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PREDICTORS OF PSYCHOTHERAPY ATTRITION AMONG REFUGEES

A Dissertation Presented

by

Emily Pichler

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy  
Specializing in Psychology

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## ABSTRACT

It is estimated that approximately one in five patients will terminate therapy early, before participating in full treatment and obtaining maximum therapeutic benefits. Millions of people are forcibly displaced as refugees each year, and therefore at increased risk for poverty, discrimination, and complex mental health needs, yet no research has examined rates or predictors of psychotherapy attrition among refugees. The current study draws upon a sample of refugee clients seeking treatment at a community clinic (N = 196), and a comparison group of 165 non-refugee clients at the same clinic. Logistic regression was employed to (1) compare rates of attrition between refugees and a sample of non-refugees matched for income level, sex, and age, (2) identify socioeconomic predictors of attrition in refugees, and (3) identify psychological predictors of attrition in refugees only. Exploratory analyses also examined the interactive effects of formal education and psychological symptoms among refugees only. Results indicated comparable rates of early termination regardless of refugee status, although refugees were more likely than the comparison group to experience an extended gap in early treatment. Twenty-eight percent of refugees and 35% of non-refugees stopped therapy within ten weeks; 45% of refugees and 45% of non-refugees stopped therapy within ten sessions; 14% of refugees and two percent of non-refugees experienced an extended treatment gap within ten weeks/sessions. Fifty-four percent of refugees and 47% of non-refugees experienced at least one of these early treatment disruptions. Within refugee patients' psychotherapy, and using empirically derived symptom-based scales (somatic, cognitive, avoidance, and posttraumatic stress), age, education, and the interaction between somatic symptoms and education significantly predicted attrition. Each increasing year of age was associated with a 3.4% decrease in risk for attrition. Each education level increase (e.g., primary school to secondary school) was associated with a 24.9-30.3% decrease in attrition risk. Although somatic symptoms alone did not significantly predict attrition, the interaction was significant such that for each increase in education level, a one-point somatic score increase conferred an additional 28.8% decrease in attrition risk. More educated clients with high somatic symptoms were most likely to stay in treatment, as were less educated clients with low somatic symptoms. Findings suggest new culturally relevant considerations for enhancing treatment retention in refugees.

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## **CHAPTER 1: INTRODUCTION**

### **1.1. Overview**

It is generally understood that one necessary element of effective therapy is attendance. However, therapy attrition—defined by many as client-initiated premature discontinuation of treatment (Swift & Greenberg, 2014)—is a problem for one in every five therapy relationships (Swift & Greenberg, 2012). Patients who end therapy early may not be getting the sufficient “dose” of therapy to see lasting behavioral and psychological changes (Altmann et al., 2018; Baldwin, Berkeljon, Atkins, Olsen, & Nielsen, 2009; Robinson, Delgado, & Kellett, 2019). The existing research on this topic implicates socioeconomic barriers, life stressors, and complex psychological presentations as risk factors for therapy attrition (Snell-Johns, Mendez, & Smith, 2004). Many individuals face a combination of stressors and barriers to clinical services. Among them, refugees are a dramatically increasing population worldwide whose mental health care needs and attendance are sorely understudied (Okazaki, Guler, Haarlammert, & Liu, 2019; United Nations High Commission on Refugees (UNHCR), 2018). Despite the documented prevalence of chronic stress, trauma, and psychological sequelae among refugees, no study to date has examined the therapy-relevant topic of attrition and attendance among refugees.

In this dissertation, I will first review generally relevant information about therapy attrition, including negative associated consequences, measurement issues, and predictors of attrition. Next, I will review research on the refugee experience and mental health needs of this group, as well as barriers to meeting those mental health needs, with special attention to treatment attrition in underserved groups. I will present the results of

analyses designed to test differential early attrition between refugees and a non-refugee comparison sample, as well as analyses examining variables associated with premature termination among refugees in particular. Finally, I will discuss the implications of these results regarding predictors of engagement/attrition for refugees in the context of future research directions and treatment implications.

## **1.2. Therapy Attrition**

Though psychotherapy is generally efficacious for a number of different mental health concerns (Huhn et al., 2014), many families and individuals face substantial barriers to accessing these services. Indeed, attrition and low treatment engagement are well-documented problems across all forms of psychotherapy (Cooper & Conklin, 2015; Pekarik & Stephenson, 1988; Wierzbicki & Pekarik, 1993). Treatment attrition is typically understood as client-initiated premature termination from therapy, and is used interchangeably with the terms “early termination” and “dropout.” Though several terms are used in the literature to describe the phenomenon of clients discontinuing therapy, I am choosing to use the term attrition as a respectful alternative to dropout, which may imply blaming the client. Though attrition is a serious barrier to the efficacy of mental health treatments (Barrett et al., 2008), the current research indicates that those who are most burdened or underserved in society—those who are perhaps most in need of treatment—are most likely to stop attending treatment. For example, attrition is often highest for those with lower income and/or of minority ethnic/racial status (i.e., Barrett et al., 2008). In addition to socioeconomic factors, individual differences including diagnosis (e.g., personality disorders; Cooper & Conklin, 2015) or low psychological

resources (e.g., high experiential avoidance; Rüsçh et al 2008) may increase the likelihood of treatment attrition. In turn, discontinuing treatment against medical advice often leads to problems such as limited treatment efficacy, or decreased cost-efficiency associated with mental health system usage (Altmann et al., 2018).

### **1.3. Negative Impact of Attrition**

Treatment attrition has been linked with negative consequences both for individual patients and for service providers. Early termination of therapy typically precludes completion of a sufficient “dose” of treatment (i.e., at least 11 to 13 sessions of evidence-based treatment, as noted by Lambert, 2007), and may result in higher cost-to-benefit ratios for patients and providers alike (Barrett et al., 2008). In one large naturalistic study, patients who terminated therapy “regularly” had large psychological gains, whereas those who terminated prematurely had small treatment gains (Altmann et al., 2018). The same study found that those who completed therapy had significantly reduced hospitalization and overall treatment costs (to the individual and system), not experienced by those who terminated prematurely. Early termination did not completely nullify the systemic impact of therapy, with all patients evidencing fewer hospitalization days and disability days even with early therapy termination. Additional research suggests that early termination is associated with poorer therapy outcomes and increased psychological distress (Pekarik, 1992), particularly if clients do not inform their therapists of the intent to discontinue treatment (Klein, Stone, Hicks, & Pritchard, 2003). Especially within the first eight sessions, early termination has been linked with lower response to treatment (Baldwin et al., 2009), and in one study a median of 11 sessions

were needed for patients to establish clinically meaningful gains (Anderson & Lambert, 2001). Further, early termination may be more common among patients who chronically engage and disengage with the mental health system, thus receiving a wide range of services but at limited depth (Carpenter, Del Gaudio, & Morrow, 1975). For example, patients with persistent mental illness may be repeatedly referred for therapy by other providers, but attend only a few sessions at a time before losing motivation or becoming immersed in a crisis and stopping therapy. In contrast, clients may benefit from the opportunity to have a complete termination experience within the therapeutic relationship. Clients' and therapists' perspectives on progress in therapy before early termination can differ widely, as therapists may not be aware of clients' reasons for terminating, and may overestimate the proportion of clients who terminate because they have reached their treatment goals (Hunsley, Aubrey, Verstervelt, & Vito, 1999). Thus, the impact of early attrition on patient outcomes may be greater than therapists expect. In addition to negative consequences for clients, attrition may negatively impact the mental health care system overall. Treatment attrition can reduce organizational efficiency, limit revenue streams, and limit the availability of community mental health services to others (Joshi, Maisami, & Coyle, 1986), and this systemic impact would of course be even more prominent when attrition rates are high. Of note, not all attrition is "quality-relevant"—for example, patients may stop therapy when they move out of state or have resolved their symptoms. Between 60-70% of therapy attrition is estimated to be quality-relevant (Altmann et al., 2018).

#### **1.4. Estimates of Attrition Rates**

Swift and Greenberg (2012) report that approximately one in five therapy patients is likely to discontinue treatment early. However, major reviews and meta-analyses have yielded inconsistent estimates of early termination. Estimates of premature termination rates range from 18 to 30 percent in the past 20 years (e.g., 18%, Cooper & Conklin, 2015; 26.2%, Fernandez, Salem, Swift, & Ramtahal, 2015; 30%, Issakidis & Andrews, 2004; 20%, Swift & Greenberg, 2012). Notably, no published research has yet measured attrition among refugee clients. A combination of several factors may explain the high variability in estimates of general psychotherapy attrition. Strategies for measuring attrition are often based on convenience and resources available for measurement, perhaps contributing to the observed variability (Barrett et al, 2008). For example, terminating therapy without the agreement of the therapist, failure to attend three consecutive sessions, and attendance of a specified number of sessions could all be characterized as treatment attrition based on extant methodologies for studying this clinical problem. Wierzbicki and Pekarik (1993) reviewed 125 studies conducted in diverse treatment settings; they estimated an average attrition rate of 46.86% (95% CI: 42.90-50.82%). Notably, this rate was lower among studies that defined attrition rate as termination because of failure to attend a scheduled session (as opposed to therapist judgment or number of sessions attended). Whether researchers refer to pre-treatment (i.e., attendance at first session), early treatment (i.e., within the first few sessions), or extended treatment in assessing termination may be important as well. A recent meta-analysis focusing on attrition from cognitive-behavioral therapy estimated attrition rates at 26.2% during treatment and 15.9% during pre-treatment (Fernandez, Salem, Swift, &

Ramtahal, 2015). In addition, contextual factors surrounding the type of therapy under study could influence estimates. For example, one review of attrition from 54 randomized controlled clinical trials of individual psychotherapy for major depression (Cooper & Conklin, 2015) estimated attrition at 18.4% for psychotherapy conditions (versus 16.7% for psycho-pharmaceutical conditions). This rate is notably lower than reported in other reviews. As this study included only randomized controlled trials, it is possible that incentives to participate in research, or narrow inclusion criteria for participation, resulted in increased attendance rates. Alternately, the form of treatments provided in these trials may have encouraged better attendance. Changes in analytic techniques may explain some of the variability in estimates as well. For example, the most recently updated review of general psychotherapy attrition (Swift & Greenberg, 2012) estimated attrition rates at 19.7% (95% CI: 18.7-20.7%) across a wide range of presenting problems and clinical settings. The authors noted that the meta-analytic analyses they employed were improved since the prior major review (Wierzbicki & Pekarik, 1993), and speculated that this might explain their lower estimate of attrition rates.

### **1.5. Predictors of Attrition: Individual and Treatment Factors**

With estimated rates of treatment attrition hovering around 20%, many researchers have attempted to understand predictors of attrition. Barrett et al. (2008) defined several broad categories influencing attrition, such as patient mental health characteristics, therapist-related variables, treatment factors, and socio-economic features. In their review, factors related to severity and degree of psychological need had mixed influence on attrition. For example, they found that individuals with psychosis, personality disorders, or high psychiatric comorbidity were more likely to terminate

early. Additionally, personality factors such as social isolation, aggressive/passive-aggressive behavior, hostility, defensiveness, low psychological mindedness, and low interest in self-disclosure were predictive of attrition. Factors such as client distress and symptom improvement, surprisingly, were not reliably related to attrition in this review (Barrett et al., 2008). Other reviews found the highest rates of attrition among patients with depression (Fernandez, Salem, Swift, & Ramtahal, 2015), and personality and eating disorders (Swift & Greenberg, 2012). In 2010, McMurran, Huband, and Overton reviewed studies of non-completion of personality disorder treatments. One study cited in their review (Rüsch et al., 2008) found that attrition from borderline personality disorder treatment was significantly associated with higher experiential avoidance scores. Another study of discharge against medical advice from inpatient psychiatric settings implicated challenges in personality functioning (i.e., identity, self-functioning, self-direction) in dropout (Busmann et al., 2019). In addition, Barrett et al. (2008) noted that patients' perceptions, beliefs, and assumptions about mental health and mental illness were related to attrition. Though patients' perceived stigma was not a robust predictor of mental health treatment attrition, providers' negative attitudes toward patients were significantly predictive of attrition. In another study, inpatient therapists' positive perceptions of therapeutic alliance, and attitudes toward patients, were associated with reduced therapy attrition, whereas patients' perceptions of the same variables were not predictive (Busmann et al., 2019). Additionally, therapists' perceived expertise, trustworthiness, and attractiveness were associated with reduced attrition, perhaps because these characteristics may contribute to therapeutic alliance, an additional predictor of attrition (Hawley & Weisz, 2005; Sharf, Primavera, & Diener, 2010).

Notably, despite the association between lower alliance and attrition, this effect is moderated by factors such as education (i.e., higher effect of alliance on clients with lower education; Sharf, Primavera, & Diener, 2010)—indicating the importance of considering client demographic variables in the study of psychotherapy attrition.

Though patients' mental health characteristics may influence their willingness and capacity to continue attending psychotherapy, intervention-related factors also play a part. For example, the most recent meta-analysis of treatment attrition (Swift & Greenberg, 2012) found highest attrition rates at university student counseling clinics, for trainee therapists, and when premature termination was measured by therapist judgment versus client self-report. Fernandez, Salem, Swift, and Ramtahal (2015) found attrition to be significantly associated with treatment setting (i.e., inpatient had lower attrition rates than outpatient), and number of attended sessions (i.e., unplanned termination decreased as number of sessions increased).

To understand whether attrition was higher for certain condition-intervention combinations, Swift and Greenberg (2014) reviewed disorder-by-treatment comparisons in attrition rates across 587 studies. Interestingly, significant differences in attrition rates between treatments were observed only for post-traumatic stress disorder, depression, and eating disorders. No differences in attrition between treatments were found for bereavement, borderline personality disorder, generalized anxiety disorder, obsessive compulsive disorder, panic disorder, psychosis, or social phobia. Comparisons revealed that “integrative” approaches had the lowest attrition rates for post-traumatic stress disorder and depression, and dialectical behavior therapy had the lowest attrition rate for eating disorders. For PTSD in particular, post-hoc analyses found that full CBT had

significantly higher attrition rates than applied relaxation, cognitive therapy, integrative approaches, and supportive therapy; exposure therapy also had significantly higher attrition rates than supportive therapy.

Discussions of attrition in trauma treatments often feature the question of whether trauma-focused treatments (i.e., various forms of psychotherapy including exposure to the traumatic memories) result in higher rates of discontinuance than treatments that do not specifically address trauma. A 2013 meta-analytic review of attrition for trauma and PTSD treatments (Imel, Laska, Jakupcak, & Simpson, 2013) found that rates of attrition were, on average, 18% for PTSD treatment, though there was significant variability in this rate across studies. Notably, the authors found no effect of exposure components on attrition rates, and no difference in attrition between active interventions. A single exception was “Present-Centered Therapy” (PCT; Schnurr et al. 2003), a non-exposure treatment involving psychoeducation, relational work, and problem-solving. Present-centered therapy participants were half as likely to discontinue treatment as participants in exposure-based (i.e., trauma-focused) treatments. This meta-analysis also found that group treatment and length of treatment were each associated with modest increases in attrition among patients with PTSD. The overall findings seem to suggest generally equivalent treatment discontinuance for trauma treatment, regardless of exposure use—however, it is possible that PCT involves therapeutic components that make patients more likely to continue treatment. Importantly, the research on trauma treatment attrition to date has not involved refugees. Therefore, more is needed to understand the risk factors for attrition among refugees.

