Characteristics, Functions, and Body Investment of Non–Suicidal Self–Injury in Individuals of Middle Eastern and European Ethnicity

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Abstract

The objective of the study was to investigate differences in non–suicidal self–injury (NSSI) characteristics, NSSI functions, and body investment for individuals of Middle Eastern and European descent recruited from Middle Eastern countries, Canada, and the United States. Individuals who did not have a history of NSSI served as control groups. A total sample of 649 participants completed an online questionnaire that consisted of a demographics background section which also contained questions about NSSI during the COVID-19 pandemic, the Body Investment Scale (BIS), Marlowe–Crowne Social Desirability Scale, the Deliberate Self–Harm Inventory, and the Inventory of Statements About Self–Harm (ISAS). The findings showed body investment to be negatively correlated with NSSI severity. Analyses based on groups (n = 80) matched on sex, gender, age, education, and socioeconomic status were carried out. Among self–injurers, those of Middle Eastern descent endorsed higher levels of body care and comfort with physical touch than those of European descent. Examination of effect size showed that self–injurers endorsed body investment more strongly than non–self–injurers, and that this was more prominent among those of Middle Eastern descent. Effect size also showed that self–injurers of European descent endorsed the NSSI functions more strongly than self–injurers of Middle Eastern descent. Finally, fewer than half of self–injurers continue to hurt themselves during the COVID-19 pandemic, and for those who did, they hurt themselves more frequently and more severely. It was reported that they self–injured for the same reasons as before the pandemic, and they took more time to act on their desire to self-injure.

Keywords: Non–suicidal self–injury, body investment, NSSI severity, NSSI functions, Middle East.

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Introduction

Non–suicidal self–injury (NSSI) refers to the self–inflicted and deliberate destruction of bodily tissue that occurs in the absence of suicidal intent (Klonsky, 2007) and for reasons that are not socially sanctioned (Nock & Favazza, 2009). It is widely considered to be a maladaptive coping behaviour that is used to relieve psychological distress (Walsh, 2012). NSSI can manifest in many different behaviours, the most common of which is cutting (Klonsky, 2007). Other methods of NSSI include biting, abrading, severing, inserting, burning, ingesting or inhaling harmful substances, hitting, constricting, interfering with wound healing, or breaking bones (Favazza, 1998; Gratz, 2001; Ross & McKay, 1979). Some studies have observed differences in the types of NSSI methods between men and women. Women were more likely to endorse behaviours such as scratching, cutting, carving, and wound interference, whereas men were more likely to endorse behaviours such as punching, hitting, burning the skin, and head banging (Barrocas et al., 2012; Sornberger et al., 2012; Whitlock et al., 2006; Whitlock et al., 2011). More recent, however, Victor et al. (2018) found no sex differences in the types of methods of NSSI.

In an epidemiological study on NSSI, Gandhi and colleagues (2018) found ages 14 and 15 to be the most common age of onset for NSSI. Ages 18 to 20 were the second most reported ages of onset for NSSI (Gandhi et al., 2018; Whitlock et al., 2011). Ammerman and colleagues (2018) found that individuals who began to self–injure at or prior to age 12 had higher numbers of lifetime NSSI incidents and related hospital visits. A younger age of onset was also associated with a higher number of NSSI methods (Somer et al., 2015). Another study by Muehlenkamp and colleagues (2018) found that NSSI onset at or prior to age 17 was associated

with a higher number of NSSI incidents, methods, and medically severe NSSI. Taken together, NSSI onset during adolescence may be associated with more severe NSSI behaviour.

Among adolescent populations, NSSI prevalence ranges from 7.5% to 46.5% (Cipriano et al., 2017). A meta–analysis of children and adolescents found the lifetime and 12–month prevalence of NSSI to be 22.1% and 19.5% respectively (Lim et al., 2019). NSSI is prevalent in 38.9% of university students and 4% to 23% of adults (Cipriano et al., 2017). Lifetime prevalence rates of NSSI among nonclinical samples have been reported to range from 21% (Gandhi et al., 2020) to 24% (Horváth et al., 2020). Among clinical samples, lifetime prevalence rates have ranged between 17% (Gandhi et al., 2020) to 53% (Horváth et al., 2020). A study by Gregg and colleagues (2018) showed that among adult veterans suffering from posttraumatic stress, NSSI prevalence was 83.7% among young adults and 68% among adults 60 years of age or older. NSSI among older adults was related to an increased suicide risk than among younger adults (Gregg et al., 2018).

Conceptual Perspectives of NSSI

This section provides an overview of how different acts of non–suicidal self–injury have been and are currently defined. It will cover religious, psychodynamic, and psychiatric perspectives of NSSI.

Religious Perspectives

NSSI is a universal, social, and psychological manifestation that is rooted in religious and cultural practices (Favazza, 1987). Historically, self–injury was believed to serve a divine purpose, either for the individual or a community (Favazza, 1996). Girard (1977) believed that self–sacrifice is rooted in religious practices and individuals often turn to religion to cope with the angst of everyday life. Self–injurers frequently ascribe religious sentiments and convictions

behind their self–injury (Favazza, 1996). This relationship is not surprising, considering that both NSSI and religious ideologies throughout history have included notions that fulfillment can be achieved through bloodshed and self–sacrifice (see below). Sacrificing the body to achieve redemptive suffering is a phenomenon that has evolved alongside humanity (Farber, 2003).

According to Favazza (1996), for some individuals, the scarification that results from self–inflicted injuries may symbolize physiological and/or psychological healing. A symbolic example of this is seen in the crucifixion of Jesus Christ, found in the book of Hebrews (9:22) in the New Testament of the Christian Bible, which says that forgiveness requires the shedding of blood. Christ's blood is believed to be a holy entity capable of atoning for the sins of all humankind. Consequently, an individual's control over their mortality can be symbolized through NSSI and bloodshed by alluding to the desire of achieving atonement through emulating Christ's suffering. Control over mortality is considered a form of healing that allows an individual to gain power and invoke redemptive cleansing (Strong, 1998).

The first published medical article on self–mutilation (Bergmann, 1846), described a middle–aged, manic–depressive widow who self–injured as a way of self–punishment for sexually immoral sins. The woman was subsequently hospitalized after she was reported to have disrobed in public and asked men passing by to marry her. After she became cognizant of her actions, she wanted to enucleate herself after reading the following passage in the New Testament of the Bible, "if your right eye causes you to stumble, gouge it out and throw it away" (Matthew 5:29). She also asked her doctor to cut off her legs. She believed that she must shed blood as Christ shed his in order to rid herself of her sins and become saintly (Bergmann, 1846).

Many current religious and cultural traditions involve NSSI. Despite the clear prohibition of suicide and self–injury in Islam (Quran, 2:195), a minority of Shiite Muslims

mourn the martyrdom of Husayn ibn Ali by engaging in self–flagellation ceremonies through the use of chains, whips, or swords (Baasher, 2001). The Orthodox Christians on the small island of Tinos, Greece, engage in an annual kilometre–long pilgrimage every August 15th to celebrate the Dormition of the Virgin Mary at the church of Our Lady of Tinos (Håland, 2012). The ceremony requires individuals to crawl up a steep road to the church, in extremely hot weather, until they touch the holy icon of the Virgin Mary (Håland, 2012). The worshippers do this on their bare skin, often resulting in blood coating the roads (Håland, 2012). However, despite the grueling nature of the process, the healing power of the Virgin Mary is believed to overcome any pain individuals may experience (Håland, 2012).

Another example of NSSI in religious practices can be seen in the Hindu festival of Thaipusam, where individuals commemorate Muruga, the god of war (Mellor et al., 2012). As described by Mellor et al. (2012), individuals enter a trance–like state during this pilgrimage. They have skewers or other sharp objects pushed through their cheeks and tongues. Some of them also carry a heavy canopy of wood and metal which is carried up hundreds of steps to the temples. The canopy's weight symbolizes the burden carried by the individual and what they aim to achieve, which can include spiritual enlightenment, overcoming bad karma, or to give penance. It is believed that the pain experienced during the acts of self–injury positively correlate with the merit earned from Muruga.

Psychodynamic Perspectives

According to Freud (1905), "every pain contains in itself the possibility of a pleasurable sensation" (p. 26). Freud (1920) believed that all humans were born with opposing life and death instincts that represent the constructive (i.e., loving) and destructive (i.e., hating) tendencies of the personality. These forces are originally directed inwards, and as the individual's personality

grows and develops, the forces are then directed outwards towards other objects. Failure to develop means an incomplete turning outward of the self–directed destructiveness and constructiveness and might end up with such individuals engaging in self–destructive acts in times of stress. This theory was further developed by Menninger (1934) who described "localized self–destruction" (i.e., NSSI) as stemming from strong and unconscious motivations to kill, to be killed, and to die. These motivations can be satiated through partial suicide attenuated in either time (e.g., slow starvation) or space (e.g., injuring different parts of the body, insufficient to result in death). The latter is what Menninger (1934) deemed as focal suicide, or "localized self–destruction."

In Menninger's *Man Against Himself* (1938), self–injury was described as a behaviour that relieves suicidal impulses and as a method of self–punishment. In the book, he argued that the mechanism behind NSSI in this instance is the same as suicide, where the hate felt towards an external object is redirected back towards the self and results in self–punishment. However, while the mechanism is the same, NSSI differs from suicide because there is no wish to die. Menninger's explanation of NSSI as self–punishment builds on Freud's (1921) theory of introjection, which involves the internalization of other's beliefs by an individual. Menninger (1938) also made a distinction between "psychotic" and "neurotic" self–injurers. He noted that most reported accounts of NSSI were of psychotic individuals documented by psychiatrists and physicians in a medical setting. In contrast, neurotic self–injurers are better at disguising their self–injury and often go undetected: "the neurotic is far more loyal to reality than the psychotic patient. The neurotic patient rarely mutilates himself irrevocably" (Menninger, p. 234).

According to Menninger (1938), sacrifice is often the foci of religious self–mutilation. He noted that while the self–mutilation associated with religious rituals more closely resembles

that of psychotic individuals, religious self–injury has been, and continues to be normalized. The psychodynamic perspective attributes the tolerance of self–injury in religious rituals to rationalizations, which is "to explain something on the basis of some utility which has been secondarily discovered" (Menninger, 1938, p. 255). These rationalizations are explained though symbolism, where an individual is essentially offering a part of themselves in exchange for the whole (i.e., sacrificing a part of the body to substitute for the whole). The advantage to this method is that it symbolizes one's willingness to give up everything while remaining functional and alive to continue serving a higher power. Menninger described the mentality of substituting a part in exchange for the whole as being characteristic of unconscious thinking and conscience–bribing, aimed at compromising between self–preservation and religious duties.

Psychiatric Perspectives

When the DSM–IV was released in 1994, NSSI was included as one of the diagnostic criteria for borderline personality disorder (BPD), which resulted in BPD becoming the new prototype of the self–injurer. However, not all BPD individuals self–injure, and not all self–injurers have BPD (Klonsky & Olino, 2008). Throughout the 20th century, different attempts were made to autonomize NSSI, however, none were successful. In 1967, Graff and Mallin branded NSSI as a mainstream psychiatric problem, stating that "[non–suicidal] wrist–slashers have become the new chronic patients in mental hospitals, replacing the schizophrenics" (p. 36). In 1983, Pattison and Kahan proposed a "Deliberate Self–Harm Syndrome" (DSHS). The criteria for DSHS syndrome included: (1) an overwhelming impulse to self–harm, (2) repetitive self–destructive acts, (3) feelings of psychological entrapment (i.e., commitment to an unfavourable course of action to avoid losing prior personal investments in that situation), (4) increased negative affective response to entrapment, (5) negative belief perseverance about

experiences and interactions, and (6) sense of relief following the self–injury act (Pattison & Kahan, 1983). However, the DSHS was not included in the DSM–IV, and self–injury continued to be defined simply as a symptom of BPD, and not a clinical disorder in its own right (American Psychiatric Association, 1994).

In 2013, the DSM–5 included NSSI Disorder (NSSI–D) as a distinct diagnostic condition for further study (American Psychiatric Association, 2013). NSSI–D in the DSM–5 excludes self–injury performed for purposes that are socially sanctioned, such as tattooing and piercing, surgical alterations (including implantations), and plastic surgery (including augmentation of the genitalia; Gilman, 2013). The diagnostic criteria for NSSI–D also take into consideration the frequency of NSSI behaviour (occurring on five or more days over the past year), the intrapersonal or interpersonal reasons behind the NSSI, and that the NSSI is not a result of any other mental or medical disorder (APA, 2013). The addition of NSSI–D in the DSM–5 was meant to increase the recognition of NSSI as a unique clinical entity, and to facilitate advancements in NSSI research and clinical practice (Shaffer & Jacobson, 2009; Wilkinson & Goodyer, 2011). Unfortunately, the interrater reliability of NSSI–D was found to be very low in the DSM–5 field trials. Consequently, this disorder was relegated to Section 3 (Disorders Requiring Further Research) of the DSM–5 (APA, 2013).

There is substantial evidence to support the view that NSSI is distinct from other psychiatric diagnoses such as BPD (Glenn & Klonsky, 2013; Hooley et al., 2020; Selby et al., 2019), other personality disorders (Nock et al., 2006), and Axis–I disorders (Glenn & Klonsky, 2011). For research purposes, in order for a behaviour to be considered as NSSI, it needs to cause damage to bodily tissue, without any intention to end one's life, and be done intentionally and deliberately (APA, 2013; Favazza, 1998). In addition, NSSI must be a direct behaviour,

with no intervening steps between action and injury (Nock & Favazza, 2009). For example, cutting the skin is a direct NSSI behaviour, whereas chain smoking cigarettes or engaging in other behaviours that indirectly result in negative physiological outcomes are not considered NSSI.

Technology–Based Interventions

There are no interventions that have been specifically developed for NSSI. Rather, established psychological treatments have been expanded to include NSSI of which dialectical behaviour therapy (DBT), cognitive–behavioral therapy (CBT), and mentalization–based therapy have been found to be effective (Ougrin et al., 2015). However, increasing prominence of NSSI, particularly among adolescents and young adults, calls for the need to have intervention methods that are more widely accessible. Prior research has shown that adolescents are reluctant to seek professional help for their mental health problems (Kaess et al., 2019), and that help–seeking behaviour is hindered by the travel time required to receive the professional help (Kaess et al., 2014). Adolescents who engage in NSSI hold the most negative attitudes towards seeking professional help when compared to past self–injurers and non–self–injurers (Pumpa & Martin, 2015). Research has also indicated that the majority of adolescents who engage in high–risk behaviours, including NSSI, prefer technology–based intervention methods (Ranney et al., 2013; Younes et al., 2015). For these reasons, there has been an increasing number of technology–based interventions that claim to specifically target NSSI using evidence–based treatment principles.

In 2015, a non–profit mobile application (app) called *Calm Harm* was developed to provide self–injurers with alternative activities to distract from engaging in NSSI. Individuals have a choice to select from six options: Comfort, Distract, Express Yourself, Release, Random,

and Breathe. The app claims to use basic principles of DBT to help individuals resist the urge to self–injure. To date, this application has received seven awards, has been downloaded 1.75 million times, and has over 1.61 million active users (Calm Harm, 2021). However, no studies have been conducted to assess its efficacy (Panagiotopoulou et al., 2021). Some clinicians have reported that it is efficient at temporarily distracting their clients from NSSI, but should not be considered as a treatment (Honary et al., 2020).

Another non–profit mobile app that specifically targets NSSI is *Self–Heal*, which provides users with distraction tasks, useful local mental health contact information, and self–injury education. In 2017, *Self–Heal* was developed through a collaboration between a team of Oxford University students, clinicians, and researchers to provide users with anonymous support for self–injury. The app provides users with access to information on CBT, DBT, mentalization–based therapy, and mindfulness–based stress reduction. While the app is created by a team of clinicians and researchers, no studies to date have looked at the efficacy of this app.

The *Self–Injury: Treatment, Assessment, Recovery* (STAR) is another technology–based intervention method (Kaess et al., 2019). This online intervention method uses the "Cutting Down Programme" (CDP) which specifically targets NSSI in adolescents and integrates elements of CBT and DBT. The CDP is a face–to–face, short–term intervention that lasts eight to 12 sessions. The sessions focus on educating the individual about NSSI, promoting therapy and motivation, identifying individual reasons for NSSI, exploring alternative behaviours to NSSI, and the stabilization of those alternative behaviours. The intervention is delivered via personal chat or phone calls with a clinical psychologist, text, exercises, quizzes, or through demonstrations using fictitious patients. The STAR is currently being evaluated in a large, multi–centre randomized controlled trial.

TeenTEXT is a text–messaging based intervention for adolescents who self–injure. This intervention method is used in conjunction with the individual's clinician. Using elements of CBT, users are instructed to write a set of self–efficacious or personal coping statements which are stored in a secured electronic personal message bank. These messages are sent to the user's mobile phone at their own chosen times or when requested. If the user requests three or more messages in a 24–hour period, an alert is sent to their clinician. *TeenTEXT* comes with a workbook that contains a series of exercises to help the user develop their personal messages; a computer programme set up by the clinician that controls when automated messages are sent and stores the personal messages; and a manual for the clinician and user. Unfortunately, the efficacy of *TeenTEXT* could not be determined due to participant attrition (Owens & Charles, 2016).

NSSI, Ethnicity, and Religiosity

Muehlenkamp and Gutierrez (2007) examined the rates of NSSI across different ethnic groups and found that Hispanics reported the highest rates of NSSI (30%), followed by white Caucasians (28%) and multi–ethnic individuals (25%). The lowest prevalence of NSSI was reported among African American individuals (9%). Similar findings were observed by Wester and Trepal (2015), who found that Native Americans reported the highest rates of NSSI (29%), followed by Hispanics (18%), white Caucasians (16.3%), multi–ethnic individuals (16.1%), and African Americans (8.4%). The lowest prevalence was reported among Asian American individuals (7%). When comparing white Caucasian and Hispanic college students, Croyle (2007) found a significant negative relationship between exposure to Hispanic culture and NSSI for Hispanic males, suggesting that adherence to traditional roles and values may serve as a protective factor against NSSI for Hispanic men (Wester & Trepal, 2015).

Other studies have found that rates of self–injury are higher in Caucasian than non–Caucasian samples, and these results have been observed across psychiatric, forensic, and non–clinical samples (Gratz, 2006; Guertin et al., 2001; Jones, 1986; Maden et al., 2000). In contrast, some studies have found no differences among ethnicities with regard to self–injury (Whitlock et al., 2006). However, a recent meta–analysis that looked at NSSI, suicide, and deliberate self–harm (any form of self–injury that did not result in suicide) in a child and adolescent sample found that the aggregate lifetime prevalence of NSSI was higher in non–Western countries (Lim et al., 2019). Overall, comparisons of different ethnic groups on the rates of NSSI have not produced clear findings.

Middle Eastern Ethnicity and Religiosity

When looking at suicide among Arab Americans in the United States, El–Sayed and colleagues (2011) found that suicide rates were lower among Middle Eastern Americans than White Americans, and that this ethnic difference was more pronounced for men than for women. The authors concluded that Middle Eastern (ME) ethnicity might serve as a protective factor against suicide, particularly so for men. Although the study looked at suicide, its findings might potentially be applicable to NSSI since both suicide and NSSI are forms of deliberate self–harm.

Another study with students from a Midwestern university in the United States reported similar findings, in that lowest rates of NSSI were observed among ME students and the highest rates were found among multiracial and Caucasian students (Kuentzel et al., 2012). Furthermore, lower rates of NSSI were found among those with stronger religious convictions; Baptists and Muslims experienced the lowest rates of NSSI when compared to other religious groups, atheists, and agnostics (Kuentzel et al., 2012). Students with very strong religious beliefs were the least likely to engage in NSSI, suggesting that religious practices such as prayer,

meditation, or consultation with a spiritual counsellor might have a positive impact on emotion regulation (Kuentzel et al., 2012).

Similar findings were reported by Plener and colleagues (2016), who found low rates of NSSI among Muslims (1.3%) compared to Catholics (32.1%) and Protestants (34.6%). The concept of body protection, which is common among ME and Islamic teachings, may provide insight into why NSSI prevalence is lower among ME samples. According to the Qur'an, human life is a gift that is preferred over all the other creations [17:70] and killing the self is an act of disrespect towards this gift [4:29 – 4:30]. This also applies to any self–destructive act [2:195] or overindulgence [7:31]. It is important to consider that while not all ME individuals practice Islam, approximately 93% of the population in the ME identify as Muslim (Desilver & Masci, 2017), therefore, the influence of Islam on ME customs and practices is disproportionately higher than that of other religions in that region.

It is worth mentioning that DBT (Linehan, 1993) is used to treat BPD, which is often comorbid with NSSI, and has recently been shown to be an effective treatment for NSSI (Kothgassner et al., 2020). Much of the focus of DBT is placed on teaching mindfulness, which is a practice derived primarily from Eastern religions as a means of regulating intrapsychic experiences (Kuentzel et al., 2012). This suggests that sociocultural, geographic, and religious factors may play a role in the lower rate of NSSI among individuals from a ME background.

