (baseline data collection, 7-session attendance, and post intervention data collection). The intervention was delivered weekly at a community center located in a suburban region of the capital of Lebanon. Group sessions were led by the principal investigator (PI) (COPE licensed instructor) and a certified therapist. Both instructors were Lebanese and spoke Arabic as their primary language, the PI fluent in English as a second language. Weekly short message service/text messaging (SMS < 140 characters) sent to parents and teens to serve as reminders to practice skills and provide information about the upcoming group session.

Outcome Measures

Participants were assessed at baseline and immediately following the intervention. Age, gender, and general information about family members were collected via a demographic survey. Measures relevant to this secondary analysis include: (1) Patient Health Questionnaire-9, (2) Generalized Anxiety Disorder-7, and (3) Pediatric Quality of Life Inventory.

Patient Health Questionnaire (PHQ-9)

The PHQ-9 assessed for depression (Kroenke et al. 2001).

Generalized Anxiety Disorder Scale (GAD-7)

The GAD-7 was used to assess for generalized anxiety disorders (GAD-7; Spitzer et al. 2006).

Pediatric Quality of Life Inventory-Version 4 for Adolescents (PedsQoL)

PedsQoL was used to estimate quality of life (Varni et al. 2001). Core domains evaluate: (1) physical functioning, (2) emotional functioning, (3) social functioning, and (4) school functioning.

Statistical Analysis

Data analysis was performed using SPSS 21. Descriptive analysis was used to summarize demographic information. Paired sample *t* tests were used to compare adolescents' mean scores for the PHQ-9, GAD-7, total PedQoL-4, and PedQoL-4 subscales Physical Health and Psychosocial Health Summary. Participant demographics, anxiety, depression, and quality of life scores were compared between males and females and from baseline to post intervention using independent-samples *t* tests and paired-samples *t* test.

Results

The mean age of Syrian refugee participants was 14.22 ($SD=1.20$), describing their families as generally composed of four family members 4.77 ($SD=1.12$).

Differences Between Sex

The sample was nearly evenly distributed, 51.6% female ($n=16/31$) and 48.4% ($n=15/31$) male. At baseline, there were no significant differences between males and females on mean scores of depression, anxiety, total PedQoL-4 as well as its subscales. Post intervention, males experienced a significant decrease in mean anxiety scores compared to females (2.66 ± 1.45 vs. 4.5 ± 2.98 respectively, $p=0.0401$) (Table 1).

Differences Within Sex

Paired *t* tests were carried out separately for each sex to evaluate the preliminary effects of the intervention. Post intervention, there were significant decreases on the mean depression score ($t(15)=2.28$, $p=0.0386$) and the mean

Table 1 Depression, anxiety, total PedQoL-4 and its subscales between groups baseline to post intervention

	Baseline			Post intervention		
	Male	Female	<i>p</i> -value	Male	Female	<i>p</i> -value
PHQ-9	6.8 (2.85)	5.93 (3.62)	0.4698	4.46 (2.23)	5.31 (2.52)	0.3322
GAD-7	4.0 (2.23)	5.18 (3.46)	0.2701	2.66 (1.45)	4.5 (2.99)	0.0401*
Total quality of life	13.0 (7.68)	12.23 (8.79)	0.8067	7.86 (5.47)	10.15 (5.98)	0.3007
Physical functioning	3.86 (2.58)	2.87 (4.08)	0.4292	1.93 (1.91)	2.37 (1.82)	0.5148
Psychosocial health	9.13 (5.42)	7.56 (5.21)	0.4177	5.93 (4.03)	6.5 (4.86)	0.7272
Emotional functioning	3.66 (2.84)	3.56 (3.36)	0.9268	2.46 (2.26)	3.19 (3.01)	0.4601
Social functioning	2.0 (2.64)	2.18 (1.56)	0.8102	1.27 (1.27)	1.63 (2.21)	0.5892
School functioning	3.47 (2.38)	2.23 (2.45)	0.1891	2.2 (1.97)	2.07 (1.75)	0.8638

PHQ-9 patient health questionnaire-9, GAD-7 generalized anxiety disorder-7

**p* < 0.05

anxiety score ($t(15)=1.83$, $p=0.0442$) compared to baseline, but among males only. Similar to total sample results ($t(31)=2.09$, $p=0.05$) (Doumit et al. 2018), males demonstrated significant improvement on the total PedsQoL score ($t(15)=1.89$, $p=0.0398$). Subscales from the PedsQoL (physical functioning, emotional functioning, social functioning, school functioning) showed significant improvement on the physical health score ($t(15)=1.93$, $p=0.0371$), with borderline significant improvement on the psychosocial health score ($t(15)=1.76$, $p=0.0501$) (Table 2).