Findings from published reviews and individual studies on treatment attrition converge on the additional risk for attrition conferred to individuals with relatively severe psychopathology, those with lower socio-economic advantage (e.g., lower education or income), and those from minority racial or ethnic groups. For example, Barrett et al. (2008) noted mixed support for the effects of age and gender on attrition, but found higher attrition rates for minorities and for clients from lower socioeconomic status (with effect sizes typically ranging from .23-.27 for the latter). Client younger age and less formal education were also associated with attrition (Swift & Greenberg, 2012). At present, psychotherapy appears to provide the most continuity of care to white patients with financial, structural, and psychosocial resources—and risks “underserving” patients who already lack some of these resources. Refugees may be one group with some of the same treatment risk factors.

### **1.6. Predictors of Attrition: Underserved Groups**

As the gap between the wealthiest and poorest continues to increase in high-income countries (Machin & Vignoles, 2004), and institutional discrimination persists across public service sectors such as healthcare, mental health care, and education, the number of individuals who are systematically disadvantaged continues to increase as well. Regarding mental health care specifically, Snell-Johns, Mendez and Smith (2004) describe barriers to service across different levels of influence (i.e., individual, family-related, community-related, and societal). Though this research has not specifically involved refugees, it may be relevant to this relatively understudied group.

Individual-level predictors of attrition include many of the psychological variables described in the previous section, such as severe mental health needs. Although these symptoms are expressed in the individual, the individual is embedded within a broader system. It is therefore important to consider that the influence of individual-level factors is intricately related to socioeconomic factors—and thus relevant to additional levels of analysis. For example, there is some evidence that minority patients presenting to inpatient care are more likely to receive more “severe” diagnoses, such as psychotic disorders and certain personality disorders than Caucasian patients, and less likely to be diagnosed with mood and anxiety disorders (Delphin-Rittmon et al., 2015). In addition to over-diagnosis, disproportionate risk for early adversity and chronic stress may be another pathway through which minorities may experience increased mental illness burden (Slopen et al., 2016; Umberson, Williams, Thomas, Liu, & Thomeer, 2014). Further, perceived discrimination due to factors such as low socioeconomic status, minority ethnic/racial identity, and lower formal education is linked to heightened stress responses, increased use of destructive coping mechanisms, and decreased health behavior, which in turn increase risk for psychological distress (Pascoe & Smart Richman, 2009). It is therefore essential to consider socio-economic factors in conjunction with individual-level factors such as psychological symptoms, as these two domains can be inextricably linked.

Family-level risk factors for treatment attrition include single-parent status, large family size, home location, and family mental health concerns (Snell-Johns, Mendez & Smith, 2004). Being a single parent is linked with increased attrition from treatment, as well as poor treatment outcomes (Snell-Johns, Mendez & Smith, 2004). One study with

individual and family therapy clients found that clients with larger families were more likely to drop out of treatment (Pekarik & Stephenson, 1988). Additionally, families living in low-income areas are more likely to drop out of services, and less likely to receive psychological treatment at all (Snell-Johns, Mendez & Smith, 2004). Further, the presence of additional mental health problems within families can be associated with increased attrition, as in the cases of treatment-seeking children of parents with their own mental health needs (Snell-Johns, Mendez & Smith, 2004).

At the community level, barriers to continued psychotherapy treatment are generally practical, geographic, and structural. For example, problems associated with rural living (e.g., living far from treatment providers, poor insurance coverage, and social isolation) are linked with early attrition (Connell, Sanders, & Markie-Dodds, 1997; Sayger & Heid, 1990). In addition, some have found that offering low-cost treatment, as well as free childcare and transportation, could reduce attrition and increase access to mental health services (Miller & Prinz, 1990; Sayger & Heid, 1990; Taylor & Biglan, 1998). Unfortunately, interventions that address structural barriers do not always address high rates of attrition (e.g., a 2011 study by Fernandez and colleagues in which home-based intervention for children with disruptive behaviors still resulted in an attrition rate of 56%), indicating that other barriers beyond transportation are relevant to treatment continuance. One study of predictors of attrition and retention in youth psychotherapy identified instrumental and social support problems (e.g., problems with social environment, education, occupation, housing, or the legal system) as significant predictors of attrition (Miller, Southam-Gerow, & Allin, 2008). Relatedly, initiatives to increase social support, for example using adjunctive peer support specialists within a

Veterans Administration cognitive behavioral therapy (CBT) intervention, have resulted in higher rates of treatment completion (Nelson et al., 2018).

In addition, within the clinical research domain there appears to be increased retention and recruitment when families are referred from trusted local community organizations (e.g., Women, Infants, and Children [WIC], public schools; Rdesinski, Melnick, Creach, Cozzens, & Carney, 2008; Yancey et al., 2006). Within refugee communities, this may also include cultural organizations and community health organizations. Importantly, factors related to the clinical service provider may also impact attrition. For example, clinics rated as less stable organizationally experienced dropout rates four times as high as clinics with highly stable organizations (Werbart, Andersson, & Sandell, 2014). Organizational stability in that study included qualities such as stable funding sources, transparent organizational structures, explicit rules and policies for clinical decision-making, and clear policies for patient triage and treatment. Therapist-client ethnic match may relate to attrition and attendance as well, with small but significant effects of ethnic match on lower attrition rates, particularly among ethnic minority clients (Maramba & Hall, 2002). Notably, ethnic match did not significantly predict clinical outcomes beyond attrition in the cited meta-analysis (Snell-Johns, Mendez & Smith, 2004).

At the societal level, many researchers have attempted to understand how and why factors such as ethnicity, immigrant status, and race relate to treatment engagement. A number of studies have found a link between minority ethnic or racial status and increased early treatment attrition— as well as less positive treatment outcomes (Barrett et al., 2008). For example, one meta-analysis of psychotherapy attrition across 125

studies (Wierzbicki & Pekarik, 1993) found only three significant predictors of early termination: race (with African American clients more likely to terminate treatment earlier than other clients), education (with lower education linked to higher treatment attrition), and income (with lower income linked with higher treatment attrition). In a more recent update to the Wierzbicki and Pekarik (1993) meta-analysis, however, Swift and Greenberg (2012) did not find a significant effect of race or income on attrition. Instead, the only cultural or community factors significantly linked with therapy attrition were younger age and lower education. Relatedly, a meta-analysis of predictors of attrition from 54 randomized controlled trials of individuals treated for major depression found significantly higher attrition rates in treatment conditions in which clients from non-Caucasian racial backgrounds were included (Cooper & Conklin, 2015). The authors also noted the underreporting of socioeconomic status (SES) factors such as education and income, suggesting that their measures of race and SES may have been conflated. When included in studies, low SES is consistently predictive of treatment attrition, with moderate effect sizes (Barrett et al., 2008), however, not all studies report SES. Race and ethnicity are often correlated with income (Pew Research Center, 2015), and the specific effects of poverty on access to mental health services (Jones et al., 2016) can be detrimental. For example, poverty is linked to chronic stress and socioeconomic disadvantage, which are linked to attrition (Kazdin, 1996). Time constraints due to multiple or demanding jobs are also frequently cited as barriers to accessing mental health care among low-income families (Jones et al., 2016). Mixed findings regarding the relationship between race/ethnicity and therapy attrition are common (Barrett et al., 2008), and this may stem in part from the difficulty of isolating the impact of specific

demographic factors on attrition. The impact of race, ethnicity, and cultural factors on psychotherapy attrition is understood to be a complex interaction of different expectations, obstacles, and accepted practices between clients and providers (Barrett et al., 2008). However, the specific mechanisms linking race/ethnicity and therapy attrition are not known. One hypothesis is that minorities, and in particular immigrant families, may have more negative attitudes toward psychotherapy than majority group families (Surgeon General, 1999), or may have negative expectations regarding therapy. Others have hypothesized that majority group identity therapists may have negative expectations for or perceptions of minority clients (Barrett et al., 2008).

The extant research on factors affecting treatment attrition for underserved groups is limited in part because many studies fail to report recruitment or attrition rates (Snell-Johns, Mendez & Smith, 2004). However, some studies have attempted to manipulate attrition by augmenting treatment to include specific retention strategies for underserved groups. For example, some treatments such as Multi-Systemic Therapy alter therapist schedules and availability to meet the scheduling demands of their clientele (Henggeler, 1999). Others have attempted to decrease the impact of isolation and family stress by emphasizing group therapy, focusing on strengths, and reducing community barriers by providing transportation, childcare, and home-based services (Snell-Johns, Mendez & Smith, 2004).

Taken together, the clinical research described above supports the theory that socioeconomic, individual, and treatment barriers can indeed limit underserved groups' access to mental health services. However, the effects of specific socioeconomic and psychological variables on attrition from psychotherapy in refugee populations is at

present unstudied. With the increasing need for mental health services for refugees, information about factors predictive of attrition could help clinics, programs, and communities provide services that help these clients stick with potentially beneficial treatment.

### **1.7. Refugees**

Over 70 million men, women and children were displaced worldwide due to violence, war, and hostile conditions in the year 2018 (UNHCR, 2018). People who are forcibly displaced from their homes include refugees (who seek refuge in a different country), asylum seekers (who left their country of origin and await formal acceptance in their country of residence), and internally displaced persons (who flee their homes but have not yet crossed international borders). Among those forcibly displaced in 2015, 21.3 million were refugees, and over 273,000 were resettled in the United States and Canada (UNHCR, 2016). Many refugees' pre-displacement experiences include torture, repeated physical and sexual violence, and expulsion from their homes and communities. Once displaced, refugees may continue to experience trauma and chronic stress in refugee camps, including dangerous migration, loss of loved ones, post-migration stress, discrimination, and poverty. After living in initial host countries and/or in refugee camps, many refugees eventually resettle in high-income countries, such as the United States. While many high-income countries provide increased safety and resources, refugees are often resettled into poverty and conditions of discrimination or disenfranchisement (Carswell, Blackburn, & Barker, 2009).

## **1.8. Refugee Mental Health**

Unsurprisingly given these past and concurrent conditions, refugees report having substantial mental health needs, and research over the past decade has largely confirmed the need for psychosocial support within the refugee population (Knaevelsrud, Stammel, & Olf, 2017). Across research studies with random sampling designs, rates of formally diagnosed PTSD in refugees are around 11%, and rates of depression are around 6% (Fazel et al., 2005). On the other hand, in a population sample study conducted in Norway over three years (n = 240), 52-54% of refugees exhibited clinically significant anxiety and/or depression (i.e., met Hopkins Symptom Checklist criteria for clinical distress), and around 15% scored above the clinical threshold for post-traumatic stress symptoms (Lie, 2002). Further, in a study of recently arrived refugees and asylum seekers in Germany, almost half of the respondents met screening criteria for at least one of the mental disorders investigated (Nesterko, Jackle, Friedrich, Holzapfel, & Glaesmer, 2019). One-third of those sampled had significant PTSD symptoms, 10-20% indicated significant depression, and one-third of the sample suffered from somatization (i.e., physical manifestations of psychological distress). Among individuals who have experienced torture, rates of PTSD also appear to be high (e.g., 18-33% in a population sample of activists in Turkey). Reviews of the research suggest significant heterogeneity in estimates of PTSD rates (Fazel et al., 2005).

Among treatment-seeking refugees, PTSD and depression diagnoses are prevalent. Teodorescu, Heir, Hauff, Wentzel-Larsen, and Lien (2012) interviewed and surveyed 61 refugees receiving outpatient psychiatric treatment in Norway regarding symptom burden and prevalence of psychiatric conditions. They found that posttraumatic

stress disorder was by far the most common concern (with 82% of participants currently meeting diagnostic criteria), followed by major depression (71%). Anxiety disorders, such as agoraphobia (49%), social phobia (49%), and panic disorder (41%) were also common. The authors reported high levels of comorbidity, with 85% of patients meeting criteria for three or more diagnoses. This high level of comorbidity may reflect the need for diagnostic criteria better suited to describe the sequelae related to complex trauma (Fondacaro & Mazzulla, 2018; Teodorescu, Heir, Hauff, Wentzel-Larsen, and Lien, 2012), but also points to the complexity of distress and symptom burden faced by these patients. Further, the researchers reported that the number of types of traumatic events experienced was significantly correlated with PTSD diagnosis (though not with major depression), and with the total number of current diagnoses. The psychological impact of trauma in refugees is thus likely to manifest both in PTSD symptoms and in overall psychological need.

In addition to understanding the prevalence of clinical concerns, it is important to understand the degree and types of chronic stressors that refugees are likely to experience. For example, Carswell, Blackburn, & Barker (2009) found that among refugees seeking clinical services, psychological symptom levels were associated with post-migration stressors, number of traumas experienced, difficulties in adapting to a new culture, loss of support for one's culture, and level of confidant support. Thus, among treatment-seeking refugees, factors that influence attrition (e.g., psychological symptoms, socioeconomic need) may be highly interrelated. Research with community samples supports this association; in one meta-analysis, economic restriction within the resettlement country (e.g., limited employment, not afforded the right to work, decline

from previous socioeconomic status) was linearly related to psychological symptoms, accounting for approximately 13% of the variance in mental health among refugees (Porter & Haslam, 2005). Similarly, Steel, Silove, Bird, McGorry, and Mohan (1999) found that post-migration stress contributed to 14% of the variance in psychological symptoms in refugees. The multiple chronic stressors (e.g., discrimination, language barriers, poverty) that refugees can face upon resettlement may exacerbate post-traumatic stress symptoms across the early years of adjustment to their new lives (LeMaster et al., 2018; Lie, 2002).

Refugees seeking mental health treatment are likely to experience PTSD, comorbid mental health conditions, and perhaps long-term mental health concerns. Additionally, the resettlement process can alter a family system such that strengths that were previously important for coping with difficult times are no longer available, encouraged, or valued within the resettlement culture. For example, families who may have previously found comfort in relying on their neighbors and friends may feel isolated from their communities during resettlement (Schweitzer, Greenslade, & Kagee, 2007), and thus find it more challenging to draw emotional support from those communities. Given the continuous stress faced by many refugees (Sangalang et al., 2018), it is important to understand factors that may put this group at risk for psychotherapy attrition.

### **1.9. Barriers to Mental Health Services for Refugees**

Despite the significant mental health needs of refugees and the increasing presence of this demographic group across the world (Nesterko, Jackle, Friedrich, Holzapfel, & Glaesmer, 2019; UNHCR, 2018), I am aware of few studies that have yet

examined barriers to mental health services faced by refugees. Given that refugees face multiple systematic and personal barriers (e.g., low access to socioeconomic resources, complex psychological needs, discrimination) it may be expected that they are at risk for higher rates of treatment attrition—however, few research studies have tested this hypothesis. Though research directly assessing attrition in refugees is rare, several quantitative and qualitative studies have examined barriers to mental health care among immigrants and refugees, and the findings highlight the importance of economic and cultural accessibility barriers to accessing care.

Shortly after the influx of refugees to the United States in the 1970s and 1980s, Gong-Guy, Cravens, and Patterson (1991) reviewed a range of clinical concerns related to refugee mental health services. Participants described service-level barriers including the lack of mental health service availability, long delays, and lack of bilingual service provision. Cultural barriers included stigmatization and catastrophization of mental health treatment-seeking, low familiarity with Western mental health treatment approaches, and low agreement between patients and providers on mental health treatment goals (Gong-Guy, Cravens, & Patterson, 1991). For example, one study found that refugees were more likely to emphasize practical concerns (e.g. lack of English skills) than emotional concerns (e.g., anxiety and depression), leading to a potential mismatch in treatment goals between client and therapist (Moon & Tashima, 1982, as cited in Gong-Guy, Cravens, & Patterson, 1991). Since this early review (Gong-Guy, Cravens, & Patterson, 1991), many barriers they describe have since been endorsed by participants in studies on refugee and immigrant mental health—as described below.