Moreover, Islam is not the only religion that has been linked with decreased prevalence of NSSI. Religiosity, in general, has been identified as a potent protective factor against NSSI (Haney, 2020; Kuentzel et al., 2012; Malkosh–Tshopp et al., 2020), and suicide (Colucci & Martin, 2008; Dervic et al., 2004; Gearing & Alonzo, 2018; Greening & Stoppelbein, 2002; Hilton et al., 2002; Hoffman & Marsiglia, 2014; Jordan et al., 2014). Religion has also been

reported as an efficient method of reducing self–harm urges (Klonsky & Glenn, 2009). However, there may be aspects of religious practice (e.g., punishment) that may potentiate self–injurious behaviour (Favazza & Conterio, 1989; Good et al., 2017; Haney, 2020). For example, among Christian Americans, those with high religiosity showed the highest risk of NSSI, seculars showed a moderate risk, and those with low religiosity showed the least risk for engaging in NSSI (Longo et al., 2013). When considering other forms of deliberate self–harm, such as suicide, Protestant Christians have higher rates of suicide when compared to Roman Catholics (Maris et al., 2000). The variability in these findings indicate that it may not be religion or ethnicity that explains NSSI prevalence, but rather it may be due to psychological factors, such as the promotion or discouragement of body protection.

NSSI and Body Investment

The degree to which an individual is invested in the protection of their body has been proposed to be a critical factor in understanding NSSI behaviour (Muehlenkamp & Brausch, 2012; Muehlenkamp et al., 2005; Orbach, 1996). If an individual is dissatisfied with their body, that dissatisfaction alone can facilitate self–injury because the individual has developed a disregard for their body, which can subsequently lead to feelings of indifference, detachment, or dissociation from the body (Muehlenkamp et al., 2005; Orbach, 1996). The lack of body investment can lead to physical anhedonia which can result in a higher tolerance for pain and increased physical harm to the body (Orbach, 1996). Walsh (2012) postulated that body investment plays a central role in the initiation and maintenance of risk–taking behaviour, such as NSSI.

Very few studies have looked at differences in attitudes towards the body between ME and non–ME populations. King and colleagues (2013) compared a Jordanian and an American

sample on body satisfaction and found the Jordanian sample to report a more positive attitude towards their bodies, suggesting that there may be aspects of ME culture that endorse higher body satisfaction (King et al., 2013). A study by Mussap (2009) comparing Muslim and non–Muslim Australian women on body satisfaction found that for Muslim women, the strength of religious faith was inversely related to the level of body dissatisfaction and body objectification. The concept of body satisfaction represents one of the many aspects of body investment (Orbach & Mikulincer, 1998). To the current author's knowledge, no research has looked at the relationship between body investment and self–injury among ME populations.

Research into body investment and self–destructive behaviours in Western samples suggest that one of the crucial factors implicated in self–destructive behaviours is body love versus body rejection (Freud, 1949; Furman, 1984; Orbach. 1996; Polskaya & Melnikova, 2020). It is further suggested that body investment is involved in the regulation of bodily self–destructive behaviour (Furman, 1984; Schanberg, 1997; Polskaya & Melnikova, 2020). When considering suicidal behaviour specifically, it has been postulated that negative attitudes and feelings toward the body can be facilitators of suicidal behaviour, because these attitudes and beliefs entail a lack of bodily pleasure and satisfaction (Orbach, 1996; Peterson et al., 2017). In the absence of bodily love and satisfaction, the individual may be more likely to engage in self–destructive acts than when positive feelings toward the body exist (Orbach & Mikulincer, 1998). Negative attitudes toward the body have been found in several empirical studies on suicidal behaviour (Fitriyah & Rokhmawan, 2019; Orbach et al., 1995; Petrie et al., 1988; Peterson et al., 2017; Rufino et al., 2018), as well as in other self–harming behaviours such as eating disorders (McAllister & Caltabiano, 1994; Pérez et al., 2018; Perkins & Brausch, 2018; Vieira et al., 2020). Therefore, the measure of the above aspects of attitudes and feelings toward the body

may lead to a better understanding of NSSI from the perspective of the degree of body investment.

Orbach and Mikulincer (1998) identified four factors that relate to an individual's perceptions and emotional investment in the body: (1) body image, which refers to one's image, feelings, and attitudes about the body; (2) body touch, or comfort with physical touch; (3) body care; and (4) body protection. They reported that suicidal Israeli youth aged 13–19 years scored lower on all four factors compared to their non–suicidal nonclinical counterparts, and scored lower on three factors (with the exception of body touch) when compared to their non–suicidal clinical counterparts. This study was repeated using an Israeli youth sample, aged 14 to 18, and the findings showed that the suicidal group scored significantly lower than the non–suicidal sample on measures of body image and body protection (Orbach et al., 2001).

A study with female undergraduate students from a Midwestern American university showed negative body investment (i.e., negative attitudes towards the body, or negative body regard) to be associated with an increased risk of engaging in deliberate self–harm (Muehlenkamp et al., 2005). In another study looking at occasional versus repetitive NSSI among an Italian adult sample, Manca and colleagues (2014) found that repetitive self–injurers scored lower than occasional self–injurers on body image and body protection scores. When comparing self–injurers with non–self–injurers, Cerutti and colleagues (2012) found that the NSSI group scored lower on measures of body image and body protection. While there has been research that looks into the link between body investment and self–injurious behaviours, none of these studies have assessed this relationship among ME populations with regard to NSSI specifically. As well, no studies have compared those findings with those obtained from North American (NA) populations.

Functions of NSSI: Why Do Individuals Self–Injure?

The reasons (i.e., functions) behind why individuals self–injure can be either interpersonal (i.e., involving others, or "social") or intrapersonal (i.e., involving the self, or "automatic") in nature (Nock & Prinstein, 2004). Research on NSSI has flourished in the last few decades, resulting in a plethora of studies on the functions of NSSI across different populations (e.g., Jonsson et al., 2019; Kraus et al., 2020; Muehlenkamp et al., 2019; Pollak et al., 2020). In contrast to a syndromal approach which classifies behaviours according to associated signs and symptoms, a functional approach classifies and treats behaviours according to the antecedent and consequent events (Nock & Cha, 2009). For example, a syndromal approach to NSSI states that individuals who engage in NSSI are more likely to have BPD provides little insight into why that individual engages in self–injury. In contrast, a functional approach would seek to understand the factors that contribute to the engagement in self–injurious acts.

Self–injury typically serves multiple functions (Nock & Prinstein, 2004); therefore, identifying functions relevant to a particular client can inform interventions. For example, if an individual self–injures for social reasons, therapies that also address interpersonal relationships may be appropriate. The multifunctional nature of NSSI makes it challenging to examine and deconstruct an individual's decision to self–harm. An understanding of why people self–injure and how those reasons may differ across individuals would help to disassemble the overlap and multiplicity of the functions (Klonsky et al., 2015). Considering the functions of NSSI allows health care providers to better formulate treatment options that are tailored to the needs of each individual (Suyemoto, 1998).

Among clinical samples in Western countries, over 90% of self–injurers cited affect regulation as the most common reason for their self–injury (Brown et al., 2002; Klonsky, 2007; Klonsky, 2009). Other common intrapersonal functions include self–punishment which has been reported in over 50% of self–injurers as well as anti–dissociation (e.g., NSSI to relieve dissociative or depersonalization), anti–suicide (e.g., NSSI to stop suicidal desires), and sensation–seeking (i.e., NSSI as a means of generating excitement; Klonsky, 2007; Klonsky & Glenn, 2009).

Phenomenological accounts suggest that NSSI is precipitated by the perception of an interpersonal loss with a person who holds significance in their life (Suyemoto, 1998). This interpersonal conflict or loss can precede feelings of tension, anxiety, anger, or fear prior to engaging in NSSI (Graff & Mallin, 1967). Such overwhelming emotions can oftentimes result in depersonalization, dissociation, and subsequent social isolation which can decrease the threshold for NSSI (Herpertz, 1995). Many individuals who engage in NSSI do not report experiencing aversive side effects, such as pain, during their self–injury. However, they may encounter feelings of guilt, regret, or disgust following NSSI; however, these negative consequences are not robust enough to overpower the immediate relief brought on by the behaviour (Suyemoto, 1998).

Interpersonal functions are considered to be more salient to the initiation of NSSI behaviour (Hilt et al., 2008; Muehlenkamp et al., 2013), whereas intrapersonal functions are more influential in the maintenance of the behaviour (Klonsky, 2009; Muehlenkamp et al., 2013). This might partially account for the commonly reported intrapersonal functions in studies that define the presence of NSSI (e.g, Klonsky, 2009) or repetitive NSSI (e.g., Kaess et al., 2013; Manca et al., 2014) as involving at least five or more incidents. Klonsky and Glenn (2009)

undertook a systematic review of the literature and identified 13 different NSSI functions: (1) affect regulation, (2) anti–dissociation, (3) anti–suicide, (4) self–punishment, (5) marking distress, (6) self–care, (7) autonomy, (8) interpersonal boundaries, (9) interpersonal influence, (10) peer bonding, (11) revenge, (12) sensation seeking, and (13) toughness. These 13 functions are considered to be either intrapersonal (affect regulation, anti–dissociation, anti–suicide, self-punishment, and marking distress) or interpersonal (self–care, autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, sensation seeking, and toughness).

Affect Regulation

The affect–regulation function of NSSI suggests that self–injury is a strategy to alleviate acute negative affect or affective arousal (Favazza, 1992; Gratz, 2003; Haines et al., 1995). Affect regulation appears to be the most common function of self–injury (Klonsky, 2007). Self–injury is most often a strategy to alleviate intense, overwhelming negative emotions. Emotions such as anger, anxiety, and frustration tend to be present before self–injury, and self–injury is often followed by feelings of relief or calm (Klonsky, 2007). Examples of the affect regulation function of NSSI include "calming myself down," "reducing anxiety, frustration, anger, or other overwhelming emotions," or "releasing emotional pressure that has built up inside me" (Klonsky & Glenn, 2009).

Anti–Dissociation

The anti–dissociation function, also known as *feeling generation*, characterizes self–injury as a response to periods of dissociation or depersonalization (Klonsky, 2007). Individuals who dissociate may describe feeling unreal or nothing at all, and self–injury may be a way to generate emotional and physical sensations that allow individuals to feel real or alive again (Klonsky, 2007). When loved ones are absent, individuals who self–injure experience more

prolonged dissociative periods (Gunderson, 1984). Episodes of dissociation or depersonalization may also occur as a result of the intense and prolonged physical injury that may inevitably trigger the body's fight or flight response (Gunderson, 1984), possibly through the sight of blood alone (Simpson, 1975). The triggering of the fight or flight system interrupts the dissociative episode and allows the self–injurious person to regain their sense of self (Klonsky, 2007). Examples of the anti–dissociation function of NSSI include "causing pain so I will stop feeling numb," "trying to feel something (as opposed to nothing) even if it is physical pain," or "making sure I am still alive when I don't feel real" (Klonsky & Glenn, 2009).

Anti–Suicide

The anti–suicide function views NSSI as a coping mechanism for resisting urges to attempt suicide (Klonsky, 2007). NSSI allows the suicidal individual to yield to their suicidal desires without risking death, serving as a replacement for or compromise to, the desire to commit suicide (Suyemoto, 1998). Examples of the anti–suicide function include "avoiding the impulse to attempt suicide," "responding to suicidal thoughts without actually attempting suicide," and "putting a stop to suicidal thoughts" (Klonsky & Glenn, 2009). The anti–suicide function is also related to the affect–regulation function, in that NSSI may alleviate intense emotionality that may subsequently lead to suicidal thoughts (Klonsky, 2007).

Self–Punishment

The self–punishment function suggests that NSSI is an expression of self–directed anger or loathing (Klonsky, 2007). Linehan (1993) hypothesizes that, from a young age, self–injurers learned to punish or invalidate themselves based on interactions with others in their environment. Therefore, injury to the self becomes a familiar and ego–syntonic behaviour that follows feelings of emotional distress or helplessness (Klonsky, 2007). Aside from affect regulation, self–

punishment was the second most endorsed reason for NSSI (Klonsky, 2007). Examples of the self–punishment function include "punishing myself," "expressing anger towards myself for being worthless or stupid," and "reacting to feeling unhappy with myself or disgusted with myself" (Klonsky & Glenn, 2009).

Marking Distress

Marking distress refers to the use of NSSI as a way of validating or physically constructing the emotional distress experienced by the individual, e.g., "creating a physical sign that I feel awful," "proving to myself that my emotional pain is real," or "signifying the emotional distress I'm experiencing" (Klonsky & Glenn, 2009). This contrasts with the view proposed by Muehlenkamp and colleagues (2019) that the function of marking distress involves "wanting others to notice injuries" which actually is more appropriately captured by the interpersonal functions (e.g., interpersonal influence, peer bonding, revenge) that are described below.

Self–Care

Self–care refers to NSSI for the purposes of providing the self with a manageable alternative (the NSSI) to their emotional distress where tending to that injury can provide a sense of accomplishment or distraction from their intrapsychic experience, e.g., "giving myself a way to care for myself (by attending to the wound)," "creating a physical injury that is easier to care for than my emotional distress," or "allowing myself to focus on treating the injury, which can be gratifying or satisfying" (Klonsky & Glenn, 2009). Initially considered to be an intrapersonal function due to the nature of the reasons listed above, it was later conceptualized as an interpersonal function, as it correlated more strongly with the interpersonal (r = .41) rather than intrapersonal (r = .33) functions (Klonsky & Glenn, 2009).

Autonomy

Autonomy refers to NSSI for the purposes of establishing independence from others. For example, "ensuring that I am self–sufficient," "demonstrating that I do not need to rely on others for help," or "establishing that I am autonomous/independent" (Klonsky & Glenn, 2009). Another reported reason for engaging in NSSI is that it serves as "[something] I have control of and no one else can control" (Klonsky & Muehlenkamp, 2007). Engaging in NSSI for the purpose of establishing autonomy was found to be negatively correlated with identity formation and positively correlated with identity confusion among an adolescent high school sample (Gandhi et al., 2016).

Interpersonal Boundaries

The interpersonal boundaries function utilizes NSSI as a way of affirming the boundaries between the self and others (Carroll et al., 1980; Podovall, 1969; Suyemoto, 1998). Individuals who endorse this function tend to draw upon object–relations theory (Klonsky, 2007), where self–injurers tend to lack a normal sense of self as a result of an inability to gain independence from their mothers (Friedman et al., 1972). NSSI and the subsequent scars on the skin, separates individuals from their environment and other people, asserting one's identity by distinguishing the self (Klonsky, 2007). Examples of interpersonal boundaries include "creating a boundary between myself and others," "demonstrating that I am separate from other people," and "establishing a barrier between myself and others" (Klonsky & Glenn, 2009).

Interpersonal Influence

The interpersonal influence function suggests that NSSI is used to influence or manipulate other individuals in the self–injurer's environment (Chowanec et al., 1991; Podovall, 1969). Although less endorsed than other popular functions of affect–regulation or self–

punishment, the interpersonal influence function may precede these other commonly endorsed functions (Klonsky & Muehlenkamp, 2007). For example, an individual may report engaging in NSSI to stop bad feelings, but those bad feelings may have been stemming from interpersonal conflict. Examples of interpersonal influence include "letting others know the extent of my emotional pain," "seeking care or help from others," and "keeping a loved one from leaving or abandoning me" (Klonsky & Glenn, 2009).

Peer Bonding

Peer bonding refers to NSSI for the purposes of connecting or fitting in with friends. For example, "bonding with peers," "fitting in with others," or "creating a sign of friendship or kinship with friends or loved ones" (Klonsky & Glenn, 2009). The social contagion (i.e., social influence or transmission of behaviour) of NSSI refers to the presence of NSSI in at least two individuals in the same peer group over a 24–hour period (Rosen & Walsh, 1989). Research has suggested that the initial act of NSSI may be influenced by social contagion (Jarvi et al., 2013; Suyemoto, 1998; Yates et al., 2008). The social contagion of NSSI and peer bonding function both utilize processes involved in social learning (Bandura, 1977), imitation, and modeling. By engaging in similar behaviour, the observer is able to show that they can identify with the model based on some shared characteristics (Insel & Gould, 2008). To the individual, the peer group serves as a powerful source of reinforcement and influence, driven by an intense desire for belonging (American Psychological Association, 2002). Young adolescents seeking a sense of acceptance or belonging are particularly influenced by their peer group (American Psychological Association, 2002). Adolescence also represent the most common age of onset for NSSI (Nock, 2009), which has led some researchers to conclude that for self–injurers, NSSI may act as a catalyst for bonding or connecting with others (Nock, 2008).

A good example of peer bonding through NSSI can be seen on social media platforms using the hashtag "#cutting" (Brown et al., 2018). Brown and colleagues (2018) found that, in a four–week review of NSSI posts made on the social media platform Instagram, pictures with increasingly severe NSSI, or ones showing different types of wounds, had a higher number of empathetic comments. As a result, the increase in empathetic comments acts as social reinforcement for more severe NSSI behaviour displayed in subsequent posts. In a qualitative analysis of the motivations behind posting NSSI–related content on Instagram, Brown and colleagues (2020) found that the most commonly reported motivation for wanting to post pictures of NSSI was for social gains, either for connecting and communicating with others or self–disclosure (i.e., having someone to speak to about NSSI, or having someone to whom they can express their emotional pain). These studies illustrate how peer bonding over NSSI can not only reinforce the behaviour but can also influence the severity of NSSI.

Revenge

Revenge refers to NSSI for the purposes of gaining leverage and getting back at others. For example, “getting back at someone,” “getting revenge against others,” or “trying to hurt someone close to me” (Klonsky & Glenn, 2009). The interpersonal revenge function is not one that is frequently discussed in NSSI literature, and is therefore, difficult to conceptualize beyond a superficial level. The revenge function may often accompany the interpersonal influence function. For example, if an individual is self–injuring to “keep a loved one from leaving or abandoning me,” and the individual does end up leaving, the self–injurious individual may engage in NSSI as a way of “getting back” at the other person for leaving.

Sensation–Seeking

The sensation–seeking function views NSSI as a means for generating thrill, excitement, or exhilaration (Klonsky, 2007; Klonsky & Muehlenkamp, 2007). This function is far less endorsed among clinical samples compared to nonclinical samples, and has therefore received less attention in the theoretical literature (Klonsky, 2007). Some examples of sensation–seeking include "doing something to generate excitement or exhilaration," "entertaining myself or others by doing something extreme," and "pushing my limits in a manner akin to skydiving or other extreme activities" (Klonsky & Glenn, 2009). When considering intrapersonal functions such as affect–regulation, anti–dissociation, or self–punishment, NSSI is performed in isolation. In contrast, the sensation–seeking function is almost exclusively done in the presence of friends or peers (Klonsky, 2007), and correlates positively with interpersonal functions (r = .87) and negatively with intrapersonal functions (r = –.18; Klonsky & Glenn, 2009). For that reason, the sensation–seeking function is considered as an interpersonal function.

Toughness

Toughness refers to engaging in NSSI for the purposes of exhibiting resilience to pain and suffering in front of others. For example, "seeing if I can stand the pain," "demonstrating that I am tough or strong," or "proving I can take the physical pain" (Klonsky & Glenn, 2009). Like the revenge function, the toughness function is not discussed in depth in the NSSI literature and is therefore hard to conceptualize beyond a superficial level. The toughness function may cooccur with the sensation–seeking function. For example, an individual may engage in NSSI as a way of proving they can take the physical pain and may do that in front of others as a way of entertainment and gaining social acceptance. Both interpersonal functions of sensation–seeking and toughness utilize self–sacrifice to gain social reinforcement.

NSSI Functions Across Cultures

It is not clear whether motivations behind NSSI vary across cultures. Most of what is currently known about NSSI comes from research conducted with Western samples, and thus, is Eurocentric in nature (Gholamrezaei, De Stefano, & Heath, 2017). The few existing studies on deliberate self–harm in non–Western countries have suggested that more interpersonal functions are reported rather than intrapersonal functions (Gholamrezaei, Heath, & Panaghi, 2017). This could be due to the collectivistic orientations of non–Western societies where an individual's social behaviour is motivated by ingroup goals as opposed to individualistic orientations where social behaviour is motivated primarily by personal goals (Triandis et al., 1988).

For example, a study by Jamil (1990) reviewed 1900 cases of intensive–care unit admissions related to acute poisoning over a 10–year period at a hospital in Karachi, Pakistan. The hospital records showed that 1330 (70%) of the cases were self–inflicted, with "neglect by husband," "failure in love affairs," and "conflict with parents" representing the most commonly–endorsed reasons for self–poisoning (Jamil, 1990). Of those 1330 cases, 1305 (98%) were first time incidents (Jamil, 1990). In a study that looked at NSSI among an Iranian student sample, female students who reported being aware of their emotional experiences were more likely to have engaged in NSSI, suggesting that NSSI might be used for emotional regulation purposes (Gholamrezaei, Heath, & Panaghi, 2017), which is consistent with findings from Western samples. However, for Iranian male students, no relationship was found between emotional dysregulation and a history of NSSI. In addition, more than half of female self–injurers reported engaging in NSSI in the presence of others rather than alone suggesting, an interpersonal function.

Much of the research into NSSI in collectivist societies have looked at populations in East and Southeast Asia (e.g., Cheung et al., 2013; Kharsati & Bhola, 2014; Liang et al., 2014; Shek & Yu, 2012; Tresno et al., 2012; Tresno et al., 2013). Of the regions that have been the least documented with regard to NSSI is the Middle East (ME; Karam et al., 2008). All of the studies examining NSSI in the ME were carried out in medical settings and investigated reports from the physicians, rather than through self–reported information from the self–injurers. Another limitation of NSSI research in the ME is the lack of consistency in the definition of NSSI. The majority of the existing research was conducted using the generalized definition of "deliberate self–harm" or "parasuicide" which includes any form of conscious and deliberate damage to the body, whether it occurs in the presence or absence of suicidal intent (Daradkeh & Al–Zayer, 1988; El–Guindy & Taloo, 1975; El–Islam, 1974; Eroglu et al., 2014; Karam et al., 2008; Mahgoub et al., 1988; Rasool & Payton, 2014; Sankaranarayanan et al., 2019; Suleiman et al., 1989; Zaidan, 2002).