Discussion

This secondary data analysis revealed that for adolescent Syrian refugees living in Lebanon, there exists differences between sexes on mental health outcomes following a cognitive behavioral intervention. Adolescent male Syrian refugees demonstrated a significant decrease in mean anxiety scores compared to adolescent female Syrian refugees following the intervention. Furthermore, results indicate that

only adolescent male Syrian refugees significantly decreased depression and anxiety scores post intervention compared to baseline scores. These findings suggest that underlying pathways to improving quality of life and mental health outcomes may differ for adolescent Syrian refugees based on sex, which could potentially influence the design and delivery of interventions targeting adolescent Syrian refugee populations.

Research on refugees and health outcomes continues to grow, however research on refugee populations that is gender-blind or indifferent to sex, as it may have been for many years, may pose to be a major issue (Young and Chan 2015). In previous research using the COPE intervention with adolescents (not refugees) both males and females demonstrated psychological and mental health benefits following the intervention (Hickman et al. 2015; Lusk and Melnyk 2013; Melnyk et al. 2009, 2015a, b). However, McGovern et al. (2018) specifically examined factors associated with healthy lifestyle behaviors among adolescents. Using cognitive theory was used to test the relationships among beliefs, feelings, and lifestyle behaviors, theoretical relationships

Table 2 Baseline and post intervention depression, anxiety, total PedQoL-4 and its subscales within gender group

	1				2			
	Baseline	Post intervention	t	<i>p</i> -value	Baseline	Post intervention	t	<i>p</i> -value
PHQ-9	6.8 (2.86)	4.46 (2.23)	2.28	0.0386*	5.94 (3.62)	5.31 (2.52)	0.92	0.3742
GAD-7	4.0 (2.24)	2.66 (1.45)	1.83	0.0442*	5.18 (3.46)	4.5 (2.99)	1.03	0.3161
Physical functioning	3.86 (2.58)	1.93 (1.91)	1.93	0.0371*	2.87 (4.08)	2.37 (1.82)	0.61	0.5495
Emotional functioning	3.66 (2.84)	2.46 (2.26)	1.52	0.1501	3.56 (3.36)	3.19 (3.01)	0.45	0.6524
Social functioning	2.0 (2.64)	1.27 (1.27)	0.99	0.3384	2.18 (1.56)	1.63 (2.21)	1.14	0.2702
School functioning	3.47 (2.38)	2.2 (1.97)	1.62	0.0641	2.23 (2.45)	2.07 (1.75)	0.21	0.8352
Psychosocial health	9.13 (5.42)	5.93 (4.03)	1.76	0.0501	7.56 (5.21)	6.5 (4.86)	0.90	0.3785
Total quality of life	13.0 (7.68)	7.86 (5.47)	1.89	0.0398*	12.23 (8.79)	10.15 (5.98)	0.94	0.1828

1 = males, 2 = females

PHQ-9 patient health questionnaire-9, GAD-7 generalized anxiety disorder-7

**p* < 0.05

among adolescent thoughts, feelings, and behaviors were supported (McGovern et al. 2018). However, differences by sex revealed the indirect pathway from thinking through feelings to behaviors was stronger for adolescent females compared to males ($B = 0.75$, $p = .0001$). Clinically this implies that adolescent females may fair better with intervention strategies directed toward cognitive reframing and positive self-talk. Conversely, a direct effect from thoughts to behaviors existed for adolescent males, but not females suggesting that adolescent males may respond more favorably to interventions that emphasize skills building activities such as goal setting, problem solving, and overcoming barriers (McGovern et al. 2018). Understanding the mechanisms by which interventions work is beneficial in providing insight to which patients may respond best to a particular intervention strategy.

The differences in psychological and mental health outcomes by sex found in this analysis of adolescent Syrian refugees may be due in part to cultural attitudes. Women and children are particularly vulnerable to social isolation, gender-based violence, or early marriage (Boswall and Al Akash 2015; Wells et al. 2016). As sex-based violence gains more exposure through media, research has shifted some focus onto the experiences of refugee women (Young and Chan 2015). It is increasingly obvious that adolescent Syrian refugee girls are subject to increasing societal and familial demands and are often forced into situations they were unfamiliar with in their home country. An ethnographic study of Syrian women and children living as refugees in Northern Jordan found that women and young girls, particularly those who fled Syria unaccompanied by a male family member, found themselves increasingly insecure and vulnerable (Al Akash and Boswall 2016). Within Lebanon, there has been a documented alarming rise in child marriages among Syrian refugee populations, with nearly 24% of girls between 15 and 17 married (UNPF 2017). Early marriage may ease financial burden and be viewed as a pathway to security (Keefe 2018), thus displacement, instability, and poverty among refugees are cited as reasons for the rise in underage marriages (UNPF 2017). Syrian refugee women, especially those without a partner, may be backed into decisions that negatively affect the safety of their children (e.g. child marriage) when faced with responsibilities of providing food and material needs for their children and in some cases, extended family (Al Akash and Boswall 2016; UNPF 2017). However, studies on the mental health and well-being of migrant women have been inconclusive with some studies indicating a positive correlation between social and family support and well-being, while other studies showing no correlation between the two (Safdar and Kosakowska-Berezecka 2015). Nevertheless, gender and family norms have shifted among Syrian refugees in Lebanon (DeJong et al. 2017). DeJong et al. (2017) report that a Syrian father