A later study of barriers to mental health service use among Vietnamese refugees in Australia confirmed the importance of cultural barriers in providing mental health services (Phan, 2000). Through semi-structured interviews with caregivers of people with mental illness (N = 324) recruited at doctors' offices and through telephone directories, nearly half of caregivers reported using some mental health service for their family member (n = 158). Common barriers faced by those families who had sought mental health care included difficulty communicating with health professionals (reported by 86% of families), difficulty finding interpreters to help at the consultation (81%), difficulty trusting Western health professionals (89%), not getting the expected medications (89%), difficulty seeking follow-up services (60%), and fear of psychiatric/psychological examinations (55%). Families also revealed that they desired more support from their mental health service providers, including more awareness of services (88%), understanding of the purposes of services (100%), culturally responsive services (89%), and reduced costs of examinations (71%) and transportation (88%). Though this study was limited to Vietnamese refugees in Australia, its results suggest very clear barriers to mental health care utilization—which likely apply to individuals from other refugee groups as well.

Within a group of 35 Arabic-speaking individuals in Australia (Youssef and Deane; 2006) cultural beliefs about mental health emerged as key themes that interfered with seeking professional mental health help. Several studies had previously recorded lower rates of service utilization for individuals from Arabic-speaking backgrounds (McDonald & Steel, 1997) compared with English-speaking people, despite the former having higher rates of mental health diagnoses (McDonald & Steel, 1997). Through a

series of open-ended interview questions, the participants identified deterrents from seeking mental health services. One major concern they shared was the perception that mental illness was shameful or dangerous, and connected with concepts such as “madness” or evil. Many also noted that acknowledgement of personal mental illness was unlikely, apart from “nervousness” (i.e., anxiety). Participants perceived the effects of shame within their community as widespread, potentially impacting family dynamics and marriage prospects. Participants also described counseling (i.e. talk therapy) as uncomfortable and not useful—and preferred to talk with religious leaders and family members. This small qualitative study echoed many of the same concerns articulated by Vietnamese refugees in Australia (Phan, 2000), highlighting insufficiencies in the cultural acceptability of traditional Western mental health services for refugee and/or immigrant groups.

What role do cultural barriers play when economic barriers to health care are more equalized? A quantitative study of mental health service utilization among 1703 participants (n = 264 Anglo-Caribbean immigrants, n = 234 Vietnamese immigrants, n = 278 Filipino immigrants; Kirmayer et al., 2007) in Montreal, Canada (which has a universal single-payer health care system) investigated non-economic barriers to mental health service utilization among immigrants. They found that Vietnamese and Filipino participants were one-third less likely than Anglo-Caribbean participants to use mental health services when controlling for other variables (including recency of immigration to Canada, education level, duration of employment, psychological and somatic symptoms, and others). This was true even as Vietnamese immigrants reported more life trauma and symptoms. Whereas this quantitative survey did not ask reasons for the lack of mental

health service utilization among each of these cultural groups, it demonstrated that the disparity between some immigrant groups in terms of accessing mental health services is not fully explained by the cost of accessing such services.

From the perspective of the Western mental health treatment perspective, practical differences in providing mental health services to refugees may contribute to refugees' sense of discomfort with treatment. For example, measures of post-traumatic stress, and indeed diagnostic conditions themselves, are generally developed in Western populations (Hollifield et al., 2002), and often reflect syndromes of the response to single-event, individual traumas (i.e., single sexual assault, personal combat experience) rather than chronic, communal traumas such as repeated assault and community instability resultant from political conflict (Nicolas, Wheatley, & Guillaume, 2015). Notable exceptions as far as measures of trauma, anxiety, and depression validated for use in refugees are the Harvard Trauma Questionnaire (Mollica et al., 1992), and the Hopkins Symptom Checklist (Mollica et al., 1987). However, even these measures are developed based on Western psychiatric conceptualizations of mental health and illness. Further, language barriers and the use of interpreters inherently alter the clinical relationship and may impact the effects of treatment (Farooq & Fear, 2003, Pugh & Vetere, 2009). Despite the complexity of working with interpreters, some research suggests that PTSD treatment with and without interpreter use have similar clinical outcomes (d'Ardenne, Ruaro, Cestari, Fakhoury, & Priebe, 2007). In this study, treatment outcomes for 128 patients with PTSD, including refugees requiring interpreters, refugees not requiring interpreters, and non-refugee patients, were examined. The number of sessions, method of treatment, and improvement from pre- to

post-treatment on trauma, depression, and quality of life symptoms were compared between the three groups. The only significant difference or interaction between time and group was the increased attainment of subclinical trauma symptoms in the non-refugee group over the course of treatment.

Psychological assessment, diagnosis, and interventions for post-traumatic sequelae in refugees from non-Western countries are typically borrowed from Western treatment paradigms (Summerfield, 2008)—perhaps contributing to barriers to clinical services due to disparate understandings of mental health. Despite differences between refugees and the general population in trauma type, use of interpreters, culturally-based support needs, and ongoing stressors (Crumlish & O'Rourke, 2010), evidence for the effectiveness of exposure-based PTSD treatments among people who are refugees is promising (Nosè et al., 2017). Crumlish and O'Rourke (2010) reviewed ten psychological and pharmacological randomized controlled trials of PTSD treatment in refugees. The ranges of PTSD remission recorded in these studies ranged from 60-75%, and significant differences between different PTSD treatments offered preliminary support for the effectiveness of Narrative Exposure Therapy (NET) versus supportive therapy, psychoeducation, non-specific trauma therapy, and treatment as usual. There was also support for Culturally-Adapted CBT compared to waitlist control conditions and to general exposure therapy (which was noted by the authors to be difficult to distinguish from Culturally-Adapted CBT). A more recent review by Nosè and colleagues (2017) also found NET to have the most high-quality research supporting its efficacy for PTSD. These studies have indicated the importance of addressing cultural

and practice factors to increase efficacy of treatment. Yet the degree to which these barriers predict therapy attrition is currently unknown.

### **1.10. Predictors of Attrition in Refugees**

Research on mental health interventions for refugee populations is a growing—but limited—area. Moreover, research regarding treatment attrition and attendance rates within this population is scarce. Specific interventions targeted to post-traumatic stress symptoms (for example, using interventions such as culturally-adapted CBT [Hinton et al., 2004], Narrative Exposure Therapy [NET; Neuner et al., 2008], and exposure-based treatment) are the most commonly documented interventions in the empirical literature. Several of these studies have documented their attrition rates, as well as potential factors linked to attrition between or across conditions (e.g., Hinton et al., 2004, 2005; Neuner et al., 2008; Pauvonic & Öst, 2001). For example, in their 2001 randomized trial comparing CBT plus exposure therapy to exposure therapy only among refugees with PTSD, Pauvonic and Öst reported that 4 of the original 20 study participants did not complete the study. Three of the four excluded participants had missed three consecutive sessions, and one was excluded due to hostile behaviors toward the therapist in the first session. All clients who discontinued were male (four of 17 male clients in the study discontinued), and those clients had significantly higher scores on the World Assumptions Scale (WAS; a measure of schemas regarding fairness, justice, and positive outcomes) than the clients who completed the study. In another examination of treatments for PTSD in refugees, Schulz, Resick, Huber, and Griffin (2006) tested the impact of cognitive processing therapy (CPT) for PTSD. The authors reported finding no

significant association between the number of sessions attended in this naturalistic trial and outcome. However, as the authors only reported the average number of sessions attended and not the standard deviation or rates of early termination/attrition, more questions remain about attrition rates for CPT exposure in refugees. Hinton and colleagues (2004, 2005) reported zero treatment discontinuances in two separate trials of CBT for PTSD and panic attacks with 12 and 20 participants, respectively. In a trial of NET versus nonspecific trauma counseling among Somali and Rwandan refugees living in Uganda, Neuner and colleagues found a significant difference in attrition by treatment, with 3.6% of participants discontinuing in the NET group versus 19.8% in the trauma counseling group (Neuner et al., 2008). In a meta-analysis of seven studies testing the impact of NET for traumatic stress among refugee populations, Gwozdziejewicz and Mehl-Madrona (2013) did not address attrition rates except to note that one study (Schaal, Elbert, & Neuner, 2009) reported zero treatment discontinuances. Similarly, a systematic review of PTSD treatments for refugees indicated that few treatment studies reported rates of or reasons for attrition (Crumlish & O'Rourke, 2010). Beyond PTSD, other trials of psychological interventions for refugees often do not provide information regarding attrition rates. For example, one comprehensive review of best practices for mental health interventions for refugees following resettlement (Murray, Davidson, & Schweitzer, 2010) did not mention attrition or attrition rates among any of the studies reviewed.

The dearth of research on attrition rates among treatments for refugee populations could be symptomatic of a larger need for resources (e.g., time, providers, funding) within the clients and service providers in this group. Indeed, any reporting of clinical

research in this population provides important data. However, given that prior findings in the area of treatment attrition suggest high attrition risk for minorities, those without insurance coverage (Snell-Johns, Mendez & Smith, 2004), the socially isolated (Snell-Johns, Mendez & Smith, 2004), those who view mental health treatment as uncomfortable or ineffective (Edlund et al, 2002), and those with severe concerns (Barrett et al., 2008), many refugee clients may meet a number of the primary risk factors for treatment attrition. Therefore, it is essential to understand risk factors for attrition among refugees, and the relative impact of these risk factors on rates of attrition among refugees, in order to maximize refugees' chances of participating in and completing potentially beneficial psychological treatments.

### **1.11. Aims and Hypotheses**

The present study had two main objectives related to understanding early psychotherapy attrition among refugees. The primary purpose of the study was to determine the rates of attrition across the first ten weeks of psychotherapy in a sample of refugees seeking care at a community clinic, and to contrast these rates with a comparable sample of non-refugees. A secondary purpose was to identify predictors of early attrition among refugees and to measure the relative contribution of socioeconomic, demographic, and psychological factors to risk for attrition.

Additionally, the proposed study had one exploratory aim designed to develop future research questions regarding attrition among refugees. Specifically, the study explored the interaction between socioeconomic (specifically, education) and psychological factors in predicting risk for attrition. As the study design lacked sufficient

sample size to detect any other than relatively large interaction effects, this aim was exploratory in nature.

**Aim 1.** To compare rates of attrition between refugees and non-refugees.

**Hypothesis 1.** Given the extant research on attrition risk among underserved populations, I hypothesized that attrition rates would be higher among refugees than non-refugees.

**Aim 2.** To understand socioeconomic and demographic predictors of attrition.

**Hypothesis 2.** Socioeconomic and demographic predictors including lower household income, lack of English language proficiency, younger age, employment status, fewer years of formal education, and fewer months in the U.S. would be associated with increased attrition among refugees.

**Aim 3.** To understand psychological predictors of attrition.

**Hypothesis 3.** Psychological predictors including symptoms of traumatic stress, anxiety, and depression will be associated with increased attrition among refugees.

**Exploratory Aim 1.** To understand the interactive effects of specific socioeconomic and psychological predictors of attrition.

## **CHAPTER 2: METHOD**

### **2.1. Design**

The current research involved data collected through a larger clinical service and research program at the University of Vermont (Connecting Cultures). The Connecting Cultures program serves refugees, asylum seekers, and survivors of torture, and operates within a community mental health clinic on the University of Vermont campus (Vermont Psychological Services). Data for the study consisted of an existing dataset previously collected through Connecting Cultures, as well as existing psychotherapy billing records from Vermont Psychological Services. Thus, clients (N = 196) who provided demographic and psychological data through the Connecting Cultures research program were matched with their routinely collected billing information to provide a richer depiction of attrition in the clinic setting. The procedures relevant to these two sources of data are described in more detail below. All procedures for the present study (including the original Connecting Cultures research study, and the adjunctive record review of those and the comparison sample patients) were approved by the University of Vermont Institutional Review Board (IRB).

### **2.2. Participants**

All clients receiving psychological services through the refugee-focused Connecting Cultures program beginning in August 2007 were invited to participate in a study aiming to understand refugees' symptoms and mental health needs upon service initiation. The recruitment and informed consent process took place during regularly scheduled intake meetings with the clients, with the assistance of an interpreter if the

client did not speak English. One hundred ninety-six eligible patients consented between August 2007 and April 2017; the number of patients invited to participate is unknown. All participants were refugees or asylum seekers who sought psychological services through Connecting Cultures. Additionally, a comparison group sample of 165 patients was selected randomly from non-refugee patients at Vermont Psychological Services who paid for individual therapy using Medicaid during the same range of dates. Medicaid is the most common insurance in the refugee population at Connecting Cultures, and therefore the comparison sample was drawn from the same insurance population to limit the influence of income on the attrition comparison. Like the refugee sample, comparison sample patients were drawn from a pool of those who saw trainee therapists for individual therapy. Although efforts were made to match the comparison sample with the refugee sample on age and sex, complete matching of demographics was not possible.

## **2.3. Procedures**

### **2.3.1. Refugee Sample**

After providing informed consent during a regularly scheduled clinical intake meetings, participants responded to several self-report measures. The research measures were administered in English by a trained clinician during an in-person interview, with interpretation in the participant's native language provided by an interpreter as necessary. Data were generally collected within the first three sessions of treatment, with flexibility to increase clients' trust of the clinic setting.

All available dates of service for each participant were collected from clinical billing records (i.e., all attended sessions for which dates of service were billed), and this

new dataset was merged with the existing Connecting Cultures dataset and again de-identified. Merging was possible due to a securely stored key of names and identification numbers for all participants in the existing Connecting Cultures dataset.

### **2.3.2. Comparison Sample**

For the comparison sample, the same session attendance data, as well as age and sex, were collected from billing records.

## **2.4. Measures**

### **2.4.1. Demographic Questionnaire**

Demographic data were obtained from a 21-item questionnaire designed by the research team for the purpose of collecting a range of demographic and social information. The present study included participants' age, sex, self-reported English language fluency, time since arrival in the United States, years of formal education, employment status, and household income. Years of formal education and household income were collected as ordinal variables, and treated as continuous so as not to lose information regarding effects of ascending income and education. Although available, variables including ethnicity and country of origin were not included in analyses due to small cell sizes.

### **2.4.2. Harvard Trauma Questionnaire**

The Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992) is a self-report measure of symptoms of traumatic stress, with symptoms mapping onto Diagnostic and

Statistical Manual (DSM-IV) criteria for PTSD. The measure consists of four parts assessing traumatic event exposure as well as symptoms; for the present study only part four, which captures symptoms, was used. Part four of the HTQ consists of 16 items derived from the DSM-IV criteria for PTSD and 14 items derived from clinical experience with trauma survivors. Participants indicate the extent to which they have suffered from each symptom in the past week using a 4-point Likert scale (0 = “not at all,” 1 = “a little,” 3 = “quite a bit,” 4 = “extremely”). Sample items include, “In the past week, how much were you bothered by feeling on guard?” and “In the past week, how much did you avoid thoughts or feelings associated with the traumatic or hurtful experience?” A total average score and a DSM-IV-based scale are provided for the measure, with the suggested cutoff of 2.5 or higher indicating clinically significant symptoms of post-traumatic stress. For the proposed study, the DSM-IV scale was employed because the most complete data were available for the relevant items. The HTQ was developed for use with and validated in a clinic-based refugee population from Southeast Asia, and has since been used in research and clinical assessment with different refugee groups. The development study of the instrument reported good test-retest reliability ( $\alpha = .89-.92$ ) and internal consistency ( $\alpha = .90-.96$ ), and the current data indicated good internal consistency ( $\alpha = .91$ ).