Consequently, there is often no distinction made between NSSI and suicide attempts in the existing literature on ME populations. This is problematic as there are differences between NSSI and suicidal behaviours in terms of the types of methods and reasons for self–injury. For example, Brown and colleagues (2002) observed that the most common form of NSSI was cutting (70%), but this method was only endorsed by 7% of the suicidal sample. Conversely, drug overdose was endorsed by 79% of suicidal individuals, but only by 4% of self–injurers. In addition, the NSSI group also endorsed reasons relating to feeling generation (i.e., anti–dissociation), self–punishment, anger expression, and distraction, when compared to the suicidal group. The suicidal group endorsed “to make others better off” to a greater extent than the NSSI group. The finding that suicidal individuals believe others would be better off is congruent with

the interpersonal theory of suicidal behaviour (Van Orden et al., 2010) which states that the presence of two interpersonal constructs, thwarted belongingness and perceived burdensomeness, contribute to suicidal ideation, and that the capability for suicidal behaviour arises from repeated exposure to painful or frightening experiences.

In sum, contemporary research differentiates NSSI from suicidal behaviour on the basis of the suicidal intent in the latter. However, the two are conflated in the ME research literature as both can be considered as deliberate self–harm without due regard to the presence or absence of suicidal intent. This makes it difficult to make cross–cultural comparisons of studies from the ME with those from North America.

General Summary

NSSI functions refer to the reasons behind why individuals choose to self–injure. NSSI can serve interpersonal functions by influencing or responding to social interactions, or intrapersonal functions by regulating intrapsychic experiences. Most self–injurers endorse more than one function of NSSI. Among Western societies, such as North America (NA), the intrapersonal function of affect regulation is most frequently endorsed. However, in non–Western societies, interpersonal functions might have a greater influence than intrapersonal functions. Studies that have looked into ME populations in Western countries have suggested that being male and of the ME ethnicity may serve as a protective factor against self–injury. The concept of body protection, which is common among ME and Islamic teachings, may provide insight into why NSSI prevalence is lower among ME samples.

The ME is one of the regions that have been the least documented with regard to NSSI. Most of the studies that have looked into NSSI across ME countries have done so from a strictly medical setting and from the perspective of the physician, rather than using self–report measures.

In addition, NSSI research in the ME lacks consistency in the definition of self–injury, often using the generalized definition of "deliberate self–harm" or "parasuicide." As a result, there is often no distinction made between NSSI and attempted suicide in the existing literature on ME populations. A detailed understanding of why individuals may choose to engage in NSSI, what makes them continue, and what factors may contribute to increasing the severity is necessary because the motivations behind the behaviours can differ cross–culturally, and this can reveal potential protective factors against NSSI.

Present Study

Objective and Hypotheses for the Study

The objective of this study was to compare body investment, NSSI functions, and NSSI severity in individuals with NSSI of Middle Eastern descent (NSSI–ME) recruited from the Middle East and North America (specifically Canada and the United States) with those not of Middle Eastern descent (NSSI–NA) recruited from North America (specifically Canada and the United States). Individuals with no history of self–injury served as control to the NSSI–ME group if they were of Middle Eastern descent (Control–ME) and as control to the NSSI–NA group if they were not of Middle Eastern descent (Control–NA). It was anticipated that: (1) body investment would be negatively correlated with NSSI severity (number of lifetime NSSI incidents); (2) NSSI–ME would endorse interpersonal functions to a greater extent than the NSSI–NA; (3) NSSI–NA would report more severe NSSI than the NSSI–ME; and (4) NSSI–ME would have lower Body Image and Body Protection scores than Control–ME.

Method

Sample Description

A total of 668 individuals, aged 18 or older, participated in the online study. Three were subsequently excluded because their internet protocol (IP) addresses were identified as originating from outside of the countries of recruitment, i.e., North America or NA (Canada and United States), and the Middle Eastern (ME) countries. A further 16 were subsequently excluded for failing the infrequency response check which assesses for inattentiveness (see later sections *Infrequency* and *Procedure* for more information). Out of the remaining 649 participants, 182 who reported a history of NSSI were classified into the NSSI groups, and 467 individuals with no history of NSSI were classified into the Control groups.

Among the 182 individuals with NSSI, only three were from the ME countries; the remaining 179 came from the NA region of which 12 identified as of ME descent. Among the 467 individuals with no history of self–injury, 14 were from the ME countries, and 453 from the NA region of which 11 were of ME descent. Due to low response from the ME countries, participants from the ME countries and participants of ME descent from the NA countries were combined to form the ME group. This resulted in the re–classification of participants into four groupings: NSSI–ME (n = 15), NSSI–NA (n = 179), Control–ME (n = 25), and Control–NA (n = 453). The demographic characteristics of these four groups and the total sample can be found in Table 1.

Given the substantial discrepancy in the cell sizes which would affect the power of the significance testing and the Type I error rate (Rusticus & Lovato, 2014), a decision was made to use matched groups of comparable sizes to examine hypotheses 2, 3, and 4 that examined group comparisons. Thus, 15 NSSI–NA and 25 Control–NA participants were selected and matched,

respectively, to the 15 NSSI–ME and the 25 Control–ME participants on the basis of age, sex, gender, socioeconomic status, and educational level. In addition, because the majority of the NA participants (n = 283; 43.61%) identified as "White" or "European descent", those who were chosen for matching to the ME groups were of "White" or "European descent" background to preserve the ethnic representation of the overall NA sample. The demographic characteristics of each matched group and the four matched groups combined are displayed in Table 1.

Table 2 displays the characteristics of the self–injury behaviours for the two matched NSSI groups. An independent sample t–test on the age of NSSI onset found no significant differences between the matched NSSI–NA and the matched NSSI–ME. Cohen's d of –.20 showed a small difference between the two groups. Similarly, a t–test revealed no difference between the two matched NSSI groups in the number of self–injury methods used. The effect size for the difference between the group means was negligible with a Cohen's d of .003. As can be seen from Table 2, cutting was the most common method of self–injury for both groups. The second and third most common method was scratching and head banging for the NSSI–ME, and preventing wounds from healing and burning with a cigarette for the NSSI–NA.

Measures

Demographics Questionnaire

The demographics questionnaire (see Appendix A) was used to collect background information on the participants. Self–reported ethnicity was used to identify individuals of ME descent. Information on age, sex, gender, socioeconomic status, and educational level was used to create the four matched groups NSSI–ME, NSSI–NA, Control–ME, and Control–NA. In order to consider the influence of the COVID–19 pandemic on NSSI behaviours, three items were included to assess (1) changes in desire to engage in NSSI since the pandemic, (2) whether

the respondent has carried out any NSSI acts during the pandemic, and (3) any changes in pattern of NSSI since the start of the pandemic. This third question evaluates NSSI frequency, number of methods, severity of self–injury, length of time between desire to self–injure and engaging in the act of self–injury, whether reasons for self–injury remain the same or are different, degree of satisfaction with the outcomes of self–injury, and any other changes in NSSI behaviours that have not been asked.

The Body Investment Scale

The Body Investment Scale (BIS; Orbach & Mikulincer, 1998; see Appendix B) is a 24–item self–report measure which is used to evaluate an individual's perceptions and emotional investment in the body. The BIS was initially developed for assessing self–destructive behaviours among Israeli adults and has been cross–culturally validated in the United States (Case et al., 2019; Muehlenkamp et al., 2005), Italy (Manca et al., 2014), Portugal (Vieira et al., 2020), and Israel (Orbach & Mikulincer, 1998; Orbach et al., 2001).

The BIS consists of four factors with six items in each factor. Factor 1 (Body Image) which is composed of items 5, 10, 13, 16, 17, and 21 relates to body image feelings and attitudes (e.g., I am satisfied with my appearance). Factor 2 (Body Touch) consists of items 2, 6, 9, 11, 20, and 23 that relate to comfort in touch (e.g., I enjoy physical contact with other people). Factor 3 (Body Care) includes items 1, 4, 8, 12, 14, and 19 which assess caring for the body (e.g., I believe that caring for my body will improve my well–being). Factor 4 (Body Protection) contains items 3, 7, 15, 18, 22, and 24 about protecting the body (e.g., when I am injured, I immediately take care of the wound). The items are presented as a 5–point interval scale: (1) *strongly disagree*; (2) *disagree*; (3) *undecided/neutral;* (4) *agree*; and (5) *strongly agree*. Items 2, 3, 5, 7, 9, 11, 13, 17, and 22 are reverse coded (Orbach & Mikulincer, 1998). The scores for

each of the four factors are calculated by averaging the scores of all items that load on that factor, thereby yielding four separate scores. A higher score on the respective factor indicates more positive Body Image, Body Touch, Body Care, and Body Protection. Although a total score for body investment can also be obtained by averaging across all four factors, only the individual factor scores were of interest in the present study.

Marlowe–Crowne Social Desirability Scale–Short Form

The Marlowe–Crowne Social Desirability Scale–Short form C (MC–C; Reynolds, 1982; see Appendix C) is a 13–item, true–false questionnaire that measures socially desirable responding. Social desirability is the tendency to manage social interactions and portray oneself more favourably by increasing conformity and decreasing the likelihood of receiving negative evaluations from others (Johnson & Van de Vijver, 2003). The social desirability of different characteristics can vary across cultures (Ryan et al., 2020). The MC–C is one of the most widely used social desirability scales and has been used across cultural groups, including but not limited to Greek (Lavidas & Gialamas, 2019), Indonesian (Uyun & Kurniawan, 2017), Chinese (Kurz et al., 2016), Romanian (Sârbescu et al., 2012), and Icelandic (Vésteinsdóttir et al., 2017) samples.

The MC–C has shown satisfactory reliability with Cronbach's alpha (α) ranging between .75 (Sârbescu et al., 2012) to.76 (Reynolds, 1982). Items 1, 2, 3, 4, 6, 8, 11, and 12 are scored as false, and items 5, 7, 9, 10, and 13 are scored as true. Items that are answered correctly are scored as "0" and items that are answered incorrectly are scored as "1." Total social desirability scores are obtained by summing the scores on all items, with a total possible score of 13. Scores from zero to three are considered low, scores from four to eight are considered average, and scores from nine to 13 are considered high. For the purpose of the present study, the total MC–C score was used as an indicator of social desirability and as a covariate in the analyses.

Deliberate Self–Harm Inventory

The Deliberate Self–Harm Inventory (DSHI; Gratz, 2001; see Appendix D) was used to assess the characteristics of NSSI, such as the types of methods and frequency. The DSHI lists the 16 most frequently reported self–injury methods and also includes an open–ended item at the end to report any methods that may have not been included in the list. For each method, the participant is asked for the age at which they first used this NSSI method, the number of times this method has been used, the last time this method was used, and whether any incident when using this method had required medical intervention. Item 10 on the DSHI (*Have you ever intentionally used bleach, comet, or oven cleaner to scrub your skin?*) was slightly altered to make it more internationally relevant to the participants. While comet is a popular cleaning agent in the United States, it may not be familiar to Middle Eastern participants. For that reason, item 10 was changed to *Have you ever intentionally used bleach, or other harsh cleaning agents to scrub your skin?* In addition, two items from the first section of the ISAS (see below) were incorporated into the DSHI; these items were: (1) *did you experience pain when using this [NSSI] method*? And (2) *when you self–harm, are you alone*?

In the present study, the DSHI was used to assess a history of self–injury and to classify participants into either the NSSI or the Control groups. Information on the age of onset, number of lifetime incidents (summed score of the number of times each method was used), number of methods, and type of methods were also of interest to determine whether there were differences between the NSSI–ME and NSSI–NA groups. As well, the number of lifetime incidents and the number of NSSI methods, were used as separate indicators of NSSI severity. A higher number of each corresponds to more severe NSSI behaviour.

The Inventory of Statements About Self–Injury

The Inventory of Statements About Self–Injury (ISAS; Klonsky & Glenn, 2009; see Appendix E) is a 39–item measure used to assess 13 different functions relating to NSSI. It has been cross–culturally validated in Turkey (Bildik et al., 2013; Idig–Camuroglu & Gölge, 2018; Somer et al., 2015), Iran (Izadi–Mazidi et al., 2019), Portugal (Duarte et al., 2020), Korea (Kim et al., 2019), Sweden (Lindholm et al., 2011), Pakistan (Nisar et al., 2020), and Spain (Vega et al., 2015). The ISAS contains two parts. The first is similar to the DSHI in that it assesses different methods of NSSI. However, much of this first part was not used in the study because it asks for details only about the one main NSSI behaviour as identified by the respondent. Thus, the amount of information it could provide was very limited compared to what the DSHI which asked for details on all NSSI behaviours undertaken by the respondent. As mentioned in the DSHI section above, there were two items from the first section of the ISAS that were incorporated for use into the DSHI; these items were: (1) *did you experience pain when using this [NSSI] method*? And (2) *when you self–harm, are you alone*?

The second part of the ISAS which assesses the 13 functions of NSSI was of interest in the present study. Each of the 39 items is rated on a 3–point interval scale: (2) *very relevant*; (1) *somewhat relevant*; or (0) *not relevant*. One open–ended item was added to allow participants to provide any additional reason for engaging in NSSI that may not be covered in the 39 items. Each of the 13 functions are represented by three items as described below, and subscale scores are calculated by summing the value of items within the subscale; a higher subscale score reflects stronger endorsement of that function.

Items 1, 14, and 27 correspond to the affect regulation function. Items 5, 18, and 31 correspond to the anti–dissociation function. Items 6, 19, and 32 correspond to the anti–suicide

function. Items 3, 16, and 29 correspond to the self–punishment function. Items 11, 24, and 37 correspond to the marking distress function. Items 4, 17, and 30 correspond to the self–care function. Items 13, 26, and 39 correspond to the autonomy function. Items 2, 15, and 28 correspond to the interpersonal boundaries function. Items 9, 22, and 35 correspond to the interpersonal influence function. Items 8, 21, and 34 correspond to the peer–bonding function. Items 12, 25, and 38 correspond to the revenge function. Items 7, 20, and 33 correspond to the sensation–seeking function. Finally, items 10, 23, and 36 correspond to the toughness function.

The 13 functions of the ISAS can be further categorized into either an Intrapersonal composite function (consisting of functions related to affect regulation, anti–dissociation, anti–suicide, self-punishment, and marking distress) or Interpersonal composite function (consisting of functions related to self–care, autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, sensation seeking, and toughness). The ISAS is a widely used scale for assessing the functions of NSSI and has consistently demonstrated strong reliability on the intrapersonal (α=.80) and interpersonal (α=.87) functions (Klonsky & Glenn, 2009). The Interpersonal and Intrapersonal composite functions were of main interest in the present study, with the 13 individual functions of secondary interest.

Infrequency

The infrequency in participant responses was examined to check for attentiveness when filling out the research questionnaires. This was achieved using the “instructed response items” technique in which participants were instructed to endorse a particular response option (e.g., *to monitor quality, please respond with ‘neutral’ for this item*; Curran, 2016; Meade & Craig, 2012). Participants who pay attention to these “instructed response items” were expected to comply as instructed. Answers were scored as "1" if someone gave the instructed answer and

"0" if they did not. An advantage of instructed response items is that they are unlikely to cause confusion (Kim et al., 2018), as is the case with "bogus" or infrequency items, where a range of correct and incorrect responses may be possible. A potential issue for instructed response items is that including too many of them may irritate the participants. For that reason, it is recommended that the items are limited to one instructed response question per 50–100 questionnaire items (Meade & Craig, 2012; Marjanovic et al., 2019). For the purposes of this study, one instructed response item followed the BIS, MC–C, DSHI, and ISAS questionnaires, yielding a total of four items. Item one is question 25 on the BIS, item two is question 14 on the MC–C, item three is question 18 on the DSHI, and item four is question 41 on the ISAS.

The zero–tolerance threshold on the instructed response items was used as a standalone exclusion criterion (Kim et al., 2018). This means that if participants gave the incorrect responses on all instructed response items, they were excluded from the data analysis. A 50% tolerance threshold on the instructed response items (Curran, 2016), was also used when participants gave the incorrect answer to half of instructed response items and were suspected of inattentiveness and flagged for further examination. As suggested by Curran (2016), Mahalanobis distance (*D*) was used to assess whether these participants were outliers on each scale. If the participants gave the incorrect answer to only one of the instructed response items, that may be due to random error, and therefore, they would not be flagged for inattentiveness.

Procedure

Recruitment Procedure

Recruitment began after securing approval from the Lakehead University Research Ethics Board and took place from March 11th to May 4th of 2021. Participants were recruited from Canada and the United States which represented the North American (NA) region, and from the

following Middle Eastern (ME) countries: Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, and Yemen. The recruitment tool used was Amazon's Mechanical Turk (MTurk). MTurk is a crowdsourcing platform which allows researchers and businesses to virtually outsource tasks to a large number of individuals. MTurk allows researchers to recruit a large and diverse sample of individuals from a wide selection of different countries, which is more difficult to achieve when using conventional recruitment methods (Chambers & Nimon, 2019; Paolacci & Chandler, 2014). The use of crowdsourcing platforms for research purposes has increased in the last few years (Peer et al., 2017) and there is a large body of literature that demonstrates MTurk's reliable and cost–effective ability to recruit large numbers of human participants (e.g., Crump et al., 2013; Hauser & Schwarz, 2016; Mason & Suri, 2012; Simcox & Fiez, 2014).

MTurk participants complete tasks in exchange for small financial incentives and complete surveys in unknown locations where distractions are possible. These factors may put MTurk participants at risk of being inattentive to instructions which can result in poor–quality data (Oppenheimer et al., 2009). However, research has suggested that MTurkers (workers through MTurk) are just as attentive (Berinsky et al., 2014; Goodman et al., 2013; Paolacci et al., 2010), or more attentive (Klein et al., 2014) to instructions when compared to participants who are recruited through conventional methods. For the purposes of this study, MTurk was used as a recruitment tool that direct interested individuals to the research study website that was hosted on SurveyMonkey. In addition to MTurk, an attempt was made to enlist the assistance of the Arab Council for Social Sciences (ACSS) in the recruitment efforts in the Middle East. The ACSS is a non–profit organization that focuses on regionally specific research and knowledge

production among Arab societies, and aims to promote the social sciences and inform public policy in the Arab world (Arab Council for Social Sciences, 2021). The ACSS were provided with information on the study and the survey link to review the questionnaires. However, they did not provide a response, and therefore, only MTurk was used for recruitment.

One issue that arose during the general recruitment process (see Appendix F) was the poor response from the Middle Eastern countries. Consequently, REB approval was obtained for more targeted recruitment of individuals from just the Middle Eastern countries (see Appendix G), then for individuals of Middle Eastern descent living in Canada and the United States (see Appendix H), and finally, for individuals of Middle Eastern living in Canada and the United States with a history of self–injury (see Appendix I).

Main Study Procedure

Data collection was conducted through SurveyMonkey. Upon accessing the research questionnaire hosted on SurveyMonkey, the individual was first presented with the background information and consent form (see appendix J for the general sample and appendix K for individuals of Middle Eastern descent living in Canada and the US). If they remained interested in going further in the study, they were instructed to click on the "*Continue*" button which redirected them to the questionnaires. Each questionnaire began with instructions followed by the items. The responses were recorded anonymously. Participants first filled out the demographics questionnaire followed by the BIS and the MC–C. In the demographics questionnaire, participants were asked if they have ever engaged in NSSI. Those who answered "*yes*" were directed to the DSHI followed by the ISAS. Those who answered "*no*" skipped the DSHI and the ISAS.

Following the completion of the questionnaires, all participants were directed to a separate webpage containing the debriefing form (see appendix L for the general sample and appendix M for individuals of Middle Eastern descent living in Canada and the US). MTurk participants were informed that they would receiving a small stipend (2.00 USD) for their involvement in the study which is in compliance with MTurk protocol of compensation to MTurkers. The debriefing form contained instructions for how to claim the 2.00 USD stipend. In order to request a summary of the findings, all participants were directed to a separate weblink where they could provide their contact information so that no identifying information would be linked to their responses on the research questionnaire. Following the debriefing form and contact information entry, the participants were provided with a list of mental health resources for the countries in which recruitment efforts were undertaken (see Appendix N). The list was hosted on a separate webpage. As well, a link to that webpage was visible on every page of the research questionnaire so that participants could access it at any time during the study. It also ensured that participants who dropped out of the study prematurely could still have access to the list of mental health resources.

Considering that MTurk operates exclusively in English and requires all MTurk workers to be proficient in English, all of the recruitment advertisements, instructions, measures, consent forms, debriefing forms, and mental health resources were in English.

Results

Research Design and Statistical Analytic Strategies

For this study, the independent variable was Group with four levels: NSSI–ME, NSSI–NA, Control–ME and Control–NA. The dependent variables were (1) the four BIS factors, (2) the ISAS Interpersonal and Intrapersonal composite functions, and (3) NSSI severity from the

DSHI. Analyses were conducted with the computer software program Statistical Package for the Social Sciences–Version 26.0 (SPSS–26.0).

Pre–Analysis Issues

Prior to data analysis, the internet protocol (IP) addresses of participants were checked to ensure that they were from the countries of recruitment. Three participants were excluded from the sample, as a result.

Infrequency Check for Inattentiveness

An examination of the four instructed response items showed that 16 participants (2 from the NSSI sample and 14 from the control sample) failed all attention check items, and were therefore excluded from the data analyses (zero tolerance threshold; Kim et al., 2018). It was also found that 81 participants failed two or three instructed response items. They were suspected of inattentiveness and flagged for further examination (50% tolerance threshold; Curran, 2016) to see whether or not they were influential outliers on each dependent variable in subsequent analyses (see section below on "Outliers"). Participants who have failed only one instructed response item were retained as that might have been due to random error.