traditionally controlled the household and established major norms for family members. This significantly governed the lives and relationships between the mother, daughters, and sons among one another and within their social relationships. With the displacement to Lebanon, several concerns have been raised, including but not limited to, limited involvement and assumption of responsibility by the father, increased control of sons over daughters in restricting their activities and mobility, increased involvement of mothers and daughters in the workforce and in the assumption of responsibility for seeking services and caring for the family, and lack of privacy within the household (DeJong et al. 2017). Mothers also reported that their daughters are rapidly growing to fulfill greater responsibilities, including caring for the family and for their parents and siblings. In addition, girls are often being forced into early marriage, teen pregnancies, and added familial responsibilities, earlier than pre-displacement from Syria (DeJong et al. 2017; Hassan et al. 2015).

Adolescence is a critical time of increased vulnerability in times of displacement (DeJong et al. 2017). Research has found exposure to violence a key risk factor for developing mental health disorders, while stability and social support in a host country have positive effects on a refugee child's psychological functioning (Fazel et al. 2012). Syrian adolescents in Lebanon have reported a decrease in personal care, increased familial conflicts, decreased school enrollment, and increasing safety concerns (DeJong et al. 2017). Young females are at more risk of feeling unsafe and report increased fear about safety in Lebanon (DeJong et al. 2017; Hassan et al. 2015). This may be an added stressor to adolescent females that may have persisted throughout the course of the intervention and impacted the scores for quality of life and anxiety post intervention. Focus group discussions on the topic of safety and mobility revealed that adolescent males had more mobility, compared to their female counterparts (DeJong et al. 2017), while some males also reported isolation as a result of lack of safety or opportunities to leave home (Hassan et al. 2015). Adolescent females tend to report more verbal harassment than males, who reported more bullying and abuse by Lebanese adolescents; the fear of kidnapping was shared by both genders (DeJong et al. 2017).

It is also possible that our measures did not accurately capture or assess mental health symptoms reflective of this population. Syrians often fail to report mental health symptoms or report them through physical symptoms in a medical context (Hassan et al. 2015). It is believed that males are generally the public face of the family in Middle Eastern Arab cultures, thus they may face more pressure and responsibility to mask their symptoms and emotions, in order to avoid bringing shame onto the family (Al-Issa 1990). Unlike females who may be sad and withdrawn, males with depression are often irritable and aggressive (National Institute

of Mental Health 2017). Symptoms in males are often reported as they relate to distress or mental health issues present through stomach or headaches, numbness, tightness of the chest, or ants crawling over one's skin (Davis and Wanninger 2017). Hassan et al. (2015) reported common coping mechanisms for adolescent Syrian refugees, including withdrawal, praying, thinking of good times, joining a support group, playing with friends, among others, as well as smoking, stealing, and beating. Another study conducted by International Medical Corps (IMC 2011) in northern Lebanon revealed that participants reported feeling anxious, depressed, angry, fatigued, lethargic, and having eating and sleeping problems. Syrian adolescents often do not report emotional problems, as to not overburden their parents with their ongoing stress and struggles (Hassan et al. 2015).

Strengths, Limitations, and Future Recommendations

Strengths of this secondary analysis build upon the National Institutes of Health commitment to improving health outcomes accounting for sex as a biological variable through appropriate analysis and transparent reporting may enhance rigor and applicability of research (NIH 2015). However, findings here are limited due to the small sample size, lack of a comparison group, and lack of randomization. More rigorous trials are required, with additional focus beyond post-traumatic stress disorder to include depression, anxiety, and other mental health conditions (Turrini et al. 2017). Similarly, to design interventions that are culturally and sex specific, further research is needed to determine differences in refugee quality of life and mental health by sex. Our findings support previous literature calling for rigorous comparative-effectiveness research to determine efficacy of various psychosocial interventions and best practices to support positive quality of life and mental health among Syrian refugee populations (Boswall and Al Akash 2015; Eruyar et al. 2018; Hansen et al. 2018; Sijbrandij et al. 2017).

Conclusion

The complex and varying needs of adolescent Syrian refugees living in Lebanon highlight a growing need to develop and test interventions to support refugee quality of life and mental health outcomes. Overall, we found that a cognitive behavioral skills building intervention delivered in a community setting may be beneficial in promoting the overall wellbeing of adolescent Syrian refugees, particularly for adolescent males. Further research is warranted to understand the complex role of sex on quality of life and mental health outcomes among adolescent refugee populations.

Acknowledgements The authors would like to thank Howard Karagehussian Primary Health care center, the general manager and staff for their tremendous help and support, and all the families and adolescents who participated in this study.

Funding This work was supported by the Alliance for Health Policy and Systems Research (AHPSR) in collaboration with WHO/EMRO under Grant scheme for Improving Program Implementation through Embedded Research (iPIER).

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