#### **2.4.3. Hopkins Symptom Checklist**

The Hopkins Symptom Checklist (HSC; Mollica et al., 1987) is a self-report measure including ten items regarding anxiety symptoms and 15 items regarding depression symptoms in the prior week. Sample items include, “In the past week, how

much were you bothered by blaming yourself for things?” and “In the past week, how much were you bothered by faintness, dizziness, or weakness?” Respondents rate the extent to which they have been bothered by anxious and depressive symptoms within the last week on a 4-point Likert scale (0 = “not at all,” 1 = “a little,” 3 = “quite a bit,” 4 = “extremely”). The measure provides an anxiety subscale, a depression subscale, and a total average score. For any of the three scales, a score of 1.75 is suggested to indicate clinically significant anxiety and/or depression. The HSC is well-established for use with refugee participants. Further, the measure developers reported good internal consistency, with Cronbach’s alpha coefficients ranging from .83 to .91 for the anxiety scale and from .85 to .92 for the depression scale; this was also found in the current data (anxiety:  $\alpha = .91$ ; depression:  $\alpha = .92$ ).

#### **2.4.4. Session Attendance and Billing**

Billing and payment records for all clients in the primary Connecting Cultures dataset were reviewed to derive patterns of attendance and attrition for research participants. For all research participants in the existing dataset, billing records from August 2007 (the start of the larger Connecting Cultures study) to August 2017 were reviewed. For each participant, the first billed date of service was counted as session one. Subsequently, a period of ten calendar weeks following session one (the “early treatment period”) was calculated. Participants who attended their last recorded date of service within the early treatment period were considered incidences of attrition. The date of attrition was defined as one calendar week following the last attended date of service. If the last date of service fell close to the data collection date, a case was considered attrition

if at least eight weeks had passed since the last attended date of service. A second measure of early attrition was defined as attendance of less than ten sessions of treatment. As this method of measuring attrition relied on billing records, which do not indicate reasons for stopping attendance, the present study focused on the first ten calendar weeks and/or ten sessions of psychotherapy, in which non-attendance is very likely (within this clinic) to indicate premature, client-initiated termination (see also Anderson & Lambert, 2001). Examination of the dataset also revealed a pattern of attendance in which clients attended several sessions initially, and then were absent for treatment for months to years before continuing. Based on this observation, an “extended treatment gap” indicator was derived. The cutoff of 170 days for an extended treatment gap was calculated from the mean plus two standard deviations of the average number of days between sessions from the preliminary refugee sample attendance dataset (before merging with the psychosocial data). Thus, combined “early treatment disruption” was measured in three ways: ending treatment within ten weeks of the first session, ending treatment within ten sessions, and/or experiencing a gap of over 170 days between sessions, within the first ten sessions. The combined early treatment disruption variable was selected as the primary measure of attrition to provide a liberal estimate of treatment disengagement within this population.

#### **2.4.5. Revised Scales**

The HTQ and HSC provide syndrome-based subscales. Based on previous experience with these measures, I submitted the items to factor analysis to derive a

measurement model based in structural equation modeling (SEM). More detail on these procedures is available in Appendix A.

## **2.5. Statistical Analyses**

Data screening, error-checking, cleaning, and demographic and psychometric analysis was completed using IBM Statistical Package for the Social Sciences (SPSS) version 23.0. SEM was conducted using Mplus version 7.31 (Muthén & Muthén, 1998-2012). Preliminary analyses examined patterns of missing data, descriptive statistics, and measures of distribution. ANOVAs, *t*-tests, and correlations were run to examine patterns of covariation between all variables.

### **2.5.1. Primary Analysis**

For this study, the outcome of interest was early treatment disruption in psychotherapy. Logistic regression was used determine the association between predictor variables of interest and the categorical variable of early treatment disruption.

To address **Aim 1**, combined attrition/early treatment disruption was calculated and compared between refugee clients and the randomly selected comparison sample of Medicaid-insured non-refugee clients (see “Session Attendance and Attrition” above). The comparison was calculated by running logistic regression with refugee status as the independent variable and combined attrition as the dependent variable, and sex and age as covariates.

To address **Aims 2 and 3**, several analyses were conducted with demographic predictors (age, sex, dichotomous self-reported English language proficiency, time since

arrival in the United States, years of formal education, dichotomous employment, household income) and psychological predictors as independent variables and early treatment disruption as the dependent variable. Two separate analyses were conducted: using HTQ Trauma, HSC Depression, HSC Anxiety as psychological predictors, and using SEM-derived somatic, cognitive, avoidance, and traumatic stress factors as psychological predictors.

### **2.5.2. Exploratory Analyses**

Exploratory Aim 1 involved the calculation of an interaction variable between select socioeconomic and psychological predictors in relation to attrition. Specifically, the interaction between years of formal education and each of the psychological predictors was entered as the last step in each of the analyses described for Aims 2 and 3, above.

### **2.5.3. Power Considerations**

Preliminary power analysis was conducted based on the sample size  $N = 196$  of the current dataset. Based on a probability of .2 (similar to rates found in some meta-analyses), the study would have sufficient power ( $\beta = .80$ ) to detect an odds ratio of 2.56 or above. With an event probability of .3, the detectable odds ratio would decrease to 2.15, and with an event probability of .4 the detectable odds ratio would decrease to 1.94. Therefore, it was expected that Aims 1-3 were within the scope of the proposed study's power.

## CHAPTER 3: RESULTS

### 3.1. Missing Data

Missing data percentages from variables of interest are indicated in Table 1. To account for missing data, I used procedures recommended by Graham, Olchowski, and Gilreath (2017): multiple imputation with 20 imputed samples, with pooled results. Outcome variables (mean days to attrition or lapse, early treatment interruption) were not imputed. Missing value analyses were conducted for each subsample, and suggested that missing data were missing completely at random from the refugee sample (Little's MCAR test:  $\chi^2(210) = 196.54, p = .738$ ), and from the comparison sample (Little's MCAR test:  $\chi^2(4) = 1.461, p = .834$ ).

### 3.2. Preliminary Analyses

Table 1 displays descriptive statistics for the predictor and outcome variables used in the present study. On average, the refugee sample arrived in the United States approximately five years before beginning therapy, with a range of zero to 378 months (31.5 years). Forty-two percent of refugee participants were born in Nepal or Bhutan, 19% in Somalia, 10% in Bosnia, 8% in Congo or the Democratic Republic of the Congo, 5% in Iraq, 4% in Myanmar/Burma, and 12% in other countries (not named due to small cell sizes, to protect client privacy).

**Table 1: Descriptive statistic of demographic and outcome variables**

|  | Complete<br>refugee sample<br>(N = 126-194) | %<br>missing | Imputed data<br>(N = 196) | Comparison<br>sample<br>(N = 165) | %<br>missing |
|--|---|--------------|---------------------------|-----------------------------------|--------------|
| Mean age                                       | 42.56 (SD =<br>13.95)                       | 4.1%         | 42.48 (SD =<br>13.90)     | 32.73 (SD =<br>9.44)              | 0%           |
| Sex  | 52% female                                  | 2%           | 52% female                | 63% female                        | 0.6%         |
| Speak English                                  | 34% yes                                     | 1.5%         | 33% yes                   | 100% yes                          | -            |
| Income**                                       | 2.75 (SD = 1.58)                            | 36%          | 2.78 (SD = 1.59)          | -                                 | -            |
| No income (0)                                  | 12%   |              | 10%                       |                                   |              |
| < \$5,000/year (1)                             | 5%  |              | 8%                        |                                   |              |
| \$5,000 – \$14,999/year (2)                    | 25%   |              | 24%                       |                                   |              |
| \$15,000 - \$24,999/year (3)                   | 33%   |              | 30%                       |                                   |              |
| \$25,000 – \$34,999/year (4)                   | 9%  |              | 12%                       |                                   |              |
| \$35,000 - \$49,999/year (5)                   | 11%   |              | 11%                       |                                   |              |
| \$50,000 - \$74,999/year (6)                   | 4%  |              | 4%                        |                                   |              |
| > \$75,000/year (7)                            | 1%  |              | 1%                        |                                   |              |
| Education**                                    | 1.39 (SD = 1.34)                            | 8.1%         | 1.63 (SD = 1.60)          | -                                 | -            |
| Never attended school (0)                      | 33%   |              | 31%                       |                                   |              |
| Primary school (1)                             | 26%   |              | 24%                       |                                   |              |
| Secondary school (2)                           | 23%   |              | 21%                       |                                   |              |
| Some university (3)                            | 9%  |              | 10%                       |                                   |              |
| Finished university (4)                        | 8%  |              | 7%                        |                                   |              |
| Some graduate school (5)                       | 1%  |              | 3%                        |                                   |              |
| Finished graduate school (6)                   | 1%  |              | 3%                        |                                   |              |
| Employment                                     | 38% employed                                | 1.5%         | 38% employed              | -                                 | -            |
| Mean months between U.S. arrival<br>and intake | 62.61 (SD =<br>60.49)                       | 4.6%         | 63.09 (SD =<br>60.00)     | -                                 | -            |
| Mean HTQ DSM IV                                | 2.17 (SD = 0.76)                            | 23.9%        | 2.16 (SD = 0.73)          | -                                 | -            |
| Mean HSC Anxiety                               | 2.27 (SD = 0.88)                            | 14.7%        | 2.28 (SD = 0.86)          | -                                 | -            |
| Mean HSC Depression                            | 2.26 (SD = 0.80)                            | 15.7%        | 2.28 (SD = 0.78)          | -                                 | -            |
| Mean ESEM Somatic                              | -   | 4.6%         | 0.00 (SD = 0.93)          | -                                 | -            |
| Mean ESEM Cognitive                            | -   | 4.6%         | 0.00 (SD = 0.94)          | -                                 | -            |
| Mean ESEM Avoidance                            | -   | 4.6%         | 0.00 (SD = 0.88)          | -                                 | -            |
| Mean ESEM Trauma                               | -   | 4.6%         | 0.00 (SD = 0.92)          | -                                 | -            |
| Discontinued < 10 weeks (%)                    | 28%   | 21.3%        | -*                        | 35%                               | 0%           |
| Discontinued < 10 sessions (%)                 | 45%   | 21.3%        | -                         | 45%                               | 0%           |
| Treatment gap < 10 sessions (%)                | 14%   | 21.3%        | -                         | 2%                                | 0%           |
| Any early treatment disruption (%)             | 54%   | 21.3%        | -                         | 47%                               | 0%           |
| Mean total number of sessions                  | 23.04 (SD =<br>32.62)                       | 21.3%        | -                         | 21.08 (SD =<br>26.27)             | 0%           |
| Early termination sample                       | 6.17 (SD = 7.35)                            |              | -                         | 4.76 (SD =<br>5.14)               |              |
| Regular termination sample                     | 37.69 (SD =<br>34.30)                       |              | -                         | 35.71 (SD =<br>28.89)             |              |
| Mean days to attrition or lapse                | 48.98 (SD =<br>50.74)                       | 21.3%        | -                         | 49.71 (SD =<br>47.25)             | 0%           |

\*Statistics for imputed data are shown only for those variables that were imputed

\*\*Education and Income were analyzed as continuous variables to account for small cell sizes

Comparisons between the refugee and non-refugee samples were conducted for age, sex, and therapy attendance variables. The comparison sample was significantly younger than the refugee sample,  $t(332.27) = 7.85, p < .001$ . The comparison sample also had proportionately more women than did the refugee sample,  $\chi^2(1, N = 347) = 3.97, p = .046$ . However, neither age,  $t(312) = -.902, p = .368$ , nor sex,  $\chi^2(1, N = 316) = 1.53, p = .216$ , predicted attrition in simple comparisons using the entire sample.

### **3.3. Rates of Early Treatment Disruption**

Patients in the refugee sample attended an average of 23.04 sessions ( $SD = 32.62$ , range = 1-255). Early treatment disruptions were measured in three ways: ending treatment within ten weeks of the first session, ending treatment within ten sessions, and/or experiencing a gap of over 170 days between sessions within the first ten sessions. An extended treatment gap (170 days) was defined as the mean plus two standard deviations of the average number of days between sessions from the preliminary refugee sample attendance dataset (before merging with the psychosocial data). Across these three methods of measuring treatment disruption, 54% of the complete refugee sample experienced an early disruption in treatment.

Table 2 displays attendance variables for the refugee and comparison samples. The range of attendance was 1-255 sessions for the refugee sample, and 1-134 sessions for the comparison sample.

Chi-square tests comparing rates of treatment disruption between the refugee and comparison samples indicated no significant difference in overall rates between the two groups,  $\chi^2(1, N = 320) = 1.53, p = .216$ . There were no significant differences between

the two groups in attrition before ten weeks,  $\chi^2(1, N = 320) = 1.68, p = .194$ , or attrition before ten sessions,  $\chi^2(1, N = 320) = .003, p = .955$ . However, the refugee sample had more treatment gaps within the first ten sessions than did the comparison sample,  $\chi^2(1, N = 320) = 14.83, p < .001$ .

**Table 2: Comparisons between refugees and non-refugees**

|                               | Mean for<br>Refugees (SD) | Mean for Non-<br>refugees (SD) | <i>t</i> -test/sig          |
|-------------------------------|---------------------------|--------------------------------|-----------------------------|
| Sessions count                | 23.04 (32.62)             | 21.08 (26.27)                  | $t(318) = 0.59, p = .553$   |
| Sessions if early termination | 7.35 (8.73)               | 4.76 (5.14)                    | $t(136) = 2.32, p = .022^*$ |
| Days count                    | 322.65 (512.98)           | 252.16 (318.49)                | $t(254) = 1.47, p = .144$   |
| Days if early termination     | 48.98 (50.74)             | 49.71 (47.20)                  | $t(160) = -0.09, p = .925$  |
| Days between sessions         | 32.93, SD = 52.28         | 14.94, SD = 11.41              | $t(254) = 1.47, p = .144$   |

\*  $p < .05$

### 3.4. Comparisons Based on Early Treatment Disruption

Within the refugee sample, those who did and did not experience early treatment disruption were compared on demographic and psychosocial variables. Results of these *t*-tests are displayed in Table 3. Further, chi-square comparisons based on treatment disruption within the refugee sample indicated no significant effects of sex,  $\chi^2(1, N = 152) = 1.56, p = .211$ , English speaking,  $\chi^2(1, N = 153) = 0.03, p = .860$ , or employment,  $\chi^2(1, N = 153) = 1.50, p = .221$ .