Missing Values

A missing value analysis was performed on all dependent measures using the full sample ($N = 649$). It showed that the missingness was not excessive as defined by greater than 5% of the total items of that particular measure (Tabachnick & Fidell, 2019). Within–group missing values for the dependent variables were addressed using the multiple imputation method at 25 iterations (Tabachnick & Fidell, 2019). The ISAS Interpersonal and Intrapersonal composite functions were calculated after the multiple imputations had been completed for the 13 ISAS functions. It

is important to note that missing values on the ISAS only applied to the NSSI sample, and therefore, were not completed for those in the control groups.

Outliers

Using the full sample ($N = 649$), within–group univariate, and within–group multivariate outliers were examined to control for the influence of extreme responses on dependent measures. Cases with *z*–scores more extreme than ± 3.29 (Tabachnick & Fidell, 2019) were identified as univariate outliers. For the control groups, one univariate outlier was found on the BIS Image factor and four were found on the BIS Touch factor in the Control–NA group. For the NSSI groups, two univariate outliers were found on the BIS Care factor in the NSSI–NA group, and none were found on the BIS Touch factor. Univariate outliers were addressed by changing the raw scores to the equivalent of $z = \pm 3.29$. After changing the raw scores, the z–scores were calculated again to ensure there were no remaining univariate outliers.

To screen for multivariate outliers, Mahalanobis distance and Cook's distance were used. Influential multivariate outliers were identified as any case with a statistically significant Mahalanobis distance and a Cook's *d* value greater than 1. There were 11 multivariate outliers, all on the BIS, that were excluded from the analysis. Seven were from the Control–NA group and four were from the NSSI–NA group.

Normality

In this study, the standardized values for skewness and kurtosis were used to determine the degree to which the dependent variables were normally distributed within each group. Given that analyses for group differences would be carried out using the matched groups, skewness and kurtosis were calculated for the distributions of the variables within each of the four matched groups. For the two control groups, the distributions on the BIS were moderately skewed, with

skewness values ranging from –.85 on BIS Touch to .80 for the Control–ME group. The lowest kurtosis value was –.95 on BIS Care for the Control–ME group and the highest was 1.25 for BIS Touch for the Control–NA group. For the two NSSI groups, the findings showed that skewness was moderate throughout the two groups and ranged from –.79 on Affect regulation to .79 on BIS Touch for the NSSI–ME group. Kurtosis was not excessive and ranged from –1.65 on ISAS Anti–suicide for the NSSI–ME group to 1.87 on BIS Touch for the NSSI–NA group. For interpretation of skewness and kurtosis, the reader is referred to Brown (2020).

In summary, the examination of the skewness and kurtosis information indicated that the groups, matched and unmatched, were not normally distributed in their scores of the dependent variables. It was thus decided that no score transformation would be undertaken and that the deviation from normality would be addressed by selecting the appropriate test statistic and analytic strategy as indicated later in the Results section.

Internal Consistency of Scales

Cronbach's α was used to assess the internal consistency of the scales used in the study (see Table 3 for all values based on the matched sample). The BIS showed variability with its α's ranging from .54 for Body Touch to .72 for Body Care. The α for the ISAS intrapersonal functions ranged from .55 for Affect Regulation to .76 for Anti–suicide. The α for the ISAS intrapersonal functions ranged from .68 for Self–care to .83 for Peer bonding. The α for the ISAS composite functions were excellent with .85 for the Intrapersonal composite and .95 for the Interpersonal composite. Finally, the α for the MC–C was .63.

Correlations

Bivariate correlations on the dependent variables (see Table 4 and Table 5) were used to identify the presence of multicollinearity and to determine whether social desirability (MC–C)

should be used as a covariate in the analyses. As can be seen in Table 4, pooled correlations in the full unmatched sample ranged from .11 to .50 for the BIS factors, indicating no multicollinearity problems. The correlations between the MC–C and the BIS factors ranged from –.03 to –.34. This suggests that MC–C could be used as a covariate in the analysis involving the BIS factors to control for the effects of social desirability.

Correlations among the 13 ISAS functions (see Table 5) ranged from .23 to .81, and the correlation between the Intrapersonal and Interpersonal composite function was .70 indicating no multicollinearity problem. No significant correlations were found between the MC–C and either the 13 ISAS functions or the two ISAS composite functions. This indicates that there was no relationship between participants' social desirability scores and their responses on the ISAS. Thus, the MC–C was excluded from analyses involving the ISAS.

Findings

Relationship Between BIS and NSSI Characteristics

The NSSI characteristics of interest were number of NSSI methods and number of NSSI lifetime incidents. An examination of the full NSSI sample data (n = 182) showed a huge range in the number of lifetime incidents reported. Some participants reported under 10 while others reported thousands – this might be due to differences in their interpretation of the question. Those who think of incidents as episodes might report a lower number. Others who consider incidents to mean actual acts, such as number of cuts or number of hits, might report a higher number. To circumvent this problem, it was decided that ranked data related to the number of lifetime incidents would be used instead of the actual number provided by the participants. The ranking was generated using the rank cases option in SPSS. The number of incidents ranged from one to 44,513. Cases that were tied were resolved by taking an average of the ranks they

would have otherwise been assigned. As a result, a rank of five was given to the lowest number of incidents reported and a rank of 143 was given to the highest number of incidents reported.

Bivariate correlations were performed on the four BIS factors and number of NSSI methods and ranked lifetime incidents using the full NSSI sample (n = 182). The results showed that BIS Body Protection was significantly correlated with number of methods, Pearson $r = –.18$, $p < .05$, and that BIS Body Image was significantly correlated with ranked NSSI lifetime incidents, Spearman's $\rho = –.27$, $p < .01$. Similar correlations were performed for the NSSI matched groups. As can be seen in Table 6, no significant correlations were found between the four BIS factors, number of NSSI methods, and ranked NSSI lifetime incidents for either the NSSI–ME or the NSSI–NA group. Nonsignificant relationships were visually inspected using scatterplots to see if any nonsignificant correlations may represent curvilinear relationships between the variables; none were found.

Group Differences on ISAS Functions

To address hypothesis 2, two separate MANOVAs with the matched sample were performed on the two ISAS composite functions and the 13 ISAS functions, respectively. Box's M was used to test for the assumption of homogeneity of covariance. Pillai's trace (V) was used to interpret the multivariate effect because it is robust to unequal sample size and violation of normality assumptions (Aetes et al., 2019; Olson, 1979).

The first MANOVA with matched Groups (NSSI–ME and NSSI–NA) as the independent variable and the two ISAS composite functions (Intrapersonal and Interpersonal) as the dependent variables showed no significant effect for Box's M and for Pillai's trace. The second MANOVA with matched Groups (NSSI–ME and NSSI–NA) as the independent variable and the

13 ISAS functions as dependent variables also showed no significant effect for either Box's *M* or Pillai's trace.

The absence of significant multivariate findings could be due to the small group sizes. An examination of Table 3 which shows the within–matched group descriptive statistics for the ISAS functions revealed consistently lower scores for the NSSI–ME group, except for Affect Regulation where the two groups had identical mean scores, and on interpersonal influence where NSSI–ME scored higher than NSSI–NA. Cohen's *d* was calculated to look at the magnitude of the group differences. When comparing NSSI–NA to NSSI–ME, the following small to medium effect sizes were found: anti–dissociation ($d = 0.45$), anti–suicide ($d = 0.38$), self–punishment ($d = 0.23$), marking distress ($d = 0.26$), autonomy ($d = 0.46$), interpersonal boundaries ($d = 0.35$), sensation seeking ($d = 0.41$), and toughness ($d = 0.77$). Less than small effect size was reported for self–care (d = 0.11), interpersonal influence (d = –0.13), peer bonding (d = 0.16), and revenge (d = 0.03). When comparing NSSI–NA to NSSI–ME on intrapersonal ($d = 0.36$) and interpersonal ($d = 0.32$) composite scores, small effect sizes were found.

Group Differences on NSSI Characteristics

Table 2 displays the characteristics of the self–injury behaviours for the two matched NSSI groups. An independent sample *t*–test on the age of NSSI onset found no significant differences between the matched NSSI–NA and the matched NSSI–ME. Cohen's *d* of .20 showed a small effect.

Analyses were also carried out on the number of NSSI methods and ranked number of NSSI lifetime incidents which are two indicators of NSSI severity and relevant to Hypothesis 3.

An independent *t*–test revealed no difference between the two matched NSSI groups in the number of self–injury methods used. The effect size for the difference between the group means was minimal with a Cohen's *d* of .03, when comparing the NSSI-NA to the NSSI-ME group. As can be seen from Table 2, cutting was the most common method of self–injury for both groups. The second and third most common method was scratching and head banging for the NSSI–ME, and preventing wounds from healing and burning with a cigarette for the NSSI–NA. An independent sample Mann–Whitney U test also showed no significant group differences in the ranked number of NSSI lifetime incidents. Even so, there was a medium effect size for the group difference (Cohen's $d = –0.51$).

Group Differences on Body Investment Factors

To test hypothesis 4, a MANCOVA was performed with matched Groups (NSSI–ME, NSSI–NA, Control–ME, and Control–NA) as the independent variable, the four BIS factors as the dependent variables, and MC–C as the covariate. Box's *M* was not statistically significant, indicating that the assumption of homogeneity of covariances was met. Pillai's trace (V) was used to assess multivariate effect as it is robust to unequal sample size and violation of normality (Aetes et al., 2019; Olson, 1979). A significant omnibus MANCOVA effect was found, V = .307, $F(12, 222) = 2.112$, $p = .017$ The multivariate effect size η_p^2 was estimated at .102, indicating that 10.2% of the variance in the dependent variable is accounted for by the different groups.

Four separate one–way ANCOVAs with matched Groups (NSSI–ME, NSSI–NA, Control–ME, and Control–NA) as the independent variable and MC–C as the covariate were subsequently carried out as a follow–up to determine which of the four BIS factors accounted for the group differences. To keep the overall error rate (α) at no greater than .05, Bonferroni

correction was used where each ANCOVA would be evaluated at $\alpha = .0125$. Significant ANCOVAs were followed up with post–hoc Bonferroni tests. Table 3 shows the within–group descriptive statistics for the BIS factors.

Body Image. At $\alpha = .0125$, the ANCOVA showed no significant group differences, $F(3, 75) = 3.22$, $p = .028$, $\eta_p^2 = .114$.

Body Touch. The ANCOVA showed a significant group difference, $F(3, 75) = 3.94$, $p = .012$, $\eta_p^2 = .136$. Post–hoc Bonferroni test showed that the NSSI–ME group ($M = 3.46$; $SD = .47$) scored higher than the NSSI–NA group ($M = 2.91$; $SD = .86$).

Body Care. The ANCOVA showed a significant group difference, $F(3, 75) = 5.40$, $p = .002$, $\eta_p^2 = .178$. Post–hoc Bonferroni test showed that the NSSI–ME group ($M = 4.40$; $SD = .43$) scored higher than the NSSI–NA group ($M = 3.83$; $SD = .66$).

Body Protection. At $\alpha = .0125$, an ANCOVA showed no significant group, $F(3, 75) = 2.16$, $p = .10$, $\eta_p^2 = .080$.

It is possible that the lack of more significant group differences is due to the small group sizes in the matched sample which compromised the robustness or power of the hypothesis testing. Thus, effect size for each logical pairwise group comparison was calculated because it can reveal the magnitude of the group mean difference, regardless of the outcome of the significance testing. The findings are reported below.

As can be seen in Table 3, the matched NSSI–ME group scored higher than the matched NSSI–NA group on all four BIS factors. The effect size was large for Body Care ($d = 1.02$), and Body Touch ($d = 0.79$), and medium for Body Protection ($d = 0.65$), and Body Image ($d = 0.60$).

Table 3 shows that matched NSSI–ME had higher scores than matched Control–ME on all four BIS factors. The effect size was large for Body Care (d = 1.09), medium for Body Touch (d = 0.77), small for Body Protection (d = 0.44), and minimal for Body Image (d = 0.09).

Higher scores on all four BIS factors were reported for NSSI–NA than Control–NA, with the exception of Body Protection (see Table 3). The effect size was small for Body Care (d = 0.30), minimal for Body Protection (d = –0.17) and Body Touch (d = 0.11), and negligible for Body Image (d = 0.03).

When comparing the two matched control groups, the Control–ME had higher means than Control–NA on all four BIS factors (see Table 3). A medium effect size was found for Body Image (d = 0.74), a small effect size was found for Body Touch (d = 0.46), Body Protection (d = 0.27), and Body Care (d = 0.25).

NSSI During the COVID–19 Pandemic

Findings relating to NSSI acts during the COVID–19 pandemic are reported below for self–injurers within the total NSSI sample and for the matched sample. The results are displayed in Table 7, and summarized below.

Total NSSI sample (n = 182). About 39.57% noted that compared to pre–pandemic times, their desire to self–injure had somewhat or had increased, 26.37% indicated decreased or somewhat decreased desire (23.33%), and 25.28% noted no change. A small minority (8.79%) said that they did not experience any desire to engage in NSSI. Less than half (41.21%) reported having self–injured during the pandemic.

Among those who self–injured during the pandemic, the majority (76.00%) said that their NSSI behaviours had increased somewhat or much more in frequency than before the pandemic, 13.33% reported somewhat or much less frequency, while 10.67% noted no change in frequency.

About 68.00% noted that their NSSI acts had become somewhat or much more severe, 17.33% noted no change, and 12.67% noted engaging in either somewhat or much less severe self–injury acts. Under half (44.00%) indicated using more methods to self–injure, 36% noted no change, whereas 20.00% said they were using fewer methods. More than half of the respondents (56.00%) said that the duration of time between feeling and acting on the desire to self–injure had somewhat or greatly increased, 28.00% noted that the duration had somewhat or greatly decreased, and 14.67% said there was no change. A large majority of the respondents (94.67%) who self–injured during the pandemic did so for the same reasons. Those who indicated otherwise (5.33%) said that their other reasons were "I dont care about people seeing my scars since i dont see anyone...", "I feel unwanted after my breakup. I can't meet new people during lockdown but all my friends have boyfriends and girlfriends that love them.", "I have trouble understanding the meaning of life", and "Stress over finances and relationships, ability to go anywhere outside of my home, being stuck inside with a toddler, never being alone."

Matched NSSI groups (n = 30). Most of the respondents (36.67%) indicated that they experienced no change in their desire to self–injure since the pandemic began. About a quarter noted that they either had increased desire or somewhat increased desire to self–injure (26.66%), and a little less than a quarter (23.33%) indicated decreased desire or somewhat decreased desire. A small minority (13.33%) said that they did not experience any desire to engage in NSSI. A little more than a third of respondents (36.67%) reported having self–injured during the pandemic.

Among those who self–injured during the pandemic, the majority (72.72%) said that their NSSI behaviours had become somewhat or much more frequent, while 18.18% reported no change and 9.09% reported that their self–injury had become somewhat less frequent. The data

for severity of NSSI acts during the pandemic followed the exact pattern in that 72.72% noted that the severity of their NSSI acts had somewhat or greatly increased, 18.18% noted no change, and 9.09% mentioned that their self–injury acts had become somewhat less severe. Over half (54.54%) indicated no change in the number of methods employed in self–injury acts, 27.27% indicated using more methods, and 18.18% indicated using fewer methods. There was equal split among respondents who said that the duration of time between feeling and acting on their desire to self–injure had somewhat or greatly increased (45.45%), or had somewhat or greatly decreased (45.45%). Only one individual (9.09%) said that there was no change. Most respondents who self–injured (90.91%) during the pandemic did so for the same reasons. One individual indicated otherwise (9.09%) saying that their other reasons was "I feel unwanted after my breakup. I can't meet new people during lockdown but all my friends have boyfriends and girlfriends that love them."

Discussion

The existing literature on self–injury has proven NSSI to be a trans–historical (Gilman, 2013) and global phenomenon that affects both Western and non–Western countries (e.g., Gandhi et al., 2021; Gholamrezaei, De Stefano, & Heath, 2015; Gholamrezaei, De Stephano, & Heath, 2017; Hamza & Willoughby, 2016; Swannell et al., 2014). Despite the cross–cultural prevalence of NSSI, the majority of the existing research has been done in Western countries. As previously mentioned, the Middle East is an underrepresented region in the NSSI literature. Cross–cultural research is instrumental in providing a detailed understanding of the reasons behind why individuals may self–injure, what may influence the severity of NSSI, and whether there are any culturally–specific risk or protective factors.

The purpose of this study was to compare NSSI functions, NSSI severity, and body investment in individuals with NSSI of Middle Eastern descent (NSSI–ME) living in the Middle East and North America (specifically Canada and the United States) with those of European descent (NSSI–NA) living in North America (specifically Canada and the United States). Individuals with no history of self–injury served as control to the NSSI–ME group if they were of Middle Eastern descent (Control–ME) and as control to the NSSI–NA group if they were not of Middle Eastern descent (Control–NA). It was anticipated that: (1) body investment would be negatively correlated with NSSI severity (number of lifetime NSSI incidents); (2) NSSI–ME would endorse interpersonal functions to a greater extent than the NSSI–NA; (3) NSSI–NA would report more severe NSSI than the NSSI–ME; and (4) NSSI–ME would have lower Body Image and Body Protection scores than Control–ME.

Overview of Discussion

The following sections discuss the results of the analyses. The findings will be addressed with respect to the hypotheses of the study. The first section will discuss the findings relating to group differences on the body investment scale, the second section will examine the findings relating to group differences on the NSSI functions, the third section will look at the NSSI characteristics between the self–injurers of Middle Eastern descent and European descent, and finally, the fourth section will review NSSI behaviors during the COVID–19 pandemic. This will be followed by a summary and conclusion of the present study, a review of the strengths and limitations, and future directions for research.

Body Investment Factors

Orbach and Mikulincer (1998) identified four factors that relate to an individual's perceptions and emotional investment in the body: (1) Body Image, which refers to one's image,

feelings, and attitudes about the body; (2) Body Touch, or comfort with physical touch; (3) Body Care; and (4) Body Care. As previously mentioned, the degree to which an individual is invested in the protection of their body has been proposed to be a critical factor in understanding NSSI behaviour. Body protection is common among Middle Eastern and Islamic teachings and may provide insight into why NSSI prevalence is lower among Middle Eastern samples.

Variability in the findings on NSSI research across cultures (Favazza & Conterio, 1989; Good et al., 2017; Haney, 2020; Klonsky & Glenn, 2009; Longo et al., 2013; Maris et al., 2000) indicates that it may not be ethnicity or religion that account for the differences in NSSI prevalence, but rather, it may be due to underlying psychological factors, such as an individual's emotional investment in their body. While there is research that investigates the relationship between body investment and self–injurious behaviours, none of these studies have assessed this relationship among Middle Eastern populations with regard to NSSI specifically. Additionally, to the author's knowledge, no studies to date have compared those findings with those obtained from North American populations.

Body Investment and NSSI Characteristics

Hypothesis 1 stated that body investment would be negatively correlated with NSSI severity. In the study, NSSI severity was examined using two indicators: the number of NSSI methods and total NSSI lifetime incidents. For the total NSSI sample (n = 182), it was found that those who were more invested in the protection of their bodies reported using fewer number of NSSI methods. In addition, the results showed that individuals who cared more about their body image and have more positive feelings towards their bodies reported engaging less frequently in NSSI. However, no relationship between the different body investment factors and NSSI severity was found within the matched NSSI groups (n = 30).

Given the discrepancy in results produced from the matched NSSI groups and the total NSSI group which has a sample size that is sixfold larger, more confidence is placed on the findings with the total sample because the small size of the matched groups could have reduced the power of the analysis to detect significant findings (Faul et al., 2009; Faul et al., 2007; Tabachnick & Fidell, 2018). Thus hypothesis 1 which stated that body investment would be negatively associated with NSSI severity was supported, where higher body image predicted fewer incidents of self–injury and higher sense of body protection predicted the use of fewer methods to harm oneself.

Group Differences on Body Investment Factors

The findings demonstrate that self–injurers of Middle Eastern descent were significantly different from their self–injurer counterparts of European descent; the former indicated a higher level of care for their body and comfort with physical contact. No other significant findings were obtained. This contradicts hypothesis 4 which stated that among those of Middle Eastern descent, those who self–injured would have less positive body image and lower sense of protection of their bodies than those who do not self–injure.

The paucity of significant findings might be due to the low sample size in the matched groups. Thus, effect size that shows the magnitude and meaningfulness of group differences (Ialongo, 2016) were calculated, and some interesting results were revealed. First, when looking at self–injurers only, those of Middle Eastern descent scored higher than those of European descent on all body investment factors with effect size ranging .60 (medium) on Body Image to 1.02 (large) on Body Care. Thus, self–injurers of Middle Eastern descent were more likely than self–injurers of European descent to have a positive image of their body, to take care of their bodies and any injuries they may sustain, and to engage in physical contact with others.

Second, when the self–injurers were compared to non–self–injurers of the *same* ethnicity, the self–injurers consistently scored higher on all four body investment factors, with one exception. Among individuals of European descent, non–self–injurers scored higher than the self–injurers on body protection. It is noteworthy that the magnitude of the effect size for the group differences is greater for those of Middle Eastern descent than those of European descent. More specifically, the effect size for the two groups of Middle Eastern descent ranged (NSSI–ME vs Control–ME) from 0.09 (negligible) on Body Image to 0.77 (high medium) on Body Touch. In contrast, the effect size for the two groups of European descent (NSSI–NA vs Control–NA) ranged from 0.03 (negligible) on Body Image to 0.30 (small) on Body Care. This suggests that the difference in body investment between self–injurers and non–self–injurers is greater among those of Middle Eastern descent than European descent.