**Table 3: Comparisons by treatment disruption for refugee sample only**

|                 | Mean for early treatment<br>disruption (SD) | Mean for no<br>disruption (SD) | <i>t</i> -test, <i>p</i> value          |
|-----------------|---|--------------------------------|---|
| Age             | 40.37 (15.60)                               | 41.00 (11.43)                  | <i>t</i> (142) = 285, <i>p</i> = .776   |
| Income          | 2.94 (1.79)                                 | 2.49 (1.38)                    | <i>t</i> (101) = 1.43, <i>p</i> = .155  |
| Education Level | 1.28 (1.11)                                 | 1.75 (1.55)                    | <i>t</i> (113) = 2.07, <i>p</i> = .040* |
| Time in US      | 63.33 (68.53)                               | 68.54 (58.77)                  | <i>t</i> (147) = 0.30, <i>p</i> = .761  |
| HTQ DSM-IV PTSD | 2.04 (0.79)                                 | 2.38 (0.70)                    | <i>t</i> (116) = 2.43, <i>p</i> = .016* |
| HTQ Depression  | 2.12 (0.84)                                 | 2.48 (0.77)                    | <i>t</i> (125) = 2.48, <i>p</i> = .015* |
| HSC Anxiety     | 2.08 (0.90)                                 | 2.46 (0.85)                    | <i>t</i> (127) = 2.44, <i>p</i> = .016* |
| ESEM Somatic    | -0.14 (0.96)                                | 0.13 (0.91)                    | <i>t</i> (146) = 1.73, <i>p</i> = .086  |
| ESEM Avoidance  | -0.09 (0.89)                                | 0.21 (0.76)                    | <i>t</i> (146) = 2.21, <i>p</i> = .028* |
| ESEM Cognitive  | -0.12 (0.98)                                | 0.22 (0.93)                    | <i>t</i> (146) = 2.12, <i>p</i> = .036* |
| ESEM Trauma     | -0.12 (0.91)                                | 0.21 (0.92)                    | <i>t</i> (146) = 2.20, <i>p</i> = .029* |

\* *p* < .05

Within the comparison sample, early treatment disruption was not significantly associated with age,  $t(163) = -1.43, p = .155$ , or sex,  $\chi^2(1, N = 164) = 0.42, p = .515$ . Associations between the remaining study variables are displayed in Appendix B.

### 3.5. Comparing Rates of Early Treatment Disruption by Refugee Status

Logistic regression was employed to examine differential rates of early treatment disruption based on patients' refugee status. The demographic variables available across both samples, age and sex, were included as covariates. Results of these analyses are displayed in Table 4. In both analyses, refugee status was significantly associated with early treatment gaps (with non-refugees 15-16% as likely to experience a gap as refugees), but not with other measures of early treatment disruption.

**Table 4: Comparing early treatment disruption between refugee and non-refugee samples**

|   |                |  |              |
|---|----------------|--|--------------|
| Outcome:<br>Any early<br>treatment<br>disruption  | Overall Model  | $\chi^2(3) = 3.55, p = .315, R^2 = .02$    |              |
|   |                | OR   | 95% CI       |
|   | Sex            | 1.42                                       | [0.90, 2.25] |
|   | Age            | 1.01                                       | [0.99, 1.03] |
|   | Refugee Status | 0.82                                       | [0.51, 1.32] |
| Outcome:<br>Attrition<br>within 10<br>weeks       | Overall Model  | $\chi^2(3) = 3.75, p = .290, R^2 = .02$    |              |
|   |                | OR   | 95% CI       |
|   | Sex            | 1.34                                       | [0.82, 2.21] |
|   | Age            | 1.00                                       | [0.98, 1.02] |
|   | Refugee Status | 1.38                                       | [0.83, 2.29] |
| Outcome:<br>Attrition<br>within 10<br>sessions    | Overall Model  | $\chi^2(3) = 3.79, p = .29, R^2 = .02$     |              |
|   |                | OR   | 95% CI       |
|   | Sex            | 1.48                                       | [0.92, 2.36] |
|   | Age            | 1.01                                       | [0.99, 1.03] |
|   | Refugee Status | 1.01                                       | [0.68, 1.76] |
| Outcome:<br>Extended<br>gap within<br>10 sessions | Overall Model  | $\chi^2(3) = 16.03, p = .001, R^2 = .12^*$ |              |
|   |                | OR   | 95% CI       |
|   | Sex            | 1.72                                       | [0.72, 4.12] |
|   | Age            | 1.01                                       | [0.97, 1.04] |
|   | Refugee Status | 0.15*                                      | [0.05, 0.46] |

\*  $p < .05$ 

### 3.6. Predictors of Early Treatment Disruption Within Refugee Sample

Demographic and psychological predictors were examined only within the refugee sample. Results are displayed in Table 5. Using the original, syndrome-based psychological scales (HTQ, HSC), only age emerged as a significant predictor of early treatment disruption. Each increasing year of age was associated with a 3.6% lower likelihood of attrition, accounting for all other covariates. Using the SEM-derived, symptom-based scales (Somatic, Cognitive, Avoidance, Post-Traumatic Stress; see Appendix A), age, education, and the interaction between somatic symptoms and education emerged as significant predictors of attrition. Each increasing year of age was associated with a 3.4% decrease in risk for attrition. Each education level increase (e.g., primary school to secondary school) was associated with a 24.9-30.3% decrease in attrition risk. Although somatic score itself was not a significant predictor, for each

increase in education level, a one-point somatic score increase conferred an additional 28.8% decrease in attrition risk.

There was a significant interaction of education and somatic symptoms (revised scale; see Appendix A). More educated clients with high somatic symptoms were most likely to stay in treatment, as were less educated clients with low somatic symptoms.

**Table 5: Results predicting early treatment disruption within refugee sample, using two methodologies**

| Overall Model          | $\chi^2(13) = 27.05, p = .012, R^2 = .45^*$ |                | Overall Model          | $\chi^2(15) = 31.53, p = .007, R^2 = .40^*$ |                |
|------------------------|---|----------------|------------------------|---|----------------|
| Predictor              | OR  | 95% CI         | Predictor              | OR  | 95% CI         |
| Sex                    | 1.178                                       | [0.583, 2.382] | Sex                    | 1.081                                       | [0.513, 2.277] |
| Age                    | 0.964*                                      | [0.933, 0.997] | Age                    | 0.966*                                      | [0.935, 0.998] |
| English (Y/N)          | 0.895                                       | [0.358, 2.239] | English (Y/N)          | 1.084                                       | [0.431, 2.729] |
| Employed (Y/N)         | 0.625                                       | [0.272, 1.437] | Employed (Y/N)         | 0.586                                       | [0.244, 1.408] |
| Household Income       | 0.779                                       | [0.591, 1.025] | Household Income       | 0.766                                       | [0.574, 1.021] |
| Highest Education      | 1.117                                       | [0.483, 2.585] | Highest Education      | 0.697*                                      | [0.503, 0.967] |
| Months in US           | 1.006                                       | [0.999, 1.013] | Months in US           | 1.006                                       | [0.999, 1.013] |
| Hopkins Anxiety        | 1.442                                       | [0.532, 3.912] | Somatic Factor Score   | 1.704                                       | [0.769, 3.778] |
| Hopkins Depression     | 0.613                                       | [0.211, 1.783] | Cognitive Factor Score | 0.957                                       | [0.387, 2.367] |
| Harvard Trauma         | 0.650                                       | [0.218, 1.945] | Avoidance Factor Score | 0.894                                       | [0.446, 1.792] |
|                        |   |                | PTS Factor Score       | 0.532                                       | [0.204, 1.386] |
| Anxiety x Education    | 0.590                                       | [0.316, 1.100] | Somatic x Education    | 0.519*                                      | [0.299, 0.901] |
| Depression x Education | 1.348                                       | [0.737, 2.465] | Cognitive x Education  | 1.021                                       | [0.621, 1.679] |
| Trauma x Education     | 1.055                                       | [0.589, 1.891] | Avoidance x Education  | 1.042                                       | [0.703, 1.542] |
|                        |   |                | PTS x Education        | 1.379                                       | [0.833, 2.281] |

\*\*  $p < .001$ , \*  $p < .05$

Notes. Odds ratios (OR) and their 95% confidence intervals (95% CI) are displayed for each outcome/predictor combination; proportions of variance explained ( $R^2$ ) and their standard errors (SE) are displayed for each predictor overall. Overall model statistics are displayed for the original data, while remaining data are pooled statistics across 20 imputations.

## **CHAPTER 4: DISCUSSION**

### **4.1. Summary of Findings**

Psychotherapy attendance is key to its efficacy, and completed treatments are more efficacious and cost-effective than those terminated early (Altmann et al., 2018). Early termination of therapy is a concern across psychotherapy modalities (Cooper & Conklin, 2015), and its adverse effects include insufficient treatment dose, and misuse of patient and systemic resources as patients utilize services without receiving their full benefit. Prior research suggests that interruption of early treatment is most likely for those with high psychosocial stressors, including lower income, minority ethnicity, and higher family size (Barrett et al., 2008), yet research has not yet explored factors contributing to attrition among a growing demographic group around the world—people who have been forced by sociopolitical conflict to leave their homes and resettle as refugees.

Although the existing literature is sparse regarding attrition among refugee samples, it was hypothesized that due to high risk for acute psychosocial stressors (Sangalang, 2018; Teodorescu, Heir, Hauff, Wentzel-Larsen, & Lien, 2012), refugees would have higher rates of attrition as compared with a Medicaid-insured comparison sample. However, results of this study showed that refugees and non-refugees have similar rates of overall early treatment disruption, and specific attrition within the first ten weeks and/or sessions. Compared with a non-refugee Medicaid-insured sample, refugees were significantly more likely to experience an extended gap in treatment within the first ten sessions.

After comparing rates of early treatment disruption between the refugee and non-refugee groups of clients, I investigated further the role of demographic and

psychological factors in predicting early treatment disruption among refugees only. In line with prior attrition research, results indicated that patients' increasing age was associated with a significantly lower risk of ceasing or lapsing early in therapy. Also consistent with prior research in this area, increasing education was associated with decreased risk of early treatment interruptions. Surprisingly, other demographic variables (i.e., income, English proficiency, time in the U.S.) did not predict treatment disruption. Also contrary to expectations, psychological symptoms alone were not associated with risk for treatment discontinuance. However, somatic symptoms significantly moderated the association between education and attrition. That is, for patients with relatively less education, higher levels of somatic symptoms increased risk of early treatment interruptions. For patients with relatively more education (i.e., high school education or more), higher levels of somatic symptoms decreased risk for early treatment interruption. Somatic symptoms are those best described by their physiological impact, such as heart racing, sweating, tremors, faintness, and low energy.

This research upholds prior findings linking age and education with treatment attrition. It extends the literature by introducing the interactive effect of education and somatic symptoms as an important factor in predicting treatment attendance and attrition, within a refugee sample and potentially across other groups as well. This particular finding may help explicate the previously documented connection between education and psychological treatment discontinuance—in that, among refugee clients, the effect of education may be moderated by the severity of certain symptom clusters. However, a limitation is that the findings regarding education, somatic symptoms, and attrition were significant using SEM-derived, symptom-based scales composed of Harvard Trauma

Questionnaire and Hopkins Symptom Checklist items, but not when using the typical syndrome-based scales from these measures (see Appendix A). A discussion of the comparative rates of attrition between refugees and non-refugees, as well as discussion of the effects within the refugee sample of age, education, the interaction of education and somatic symptoms, and additional predictors is presented. Theoretical and clinical implications of the findings are reviewed as well.

#### **4.2. Comparative Attrition Rates**

Prior research had not investigated whether attrition rates for refugees differed from non-refugee patients. The present study included a comparison sample of patients at the same clinic with Medicaid insurance, who were not refugees (nor asylum-seekers). Medicaid was used as a proxy for low income, due to the prevalence of low income and Medicaid insurance among the refugee sample. The comparison sample was weighted to include as many older patients as possible, and as many men as possible, to match the distribution of these demographics among the refugee patients—although complete matching on these variables was not possible. In comparing the two groups, no significant difference in combined early treatment disruption (i.e., either attrition within first ten weeks/sessions, or extended treatment gap within first ten sessions) emerged. Across the two groups, patients who terminated treatment early were likely to do so after an average of six to seven weeks of treatment. Refugees who left treatment early did so after an average of seven sessions, whereas non-refugee patients who terminated early did so significantly earlier—after an average of five sessions. Further, refugees were approximately six times more likely to experience an early treatment interruption (i.e.,

an unusually long gap—170 days or longer—between sessions within the first ten sessions). Previous research on the duration of psychotherapy for refugee patients has indicated a wide range. For example, a review by Palić and Elklit (2011) found treatment durations for non-manualized psychotherapy treatments for refugees with a range between three to 21.5 months. Most studies in this review did not provide session counts, but one trauma-focused CBT treatment study (d’Ardenne et al., 2007) reported a mean of 9.1 total sessions.

Compared with the general Medicaid sample, refugees were significantly more likely to experience gaps in early treatment. This finding may reflect differences in engagement, if perhaps those who have lapses in treatment are in fact ambivalent about therapy. It may also be an indicator of logistic challenges more common among people who are refugees, such as coordinating scheduling with an interpreter, problems navigating transportation, limited childcare, or discomfort with cold, icy winters after moving from completely different climates. Alternately, increased rates of early treatment interruption among the refugee sample could reflect efforts of the refugee clinical service to maintain clients even as they attend infrequently. For example, extended treatment gaps could indicate therapists’ efforts to follow up with refugee patients who might otherwise terminate therapy entirely without additional therapist contact.

On the other hand, when considering attrition and treatment interruption as a whole, there was no significant difference between refugees and non-refugees. This finding was contrary to the study’s hypothesis, as a differential burden of practical barriers was expected among refugee patients. Thus, one explanation is that patients in

both samples had equivalent struggles with arranging and attending appointments. Additionally, it is possible that treatment engagement is driven more by factors that would not be expected to differ only based on refugee status, such as alliance, overall psychological functioning, and therapist factors, all of which have been supported by prior research in the general population (Busmann et al., 2019; Snells-John, Mendez, & Smith, 2004).

The comparison analyses could not account for all the variables included in the main analyses. However, inclusion of the available covariates suggests that differences in distributions of age or sex between the samples do not appear to contribute to rates of treatment interruption.

### **4.3. Age and Attrition**

Within the refugee sample, older patients were slightly more likely to attend treatment regularly. Each year of age was associated with a 3-4% decrease in the risk of experiencing treatment interruption. This effect appeared most visible for the youngest clients (i.e., under age 30), who were the least likely to maintain regular attendance, and the oldest clients (i.e., over age 55), who were the most likely to maintain regular attendance through early treatment. While the strength of this effect is small, this finding was robust across analyses and conforms to prior research on samples from the general clinical population (i.e., Edmonds et al 2018). Age is one of the most commonly found predictors of dropout across clinical populations and psychotherapy types, such that older clients in general tend to stay in treatment longer (Swift & Greenberg, 2012).

Younger adults may be less engaged in treatment for several reasons. Practical concerns across the lifespan may relate to therapy attendance. Some younger adults may be clients who are still dependent on their family of origin for resources or transportation, or those who were brought to therapy by their family members. Older adults, by contrast, may benefit from having more flexibility in their schedules, and dedicated assistance from senior support services in the community. With fewer barriers to transportation and scheduling, older patients may more easily remain in therapy. However, young people are less likely to stay with therapy even when practical barriers are lessened. For example, Edmunds et al (2018) examined dropout within a trial of internet-based CBT for anxiety and depressive symptoms. They found younger age was the only significant predictor of attrition from the online CBT program. Other factors may produce the association between age and attrition. With fewer years of life experience, young adult patients may have less exposure to mental health and mental health treatment, and therefore less of a coherent motivational template for psychotherapeutic progress. Psychotherapy typically involves a certain level of short-term discomfort, such as approaching difficult emotions and thoughts, and making changes in behavior. Younger patients may have less motivation to do so. Older patients may have lower levels of social support, and therefore be more motivated by the social and instrumental support provided by their therapist (Stewart et al., 2008).

The present study replicated prior findings that younger age is associated with increased attrition and treatment disruption (Swift & Greenberg, 2012). This research suggests that within the refugee population the impact of age on early engagement in therapy parallels general clinical samples. Future research could examine the roles of

stigma, motivation, cognitions around mental health, and behavioral control on attrition from psychotherapy, to test whether these factors are indeed mediators of the age-attrition relationship.

#### **4.4. Education and Attrition**

Patients were more likely to experience lapses in early treatment with fewer years of formal education. Patients who reported no formal education were most likely to experience early interruptions to treatment. Those who had attained at least some university education were quite likely to stay in treatment with regular attendance in the first few months. The current findings regarding education echo previous studies of psychological treatments, including exposure-based treatments for post-traumatic stress. Belleau et al. (2017) examined predictors of dropout from modified Prolonged Exposure (PE) treatments for PTSD and substance use disorders. In their study, participants with less than a high school education had over twice the dropout rates as compared with those who completed at least some college, even after controlling for psychological variables. The present study suggests that this pattern of attendance is replicated within refugee samples. As within this study, Karyotaki and colleagues (2015) found that having a primary school education or less was associated with a 26% higher rate of attrition from web-based RCTs of depression treatments, compared to those with more formal school years. Along with age, education level has been consistently identified as a predictor of early attrition from psychotherapy (Swift, Greenberg, Tompkins, & Parkin, 2017).

There are several possible explanations for this association. Pragmatic advantages of education, such as literacy and fluency with written resources, may assist more

educated clients with navigating practical barriers to therapy. Tasks like arranging transportation, contacting therapists, and scheduling appointments are streamlined by some of the skills provided by formal education. Barriers to treatment attendance related to low education could be especially relevant to refugee clients, who are new to the United States and thus may have less established instrumental support networks. Conversely, refugee patients with more formal education may find scheduling an appointment, using a calendar, and finding transportation to therapy to be simpler tasks. Notably, the effect of education was significant even when controlling for income level (which was not itself a significant predictor of dropout), suggesting that the advantages afforded by education extend beyond its possible income-raising benefits.

In addition to practical concerns, interpersonal factors between the therapist and client may explain the association between education and attrition. Psychotherapy is inherently a relatively verbal treatment. CBT and Acceptance and Commitment Therapy (ACT), especially as delivered by graduate student trainee clinicians, may come across as abstract, conceptual, academic, and perhaps school-like in structure (of note, attrition rates for ACT were not found to differ significantly from other therapies in a 2018 meta-analysis by Ong, Lee, and Twohig). A client's prior experience with formal education could affect their interest in verbally-based, relatively academic therapies. For patients who are refugees, many of whom are likely unfamiliar with the Western psychotherapy culture, these aspects may be especially uncomfortable. Additionally, clinicians in academic doctoral programs may "match" on some level with clients with more formal education – such that clients with no formal education may not feel as understood or comfortable with therapists, who differ in this regard. On the therapist's part, an

educational mismatch may evoke challenges engaging clients or modifying their style appropriately. In general, evidence regarding matching of clients and therapists on demographic variables is mixed (Roos & Werbart, 2013). It is also important to acknowledge the unknown causality in driving termination for this sample. Thus, therapist effects in response to client education level may also contribute to challenges maintaining consistent early attendance.

Formal education may also serve as a proxy for aspects of cognitive functioning that enhance patients' tolerance for psychotherapy. That is, education and cognitive ability tend to be correlated (Deary & Johnson, 2010), although it is important to note that many sociocultural factors beyond the scope of this paper influence that correlation. O'Keefe, Martin, Goodyer, Wilkinson, and Midgley (2017) found that higher verbal intelligence predicted decreased dropout from therapy for adolescents, even when accounting for family, treatment, and additional client factors. The mechanisms of this effect are unclear. Psychotherapy does not necessarily require a certain level of verbal aptitude. However, clients with higher levels of verbal ability may find the "talking" aspect of therapy less difficult, providing one less frustration within the therapy process.

Additionally, formal education may serve as a proxy for familiarity with American psychotherapy, with refugee clients with more formal education perhaps more likely to find natural value in the treatments empirically validated in Western, educated samples, which focus on discussing thoughts and feelings, and have some roots in culturally-bound philosophical traditions (Summerfield, 2008). People who are refugees and have little or no formal education can, of course, also benefit from and regularly attend psychotherapy; however, this subgroup may need more culturally responsive

modification to enhance the credibility of psychotherapy and thus their motivation to attend despite barriers.

#### **4.5. Education and Somatic Symptoms**

“Somatic symptoms,” as assessed in this study, include complaints such as headaches, muscle tension, aches, and fast heartbeat, and are considered one avenue through which psychological concerns are experienced. Previous research has linked physical pain levels to conflicting results regarding attrition—with both lower pain and higher pain ratings predicting dropout (Oosterhaven, Wittink, Mollema, Kruitwagen, & Devillé, 2019). In the current study, the combination of less formal education and increased somatic symptoms predicted increased risk of early termination or treatment lapse. In particular, for those patients with less than secondary school level education, increasing somatic symptoms were associated with increased treatment interruption risk. Conversely, for those with secondary school or higher levels of education, increased somatic symptoms were associated with higher likelihood of staying in regular treatment. Somatic symptoms and chronic pain are common among refugees (Dahl, Dahl, Sandvik & Hauff, 2006; Schweitzer, Brough, Vromans & Asic-Kobe, 2011; Teodorescu et al., 2015). While discussed and considered in standard psychological assessment and treatment, these body-based symptoms may not fit well into the treatment plans or conceptualizations typically used by Western therapists outside of treatment for panic attacks or chronic pain. Thus, clinicians may not know how to engage patients in treatment when patients view their primary complaints as somatic, and providers understand patients’ primary problems as cognitive or emotional.

Patients may also feel less benefit from attendance when they do not feel understood around their somatic complaints. Qualitative research has contributed to the understanding of how somatic symptoms are communicated and understood by patients. Bäärnhielm and Ekblad (2008) conducted focus groups with diverse mental health and medical providers in Sweden, along with caregivers within immigrant families seeking treatment. Their qualitative research supported the hypothesis that creating shared understanding of medically unexplained somatic symptoms was challenging for both providers and patients in the context of immigrant health. For example, providers described a sense of frustration in their inability to help patients with such symptoms. Patients feared stigma associated with psychiatric care for their aches and pains, fearing being “crazy.” While this research was not conducted with refugees specifically, some of the same cross-cultural factors may be present in refugee mental health contexts.

However, it is notable that, in this study, somatic symptoms moderated the effect of education on attrition. Thus, these findings suggest that there is something about the combination of having substantial physiological distress and less experience with formal schooling that would lead clients to stop coming back to therapy. One explanation is that the prevailing Western clinical way of conceptualizing distress may favor cognitive, emotional, and memory explanations of distress while placing less weight on experiences like headaches, stomachaches, chest pain, and debilitating fatigue. Positing that formal education might include more understanding of psychological vocabulary, then those with more exposure to formal education may feel satisfied by the typical therapy paradigm and might attend more. On the other hand, people with a more body-based understanding of their concerns, and without the psychological vocabulary found in

formal education, may feel less engaged with therapy and thus stop attending. Although the refugee program at this particular mental health clinic was established to provide culturally responsive service, these results may suggest that a re-examination and measurement of the cultural comfort of both client and therapist would be fruitful.

The interaction between education and somatic symptoms may be partly explained by perceived treatment credibility. Those with less formal education in this sample would typically also have less exposure to psychological or psychotherapeutic constructs. At base, treatments that may be relatively credible in the cultures in which they were developed may not make intuitive sense to patients experiencing high levels of bodily symptoms who do not have previous experience thinking of these physical symptoms as psychologically related.

Treatment credibility is enhanced by having a shared understanding of the client's distress, goals, and the match between treatment and conceptualization, and may promote continued attendance. Alfonsson, Olsson, and Hursti (2016) investigated the impact of treatment-related and symptom-related predictors on dropout from an internet-based cognitive behavioral relaxation program. They found that treatment credibility significantly predicted dropout from the treatment, particularly early attrition. Thus, the degree to which patients feel that the treatment makes sense, provides an adequate solution for their problems, and feels helpful has some evidence of predicting discontinuance. Niles et al (2017) examined treatment credibility in a different way, and found that a conceptual match between client and treatment predicted less attrition. In comparing profiles of patients receiving either ACT or CBT for anxiety, they found that a combination of variables relating to increased focus on anxiety management (i.e., high

perceived control of anxiety, taking anxiety medication, lower duration in panic tolerance task, and religiosity) was associated with an increased likelihood of dropping out of CBT versus ACT for anxiety. Thus, patients' beliefs about the logical and accepted approaches to managing their concerns would impact their engagement in different treatments. It would not be expected for therapy to match with refugee patients' beliefs about somatic symptoms, recovery and mental illness, without significant attention on the therapists' part to bridging that gap. In response to observations of the need for treatments and explanations of symptoms that match refugees' lived experiences, Fondacaro and Mazzulla (2018) developed the Chronic Traumatic Stress model, which emphasizes the multiple systems and cultural experiences involved in refugees' traumatic stress experiences. At the clinic in which this study was conducted, a focus group including refugee elders from Somalia and Bhutan indicated that mental health or psychological symptoms were viewed by their cultures as "crazy" or psychotic (K. Fondacaro, personal communication, April 3, 2019). Thus, an emphasis on psychological symptoms could potentially feel stigmatizing or uncomfortable.

Finally, somatic concerns may be more associated with culturally accepted reasons to stay home instead of attending any appointment. For example, headaches and stomachaches may lead therapists and clients to favor needing to go to the doctor or needing to rest instead of attending therapy. Headaches and stomachaches, however, could as easily be expressions of feelings toward therapy as they could be indicators of illness, or be interactions of emotional and physical distress. Thus, if therapists are not attending to somatic expressions of distress, they might not be able to detect and respond to resistance in a way that furthers treatment engagement.

On the other end of the spectrum, those with high education were less likely to terminate therapy early if they had increasing somatic symptoms. One possibility is that for this group, having increased somatic symptoms was related to urgency of continuing in treatment—with severity motivating their continued engagement in psychotherapy. Escobar and colleagues (2010) examined psychological disorders and mental health service utilization among people with varying levels of medically unexplained physical symptoms. The researchers found that having at least three general physical symptoms was associated with a nearly three-fold increased likelihood of mental health service utilization in the prior 12 months. Though this study did not address attrition, it suggests that somatic symptoms may motivate treatment-seeking behavior than for patients in general. Thus, patients with high somatic symptoms and many years of formal education may be both motivated for therapy, and likely to believe that psychotherapy could help with their symptoms. Within this sample of patients from refugee backgrounds, highly educated people with high somatic symptoms were least likely to terminate therapy early. People with limited or no formal education with low somatic symptoms were second in terms of early termination risk.

These results do not imply that therapy cannot address somatic symptoms. Indeed, adaptations of traditional CBT and ACT paradigms designed to focus on chronic pain and physical symptoms have been effective across different populations. For example, Taloyan, Alinaghizadeh, and Löfvander (2013) tested a four-week cognitive-behavioral therapy program specifically designed to address pain-related symptoms among psychiatric outpatients who were first or second generation immigrants. Through providing an opportunity to discuss and reframe thoughts related to the experience of and

possible consequences for pain, the intervention led to decreased depression, pain-related worry, and reported pain. Thus, addressing the needs of patients with high levels of somatic symptoms may simply require explicit efforts to treat these complaints as paramount to other emotional and cognitive problems. For example, Hinton and colleagues (2004; 2005) have created and tested the effectiveness of a culturally adapted version of CBT, tailored specifically for Cambodian refugees and trauma-related panic symptoms they often experience.

An alternative interpretation of these findings is that elevated anxiety, rather than somatic symptoms, is responsible for the effect moderating formal education. The HSC Anxiety scale did not significantly interact with education to predict attrition; however, the somatic scale used herein included many anxiety-relevant items (e.g., “Feeling tense or keyed up,” “Heart pounding or racing”). Research in other populations suggests that anxiety is associated with increased dropout risk, even when accounting for other factors such as education and age. Karyotaki et al. (2015) examined predictors of dropout from web-based interventions for depression, using primary subject data from ten randomized controlled trials (RCTs) of self-guided depression treatment programs. Although the interactive effect of anxiety and education was not examined in that study, they found that anxiety symptoms (measured as a dichotomous presence or absence of such comorbid symptoms) were associated with an 18% increase in dropout rate. Another finding, by Belleau and colleagues (2017), highlighted the role of anxiety sensitivity in dropout risk. In examining predictors of unilateral termination from modified Prolonged Exposure (PE) treatments for PTSD and substance use disorders, they found that participants with less than a high school education had over the twice the dropout rates

compared with those who completed at least some college. Although they did not examine the interaction between education and anxiety sensitivity, they found that anxiety sensitivity—a tendency to perceive anxiety as dangerous and to avoid physiological manifestations of anxiety (Zvolensky & Forsyth, 2002)—was linked to higher dropout rates. Anxiety sensitivity was not measured in the present study, but may be one factor contributing to risk of early termination or treatment lapse among refugees.

#### **4.6. Other Findings**

Contrary to hypotheses, there were no significant effects of gender, reported English language speaking, employment, time in the United States, or income on attrition risk. These findings contradict some of the existing research on psychotherapy dropout (Swift, Greenberg, Tompkins, & Parkin, 2017). Many of the demographic predictor variables were significantly correlated with other variables in the study (See Appendix B). For example, age had a small but significant association with employment, gender, English speaking, education, and time in the United States. Education also had a small significant association with English speaking and income. Therefore, one possibility is that any relationships between additional demographic variables and attrition were subsumed or suppressed by the relationships between those demographic variables. Alternately, the findings may reflect a true lack of association between these predictors and early treatment attendance. Future research with more statistical power and isolation of these different variables (i.e., drawing from a larger sample of refugees, and ensuring more representation of different combinations of these demographic variables) may

provide more insight into the role of demographics in early treatment interruptions in refugees.

Additionally, there were no significant effects of anxiety symptoms alone, depression symptoms, and trauma symptoms on risk for treatment disruption. Prior research has linked some psychological symptoms with risk for early termination, with inconsistent directionality. For example, one study found that alcohol use significantly predicted dropout, whereas general distress decreased attrition from a college counseling center (Xiao et al., 2017). However, general measures of psychological health and functioning have been linked with attrition; for example, higher intrapsychic functionality (Rubin, Dolev, & Zilcha-Mano, 2016) and absence of personality disorder (Fassino, Pierò, Tomba & Abbate-Daga, 2009; Persons, Burns, & Perloff, 1988; Roos & Werbart, 2013) are associated with decreased risk for unilateral termination.

It is possible that these findings are more complex than these relatively straightforward analyses reveal. For example, Pfund, Peter, Whelan, and Myers (2017) examined dropout among people seeing treatment for gambling disorders at an outpatient clinic. They found that patients who completed treatment had higher levels of initial depressive symptoms, versus those who discontinued treatment early. The research on the association between symptoms and attrition suggests that too severe symptomatology predicts dropout, but simultaneously a sufficiently distressing symptom profile is necessary for the patient to be interested in attending psychotherapy. Future research with a larger sample could investigate the fit of curvilinear models relating symptoms and dropout. Other novel analytic techniques could be informative; for example, a recent

study of attrition used network analysis to determine that more tightly connected states of fatigue related to increased attrition risk (Lutz et al., 2018).

Only the interaction between education and somatic symptoms was significant in the current analyses. The interactions between education and neither depression, anxiety, posttraumatic stress, cognitive, nor avoidance symptoms were significant. It is possible that these findings reflect a true null association between these variables, wherein the specific moderating effect of education is only relevant to somatically-expressed symptoms. On the other hand, it is possible that a more complex relationship between education and psychological variables does exist and simply is not detected in the present sample. The latter possibility may be due to measurement and/or sample size limitations of this study. The current sample is unable to distinguish between these possibilities.