Third, when comparing those who did not engage in self–injury, those who were of Middle Eastern descent consistently scored higher than those of European descent on the four BIS factors. The effect size ranged from 0.25 (small) on Body Care to 0.74 (high medium) on Body Image.

The observation of the effect size associated with the multiple group comparisons indicate that self–injurers of Middle Eastern descent have stronger body investment than self–injurers of European descent. Furthermore, self–injurers have higher levels of body investment than non–self–injurers, and that this difference is more pronounced among those of Middle Eastern descent. This is puzzling as it contradicts what might be considered to be common logic, which is that those who hurt themselves would be expected to have less investment and to be less protective of their body.

One plausible explanation is that emotional investment in the body might perhaps lead to more personal value to be placed on one's body. Therefore, when an individual becomes distressed, they might communicate that distress by injuring or destroying something they highly value, such as their body. Expressing their distress by injuring something as valuable as their body might be considered a powerful way of communicating their emotional experience. The observation that self–injurers of Middle Eastern descent have greater emotional investment in their body than self–injurers of European descent makes sense when one considers the prominence of body protection in Middle Eastern and Islamic teachings (Qur'an 2:195; 4:29 – 4:30; 7:31; 17:70).

ISAS: Functions of NSSI

The analyses on the two groups of self–injurers found no statistically significant difference between those of Middle Eastern descent and those of European descent on any of the NSSI constructs that were assessed with the ISAS. Specifically, the two groups did not differ on whether their NSSI acts served an intrapersonal or interpersonal composite function. Neither did they differ on any of the 13 functions for NSSI that were examined. Thus, the findings did not confirm hypothesis 2 which stated that self–injurers of Middle Eastern descent would endorse interpersonal functions to a greater degree than self–injurers of European descent.

As previously mentioned, the absence of significant findings could be explained by the small sample size of the groups. Thus, effect size was calculated to examine the magnitude and meaningfulness of the difference in group means on the ISAS composite functions and functions.

The group means showed that the self–injurers of European descent endorsed interpersonal and intrapersonal composite functions more strongly than self–injurers of Middle

Eastern descent. The effect size for the group difference was small for both interpersonal (d = 0.32) and intrapersonal (d = 0.36) composite scores.

When ISAS functions were examined separately, the group means were consistently higher for the self–injurers of European descent, except for interpersonal influence on which the self–injurers of Middle Eastern descent scored higher. The effect size for the group difference mostly ranged from small (d = 0.23) on self–punishment to high medium (d = 0.77) on toughness. The effect size on three of the functions were small: self–care (d = 0.11), interpersonal influence (d = 0.13), peer bonding (d = 0.16). One function, revenge, showed negligible effect size (d = 0.03).

For the most part, the findings with effect size showed that self–injurers of European descent more strongly endorse the ISAS composite function and functions than self–injurers of Middle Eastern descent. It is important to note that the ISAS was originally developed with Western samples. Although its contents have been validated in other countries such as Turkey (Bildik et al., 2013; Idig–Camuroglu & Gölge, 2018; Somer et al., 2015), Iran (Izadi–Mazidi et al., 2019), Portugal (Duarte et al., 2020), Korea (Kim et al., 2019), Sweden (Lindholm et al., 2011), Pakistan (Nisar et al., 2020), and Spain (Vega et al., 2015), it is not known whether the functions in the ISAS fully captures the reasons for NSSI among individuals of Middle Eastern descent. Perhaps there are culture–specific reasons for self–injury endorsed by other cultural groups that are not assessed with the ISAS. If so, this would limit the comprehensiveness with which the ISAS can be used as tool to understand the reasons for undertaking self–injury in other cultures.

Group Differences on NSSI Characteristics

The two NSSI groups were compared on their NSSI characteristics. No significant differences between those of Middle Eastern descent and those of European descent on the number of lifetime NSSI incidents, NSSI methods, or age of NSSI onset were obtained. Thus, hypothesis 3 which stated that self–injurers of European descent would engage in more severe NSSI than those of Middle Eastern descent was not supported.

An examination of the group means showed that self–injurers of Middle Eastern descent had a higher number of lifetime NSSI incidents but used fewer methods and started to engage in self–injury at a younger age. The effect size showed a medium group difference on number of lifetime incidents ($d = 0.51$), small group difference on age of onset ($d = –0.20$), and negligible group difference on number of methods ($d = –0.03$).

The self–injurers of Middle Eastern descent might be reporting higher number of lifetime incidents because the type of self–injury acts that they engage in tend to be those that allow repetition. For instance, although both groups reported cutting as the most frequent method, the individuals of Middle Eastern descent also reported scratching and head banging as more frequent methods, whereas those of European descent were preventing wounds from healing and burning their skin with a cigarette. Scratching and head banging are behaviours that can be repeated more frequently than preventing wounds from healing or burning with a cigarette. This may account for why those of Middle Eastern descent reported more frequent NSSI than those of European descent. The findings show that even though self–injurers of Middle Eastern descent may engage in NSSI more frequently, their NSSI behaviour may not necessarily be more severe than self–injurers of European descent.

NSSI During the COVID–19 Pandemic

Since the start of the COVID–19 pandemic in March 2020, countries have implemented lockdowns, mask wearing, and physical distancing repeatedly as the pandemic waxed and waned with different coronavirus variants. Research has shown the consequences of the public health measures and the pandemic that includes widespread deaths and illness, financial insecurity, disruptions to daily routine, civil unrest, and losses of various types that have led to decreased mental health and psychological wellness, and increased risk of suicide and self–injury among the world population (Aquila, Sacco, Ricci, et al., 2020; Galea & Abdalla, 2020; Lennon, 2020; Luo, Guo, Yu, et al., 2020; Roychowdhury, 2020; Zalsman, Stanley, Szanto, et al., 2020).

In the present study, information was obtained from self–injurers to ascertain whether and how their NSSI behaviours might have changed from pre–to during the pandemic. The results with all the self–injurers (not just the ones in the matched groups) showed that about 4 in 10 reported a greater desire to self–injure during the pandemic, while 1 in 4 felt less desire and another 1 in 4 reported no change. More than half (about 6 in 10 self–injurers) have engaged in NSSI since the start of the pandemic. Among those who self–injured during the pandemic, a large majority (more than three in four) reported doing so more frequently. In addition, nearly half reported using more NSSI methods. The majority (close to 7 in 10) reported more severe NSSI. However, when assessing the length of time between feeling and acting on the desire to self–injure, more than half reported more time than before the pandemic. This increased self–restraint might be explained by the lockdowns imposed by the authority. There is less privacy and fewer opportunities to self–injure when family members are forced to stay in the house due to the government's policy on movement control. More than 9 in 10 self–injurers reported engaging in NSSI for the same reasons as before the COVID–19 pandemic. The majority (6 in

10) reported a higher degree of desired outcome from NSSI; perhaps with increased stress during the pandemic, the act of self–injury provides a psychological release that is greater than during pre–pandemic times.

When only the self–injurers from the matched groups were examined, slightly more than one–third experienced no change in their desire to self–injure since the pandemic began, slightly more than a quarter felt more desire, slightly less than a quarter experienced less desire, and about 13% said they felt no desire at all to hurt themselves. More than a third in the matched groups had engaged in NSSI during the pandemic. Among those who did, more than 7 in 10 reported increased frequency of self–injury acts. Although more than half said that there was no change in the number of methods used, more than 7 in 10 said that they engaged in more severe self–injury acts. An equal number of self–injurers (45.45% each) reported either increased time or decreased time before acting on their desire to engage in NSSI. About 9 in 10 said that they self–injured for the same reasons that they did before the pandemic, and equal number of self–injurers (36.36% each) said that they either achieved higher levels of desired outcomes from their actions or there was no change from before the pandemic.

When comparing the findings from the total and matched groups of self–injurers, some similarities in their NSSI characteristics during the pandemic were noted such as in the frequency and severity of the acts. However, given that the matched groups represent only one–sixth the size of the total sample of self–injurers, more confidence is given to the findings derived from the total sample.

In summary, the findings suggest that fewer than half of the self–injurers continue their self–injury acts during the pandemic, and when they do, they did so more frequently and with more severity. However, they took more time before acting on their desire to hurt themselves.

As well, more than half reported that their actions produced more desirable outcomes than it did before the pandemic. It is important to keep in mind the pandemic is a highly unsual time where people are locked in their homes with others. Even though the psychological stress might be high, individuals might have less opportunity to hurt themselves which might explain why fewer than half of the self–injurers continued with their self–injury. Additionally, the multiple problems rising out of the pandemic in one's life, social circles and the country might take one's attention away from personal distress, thus reducing the motivation to engage in NSSI.

Summary

The findings showed that self–injurers of Middle Eastern descent were significantly more emotionally invested in their bodies than those of European descent in that they were more likely to take care of their bodies, tend to any injuries they may sustain, and were more accepting of physical contact and touch with others. Effect size analysis with the four groups showed that self–injurers are more emotionally invested in their body than non–self–injurers, with self–injurers of Middle Eastern descent having the highest level of body investment among the groups. The self–injurers of Middle Eastern descent and those of European descent did not differ significantly from each other on the functions that their self–injury served. However, effect size analysis revealed that for the most part, the self–injurers of European descent endorsed the NSSI functions more strongly than did the self–injurers of Middle Eastern descent. Effect size analysis also showed self–injurers of Middle Eastern descent to have more NSSI incidents in their lifetime and to have started hurting themselves at a younger age when compare to self–injurers of European descent. Higher body investment was associated with less severe NSSI such that higher body protection predicted fewer methods, and higher body image predicted fewer lifetime NSSI incidents. Fewer than half of self–injurers continued their NSSI during the pandemic.

Among those who did, they took more time before acting on their desire to self–injure, and they self–injured more frequently and more severely.

Strengths and Limitations

To the author's best knowledge, this study is the first to investigate the relationship between body investment and NSSI among non–clinical Middle Eastern populations, the first to compare on body investment between self–injurers of Middle Eastern descent and those of European descent, and the first to look at NSSI as an independent construct from suicide in individuals of Middle Eastern descent.

Inattentiveness check was also carried out to exclude those who might not have been paying attention to the questions. Sex, age, education, and socioeconomic status were controlled for by matching individuals across groups. Social desirability was accounted statistically because stigma against self–injury (Aggarwal, Borschmann, & Patton, 2021; Burke, Piccirillo, Moore–Berg, et al., 2019; Gibson, Carson, & Houghton, 2019; Lloyd, Blazely, & Phillips, L., 2018; Staniland, Hasking, Boyes, et al., 2021) could have resulted in response bias from the participants.

The use of psychometrically tested measures that have shown good internal consistency, and have been cross–culturally validated increase confidence in the results obtained. In the current study, several of the measures and their subscales showed sufficient reliability with Cronbach's alpha of at least .70.

The participants of Middle Eastern descent in this study includes both those that are of Middle Eastern ethnicity living in the Middle East, as well as those living in North America. While the sample sizes are small, the Middle Eastern participants were diverse in their

geographical regions which increases the generalizability of the findings to individuals of Middle Eastern descent, regardless of their geographical location.

The gender ratio in the study was almost equal. For the total sample, 57.01% of the respondents were men; in the matched sample, 53.77% were men. As previously mentioned, some research has shown that there may be sex differences in the characteristics and functions of NSSI (Barrocas et al., 2012; Sornberger et al., 2012; Whitlock et al., 2006; Whitlock et al., 2011), whereas other studies have not found these differences (Victor et al., 2018). Sex differences have been found across body investment factors (Barrocas et al., 2012; Sornberger et al., 2012; Victor et al., 2018; Whitlock et al., 2006; Whitlock et al., 2011). In this study, the nearly equal proportion of men and women minimizes the influence of potential sex differences on the results of the study. Confounds associated with sex, age, education, and socioeconomic status were further eliminated with the use of matched groups in the investigation of group differences.

Some important limitations need to be considered when interpreting the findings of the study. The number of participants who were not of Middle Eastern descent were much higher than the number of participants of Middle Eastern descent. The gross inequality between the two groups led to the decision to compare groups that were matched on sex, age, and education, and socioeconomic status. In doing so, the group sizes were small which reduced the ability of the statistical tests to detect significant findings.

Another limitation relates to the homogenous ethnicity among individuals who were not of Middle Eastern descent, particularly in the matched sample where they were selected on the basis of their self–declared ethnic origin as white or European. This decision was made to ensure that the matched sample reflected the dominant ethnicity of the overall sample. The pro

of doing so is that it controls for any confounds that might be associated with ethnic variations. The con is that the matched groups do not represent the North American population which is more diverse in ethnicity, thereby limiting the generalizability of the findings to North Americans of European descent.

In addition, participant recruitment was done exclusively through Amazon's MTurk. While MTurk is a useful and effective recruitment tool, the majority of its users (MTurkers) reside in the USA (80%) and identify as "White, non–Hispanic" (77%; Hiltin et al., 2016). For that reason, it was difficult to meet the sample size requirements for the Middle Eastern group. It is worth mentioning that 17 MTurkers were recruited from Canada while 620 were recruited from the United States. The remaining 12 were recruited from different countries across the Middle East (Bahrain, Egypt, Israel, Morocco, Turkey, and United Arab Emirates).

The low response rate from the Middle Eastern countries might be due to the fact that the study was conducted in English. Although many Middle Easterners might have some comprehension of English, their lack of fluency might discourage them from participating. Thus, the findings from the present study cannot be generalized to individuals of Middle Eastern descent who are not fluent in English. It is also wondered whether the research topic itself might be a deterrent because there is significant stigma and negative attitudes associated with self–injury in many countries, including the Middle East (Aggarwal et al., 2021). This would result in limited sampling and poor generalizability of the findings to the population of non–suicidal self–injurers, particularly those living in the Middle East.

Future Directions and Recommendations

The scarcity of significant findings in the current study is very likely due to the small sample size in the analysis using matched groups, which reduced the power of the significance

testing. The effect size which revealed that several of the group differences were medium to large suggests the benefits of replicating the study with a larger sample size.

When examining NSSI in Middle Eastern populations, researchers should make an effort to distinguish NSSI as an independent construct from suicide. In addition, it would be useful to repeat this study using a larger Middle Eastern sample and a more diverse North American sample. Recruitment methods for the study should ensure that a large number of Middle Eastern people are accessible. Partnering with a Middle Eastern organization, university, or researchers may be effective. Addressing any cultural or religious taboos or stigma about non–suicidal self–injury would be important.

In order to reach a wider segment of the Middle Eastern population, it would be necessary to expand recruitment efforts beyond MTurk and include other crowdsourcing platforms, social media platforms, or social news platforms such as Reddit. It would also be necessary to reach segments of the Middle Eastern population who are not fluent in English. This would require the study to be carried out in Arabic, Hebrew, Farsi, Turkish, or other Middle Eastern languages, depending on the dominant language used in the different geographical regions of the Middle East.

It would also be beneficial to explore body investment in repetitive versus occasional self–injurers and see whether that relationship is different across cultures. Additionally, it would be interesting to use a qualitative approach to explore the different reasons behind why Middle Eastern individuals self–injure, what makes them stop, and what makes them continue. It is possible that there are culture–specific reasons associated with self–injury among Middle Easterners.

Future NSSI research could also extend the limited knowledge about public and self–stigma surrounding NSSI. Other related questions that have not received much attention are the impact of NSSI on the self–injurer, their attitudes and perceptions are towards their NSSI, and their associations with cultural influences. Along with Middle Eastern populations, cross–cultural research into NSSI in general would benefit from including a measure of adverse childhood experiences to help identify any predisposing or precipitating factors associated with NSSI behaviour.

References

Aggarwal, S., Borschmann, R., & Patton, G. C. (2021). Tackling stigma in self–harm and suicide in the young. *Lancet Public Health, 6*(1):e6–e7. 10.1016/S2468–2667(20)30259–0.

Ates, C., Kaymaz, Ö., Kale, H. E., & Tekindal, M. A. (2019). Comparison of test statistics of nonnormal and unbalanced samples for multivariate analysis of variance in terms of type–I error rates. *Hindawi. Computational and Mathematical Methods in Medicine, 2019*, Article ID 2173638. https://doi.org/10.1155/2019/2173638

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Publishing.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Psychological Association. (2002). *Developing adolescents: A reference for professionals*. http://www.apa.org/pi/families/resources/develop.pdf

Ammerman, B., Jacobucci, R., Kleiman, E. M., Uyeji, L. L., & McCloskey, M. S. (2018). The relationship between nonsuicidal self–injury age of onset and severity of self–harm. *Suicide and Life–Threatening Behavior, 48*(1), 31–38. 10.1111/sltb.12330

Aquila, I., Sacco, M. A., Ricci, C., Gratteri, S., Abenavoli, L. M., Oliva, A., & Ricci, P. (2020). The role of the COVID–19 pandemic as a risk factor for suicide: What is its impact on the public mental health state today? Psychological Trauma: theory, research, practice and policy, 12(S1), S120–S122. doi: 10.1037/tra0000616

Arab Council for Social Sciences (2021). *Arab Foundations Forum*. https://arabfoundationsforum.org/author/ACSS/

Baasher, T. A. (2001). Islam and mental health. *La Revue de Santé de la Méditerranée Orientale, 7*(3), 372–376. Retrieved from http://apps.who.int/iris/bitstream/10665/119027/1/emhj_2001_7_3_372_376.pdf

Bandura, A. (1977). Self–efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. 10.1037/0033–295X.84.2.191

Barrocas, A. L., Hankin, B. L., Young, J. F., & Abela, J. R. (2012). Rates of nonsuicidal self–injury in youth: age, sex, and behavioral methods in a community sample. *Pediatrics, 130*(1), 39–45. 10.1542/peds.2011–2094

Bergmann, G. H. (1846). Ein fall von religiöser monomanie [A case of religious monomania]. *Allgemeine Zeitschrifft. für Psychiatrie, 3*, 365–380.

Berinsky, A. J., Margolis, M. F., & Sances, M. W. (2014). Separating the shirkers from the workers? Making sure respondents pay attention on self-administered surveys. *American Journal of Political Science, 58*(3), 739–753. 10.1111/ajps.12081

Bildik, T., Somer, O., Basay, B. K., Basay, Ö., & Özbaran, B. (2013). The validity and reliability of the Turkish version of the inventory of statements about self–injury. *Turk Psikiyatri Dergisi, 24*(1), 1–9. http://turkpsikiyatri.com/Data/UnpublishedArticles/4065u9.pdf

Brown, S. (2020). Measures of shape: skewness and kurtosis. Retrieved from https://brownmath.com/stat/shape.htm, 4 July 2021.

Brown, M. Z., Comtois, K. A., & Linehan, M. M. (2002). Reasons for suicide attempts and nonsuicidal self–injury in women with borderline personality disorder. *Journal of Abnormal Psychology*, *111*(1), 198–202. http://dx.doi.org/10.1037/0021–843X.111.1.198

Brown, R. C., Fischer, T., Goldwich, A. D., Keller, F., Young, R., & Plener, P. L. (2018). # cutting: Non–suicidal self–injury (NSSI) on Instagram. *Psychological Medicine, 48*(2), 337–346. https://doi.org/10.1017/S0033291717001751

Brown, R. C., Fischer, T., Goldwich, D. A., & Plener, P. L. (2020). "I just finally wanted to belong somewhere"—Qualitative Analysis of Experiences with Posting Pictures of Self–Injury on Instagram. *Frontiers in Psychiatry, 11*, 1–8. 10.3389/fpsyt.2020.00274

Burke, T. A., Piccirillo, M. L., Moore–Berg, S. L., Alloy L. B., & Heimberg, R. G. (2019). The stigmatization of non–suicidal self–injury. *Journal of Clinical Psychology, 75*(3), 481–498. 10.1002/jclp.22713.

Calm Harm (2021). *Calm Harm FAQs: What evidence is there that the Calm Harm app works?* https://calmharm.co.uk/faqs/

Carroll, J., Schaffer, C., Spensley, J., & Abramowitz, S. I. (1980). Family experiences of self–mutilating patients. *The American Journal of Psychiatry, 137*(7), 852–853. https://doi.org/10.1176/ajp.137.7.852

Case, J. A., Burke, T. A., Siegel, D. M., Piccirillo, M. L., Alloy, L. B., & Olino, T. M. (2019). Functions of non–suicidal self–injury in late adolescence: a latent class analysis. *Archives of Suicide Research*, 1–22. https://www.tandfonline.com/doi/pdf/10.1080/13811118.2019.1586607?casa_token=vPW1d8Dr9McAAAAA:rPloimnA967–hN_ax–BSe9zEwswKP9xZlhTQuLksVzQKuw__WhBsn8ChdyvFHDOCrCZGIuogGBQ

Cerutti, R., Presaghi, F., Manca, M., & Gratz, K. L. (2012). Deliberate self-harm behavior among Italian young adults: Correlations with clinical and nonclinical dimensions of

personality. *American Journal of Orthopsychiatry, 82*(3), 298–308. 10.1111/j.1939–0025.2012.01169.x

Chambers, S., & Nimon, K. (2019). *Conducting survey research using MTurk*. In *Crowdsourcing: Concepts, Methodologies, Tools, and Applications* (p. 410–439). 10.4018/978–1–5225–8362–2.ch022

Cheung, Y. T. D., Wong, P. W. C., Lee, A. M., Lam, T. H., Fan, Y. S. S., & Yip, P. S. F. (2013). Non–suicidal self–injury and suicidal behavior: Prevalence, co–occurrence, and correlates of suicide among adolescents in Hong Kong. *Social Psychiatry and Psychiatric Epidemiology, 48*(7), 1133–1144. 10.1007/s00127–012–0640–4.