Additionally, the findings regarding demographic and psychological predictors were limited to a sample of people from refugee backgrounds, and comparisons between refugee and non-refugee samples were unavailable for those variables. Thus, future research would be needed to determine whether the current findings are unique to refugee samples or representative of other populations as well.

#### **4.7. Theoretical Implications**

The present study supports the findings of the existing literature by extending trends found in the general population to the refugee community. As in other groups, among refugees age and education are likely to be associated with reduced attrition from therapy. From a risk assessment perspective, other demographic factors may not strongly predict attrition from therapy or engagement in therapy. However, additional research

with larger sample sizes would be required to support the claim that demographic variables such as English speaking, gender, and time in the United States definitively do not predict attrition. Further, additional research could compare the same demographic and psychological factors between different groups—including refugees and non-refugees—to understand the differential impact of somatic symptoms and education on attrition.

The present study raises the question of the impact on therapeutic match between refugee clients and their providers. Specifically, the combined impact of somatic symptoms and minimal formal education background on psychotherapy attrition may be interpreted as an aspect of treatment credibility or fit. This study invites discussion on refugee patients' motivations for seeking treatment, staying in treatment, and/or ending therapy. As therapists spend ample time and energy developing or adopting a framework that directs their clinical decisions, this research emphasizes the importance of considering clients' own conceptualizations of their concerns, and how culture and background may influence this conceptualization. As suggested by many scholars and practitioners seeking to expand culturally-responsive treatments, it is essential that therapists and clients build a shared language—ideally one based in the clients' own schemas and culture—for describing their work, problems, and goals (Villatte, Villatte, & Hayes, 2016). Future research, both qualitative and quantitative, could examine refugees' reasons for seeking and staying in therapy, as well as their impressions of credibility of different treatment approaches. From the implementation perspective, it would be useful to examine the impact of training therapists in culturally-responsive interviewing and case formulation on refugee patients' attrition or treatment interruption.

Further, comparing attrition rates between treatments in which the therapist shares a cultural or immigration status background with the client could help explain factors that may help or hinder refugees' treatment engagement.

#### **4.8. Clinical Implications**

The findings of this study suggest that patients are not more likely to terminate treatment early based on refugee status. However, refugees may be more likely to experience early gaps in treatment, which may impair the development of a therapeutic rapport as well as general progress toward therapy goals. Future work could explore the impact of refugee patients' expectations for treatment on the tendency to experience early gaps.

In this study, both refugees and low-income clients experienced overall attrition at approximately equivalent rates. At least in this sample, barriers to treatment engagement may be similar between both groups, although the present study cannot speak to causality. It is possible that treatment engagement is more influenced by factors common to both refugee and non-refugee patients, such as motivational factors, income, age, and connection with the therapist and therapy material, than by factors more specific to the refugee experience in this particular clinic/metro area, such as language barriers, cultural differences, adjustments to from generally (sub)tropical to cold temperate climate, and discrimination.

Results of this study suggest some static vulnerability factors that therapists could use to identify clients at highest risk of stopping therapy. Refugee clients who are younger, and those with low formal education and high somatic symptoms, were more

likely to terminate treatment or experience early treatment gaps. Providing additional supports to help this group build rapport with therapists and overcome practical barriers, or reduce stigma, could be a cost-effective way to target program development funds.

Although the present study did not find evidence that somatic symptoms directly predicted treatment engagement, prior research in non-refugee samples suggests that physical complaints are associated with more mental health care utilization. Escobar and colleagues (2010) found that the negative impact of somatic symptoms was substantial whether or not such symptoms were medically explained. Physical symptoms, whether medically explained or not, are associated with more depressive, anxious, and substance abuse concerns, and with treatment-seeking (Escobar et al., 2010). In particular, having three or more physical symptoms was associated with the highest risk and service use. The presence of somatic symptoms, then, regardless of the association with these symptoms, may drive patients to seek mental health care—and potentially to continue engaging with treatment (Escobar et al., 2010). On the other hand, Carosella, Lackner, & Feuerstein (1994) found that higher levels of somatization were associated with increased likelihood of attrition from a back pain work rehabilitation intervention—suggesting that physical symptoms may also impair treatment engagement. Additionally, any positive effect of somatic symptoms on care-seeking could be moderated by the reinforcement provided by the therapy; that is, whether patients continued to feel or anticipate relief from their distressing symptoms throughout treatment. Education would understandably impact patients' explanations of the causes of and treatments for their distress. Clients with more formal education and somatic symptoms may more naturally engage in Western academic psychotherapy, whereas those with less formal education and physical

complaints may need psychotherapy more directly targeting somatic experiences of distress. They may be best served by therapists who are willing to explore their physical complaints, and they may benefit from more orientation to or psychoeducation about the connection between physiology and mental health. Likewise, therapists working with refugee patients who have little formal education may require more education about mind-body therapies and cross-cultural expressions or experiences of distress. Within systems serving refugees, integration of multidisciplinary providers who could also address physical symptoms and chronic pain (e.g., physical therapists, yoga or tai chi instructors, and primary care providers).

There is some evidence from a study by Chen and colleagues (2017) to suggest specific ways that U.S. therapists may respond differently than “collectivist” therapists (e.g., therapists from China). For example, U.S. therapists in their study were more prone to establishing clear and realistic goals and to seeking client’s feedback about the therapeutic process. Collectivistic therapists more frequently discussed the therapeutic relationship, assigning homework, being empathetic with clients and family, achieving goals, and staying in contact with clients between sessions. Although the current research did not address these variables, cultural differences related to collectivism could explain some of the differences in attrition.

However, it is important to note that predictors of therapy engagement are not the same as predictors of treatment gains and improvement. Thus, future research could examine whether improvements in attrition among refugees are also accompanied by greater symptom reduction and/or increased functioning.

#### 4.9. Limitations

An important limitation of the findings is that the significant interaction of education and somatic symptoms was not found for the related anxiety syndrome scale. The effect of education alone was also not significant in the analyses using the HTQ and HSC syndrome scales (versus the ESEM scales). One possibility is that the specific separation of symptoms by type rather than syndrome more accurately captures the fit between therapy and client that could drive attrition. It may also be that given the multiple analyses conducted, the findings regarding the interaction between somatic symptoms and education are spurious.

Additionally, some limitations of measurement impact the findings. The research was correlational in nature, and therefore cannot explain the causes of the effects of age, education, and somatic symptoms. As I did not measure symptoms over time, I do not know whether somatic symptoms at intake are related to somatic symptoms at the time of attrition. Further, attrition was measured using somewhat arbitrary cutoffs, rather than using client or therapist report. Therefore, estimates of attrition are likely biased.

A growing body of evidence describes therapist and alliance contributions to attrition from psychotherapy—and these factors were not included in the present study. For example, therapists who have an interpretive and confrontational style early on in treatment are perceived as unsympathetic and hostile (Crits-Cristoph & Connolly Gibbons, 2001; Hilsenroth & Cromer, 2007), leading to a higher risk for attrition. Additionally, clients who terminated therapy unilaterally have described therapy experiences characterized by passivity, indifference, lack of sympathy, low validation and support, insufficient information about treatment, and subsequent withholding of

feelings from their therapists (Kolb, Beutler, Davis, Crago, & Shanfield, 1985; Mohl, Martinez, Ticknor, Huang, & Cordell, 1991; Reis & Brown, 1999). On the other hand, therapists who provided concrete support, provided clients with reminders about appointments, were available between sessions, and provided feedback and encouragement, had lower rates of attrition (Ogrodniczuk, Joyce, & Piper, 2005; Shamir, Szor, & Melamed, 2010; Shoffner, Staudt, Marcus, & Kapp, 2007). Regarding the impact of cultural differences on alliance, there is some evidence to suggest that therapists' behaviors can be modified to increase clients' sense of connection and understanding when there is a cultural difference present (Maramba and Nagayama Hall, 2002; Roos and Webart, 2013). Unsurprisingly, overt discrimination or biased remarks are likely to increase attrition (Hatchett & Park, 2004; Nysaeter, Nordahl, & Havik, 2010). However, these same researchers found that more subtle indicators of misunderstanding (e.g., therapists' tone of voice) were also associated with increased attrition.

Therapist effects on dropout were not measured in this study. Other research that has investigated the contribution of therapist effects (i.e., variance explained by the therapist assigned) has found that therapists account for 5-13% of the variance in therapy attrition. For example, one study of attrition from a college counseling center estimated therapist effects on dropout to be around 10% (Xiao et al., 2017). Another review found that, across a range of studies, therapist effects appear to be around 5-8% (Lutz, Leon, Martinovich, Lyons, & Stiles, 2007; Saxon & Barkham, 2012). It is expected that a similar effect may be operating in the present study. Future research including therapist-level effects could elucidate the degree to which the effects found in the current research are robust to variability in provider style. For example, does the effect of education still

hold when controlling for therapists, or does education serve as a proxy for client-therapist match in style, culture, and manner of framing the treatment framework and goals?

Alliance-building may be enhanced by both client and therapist factors (Gulum, Soygut, and Safran, 2016). Clients who are more internally stable, form healthy attachments easily, and have normative levels of personality problems are more likely to develop a healthy relationship with a therapist, perhaps in part because therapists may feel more comfortable with such clients. (Ross & Werbart, 2013). The present study did not include any assessment of personality functioning, attachment, or relationships. In general, personality functioning is understudied in refugees, and indeed diagnostic formulations based in Western psychiatric theory may not map as well onto refugee clients' symptomatology. Additionally, most refugee therapy relationships also included an in-person or telephone interpreter—a third person who would certainly contribute to the process of establishing trust and alliance within the treatment setting.

Additionally, although the findings on somatic symptoms and education suggest a role of treatment credibility or working alliance in attrition, I did not measure this connection across treatment or within each session, nor did I investigate therapists' attempts to recognize and repair any ruptures related to somatic symptoms and/or education. Within the refugee sample, ways of talking about and handling problematic issues may be especially relevant or salient for client-therapist dyads in which there are cultural and linguistic differences. Such differences may lead to problems both in detecting and responding to potentially challenging concerns within the therapeutic process. However, it is unclear whether these effects would mediate the effects of age,

education, or the education/somatic symptoms interaction on attrition. Future research could investigate how treatments, session-by-session interventions, and somatic symptom improvement trajectories predict attrition in the refugee population.

Clinical experience with the clients who participated in this research suggests the impact of supporting community members in keeping clients engaged in treatment and attending regularly. Community members, such as interpreters, case managers at local refugee support organizations, and clients' relatives are often instrumental in reminding clients to attend sessions, providing transportation, encouraging clients to persevere through initial fears about attending therapy, and alleviating other pressing stressors such as food or housing instability. Clients' community resources were not measured in the present study, and future research would do well to assess the impact of such support and assistance on attrition and engagement.

Swift, Spencer, and Goode (2018) highlight the need for consistent measurement of psychotherapy attrition, as a range of metrics have been used throughout the literature. The measurement used in the present study is somewhat unusual, as the clients' intention regarding termination is unknown. The early portion of treatment, however, may be when unilateral termination is most likely to occur. For example, Pfund, Peter, Whelan, and Myers (2017) found that most treatment discontinuance was during the first eight sessions of treatment. Further, a substantial portion of dropout occurred between the initial evaluation and treatment sessions, suggesting the importance of examining early treatment.

#### **4.10. Strengths of Study Design**

As noted, this is the first study to my knowledge to investigate both rates and correlates of attrition within the refugee population. Thus, the research provides preliminary data regarding treatment attendance among refugees, and may spark further research questions. It is hoped that future research would include additional therapy-relevant factors such as working alliance. Further, the research examines the role of many different conceptual risk factors for attrition, including psychological symptoms such as trauma, depression, and anxiety, psychological risk factors such as experiential avoidance, and socioeconomic risk factors such as income, family size, time since arrival in the United States, and education. It is hoped that the inclusion of these factors, which are relevant both to the general population and to refugees in particular, expands the extant literature on refugees and sparks further research questions about providing accessible and helpful care to refugees. An additional strength of the study was the setting of a community clinic, providing the opportunity for naturalistic observation of discontinuation of treatment among refugees who are voluntarily seeking services. The study provides important and necessary data on attrition among refugees from a number of different ethnic groups at a community clinic, which it is hoped will serve as a foundation for future research in this area.

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## **APPENDIX A: REVISED SUBSCALES**

The Harvard Trauma Questionnaire (HTQ) and Hopkins Symptom Checklist (HSC) are measures of posttraumatic stress, depression, and anxiety that have been validated within refugee populations. Examination of the item content suggested some items capturing somatic/physiological distress, and others tapping into cognitive distress, trauma-related intrusions, and avoidance symptoms. To account for observed item content of these measures, the factor structure of these psychological variables was also examined using structural equation modeling (SEM).

Five competing models were examined for item and model fit. Both confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM) were employed. ESEM is an extension of SEM that addresses some of the limitations of traditional confirmatory factor analysis (CFA) approaches (Asparouhov & Muthen, 2009). For example, it allows indicators to cross-load on all factors, addressing problems of factor distortion and inflated factor correlations. ESEM thus reduces the influence of spurious item effects on overall factor structure, while still providing traditional SEM parameters and factor rotation (Asparouhov, & Muthen, 2009; Morin, Arens, & Marsh, 2016).

Analyses were conducted using Mplus version 7.31 (Muthén & Muthén, 1998-2012). The Mplus estimator maximum likelihood estimation with robust standard errors (MLR) was employed for all measurement and structural modeling, as this method adequately handles missing data (Graham, 2009, Muthén & Muthén, 1998-2012) and violations of normality typical to psychometric data (Muthén & Muthén, 1998-2012). Models were evaluated using established criteria. CFI and TLI values of .90 and .95 represent good and excellent model fit, respectively (Hu & Bentler, 1999), RMSEA

values less than .08 and .06 represent good and excellent model fit, respectively (Browne & Cudeck, 1992), and SRMR values less than .08 represent acceptable model fit (Hu & Bentler, 1999). Additionally, model fit was examined at the parameter level, with standardized factor loadings at or above .400 considered substantial and significant factor loadings below .400 considered minor. All factor loadings were expected to be in the positive direction, due to consistent wording of item content across the four included measures.

The original HTQ total, HSC anxiety, and HSC depression scales were modeled using both CFA and ESEM; these were compared with a 1-factor CFA (with a single psychological distress factor), and with two empirically-derived factor structures. First, items were grouped by item content, such that factors representing somatic, cognitive, avoidance, and interpersonal symptoms from both scales were created. These were then submitted to ESEM, wherein target factor loadings were specified for each item. Thereafter, items without a standardized factor loading of at least .400 on any scale were dropped, and the analysis was run again. Following these modifications, the four subscales emerged with the themes of somatic, cognitive, avoidance, and general post-traumatic stress. The interpersonal problems subscale, after factor analysis and item removal, included items centered generally on hypervigilance and problems with concentration and memory (e.g., “Feeling on guard,” “Poor memory”). Altogether, five models were compared based on item loading and model fit. The best fitting models were not nested, negating the possibility of chi-square model comparisons. Model fit statistics are displayed in Table 6.

**Table 6: Measurement model fit comparisons**

| Model                 | $\chi^2$ | p     | df   | CFI   | TLI   | RMSEA [90% CI]       | SRMR  |
|-----------------------|----------|-------|------|-------|-------|----------------------|-------|
| (1) 1-factor CFA      | 2806.87  | <.001 | 1430 | 0.695 | 0.684 | 0.072 [0.068, 0.075] | 0.078 |
| (2) 3-factor CFA      | 2442.81  | <.001 | 1427 | 0.775 | 0.766 | 0.062 [0.057, 0.066] | 0.069 |
| (3) 3-factor ESEM     | 2063.65  | <.001 | 1272 | 0.820 | 0.798 | 0.058 [0.053, 0.062] | 0.053 |
| (4) ESEM (item cont.) | 529.49   | <.001 | 374  | 0.926 | 0.902 | 0.047 [0.037, 0.056] | 0.042 |
| (5) Modified ESEM     | 417.27   | <.001 | 296  | 0.939 | 0.916 | 0.047 [0.036, 0.057] | 0.030 |

*Notes.* CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; AIC = Aikake Information Criteria, BIC = Bayesian Information Criteria

Overall, the ESEM theoretically-driven scale, modified by dropping items with low factor loadings, had the best model fit in terms of the criteria established. Cronbach's alphas for the four scales were acceptable to good (somatic:  $\alpha = .88$ ; cognitive:  $\alpha = .89$ ; avoidance:  $\alpha = .74$ ; post-traumatic stress:  $\alpha = .85$ ). Most factors were significantly correlated. The cognitive factor was significantly associated with post-traumatic stress ( $r = .632, p < .001$ ), somatic ( $r = .599, p < .001$ ), and avoidance symptoms ( $r = .343, p = .008$ ). The somatic factor was significantly associated with post-traumatic stress ( $r = .460, p < .001$ ), but not with avoidance symptoms ( $r = .193, p = .151$ ). The post-traumatic stress and avoidance factors were significantly correlated ( $r = .473, p < .001$ ). Factor loadings for that model for all items are displayed in Table 7. Factor scores from the final ESEM model were used as psychological predictors in one of the two analyses predicting refugee attrition from psychotherapy.

**Table 7: Factor loadings from final revised scales**

| Item    | Item Text   | Somatic      |                | Cognitive    |                | Avoidance    |                | Traumatic Stress |                |
|---------|---|--------------|----------------|--------------|----------------|--------------|----------------|------------------|----------------|
|         |   | $\lambda$    | SE             | $\lambda$    | SE             | $\lambda$    | SE             | $\lambda$        | SE             |
| HSC A5  | Heart pounding or racing  | <b>0.711</b> | <b>0.146**</b> |              |                |              |                |                  |                |
| HSC A3  | Faintness, dizziness, or weakness   | <b>0.659</b> | <b>0.101**</b> |              |                |              |                |                  |                |
| HSC A4  | Nervousness or shakiness inside   | <b>0.624</b> | <b>0.109**</b> |              |                |              |                |                  |                |
| HSC D11 | Feeling low in energy, slowed down  | <b>0.540</b> | <b>0.116**</b> | 0.334        | 0.109*         |              |                |                  |                |
| HSC A8  | Headaches   | <b>0.489</b> | <b>0.168*</b>  |              |                |              |                | 0.384            | 0.153*         |
| HSC A6  | Trembling   | <b>0.421</b> | <b>0.146*</b>  |              |                |              |                |                  |                |
| HSC A7  | Feeling tense or keyed up   | <b>0.421</b> | <b>0.127*</b>  |              |                |              |                |                  |                |
| HSC D19 | Feeling lonely  |              |                | <b>0.722</b> | <b>0.141**</b> |              |                |                  |                |
| HSC D17 | Feeling hopeless about future   |              |                | <b>0.710</b> | <b>0.136**</b> |              |                |                  |                |
| HSC D12 | Blaming yourself for things   |              |                | <b>0.710</b> | <b>0.155**</b> |              |                |                  |                |
| HSC D22 | Worry too much about things   |              |                | <b>0.709</b> | <b>0.123**</b> |              |                |                  |                |
| HSC D18 | Feeling blue  |              |                | <b>0.623</b> | <b>0.146**</b> |              |                |                  |                |
| HSC D25 | Feeling of worthlessness  |              |                | <b>0.548</b> | <b>0.130**</b> |              |                |                  |                |
| HSC D13 | Crying easily   |              |                | <b>0.444</b> | <b>0.165*</b>  |              |                |                  |                |
| HSC A10 | Feeling restless or can't sit still   | 0.376        | 0.110*         | <b>0.425</b> | <b>0.132*</b>  |              |                |                  |                |
| HSC A2  | Feeling fearful   | 0.332        | 0.118*         | <b>0.408</b> | <b>0.121*</b>  |              |                |                  |                |
| HSC D15 | Poor appetite   | 0.258        | 0.130*         | 0.399        | 0.141*         |              |                |                  |                |
| HSC D16 | Difficulty falling asleep, staying asleep                                     |              |                | 0.352        | 0.173*         |              |                |                  |                |
| HTQ 15  | Avoiding thoughts or feelings associated with the traumatic or hurtful events |              |                |              |                | <b>0.883</b> | <b>0.416*</b>  |                  |                |
| HTQ 11  | Avoiding activities that remind you of the traumatic or hurtful event         |              |                |              |                | <b>0.509</b> | <b>0.102**</b> | 0.257            | 0.107*         |
| HTQ 10  | Feeling irritable or having outbursts of anger                                |              |                |              |                |              |                | <b>0.758</b>     | <b>0.277*</b>  |
| HTQ 5   | Unable to feel emotions   |              |                |              |                |              |                | <b>0.667</b>     | <b>0.198*</b>  |
| HTQ 7   | Difficulty concentrating  |              |                |              |                |              |                | <b>0.623</b>     | <b>0.136**</b> |
| HTQ 9   | Feeling on guard  |              |                |              |                |              |                | <b>0.622</b>     | <b>0.122**</b> |
| HTQ 26  | Feeling unable to make daily plans  |              |                |              |                |              |                | <b>0.589</b>     | <b>0.175*</b>  |
| HTQ 22  | Poor memory   |              |                |              |                |              |                | <b>0.530</b>     | <b>0.165*</b>  |
| HTQ 17  | Feeling that you have less skills than you had before                         |              |                |              |                |              |                | <b>0.514</b>     | <b>0.234*</b>  |
| HTQ 4   | Feeling detached or withdrawn from people                                     |              |                |              |                | 0.283        | 0.142*         | <b>0.443</b>     | <b>0.116**</b> |
| HTQ 30  | Feeling ashamed of the hurtful or traumatic events that have happened to you  |              |                |              |                |              |                | <b>0.411</b>     | <b>0.170*</b>  |

Note. Factor loadings ( $\lambda$ ) > .400 are displayed in bold; factor loadings of target items for each factor are italicized. Only statistically significant factor loadings > .200 are displayed. Item HSC A4's target factor was Cognitive; item HSC D16's target factor was Somatic.

## APPENDIX B: ADDITIONAL ASSOCIATIONS

Table 8: Chi-square associations between categorical variables

|                                     |                              | $X^2$ (1) | N   | <i>p</i> |
|-------------------------------------|------------------------------|-----------|-----|----------|
| <b>Refugee Group Only</b>           |                              |           |     |          |
| <b>Sex</b>                          | English Speaking             | 1.14      | 193 | .285     |
|                                     | Employed                     | 5.24      | 193 | .022*    |
| <b>English Speaking</b>             | Employed                     | 10.95     | 194 | .001*    |
| <b>Attrition 10 weeks</b>           | Sex                          | 0.62      | 152 | .431     |
|                                     | English Speaking             | 0.12      | 153 | .733     |
|                                     | Employed                     | 0.08      | 153 | .783     |
| <b>Attrition within 10 sessions</b> | Sex                          | 1.98      | 152 | .160     |
|                                     | English Speaking             | 0.24      | 153 | .624     |
|                                     | Employed                     | 0.49      | 153 | .483     |
| <b>Gap within 10 sessions</b>       | Sex                          | 2.29      | 152 | .130     |
|                                     | English Speaking             | 0.03      | 153 | .860     |
|                                     | Employed                     | 1.70      | 153 | .192     |
| <b>Comparison Group Only</b>        |                              |           |     |          |
| <b>Sex</b>                          | Attrition within 10 weeks    | 0.76      | 164 | .385     |
|                                     | Attrition within 10 sessions | 0.67      | 164 | .412     |
|                                     | Gap within 10 sessions       | 0.29      | 164 | .592     |

\*  $p < .05$

**Table 9: Correlations between study variables (displayed on following page)**

|                                  | 1                     | 2                     | 3                   | 4                    | 5                    | 6                      | 7                     | 8                    | 9                     | 10                    | 11                    | 12                     | 13            | 14                    | 15                    | 16                    | 17                    | 18             | 19             |
|----------------------------------|-----------------------|-----------------------|---------------------|----------------------|----------------------|------------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|------------------------|---------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------|----------------|
| (1) Session Count                |                       | <b>.90**</b><br>(155) | -                   | -                    | -.12<br>(145)        | -.08<br>(165)          | -.06<br>(145)         | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (2) Days Count                   | <b>.80**</b><br>(155) |                       | -                   | -                    | .00<br>(145)         | -.08<br>(165)          | -.01<br>(164)         | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (3) Session Count if Early Term. | -                     |                       |                     | <b>.44**</b><br>(78) | .30*<br>(58)         | .11<br>(78)            | -.16<br>(78)          | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (4) Days Count if Early Term.    | -                     | -                     | .07<br>(84)         |                      | <b>.41**</b><br>(58) | <b>.01</b><br>(78)     | -.02<br>(78)          | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (5) Days btw. Sessions           | <b>-.16*</b><br>(149) | <b>-.22*</b><br>(149) | .20<br>(78)         | -.15<br>(78)         |                      | <b>.05</b><br>(145)    | .05<br>(144)          | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (6) Age                          | .13<br>(149)          | .10<br>(149)          | -.09<br>(81)        | <b>-.31*</b><br>(81) | .07<br>(144)         |                        | -.10<br>(164)         | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (7) Sex                          | .00<br>(152)          | -.03<br>(152)         | <b>.23*</b><br>(82) | -.31<br>(81)         | .11<br>(147)         | <b>-.22**</b><br>(189) |                       | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (8) Months in US                 | .09<br>(149)          | .01<br>(149)          | .04<br>(80)         | .02<br>(80)          | -.08<br>(144)        | <b>.22**</b><br>(184)  | -.04<br>(187)         | -                    | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (9) Household Income             | .01<br>(103)          | .05<br>(103)          | -.07<br>(53)        | -.13<br>(53)         | .02<br>(99)          | .07<br>(123)           | -.16<br>(126)         | .28<br>(124)         | -                     | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (10) Education                   | .10<br>(144)          | .07<br>(144)          | .05<br>(79)         | .17<br>(79)          | -.18<br>(139)        | -.37<br>(176)          | -.07<br>(180)         | -.01<br>(175)        | -.14<br>(119)         | -                     | -                     | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (11) Employed (Y/N)              | -.06<br>(153)         | .04<br>(153)          | 0.02<br>(82)        | .00<br>(82)          | -.16<br>(148)        | <b>-.32**</b><br>(189) | <b>-.17*</b><br>(193) | .11<br>(188)         | <b>.27**</b><br>(126) | .10<br>(181)          |                       | -                      | -             | -                     | -                     | -                     | -                     | -              | -              |
| (12) English (Y/N)               | .09<br>(153)          | .02<br>(153)          | <b>.23*</b><br>(82) | .14<br>(82)          | -.08<br>(148)        | <b>-.36**</b><br>(189) | -.08<br>(193)         | .07<br>(188)         | -.01<br>(181)         | <b>.50**</b><br>(181) | <b>.24**</b><br>(194) |                        | -             | -                     | -                     | -                     | -                     | -              | -              |
| (13) Torture Survivor            | -.04<br>(145)         | .05<br>(145)          | -.08<br>(76)        | .15<br>(76)          | .09<br>(141)         | <b>.16*</b><br>(178)   | .04<br>(182)          | -.10<br>(177)        | -.09<br>(118)         | <b>-.16*</b><br>(170) | -.02<br>(183)         | <b>-.20*</b><br>(183)  |               | -                     | -                     | -                     | -                     | -              | -              |
| (14) HTQ DSM IV                  | <b>.19*</b><br>(118)  | .10<br>(118)          | .06<br>(60)         | .11<br>(60)          | -.14<br>(114)        | -.02<br>(145)          | .08<br>(149)          | <b>.22*</b><br>(145) | -.03<br>(94)          | .08<br>(140)          | -.05<br>(150)         | -.17<br>(150)          | .16<br>(143)  |                       | -                     | -                     | -                     | -              | -              |
| (15) HSC Depression              | <b>.22*</b><br>(127)  | .16<br>(127)          | .09<br>(67)         | -.04<br>(67)         | -.06<br>(123)        | -.02<br>(161)          | .13<br>(165)          | .14<br>(162)         | -.05<br>(108)         | .04<br>(155)          | -.06<br>(166)         | -.12<br>(166)          | .12<br>(156)  | <b>.68**</b><br>(144) |                       | -                     | -                     | -              | -              |
| (16) HSC Anxiety                 | <b>.23*</b><br>(129)  | <b>.18*</b><br>(129)  | .04<br>(68)         | -.03<br>(68)         | -.07<br>(125)        | .06<br>(163)           | .13<br>(167)          | .09<br>(163)         | -.04<br>(110)         | -.11<br>(157)         | -.07<br>(168)         | <b>-.27**</b><br>(168) | .13<br>(158)  | <b>.71**</b><br>(145) | <b>.77**</b><br>(165) |                       | -                     | -              | -              |
| (17) ESEM Somatic                | <b>.19*</b><br>(148)  | <b>.17*</b><br>(148)  | .05<br>(80)         | -.07<br>(80)         | -.01<br>(143)        | .13<br>(183)           | .13<br>(187)          | .11<br>(182)         | .04<br>(121)          | <b>-.14*</b><br>(175) | <b>-.15*</b><br>(188) | <b>-.31**</b><br>(188) | .06<br>(177)  | <b>.59**</b><br>(150) | <b>.72**</b><br>(166) | <b>.94**</b><br>(168) |                       | -              | -              |
| (18) ESEM Cognitive              | <b>.20*</b><br>(148)  | .14<br>(148)          | .09<br>(80)         | -.07<br>(80)         | -.08<br>(143)        | .02<br>(183)           | .13<br>(187)          | .13<br>(182)         | -.08<br>(121)         | .01<br>(175)          | -.07<br>(188)         | -.06<br>(188)          | .12<br>(177)  | <b>.70**</b><br>(150) | <b>.97**</b><br>(166) | <b>.79**</b><br>(168) | <b>.70**</b><br>(188) |                | -              |
| (19) ESEM Avoidance              | .14<br>(148)          | .05<br>(148)          | .12<br>(80)         | .14<br>(80)          | -.14<br>(143)        | .03<br>(183)           | .03<br>(187)          | .20*<br>(182)        | -.01<br>(121)         | .09<br>(175)          | -.01<br>(188)         | .03<br>(188)           | .17*<br>(177) | .65**<br>(150)        | .39**<br>(166)        | .41**<br>(168)        | .27**<br>(188)        | .42**<br>(188) |                |
| (20) ESEM Trauma                 | .14<br>(148)          | .06<br>(148)          | .00<br>(80)         | -.07<br>(80)         | -.06<br>(143)        | -.01<br>(183)          | .16*<br>(187)         | .20*<br>(182)        | -.10<br>(121)         | .02<br>(175)          | -.05<br>(188)         | -.12<br>(188)          | .21*<br>(177) | .91**<br>(150)        | .71**<br>(166)        | .68**<br>(168)        | .56**<br>(188)        | .73**<br>(188) | .56**<br>(188) |

Refugee sample is shown below the diagonal, and comparison group above the diagonal. \*  $p < .05$ , \*\*  $p < .001$