Chowanec, G. D., Josephson, A. M., Coleman, C., & Davis, H. (1991). Self–harming behavior in incarcerated male delinquent adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*(2), 202−207. https://doi.org/10.1097/00004583–199103000–00007

Cipriano, A., Cella, S., & Cotrufo, P. (2017). Nonsuicidal self–injury: A systematic review. *Frontier in Psychology, 8*, 1–12. 10.3389/fpsyg.2017.01946

Colucci, E., & Martin, G. (2008). Religion and spirituality along the suicidal path. *Suicide and Life–Threatening Behavior, 38*(2), 229–244. https://onlinelibrary.wiley.com/doi/pdf/10.1521/suli.2008.38.2.229?casa_token=0bvJ3d7RtJsAAAAA:wKEeZ0dssncB4uuQFuHVy9YDPWUtF4GV08Thgkegj37sK_Q0XNQuoqha3KZFEFj–I93BsBIfXfxk

Croyle, K. L. (2007). Self–harm experiences among Hispanic and non–Hispanic White young adults. *Hispanic Journal of Behavioral Sciences, 29*(2), 242–253. 10.1177/0739986307299452

Crump, M. J., McDonnell, J. V., & Gureckis, T. M. (2013). Evaluating Amazon's Mechanical Turk as a tool for experimental behavioral research. *PloS one, 8*(3), 1–18. 10.1371/journal.pone.0057410

Curran, P. G. (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology, 66*, 4–19. http://dx.doi.org/10.1016/j.jesp.2015.07.006

Daradkeh, T. K., & Al-Zayer, N. (1988). Parasuicide in an Arab industrial community: The Arabian-American Oil Company experience, Saudi Arabia. *Acta Psychiatrica Scandinavica, 77*(6), 707–711. https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1600–0447.1988.tb05191.x?casa_token=28Wm0xiMm7UAAAAA:MYX6tMV55AmiwLVTSf3yxa1Hy7801fsABAeScahVKZnnZ5YM–ePw0lCZ2Y5G9wyrhmGhTnM9XJ1p

Dervic, K., Oquendo, M. A., Grunebaum, M. F., Ellis, S., Burke, A. K., & Mann, J. J. (2004). Religious affiliation and suicide attempt. *American Journal of Psychiatry, 161*(12), 2303–2308. https://ajp.psychiatryonline.org/doi/pdfplus/10.1176/appi.ajp.161.12.2303

Desilver, D. & Masci, D. (2017). World's Muslim population more widespread than you might think. *Pew Research Center, 31*. http://pewrsr.ch/116QRmk

Duarte, E., Gouveia–Pereira, M., Gomes, H. S., & Sampaio, D. (2020). Social representations about the functions of deliberate self–harm: construction and validation of a questionnaire for Portuguese adolescents. Journal of personality assessment, 102(3), 405–414. 10.1080/00223891.2018.1557667

El–Guindy, T., & Taloo, F. A. (1975). Attempted suicide admitted to Basrah Republican Hospital. *Egypt Journal of Mental Health, 16*, 113–23.

El–Sayed, A. M., Tracy, M., Scarborough, P., & Galea, S. (2011). Suicide among Arab–Americans. *PLoS One, 6*(2), 1–6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3040741/pdf/pone.0014704.pdf

El–Islam, M. F. (1974). Hospital–referred parasuicide in Qatar. *Egypt Journal of Mental Health, 15*, 101–112.

Eroglu, M., Yildirim, A. O., Uzkeser, M., Saritas, A., Acemoglu, H., Navruz, M., & Emet, M. (2014). Emergency room visits for suicide attempts: rates, trends and sociodemographic characteristics of suicide attempts in Northeastern Anatolia. *Klinik Psikofarmakoloji Bülteni–Bulletin of Clinical Psychopharmacology, 24*(4), 350–359. https://www.tandfonline.com/doi/pdf/10.5455/bcp.20130208020424

Farber, S. K. (2003). Ecstatic stigmatics and holy anorexics: Medieval and contemporary. *Journal of Psychohistory, 31*(2), 182–204. Retrieved from http://www.primal–page.com/farber1.htm

Faul, F., Erdfelder, E., Buchner, A., & Lang, A–G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160. 10.3758/BRM.41.4.1149

Faul, F., Erdfelder, E., Lang, A–G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. 10.3758/bf03193146

Favazza, A. R. (1987). *Bodies under siege: Self–mutilation in culture and psychiatry*. Baltimore, MD: Johns Hopkins University Press.

Favazza, A. R. (1992). Repetitive self–mutilation. *Psychiatric Annals, 22*(2), 60–63.

Favazza, A. R. (1996). *Bodies under siege: Self–mutilation and body modification in culture and psychiatry*. Baltimore, MD: John Hopkins University Press.

Favazza, A. R. (1998). The coming of age of self–mutilation. *The Journal of Nervous and Mental Disease, 186*(5), 259–268. https://journals.lww.com/pages/default.aspx

Favazza, A. R., & Conterio, K. (1989). Female habitual self-mutilators. *Acta Psychiatrica Scandinavica, 79*(3), 283–289. https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1600–0447.1989.tb10259.x?casa_token=whYXS7PsIcsAAAAA:_o6i2IRvoU8sFM6Q5EjHue1PBYpUFgh3–3Dj_J9b8gYhUsozvao0EnJWr8yv3NgXCkeK1pl6GciT

Fitriyah, L., & Rokhmawan, T. (2019). " You're fat and not normal!" From Body Image to Decision of Suicide. *Indonesian Journal of Learning Education and Counseling, 1*(2), 102–118. doi.org/10.31960/ ijolec.v1i2.75

Freud, A. (1949). Aggression in relation to emotional development. *The Psychoanalytic Study of the Child, 3*, 37–42. 10.1093/med:psych/9780190271350.003.0066

Freud, S. (1905). *Three essays on the theory of sexuality* (J. Strachey, Ed. & Trans.). London, UK: Hogarth Press.

Freud, S. (1920). *Beyond the pleasure principle* (J. Strachey, Ed. & Trans.). London, UK: Hogarth Press.

Freud, S. (1921). *Group psychology and the analysis of the ego* (J. Strachey, Ed. & Trans.). London, UK: Hogarth Press.

Friedman, M., Glasser, M., Laufer, E., Laufer, M., & Wohl, M. (1972). Attempted suicide and self–mutilation in adolescence: Some observations from a psychoanalytic research project. International journal of psycho–analysis, 53, 179–183.

Furman, E. (1984). Some difficulties in assessing depression and suicide in childhood. In Sudak, H. S., Ford, A. B., & Rushforth, N. B. (Eds.), *Suicide in the young* (pp. 245–258). Boston, MA: John Wright PSG.

Galea, S., & Abdalla, S. M. (2020). COVID–19 pandemic, unemployment, and civil unrest: Underlying deep facial and socioeconomic divides. JAMA, 324(3), 227–228. 10.1001/jama.2020.11132

Gandhi, A., Luyckx, K., Adhikari, A., Parmar, D., De Sousa, A., Shah, N., Maitra, S., & Claes, L. (2020). Nonsuicidal self–injury and identity formation in Indian clinical and nonclicial samples: A comparative study. *International Journal of Social Psychiatry*, 1–8. 10.1177/0020764020943618

Gandhi, A., Luyckx, K., Baetens, I., Kiekens, G., Sleuwaegen, E., Berens, A., Maitra, & S., Claes, L. (2018). Age of onset of non–suicidal self–injury in Dutch–speaking adolescents and emerging adults: An event history analysis of pooled data. *Comprehensive Psychiatry, 80*, 170–178. https://doi.org/10.1016/j.comppsych.2017.10.007

Gandhi, A., Luyckx, K., Goossens, L., Maitra, S., & Claes, L. (2016). Sociotropy, autonomy, and non–suicidal self–injury: The mediating role of identity confusion. Personality and Individual differences, 99, 272–277. http://dx.doi.org/10.1016/j.paid.2016.05.040

Gearing, R. E., & Alonzo, D. (2018). Religion and suicide: New findings. *Journal of Religion and Health, 57*(6), 2478–2499. https://doi.org/10.1007/s10943–018–0629–8

Gholamrezaei, M., De Stefano, J., & Heath, N. L. (2017). Nonsuicidal self-injury across cultures and ethnic and racial minorities: A review. *International Journal of Psychology, 52*(4), 316–326. 10.1002/ijop.12230

Gholamrezaei, M., Heath, N. L., & Panaghi, L. (2017). Nonsuicidal self-injury in a sample of university students in Tehran, Iran: prevalence, characteristics and risk factors. *International Journal of Culture and Mental Health, 10*(2), 136–149. http://dx.doi.org/10.1080/17542863.2016.1265999

Gibson, R., Carson, J., & Houghton, T. (2019). Stigma towards non–suicidal self–harm: evaluating a brief educational intervention. *British Journal of Nursing, 28*(5),307–312. 10.12968/bjon.2019.28.5.307.

Gilman, S. L. (2013). From psychiatric symptom to diagnostic category: Self–harm from the Victorians to DSM–5. *History of Psychiatry, 24*(2), 148–165. 10.1177/0957154X13478082

Girard, R. (1977). *Violence and the sacred*. Baltimore, MD: John Hopkins University Press.

Glenn, C. R., & Klonsky, E. D. (2011). Prospective prediction of nonsuicidal self–injury: A 1–year longitudinal study in young adults. Behavior therapy, 42(4), 751–762. https://doi.org/10.1016/j.beth.2011.04.005

Glenn, C. R., & Klonsky, E. D. (2013). Nonsuicidal self–injury disorder: an empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child & Adolescent Psychology, 42*(4), 496–507. https://doi.org/10.1080/15374416.2013.794699

Good, M., Hamza, C., & Willoughby, T. (2017). A longitudinal investigation of the relation between nonsuicidal self–injury and spirituality/religiosity. *Psychiatry Research, 250*, 106–112. https://doi.org/10.1016/j.psychres.2017.01.062

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making, 26*(3), 213–224. 10.1002/bdm.1753

Graff, H., & Mallin, R. (1967). The syndrome of the wrist cutter. *American Journal of Psychiatry*, *124*(1), 36–42. https://doi.org/10.1176/ajp.124.1.36

Gratz, K. L. (2001). Measurement of deliberate self–harm: Preliminary data on the deliberate self–harm inventory. *Journal of Psychopathology and Behavioral Assessment, 23*(4), 253–263. 10.1023/A:1012779403943

Gratz, K. L. (2003). Risk factors for and functions of deliberate self–harm: An empirical and conceptual review. Clinical Psychology: Science and Practice, 10(2), 192–205. 10.1093/clipsy/bpg022

Gratz, K. L. (2006). Risk factors for deliberate self-harm among female college students: The role and interaction of childhood maltreatment, emotional inexpressivity, and affect intensity/reactivity. *American Journal of Orthopsychiatry, 76*(2), 238–250. 10.1037/0002–9432.76.2.238

Greening, L., & Stoppelbein, L. (2002). Religiosity, attributional style, and social support as psychosocial buffers for African American and white adolescents' perceived risk for suicide. *Suicide and Life–Threatening Behavior, 32*(4), 404–417. https://onlinelibrary.wiley.com/doi/pdf/10.1521/suli.32.4.404.22333?casa_token=_5N9EYf6WewAAAAA:CmDfh1aE–O9Fip1acSWwtnecoyfUud8Qe6hRx4NQqfbfiOWiwIWvXGm6tXFWbpbQxE9bbjkxkj9n

Gregg, J., Deming, C., Libman, C., Clancy, C., Calhoun, P., Beckham, J., Kimbrel, N. (2018) Nonsuicidal self–injury in older versus middle–aged/younger veterans seeking treatment for posttraumatic stress. *Innovation in Aging*, *2*(1), 972. https://doi.org/10.1093/geroni/igy031.3600

Guertin, T., Lloyd–Richardson, E., Spirito, A., Donaldson, D., & Boergers, J. (2001). Self–mutilative behavior in adolescents who attempt suicide by overdose. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(9), 1062–1069. https://doi.org/10.1097/00004583–200109000–00015

Gunderson, J. G. (1984). *Borderline personality disorder* (pp. 52–53). Washington, DC: American Psychiatric Press.

Haines, J., Williams, C. L., Brain, K. L., & Wilson, G. V. (1995). The psychophysiology of self–mutilation. Journal of abnormal psychology, 104(3), 471–489. https://doi.org/10.1037/0021–843X.104.3.471

Håland, E. J. (2012). The Dormition of the Virgin Mary on the Island of Tinos: A performance of gendered values in Greece. *Journal of Religious History, 36*(1), 89–117. 10.1111/j.1467–9809.2011.01157.x

Haney, A. M. (2020). Nonsuicidal self–injury and religiosity: A meta–analytic investigation. *American Journal of Orthopsychiatry, 90*, 78–89. https://doi.org/10.1037/ort0000395

Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods, 48*(1), 400–407. 10.3758/s13428–015–0578–z

Herpertz, S. (1995). Self-injurious behaviour: Psychopathological and nosological characteristics in subtypes of self-injurers. *Acta Psychiatrica Scandinavica*, *91*(1), 57–68. 10.1111/j.1600–0447.1995.tb09743.x

Hilt, L. M., Nock, M. K., Lloyd–Richardson, E. E., & Prinstein, M. J. (2008). Longitudinal study of non–suicidal self–injury among young adolescents: Rates, correlates, and preliminary

test of an interpersonal model. *Journal of Early Adolescence, 28*(3), 455–469. 10.1177/0272431608316604

Hiltin, P., Rainie, L., Hatley, N., Smith, A., Van Kessel, P., Broderick, B., Duggan, M., & Perrin, A. (2016). Turkers in this canvassing: young, well–educated and frequent users. *Pew Research Center, 437*. https://www.pewresearch.org/internet/2016/07/11/turkers–in–this–canvassing–young–well–educated–and–frequent–users/

Hilton, S. C., Fellingham, G. W., & Lyon, J. L. (2002). Suicide rates and religious commitment in young adult males in Utah. *American Journal of Epidemiology, 155*(5), 413–419. https://doi.org/10.1093/aje/155.5.413

Hoffman, S., & Marsiglia, F. F. (2014). The impact of religiosity on suicidal ideation among youth in central Mexico. *Journal of Religion and Health, 53*(1), 255–266. https://doi.org/10.1007/s10943–012–9654–1

Honary, M., Bell, B., Clinch, S., Vega, J., Kroll, L., Sefi, A., & McNaney, R. (2020, April). Shaping the design of smartphone–based interventions for self–harm. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–14). Honolulu, Hi, USA.

Hooley, J. M., Fox, K. R., & Boccagno, C. (2020). Nonsuicidal self–injury: Diagnostic challenges and current perspectives. *Neuropsychiatric Disease and Treatment, 16*, 101–112.

Horváth, L., O., Györi, D., Komáromy, D., Mészáros, G., Szentiványi, D., & Balázs, J. (2020). Nonsuicidal self–injury and suicide: The role of life events in clinical and non–clinical populations of adolescents. *Frontiers in Psychology*, *11*, 1–10. 10.3389/fpsyt.2020.00370

Ialongo, C. (2016). Understanding the effect size and its measures. *Biochemia Medica, 26*(2), 150–163. http://dx.doi.org/10.11613/BM.2016.015

Idig–Camuroglu, M., & Gölge, Z. B. (2018). Non–suicidal self–injury among university students in Turkey: the effect of gender and childhood abuse. *Psychiatria Danubina, 30*(4), 410–420. https://doi.org/10.24869/psyd.2018.410

Insel, B., & Gould, M. (2008). Impact of modeling on adolescent suicidal behavior. *Psychiatric Clinics of North America, 31*(2), 293–316. 10.1016/j.psc.2008.01.007

Izadi–Mazidi, M., Yaghubi, H., Mohammadkhani, P., & Hassanabadi, H. (2019). Assessing the functions of non–suicidal self–injury: factor analysis of functional assessment of self–mutilation among adolescents. *Iranian Journal of Psychiatry, 14*(3), 184–191.

Jamil, H. (1990). Acute poisoning: A review of 1900 cases. *Journal of Pakistan Medical Association*, *40*(6), 131–133. http://www.jpma.org.pk/PdfDownload/5438.pdf

Jarvi, S., Jackson, B., Swenson, L., & Crawford, H. (2013). The impact of social contagion on non–suicidal self–injury: A review of the literature. *Archives of Suicide Research, 17*(1), 1–19. 10.1080/13811118.2013.748404

Johnson, T. P., & Van de Vijver, F. J. (2003). Social desirability in cross–cultural research. *Cross–Cultural Survey Methods, 325*, 195–204. https://www.researchgate.net/profile/Timothy_Johnson2/publication/235660939_Social_Desirability_in_Cross–Cultural_Research/links/0deec52e570314b51a000000/Social–Desirability–in–Cross–Cultural–Research.pdf

Jones, A. (1986). Self–mutilation in prison: A comparison of mutilators and nonmutilators. *Criminal Justice and Behavior, 13*(3), 286–296. https://journals.sagepub.com/doi/pdf/10.1177/0093854886013003003?casa_token=iCfj6b

2OZ6MAAAAA:iOmW–gTItLF–fz0Lg5sTRsox–GNniDNDMA0rgnVZWL98_uI8zh7FLb6VQNDc0erlWkG4dDQ0tXo

Jonsson, L. S., Svedin, C. G., Priebe, G., Fredlund, C., Wadsby, M., & Zetterqvist, M. (2019). Similarities and Differences in the Functions of Nonsuicidal Self-Injury (NSSI) and Sex as Self-Injury (SASI). *Suicide and Life-Threatening Behavior, 49*(1), 120–136. 10.1111/sltb.12417

Jordan, K. D., Masters, K. S., Hooker, S. A., Ruiz, J. M., & Smith, T. W. (2014). An interpersonal approach to religiousness and spirituality: Implications for health and well–being. *Journal of Personality, 82*(5), 418–431. https://doi.org/10.1111/jopy.12072

Kaess, M., Brunner, R., Parzer, P., Carli, V., Apter, A., Balazs, J. A., Bobes, J., Coman, H. G., Cosman, D., Cotter, P., Durkee, T., Farkas, L., Feldman, D., Haring, C., Iosue, M., Kahn, J. P., Keeley, H., Podlogar, T., Postuvan, V., Resch, F., Sáiz, P. A., Sisask, M., Tubiana, A., Värnik, P., Sarchiapone, M., Hoven, C. W., & Wasserman, D. (2014). Risk–behaviour screening for identifying adolescents with mental health problems in Europe. *European Child & Adolescent Psychiatry, 23*(7), 611–620. 10.1007/s00787–013–0490–y

Kaess, M., Koenig, J., Bauer, S., Moessner, M., Fischer–Waldschmidt, G., Mattern, M., Herpertz, S. C., Resch, F., Brown, R., In–Albon, T., Koelch, M., Plener, P. L., Schmahl, C., & Edinger, A. (2019). Self–injury: Treatment, Assessment, Recovery (STAR): online intervention for adolescent non–suicidal self–injury–study protocol for a randomized controlled trial. *Trials, 20*(1), 425–435.

Kaess, M., Parzer, P., Mattern, M., Plener, P. L., Bifulco, A., Resch, F., & Brunner, R. (2013). Adverse childhood experiences and their impact on frequency, severity, and the

individual function of nonsuicidal self–injury in youth. *Psychiatry Research, 206*(2–3), 265–272. https://doi.org/10.1016/j.psychres.2012.10.012

Karam, E. G., Hajjar, R. V., & Salamoun, M. M. (2008). Suicidality in the Arab World part II: community studies. *Arab Journal Psychiatry, 19*(1), 1–24. http://www.lpsonline.org/s/Part–II_suicidality_hospital_and_government–6rs9.pdf

Kharsati, N., & Bhola, P. (2014). Patterns of non–suicidal self–injurious behaviours among college students in India. *International Journal of Social Psychiatry, 61*(1), 39–49. 10.1177/0020764014535755.

Kim, D. S., McCabe, C. J., Yamasaki, B. L., Louie, K. A., & King, K. M. (2018). Detecting random responders with infrequency scales using an error–balancing threshold. *Behavior Research Methods, 50*(5), 1960–1970. 10.3758/s13428–017–0964–9

Kim, S., Kim, Y., & Hur, J. W. (2019). Nonsuicidal self–injury among Korean young adults: a validation of the Korean version of the inventory of statements about self–injury. Psychiatry investigation, 16(4), 270–278. https://doi.org/10.30773/pi.2019.01.23

King, T.K., Morse, B.J., Woofenden, H., Copithorne, M., Dunigan, B., & Sylvia, Z. (2013). Middle East meets West: A cross–national examination of body image and health behaviors in Jordan and the United States. In L. B. Sams & J. A. Keels (Eds.), *Handbook on body image: Gender differences, sociocultural influences, and health implications* (pp. 53–101). Hauppauge, NY: NOVA Science Publishers.

Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Jr., Bahník, Š, Bernstein, M. J., Bocian, K., Brandt, M. J., Brooks, B., Brumbaugh, C. C., Cemalcilar, Z., Chandler, J., Cheong, W., Davis, W. E., Devos, T., Eisner, M., Frankowska, N., Furrow, D., Galliani, E. M., Hasselman, F., Hicks, J. A., Hovermale, J. F., Hunt, S. J., Huntsinger, J. R., Ijzerman, H.,

John, M. S., Joy–Gaba, J. A., Kappes, H. B., Krueger, L. E., Kurtz, J., Levitan, C. A., Mallett, R. K., Morris, W. L., Nelson, A. J., Nier, J. A., Packard, G., Pilati, R., Rutchick, A. M., Schmidt, L., Skorinko, J. L., Smith, R., Steiner, T. G., Storbeck, J., Van Swol, L. M., Thompson, D., van 't Veer, A. E., Vaughn, L. A., Vranka, M., Wichman, A. L., Woodzicka, J. A., & Nosek, B. A. (2014). Investigating variation in replicability. *Social Psychology, 45*(3), 142–152. 10.1027/1864–9335/a000178

Klonsky, E. D. (2007). The functions of deliberate self–injury: A review of the evidence. *Clinical Psychology Review*, 27(2), 226–239. https://doi.org/10.1016/j.cpr.2006.08.002

Klonsky, E. D. (2009). The functions of self–injury in young adults who cut themselves: Clarifying the evidence for affect–regulation. *Psychiatry Research*, *166*(2), 260–268. 10.1016/j.psychres.2008.02.008

Klonsky, E. D., & Glenn, C. R. (2009). Assessing the functions of non–suicidal self–injury: Psychometric properties of the Inventory of Statements About Self–injury (ISAS). *Journal of Psychopathology and Behavioral Assessment*, *31*(3), 215–219. 10.1007/s10862–008–9107–z

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology, 63*(11), 1045–1056. 10.1002/jclp.20412

Klonsky, E. D., & Olino, T. M. (2008). Identifying clinically distinct subgroups of self–injurers among young adults: A latent class analysis. *Journal of Consulting and Clinical Psychology, 76*(1), 22. http://dx.doi.org/10.1037/0022–006X.76.1.22

Klonsky, E. D., Glenn, C. R., Styer, D. M., Olino, T. M., & Washburn, J. J. (2015). The functions of nonsuicidal self–injury: converging evidence for a two–factor structure. *Child and Adolescent Psychiatry and Mental Health, 9*(1), 1–9.

Kothgassner, O. D., Robinson, K., Goreis, A., Ougrin, D., & Plener, P. L. (2020). Does treatment method matter? A meta–analysis of the past 20 years of research on therapeutic interventions for self–harm and suicidal ideation in adolescents. *Borderline Personality Disorder and Emotion Dysregulation, 7,* 1–16. https://doi.org/10.1186/s40479–020–00123–9

Kraus, L., Schmid, M., & In–Albon, T. (2020). Anti–suicide function of nonsuicidal self–injury in female inpatient adolescents. *Frontiers in psychiatry, 11*. 10.3389/fpsyt.2020.00490

Kuentzel, J. G., Arble, E., Boutros, N., Chugani, D., & Barnett, D. (2012). Nonsuicidal self-injury in an ethnically diverse college sample. *American Journal of Orthopsychiatry, 82*(3), 291–297. https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1939–0025.2012.01167.x?casa_token=MA0tyANjCkQAAAAA:EDOEBuGGKqbkCD6DNAZgWRKHTeW5K4Drd5OoBBl–BnoktqfUd30ltcud_8vTJmSf2qYUrrYPs_WP

Kurz, A. S., Drescher, C. F., Chin, E. G., & Johnson, L. R. (2016). Measuring social desirability across language and sex: A comparison of Marlowe–Crowne Social Desirability Scale factor structures in English and Mandarin Chinese in Malaysia. *PsyCh Journal, 5*(2), 92–100. 10.1002/pchj.124

Lavidas, K., & Gialamas, V. (2019). Adaption and psychometric properties of the short forms marlowe–crowne social desirability scale with a sample of Greek university students. *European Journal of Education Studies, 6*(8), 230–239. 10.5281/zenodo.3552531

Lennon, J. C. (2020). What lies ahead: Elevated concerns for the ongoing suicide pandemic. Psychological Trauma: theory, research, practice and policy, 12(S1), S118–S119. 10.1037/tra0000741

Liang, S., Yan, J., Zhang, T., Zhu, C., Situ,M., Du, N.,&Huang, Y. (2014). Differences between non–suicidal self injury and suicide attempt in Chinese adolescents. *Asian Journal of Psychiatry, 8,* 76–83. 10.1016/j.ajp.2013.11.015.

Lim, K. S., Wong, C. H., McIntyre, R. S., Wang, J., Zhang, Z., Tran, B. X., Tan, W., Ho, C. S & Ho, R. C. (2019). Global lifetime and 12–month prevalence of suicidal behavior, deliberate self–harm and non–suicidal self–injury in children and adolescents between 1989 and 2018: A meta–analysis. International Journal of Environmental Research and Public Health, 16(22), 1–26.

Lindholm, T., Bjärehed, J., & Lundh, L. G. (2011). Functions of nonsuicidal self–injury among young women in residential care: a pilot study with the Swedish version of the inventory of statements about self–injury. *Cognitive Behaviour Therapy, 40*(3), 183–189. 10.1080/16506073.2011.565791

Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. New York, NY: Guilford Press.

Lloyd, B., Blazely, A., & Phillips, L. (2018). Stigma towards individuals who self harm: Impact of gender and disclosure. *Journal of Public Mental Health, 17*(4), 184–194. https://doi.org/10.1108/JPMH–02–2018–0016

Longo, J., Walls, N. E., & Wisneski, H. (2013). Religion and religiosity: Protective or harmful factors for sexual minority youth?. Mental Health, Religion & Culture, 16(3), 273–290. 10.1080/13674676.2012.659240

Luo, M., Guo, L., Yu, M., Jiang, W., & Wang, H. (2020). The psychological and mental impact of coronavirus disease 2019 (COVID–19) on medical staff and general public – A

systematic review and meta–analysis. Psychiatry Research, 291, 113190. 10.1016/j.psychres.2020.113190

Maden, A., Chamberlain, S., & Gunn, J. (2000). Deliberate self-harm in sentenced male prisoners in England and Wales: some ethnic factors. *Criminal Behaviour and Mental Health, 10*(3), 199–204. https://onlinelibrary.wiley.com/doi/pdf/10.1002/cbm.357?casa_token=ZzLs8nF1apIAAAAA:rEDNQzuSzoIyBnFP4WDqbQKKkwdH2VDmMEUxFb2KyOrKumve3Av1yxoieSyXQBmNjyImAj7DNbQr

Mahgoub, O. M., Al–Freihi, H. M., Al–Mohaya, S. A., & Al–Nahdi, M. S. (1988). Deliberate Self–Harm in The Eastern Region of Saudi Arabia: A Hospital–Based Study. *Annals of Saudi Medicine, 8*(2), 126–130. https://www.annsaudimed.net/doi/pdf/10.5144/0256–4947.1988.126

Malkosh–Tshopp, E., Ratzon, R., Gizunterman, A., Levy, T., Ben–Dor, D. H., Krivoy, A., ... & Shoval, G. (2020). The association of non–suicidal self–injurious and suicidal behaviors with religiosity in hospitalized Jewish adolescents. *Clinical Child Psychology and Psychiatry, 25*(4), 801–815. https://doi.org/10.1177/1359104520918354

Manca, M., Presaghi, F., & Cerutti, R. (2014). Clinical specificity of acute versus chronic self–injury: Measurement and evaluation of repetitive non–suicidal self–injury. *Psychiatry Research, 215*(1), 111–119. https://doi.org/10.1016/j.psychres.2013.10.010

Maris, R.W., Berman, A.L., & Silverman, M.M. (2000). *Comprehensive textbook of suicidology*. New York, NY: The Guilford Press.

Marjanovic, Z., Bajkov, L., & MacDonald, J. (2019). The Conscientious Responders Scale Helps Researchers Verify the Integrity of Personality Questionnaire Data. *Psychological Reports, 122*(4), 1529–1549. 10.1177/0033294118783917

Mason, W., & Suri, S. (2012). Conducting behavioral research on Amazon's Mechanical Turk. *Behavior Research Methods, 44*(1), 1–23. 10.3758/s13428–011–0124–6

McAllister, R., & Caltabiano, M. L. (1994). Self–esteem, body–image and weight in noneating–disordered women. *Psychological Reports, 75*(3), 1339–1343. https://journals.sagepub.com/doi/pdf/10.2466/pr0.1994.75.3.1339?casa_token=8loJTcLHnhsAAAAA:QJT1ZNDgDVjH7P6163II–gEdmd2n_RhVWc6OyvmsJLWaLmlTSAQs3TmUtf3wP9–A5lulw29ZRu8

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods, 17*(3), 437–455. 10.1037/a0028085

Mellor, D., Hapidzal, F. M., Teh, K., Ganesan, R., Yeow, J., Abdul Latif, R., & Cummins, R. (2012). Strong spiritual engagement and subjective well–being: A naturalistic investigation of the Thaipusam festival. *Journal of Spirituality in Mental Health, 14*, 209–225. 10.1080/19349637.2012.697375

Menninger, K. A. (1934). Localized self–destruction: Self–mutilations. *Psychoanalytic Quarterly, 3*, 495–498. https://doi.org/10.1080/21674086.1934.11950939

Menninger, K. A. (1938). *Man Against Himself*. New York, NY: Harcourt, Brace & World

Muehlenkamp, J. J. (2014). Distinguishing between suicidal and nonsuicidal self–injury. In M. K. Nock (Ed.), *The Oxford handbook of suicide and self–injury* (pp. 23–46). New York, NY: Oxford University Press.

Muehlenkamp, J. J., & Brausch, A. M. (2012). Body image as a mediator of non–suicidal self–injury in adolescents. *Journal of Adolescence, 35*(1), 1–9. http://dx.doi.org/10.1016/j.adolescence.2011.06.010

Muehlenkamp, J. J., & Gutierrez, P. M. (2007). Risk for suicide attempts among adolescents who engage in non–suicidal self–injury. *Archives of Suicide Research, 11*(1), 69–82. 10.1080/13811110600992902

Muehlenkamp, J. J., Brausch, A., Quigley, K., & Whitlock, J. (2013). Interpersonal features and functions of non–suicidal self–injury. *Suicide and Life–Threatening Behaviour*, *43*(1), 67–80. 10.1111/j.1943–278X.2012.00128.x

Muehlenkamp, J. J., Suzuki, T., Brausch, A. M., & Peyerl, N. (2019). Behavioral functions underlying NSSI and eating disorder behaviors. *Journal of Clinical Psychology, 75*(7), 1219–1232. 10.1002/jclp.22745

Muehlenkamp, J. J., Swanson, J. D., & Brausch, A. M. (2005). Self–objectification, risk taking, and self–harm in college women. *Psychology of Women Quarterly, 29*(1), 24–32. https://journals.sagepub.com/doi/pdf/10.1111/j.1471–6402.2005.00164.x?casa_token=w7LHtsB3yAIAAAAA:AN8QjGMHtqMogs1GJfRToLHz0DpCh0n07cRPF9x8594XN2TGO6_shzEgkWU85UhM2c_S–LUqD8E

Muehlenkamp, J. J., Xhunga, N., & Brausch, A. M. (2018). Self–injury age of onset: A risk factor for NSSI severity and suicidal behavior. *Archives of Suicide Research, 23*(4), 551–563. https://doi.org/10.1080/13811118.2018.1486252

Mussap, A. J. (2009). Strength of faith and body image in Muslim and non–Muslim women. *Mental Health, Religion and Culture, 12*(2), 121–127. https://www.tandfonline.com/doi/pdf/10.1080/13674670802358190?needAccess=true

Nisar, H., Aqeel, M., & Ahmad, A. (2020). Indigenous need arise to protect human from self–harm behavior in Pakistan: translation and validation of inventory of statements about self–injury. *International Journal of Human Rights in Healthcare*, 1–13. https://doi.org/10.1108/IJHRH–10–2019–0080

Nock, M. K. (2008). Actions speak louder than words: An elaborated theoretical model of the social functions of self–injury and other harmful behaviors. *Applied and Preventive Psychology, 12*(4), 159–168. :10.1016/j.appsy.2008.05.002

Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self–injury. *Current Directions in Psychological Science, 18*(2), 78–83. https://doi.org/10.1111/j.1467–8721.2009.01613.x

Nock, M. K., & Cha, C. B. (2009). *Psychological models of nonsuicidal self–injury*. In M. K. Nock (Ed.), *Understanding nonsuicidal self–injury: Origins, assessment, and treatment* (p. 65–77). American Psychological Association. https://doi.org/10.1037/11875–004

Nock, M. K., & Favazza, A. R. (2009). *Nonsuicidal self–injury: Definition and classification*. In M. K. Nock (Ed.), *Understanding nonsuicidal self–injury: Origins, assessment, and treatment* (p. 9–18). American Psychological Association. https://doi.org/10.1037/11875–001

Nock, M. K., & Prinstein, M. J. (2004). A functional approach to the assessment of self–mutilative behavior. *Journal of Consulting and Clinical Psychology*, *72*(5), 885–890. 10.1037/0022–006X.72.5.885

Nock, M. K., Joiner, T. E., Gordon, K. H., Lloyd–Richardson, E., & Prinstein, M. J. (2006). Non–suicidal self–injury among adolescents: Diagnostic correlates and relation to suicide

attempts. *Psychiatry Research, 144*(1), 65–72. https://doi.org/10.1016/j.psychres.2006.05.010

Olson, C. L. (1979). Practical considerations in choosing a MANOVA test statistic: A rejoinder to Stevens. *Psychological Bulletin*, *86*(6), 1350–1352. http://dx.doi.org/10.1037/0033–2909.86.6.1350

Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology, 45*(4), 867–872. 10.1016/j.jesp.2009.03.009

Orbach, I. (1996). The role of the body experience in self–destruction. *Clinical Child Psychology and Psychiatry, 1*(4), 607–619. https://journals.sagepub.com/doi/pdf/10.1177/1359104596014012?casa_token=rQJSdpTvBAwAAAAA:WFjfvsw4vx1VzSfp1xgiDMNII–a_1ShbMD5NAGe2w4juLHZfweCp465KAfD8OLWWlWWjTSeAmCk

Orbach, I., & Mikulincer, M. (1998). The Body Investment Scale: Construction and validation of a body experience scale. *Psychological Assessment, 10*(4), 415–425. 10.1037/1040–3590.10.4.415 https://www.researchgate.net/profile/Mario_Mikulincer/publication/232513339_The_Body_Investment_Scale_Construction_and_validation_of_a_body_experience_scale/links/565d5c9b08ae1ef9298220f0/The–Body–Investment–Scale–Construction–and–validation–of–a–body–experience–scale.pdf

Orbach, I., Lotem-Peleg, M., & Kedem, P. (1995). Attitudes toward the body in suicidal, depressed, and normal adolescents. *Suicide and Life-Threatening Behavior, 25*(2), 211–221. https://doi.org/10.1111/j.1943–278X.1995.tb00920.x

Orbach, I., Stein, D., Shani–Sela, M., & Har–Even, D. (2001). Body attitudes and body experiences in suicidal adolescents. *Suicide and Life–Threatening Behavior, 31*(3), 237–249. https://guilfordjournals.com/doi/pdfplus/10.1521/suli.31.3.237.24250

Ougrin, D., Tranah, T., Stahl, D., Moran, P., & Asarnow, J. R. (2015). Therapeutic interventions for suicide attempts and self–harm in adolescents: Systematic review and meta–analysis. *Journal of the American Academy of Child & Adolescent Psychiatry, 54*(2), 97–107. 10.1016/j.jaac.2014.10.009

Owens, C., & Charles, N. (2016). Implementation of a text–messaging intervention for adolescents who self–harm (TeenTEXT): A feasibility study using normalisation process theory. Child and Adolescent Psychiatry and Mental Health, 10(1), 1–9. 10.1186/s13034–016–0101–z

Panagiotopoulou, E., Peiris, C., & Hayes, D. (2021). Behavior change techniques in mobile apps targeting self–harm in young people: a systematic review. *Translational behavioral medicine, 11*(3), 832–841. 10.1093/tbm/ibaa131

Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding Mechanical Turk as a participant pool. *Current Directions in Psychological Science, 23*(3), 184–188. 10.1177/0963721414531598

Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making, 5*(5), 411–419. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1626226

Pattison, E. M., & Kahan, J. (1983). The deliberate self–harm syndrome. *American Journal of Psychiatry, 140*(7), 867–872. http://dx.doi.org/10.1176/ajp.140.7.867

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology, 70*, 153–163. http://dx.doi.org/10.1016/j.jesp.2017.01.006

Pérez, S., Marco, J. H., & Cañabate, M. (2018). Non–suicidal self–injury in patients with eating disorders: Prevalence, forms, functions, and body image correlates. *Comprehensive Psychiatry, 84*, 32–38. https://doi.org/10.1016/j.comppsych.2018.04.003

Perkins, N. M., & Brausch, A. M. (2019). Body dissatisfaction and symptoms of bulimia nervosa prospectively predict suicide ideation in adolescents. *International Journal of Eating Disorders, 52*(8), 941–949. 10.1002/eat.23116

Peterson, C. M., Matthews, A., Copps-Smith, E., & Conard, L. A. (2017). Suicidality, self-harm, and body dissatisfaction in transgender adolescents and emerging adults with gender dysphoria. *Suicide and Life-Threatening Behavior, 47*(4), 475–482. 10.1111/sltb.12289

Petrie, K., Chamberlain, K., & Clarke, D. (1988). Psychological predictors of future suicidal behaviour in hospitalized suicide attempters. *British Journal of Clinical Psychology, 27*(3), 247–257. https://doi.org/10.1111/j.2044–8260.1988.tb00781.x

Plener, P. L., Allroggen, M., Kapusta, N. D., Brähler, E., Fegert, J. M., & Groschwitz, R. C. (2016). The prevalence of Nonsuicidal Self–Injury (NSSI) in a representative sample of the German population. BM psychiatry, 16(1), 1–7. 10.1186/s12888–016–1060–x

Podovall, E. M. (1969). Self–mutilation within a hospital setting: A study of identity and social compliance. *British Journal of Medical Psychology, 42*(3), 213−221. https://psycnet.apa.org/doi/10.1111/j.2044–8341.1969.tb02073.x

Pollak, O. H., D'Angelo, E. J., & Cha, C. B. (2020). Does function predict persistence? Nonsuicidal self–injury among adolescents during and after hospitalization. *Psychiatry Research, 286*, 1–7. https://doi.org/10.1016/j.psychres.2020.112839

Polskaya, N. A., & Melnikova, M. A. (2020). Dissociation, Trauma and Self–Harm. *Counseling Psychology and Psychotherapy, 28*(1), 25–48. https://doi.org/10.17759/cpp.2020280103

Pumpa, M., & Martin, G. (2015). The impact of attitudes as a mediator between sense of autonomy and help–seeking intentions for self–injury. *Child and Adolescent Psychiatry and Mental Health, 9*(1), 1–9. 10.1186/s13034–015–0058–3

Ranney, M. L., Choo, E. K., Spirito, A., & Mello, M. J. (2013). Adolescents' preference for technology–based emergency department behavioral interventions: Does it depend on risky behaviors? *Pediatric Emergency Care, 29*(4), 475–481. 10.1097/PEC.0b013e31828a322f

Rasool, I. A., & Payton, J. L. (2014). Tongues of fire: women's suicide and self–injury by burns in the Kurdistan Region of Iraq. *The Sociological Review, 62*(2), 237–254. https://journals.sagepub.com/doi/pdf/10.1111/1467–954X.12153

Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 38*(1), 119–125. https://www.researchgate.net/profile/William_Reynolds7/publication/232465362_Development_of_reliable_and_valid_short_forms_of_the_Marlow–Crowne_Social_Desirability_Scale/links/5ab3ca2c0f7e9b4897c79245/Development–of–reliable–and–valid–short–forms–of–the–Marlow–Crowne–Social–Desirability–Scale.pdf

Roychowdhury, D (2020). 2019 novel coronavirus disease, crisis, and isolation. Frontiers in Psychology, 11, 1958. 10.3389/fpsyg.2020.01958

Rosen, P. M., & Walsh, B. W. (1989). Patterns of contagion in self–mutilation epidemics. *The American Journal of Psychiatry, 146*(5), 656–658. https://doi.org/10.1176/ajp.146.5.656

Ross, R. R., & McKay, H. B. (1979). *Self–mutilation*. Lexington, MA: Lexington Books.

Rufino, K. A., Viswanath, H., Wagner, R., & Patriquin, M. A. (2018). Body dissatisfaction and suicidal ideation among psychiatric inpatients with eating disorders. *Comprehensive Psychiatry, 84*, 22–25. https://doi.org/10.1016/j.comppsych.2018.03.013

Rusticus, S. A., & Lovato, C. Y. (2014). Impact of sample size and variability on the power and Type I error rates of equivalence tests: a simulation study. *Practical Assessment, Research & Evaluation, 11*, article 11. doi: https://doi.org/10.7275/4s9m–4e81

Ryan, A. M., Bradburn, J., Bhatia, S., Beals, E., Boyce, A. S., Martin, N., & Conway, J. (2020). In the eye of the beholder: Considering culture in assessing the social desirability of personality. *Journal of Applied Psychology*. http://dx.doi.org/10.1037/apl0000514

Sankaranarayanan, A., Al–Amin, H., & Ghuloum, S. (2020). Correlates of near–fatal deliberate self–harm in Qatar: A retrospective study of psychiatric admissions for suicidal behaviors. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 41*(2), 121–127. https://doi.org/10.1027/0227–5910/a000613

Sârbescu, P., Costea, I., & Rusu, S. (2012). Psychometric properties of the Marlowe–Crowne social desirability scale in a Romanian sample. *Procedia–Social and Behavioral Sciences, 33*, 707–711. 10.1016/j.sbspro.2012.01.213

Schanberg, S. (1997, December). Nurturing touch: A prime regulator of behavioral development in neonates. Paper presented at the Conference on Early Care and Self–Destructive Behavior, *The Israel Academy of Science and Bar–Ilan University*, Ramat–Gan, Israel.

Selby, E. A., Kranzler, A., Lindqvist, J., Fehling, K. B., Brillante, J., Yuan, F., Gao, X., & Miller, A. L. (2019). The dynamics of pain during nonsuicidal self–injury. *Clinical Psychological Science, 7*(2), 302–320.

Shaffer, D., & Jacobson, C. (2009). Proposal to the DSM–V childhood disorder and mood disorder work groups to include non–suicidal self–injury (NSSI) as a DSM–V disorder. *American Psychiatric Association*, 1–21.

Shek, D. T. L., & Yu, L. (2012). Self–harm and suicidal behaviors in Hong Kong adolescents: Prevalence and psychosocial correlates. *The Scientific World Journal, 2012*, 1–14. 10.1100/2012/932540.

Simcox, T., & Fiez, J. A. (2014). Collecting response times using amazon mechanical turk and adobe flash. *Behavior Research Methods, 46*(1), 95–111. 10.3758/s13428–013–0345–y

Simpson, M. A. (1975). The phenomenology of self–mutilation in a general hospital setting. *Canadian Psychiatric Association Journal, 20*(6), 429−434. https://journals.sagepub.com/doi/pdf/10.1177/070674377502000601

Somer, O., Bildik, T., Kabukçu–Başay, B., Güngör, D., Başay, Ö., & Farmer, R. F. (2015). Prevalence of non–suicidal self–injury and distinct groups of self–injurers in a community sample of adolescents. *Social Psychiatry and Psychiatric Epidemiology, 50*(7), 1163–1171. 10.1007/s00127–015–1060–z

Sornberger, M. J., Heath, N. L., Toste, J. R., & McLouth, R. (2012). Nonsuicidal self-injury and gender: Patterns of prevalence, methods, and locations among adolescents. *Suicide and Life-Threatening Behavior, 42*(3), 266–278. 10.1111/j.1943–278X.2012.00088.x

Staniland, L., Hasking, P., Boyes, M., & Lewis, S. (2021). Stigma and nonsuicidal self–injury: Application of a conceptual framework. *Stigma and Health, 6*(3), 312–323. https://doi.org/10.1037/sah0000257

Strong, M. (1998). *Bright red scream: Self–mutilation and the language of pain*. New York, NY: Penguin Group Inc.

Suleiman, M. A., Moussa, M. A. A., & El–Islam, M. F. (1989). The profile of parasuicide repeaters in Kuwait. *International Journal of Social Psychiatry, 35*(2), 146–155. https://journals.sagepub.com/doi/pdf/10.1177/002076408903500202?casa_token=2j6u6BZzIQgAAAAA:RUJ8nhUnAUGdNOXOco5t0FHXJ4SN4NcfqD_xwzsn8Kp5uFs3WI6yFNSasyB4nH4iTmolXNUjVtY

Suyemoto, K. L. (1998). The functions of self–mutilation. *Clinical Psychology Review*, *18*(5), 531–554. https://doi.org/10.1016/S0272–7358(97)00105–0

Tabachnick, B. G., & Fidell, L. S. (2018). *Using multivariate statistics* (7th ed.). New York, NY: Pearson.

Tresno, F., Ito, Y., & Mearns, J. (2012). Self–injurious behavior and suicide attempts among Indonesian college students. *Death Studies, 36*(7), 627–639. 10.1080/07481187.2011.604464.

Tresno, F., Ito, Y., & Mearns, J. (2013). Risk factors for nonsuicidal self–injury in Japanese college students: The moderating role of mood regulation expectancies. *International Journal of Psychology, 48*(6), 1009–1017. 10.1080/00207594.2012.733399.

Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross–cultural perspectives on self–ingroup relationships. *Journal of*

Personality and Social Psychology, *54*(2), 323–338. https://psycnet.apa.org/doi/10.1037/0022–3514.54.2.323

Uyun, Q., & Kurniawan, I. N. (2017). *Terapi taubat dan istighfar sebagai intervensi untuk*

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner Jr, T. E. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575–600. https://doi.org/10.1037/a0018697

Vega, D., Vilà–Balló, A., Soto, À., Amengual, J., Ribas, J., Torrubia, R., Rodríguez–Fornells, A., & Marco–Pallarés, J. (2015). Preserved error–monitoring in borderline personality disorder patients with and without non–suicidal self–injury behaviors. *PloS one, 10*(12), 1–16. 10.1371/journal.pone.0143994

Vésteinsdóttir, V., Reips, U. D., Joinson, A., & Thorsdottir, F. (2017). An item level evaluation of the Marlowe–Crowne Social Desirability Scale using item response theory on Icelandic Internet panel data and cognitive interviews. *Personality and Individual Differences, 107*, 164–173. http://dx.doi.org/10.1016/j.paid.2016.11.023

Victor, S. E., Muehlenkamp, J. J., Hayes, N. A., Lengel, G. J., Styer, D. M., & Washburn, J. J. (2018). Characterizing gender differences in nonsuicidal self–injury: evidence from a large clinical sample of adolescents and adults. *Comprehensive Psychiatry, 82*, 53–60. https://doi.org/10.1016/j.comppsych.2018.01.009

Vieira, A. I., Fernandes, J., Machado, P. P., & Gonçalves, S. (2020). The Portuguese version of the body investment scale: psychometric properties and relationships with disordered eating and emotion dysregulation. *Journal of Eating Disorders, 8*(1), 1–10. https://doi.org/10.1186/s40337–020–00302–7

Walsh, B. W. (2012). *Treating self–injury: A practical guide*. New York, NY: Guilford Press.

Wester, K. L., & Trepal, H. C. (2015). Nonsuicidal self–injury: Exploring the connection among race, ethnic identity, and ethnic belonging. *Journal of College Student Development, 56*(2), 127–139. 10.1353/csd.2015.0013

Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self–injurious behaviors in a college population. *Pediatrics*, *117*(6), 1939–1948. http://dx.doi.org/10.1542/peds.2005–2543

Whitlock, J., Muehlenkamp, J., Purington, A., Eckenrode, J., Barreira, P., Baral Abrams, G., Marchell, T., Kress, V., Girard, K., Chin, C., & Knox, K. (2011). Nonsuicidal self–injury in a college population: General trends and sex differences. *Journal of American College Health, 59*(8), 691–698. https://doi.org/10.1080/07448481.2010.529626

Wilkinson, P., & Goodyer, I. (2011). Non–suicidal self–injury. *European Child & Adolescent Psychiatry, 20*(2), 103–108.

Yates, T., Carlson, E., & Egeland, B. (2008). A prospective study of child maltreatment and self–injurious behavior in a community sample. *Development and Psychopathology, 20*(2), 651–671. 10.1017/S0954579408000321

Younes, N., Chollet, A., Menard, E., & Melchior, M. (2015). E–mental health care among young adults and help–seeking behaviors: A transversal study in a community sample. *Journal of Medical Internet Research, 17*(5), e123. 10.2196/jmir.4254

Zaidan, Z. A., Burke, D. T., Dorvlo, A. S., Al-Naamani, A., Al-Suleimani, A., Al-Hussaini, A. A., Al–Sharbati, M. M., & Al-Adawi, S. (2002). Deliberate self-poisoning in Oman. *Tropical Medicine & International Health, 7*(6), 549–556. https://onlinelibrary.wiley.com/doi/pdf/10.1046/j.1365–3156.2002.00887.x

Zalsman, G., Stanley, B., Szanto, K., Clarke, D. E., Carli, V., & Mehlum, L. (2020). Suicide in the time of COVID–19: Review and recommendations. Archives of Suicide Research, 24(4), 477–482. 10.1080/13811118.2020.1830242

Table 1

Sample Characteristics of the Groups and of the Total Sample

Sample Characteristic	NSSI–ME *n* = 15	NSSI–NA (matched) *n* = 15	NSSI–NA *n* = 80	Control–ME *n* = 25	Control–NA (matched) *n* = 25	Control–NA *n* = 203	Total sample (matched) *n* = 80	Total sample *N* = 649
Mean age (*SD*)	35.14 (9.82)	34.73 (10.05)	35.55 (9.82)	29.83 (4.82)	30.79 (5.06)	37.45 (10.77)	32.05 (7.42)	36.82 (10.41)
Biological sex (%)								
Female	10 (66.67)	10 (66.67)	41 (51.25)	7 (28.00)	6 (24.00)	83 (40.89)	33 (41.25)	269 (41.45)
Male	5 (33.33)	5 (33.33)	38 (47.50)	14 (56.00)	19 (76.00)	117 (57.64)	43 (53.75)	370 (57.01)
I prefer not to say	0	0	1 (1.25)	1 (4.00)	0	1 (0.49)	1 (1.25)	4 (0.62)
Missing	0	0	0	0	0	2 (0.99)	3 (3.75)	6 (0.92)
Gender (%)								
Female	11 (73.33)	10 (66.67)	37 (46.25)	6 (24.00)	6 (24.00)	82 (40.39)	33 (41.25)	259 (39.91)
Male	4 (26.67)	5 (33.33)	40 (50.00)	19 (76.00)	19 (76.00)	120 (59.11)	47 (58.75)	382 (58.86)
I prefer not to say	0	0	0	0	0	1 (0.49)	0	2 (0.31)
Other[a]	0	0	2 (2.50)	0	0	0	0	3 (0.46)
Missing	0	0	1 (1.25)	0	0	0	0	3 (0.46)
Sexual orientation (%)								
Straight	12 (80.00)	9 (60.00)	51 (63.75)	20 (80.00)	23 (92.00)	161 (79.31)	64 (80.00)	458 (70.57)
Gay	0	0	3 (3.75)	0	0	2 (0.99)	0	12 (1.85)
Lesbian	0	0	2 (2.50)	0	0	2 (0.99)	0	8 (1.23)
Bisexual	3 (20.00)	6 (40.00)	23 (28.75)	5 (20.00)	2 (8.00)	35 (17.24)	16 (20.00)	161 (24.81)
I am not sure	0	0	0	0	0	0	0	1 (0.15)
I prefer not to say	0	0	0	0	0	1 (0.49)	0	4 (0.62)
Other[b]	0	0	1 (1.25)	0	0	1 (0.49)	0	3 (0.46)
Missing	0	0	0	0	0	1 (0.49)	0	2 (0.31)
Marital status (%)								
Married	9 (60.00)	12 (80.00)	64 (80.00)	15 (60.00)	16 (64.00)	153 (75.37)	52 (65.00)	494 (76.12)
Separated	0	0	1 (1.25)	1 (4.00)	0	1 (0.49)	1 (1.25)	4 (0.62)
Divorced	0	1 (6.67)	2 (2.50)	0	0	5 (2.46)	1 (1.25)	15 (2.31)
Widowed	1 (6.67)	0	0	0	0	2 (0.99)	1 (1.25)	3 (0.46)
Single, never married	4 (26.67)	1 (6.67)	7 (8.75)	9 (36.00)	8 (32.00)	35 (17.24)	22 (27.50)	105 (16.18)
Cohabiting	1 (6.67)	1 (6.67)	6 (7.50)	0	1 (4.00)	7 (3.45)	3 (3.75)	27 (4.16)
Highest education achieved (%)								
Grade 8 or earlier	0	0	0	0	0	2 (0.99)	0	4 (0.62)
High school	2 (13.33)	2 (13.33)	7 (8.75)	1 (4.00)	0	8 (3.94)	5 (6.25)	34 (5.24)
College or trade school	0	0	7 (8.75)	3 (12.00)	1 (4.00)	11 (5.42)	4 (5.00)	44 (6.78)
Undergraduate degree	8 (53.33)	7 (46.67)	35 (43.75)	17 (68.00)	19 (76.00)	113 (55.67)	51 (63.75)	324 (49.92)
Graduate degree	5 (33.33)	6 (40.00)	30 (37.50)	4 (16.00)	5 (20.00)	61 (30.05)	20 (25.00)	212 (32.67)
PhD/Post–doctoral	0	0	1 (1.25)	0	0	7 (3.45)	0	26 (4.01)
Other[c]	0	0	0	0	0	1 (0.49)	0	4 (0.62)
Religion (%)								
Muslim	6 (40.00)	1 (6.67)	2 (2.50)	4 (16.00)	1 (4.00)	4 (1.97)	12 (15.00)	22 (3.39)
Christian	8 (53.33)	11 (73.33)	57 (71.25)	16 (64.00)	19 (76.00)	166 (81.77)	54 (67.50)	505 (77.81)
Jewish	0	0	3 (3.75)	1 (4.00)	0	3 (1.48)	1 (1.25)	10 (1.54)
Buddhist	0	0	1 (1.25)	0	0	1 (0.49)	0	7 (1.08)
Hindu	0	0	0	0	0	0	0	14 (2.16)
Atheist	0	3 (20.00)	6 (7.50)	0	2 (8.00)	9 (4.43)	5 (6.25)	27 (4.16)
Agnostic	0	0	7 (8.75)	3 (12.00)	3 (12.00)	17 (8.37)	6 (7.50)	47 (7.24)
Other[d]	1 (6.67)	0	4 (5.00)	1 (4.00)	0	3 (1.48)	2 (2.50)	15 (2.31)
Socioeconomic status (%)								
Lower	0	1 (6.67)	13 (16.25)	1 (4.00)	1 (4.00)	17 (8.37)	3 (3.75)	54 (8.32)
Middle	12 (80.00)	14 (93.33)	55 (68.75)	18 (72.00)	22 (88.00)	163 (80.30)	66 (82.50)	507 (78.12)
Upper	3 (20.00)	0	11 (13.75)	6 (24.00)	2 (8.00)	22 (10.84)	11 (13.75)	84 (12.94)
Missing	0	0	1 (1.25)	0	0	1 (0.49)	0	4 (0.62)
Suicide								
Ideation (%)	8 (53.33)	7 (46.67)	37 (46.25)	9 (36.00)	6 (24.00)	41 (20.20)	30 (37.50)	188 (28.97)
Mean lifetime attempts (*SD*)	9.40 (7.99)	3.67 (2.08)	4.80 (4.68)	1.00 (0)	3.00 (0)	2.87 (2.72)	5 (6.01)	3.42 (3.54)

Note. NSSI–NA was matched to NSSI–ME, and Control–NA was matched to Control–ME. Matching variables were age, sex, gender, socioeconomic status, and educational level.

[a]Options listed under "other" are Nebularian and non–binary. [b]Options listed under "other" are asexual, pan–aroace, and queer & asexual. [c]Options listed under "other" are completed associates, juris doctor, and some college. [d]Options listed under "other" are Believe in God, Spiritual, Believer, Calfist, Jewish Atheist, none/nothing, not religious, raised Muslim but not practicing, religious without a religion, Taoist–Agnostic, and Theist.

Table 2

NSSI Characteristics of Matched NSSI Groups

NSSI Characteristics	NSSI–ME *n* = 15	NSSI–NA *n* = 15	Total–NSSI *n* = 30
Mean age of onset (*SD*)	19.05 (7.23)	20.67 (9.30)	19.86 (8.23)
Mean number of lifetime incidents (*SD*)[a]	89.27 (45.89)	67.80 (37.81)	78.53 (42.73)
Mean number of methods (*SD*)	4.87 (4.94)	5.00 (3.98)	4.93 (4.41)
Type of method (%)			
Cutting	9 (60.00)	10 (66.67)	19 (63.33)
Burned with a cigarette	4 (26.67)	7 (46.67)	11 (36.67)
Burned with a lighter	4 (26.67)	4 (26.67)	8 (26.67)
Carved words	5 (33.33)	6 (40.00)	11 (36.67)
Carved pictures	5 (33.33)	4 (26.67)	9 (30.00)
Scratched	8 (53.33)	4 (26.67)	12 (40.00)
Biting	4 (26.67)	3 (20.00)	7 (23.33)
Sandpaper	2 (13.33)	1 (6.67)	3 (10.00)
Dripped acid	2 (13.33)	3 (20.00)	5 (16.67)
Scrubbed with bleach or cleaner	2 (13.33)	3 (20.00)	5 (16.67)
Pins or other sharp objects	4 (26.67)	4 (26.67)	8 (26.67)
Rubbed glass into body	3 (20.00)	3 (20.00)	6 (20.00)
Broken bones	3 (20.00)	2 (13.33)	5 (16.67)
Banged head	6 (40.00)	4 (26.67)	10 (33.33)
Punched self	3 (20.00)	5 (33.33)	8 (26.67)
Prevented wounds from healing	2 (13.33)	8 (53.33)	10 (33.33)

Note. Information for this table based on responses on the Deliberate Self–Harm Inventory (Gratz, 2001).
[a]The number of lifetime incidents is a ranked variable such that a rank of 5 indicates lowest number of lifetime incidents and a rank of 143 indicates the highest.

Table 3

Mean (Standard Deviation) and Internal Consistency (Cronbach's α) of Dependent Variables for the Matched Sample

Measure	α	NSSI–ME $n = 15$	NSSI–NA $n = 15$	Control–ME $n = 25$	Control–NA $n = 25$	Total[a] $N = 80$
MC–C	.63	9.40 (3.16)	8.60 (3.07)	6.64 (3.13)	6.80 (2.12)	7.58 (3.01)
BIS	.58	3.78 (0.55)	3.23 (0.60)	3.44 (0.41)	3.19 (0.37)	3.39 (0.51)
Body Image	.71	3.62 (0.90)	3.09 (0.86)	3.55 (0.64)	3.07 (0.65)	3.33 (0.77)
Body Touch	.54	3.46 (0.47)	2.91 (0.86)	3.08 (0.52)	2.83 (0.57)	3.04 (0.63)
Body Care	.72	4.40 (0.43)	3.83 (0.66)	3.80 (0.65)	3.65 (0.54)	3.87 (0.63)
Body Protection	.62	3.65 (0.86)	3.08 (0.90)	3.35 (0.44)	3.21 (0.60)	3.31 (0.69)
ISAS Intrapersonal composite function	.85	3.16 (1.71)	3.65 (0.91)	–	–	3.41 (1.37)
ISAS Affect regulation	.55	4.07 (1.87)	4.07 (1.39)	–	–	4.07 (1.62)
ISAS Anti–dissociation	.70	2.60 (2.13)	3.47 (1.73)	–	–	3.03 (1.96)
ISAS Anti–suicide	.76	2.47 (2.42)	3.27 (1.75)	–	–	2.87 (2.11)
ISAS Self–punishment	.66	3.25 (2.12)	3.67 (1.45)	–	–	3.46 (1.80)
ISAS Marking distress	.60	3.40 (1.92)	3.80 (1.01)	–	–	3.60 (1.52)
ISAS Interpersonal composite function	.95	2.62 (1.53)	3.10 (1.50)	–	–	2.86 (1.50)
ISAS Self–care	.68	2.40 (2.23)	2.60 (1.45)	–	–	2.50 (1.85)
ISAS Autonomy	.82	2.00 (1.60)	2.79 (1.85)	–	–	2.40 (1.75)
ISAS Interpersonal boundaries	.77	2.73 (1.98)	3.40 (1.80)	–	–	3.07 (1.89)
ISAS Interpersonal influence	.72	3.33 (2.09)	3.07 (1.94)	–	–	3.20 (1.99)
ISAS Peer bonding	.83	2.40 (2.10)	2.73 (2.05)	–	–	2.57 (2.05)
ISAS Revenge	.80	3.00 (2.42)	3.07 (1.98)	–	–	3.04 (2.17)
ISAS Sensation seeking	.80	2.52 (2.12)	3.33 (1.80)	–	–	2.92 (1.98)
ISAS Toughness	.79	2.60 (1.76)	3.80 (1.32)	–	–	3.20 (1.65)

Note. MC–C = Marlowe–Crowne Social Desirability Scale–Short Form. BIS = Body Investment Scale. ISAS = Inventory of Statements about Self–Injury.
[a]Total sample size for the Body Investment Scale is 80 and for the Inventory of Statements About Self–Injury is 30. The Control groups did not fill out the Inventory of Statements About Self–Injury.

Table 4

Correlations Among the MC–C, BIS, and NSSI Severity

	1.	2.	3.	4.	5.	6.	7.	*N*
1. MC		.34**	–.12**	–.03	–.25**	.22**	.04	649
2. IM			.34**	.19**	.50**	–.27**	–.11	649
3. CT				.20**	.17**	–.15	–.01	649
4. CB					.11**	.11	.02	649
5. BP						–.02	–.18*	649
6. IR[a]							.67*	182
7. MT								182

Note. MC = Marlowe–Crowne social desirability measure; IM = BIS image; CT = BIS touch; CB = BIS care; BP = BIS protection.
[a]Number of NSSI incidents is reported as a ranked variable and its nonparametric correlation coefficient is Spearman's ρ. The remaining correlations in the table are Pearson's *r*.
* $p < .05$. ** $p < .01$.

Table 5

Correlations Among the MC–C, ISAS, and NSSI Severity

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	*N*
1. MC		.14	.07	–.02	.08	.01	–.06	–.07	–.05	–.03	–.07	–.02	–.02	.06	.06	–.04	.22**	.04	182
2. AR			.49**	.34**	.46**	.55**	.35**	.25**	.30**	.34**	.23**	.36**	.35**	.33**	.70**	.36**	.34**	.16*	182
3. AD				.59**	.60**	.61**	.55**	.56**	.54**	.49*	.36**	.56*	.54**	.58**	.84**	.60**	.27**	.24**	182
4. AS					.49**	.61**	.68**	.65**	.68**	.70**	.51**	.68**	.58**	.55**	.79**	.73**	.14	.14	182
5. SP						.59**	.46**	.45**	.37**	.42**	.27**	.49**	.39**	.40**	.79**	.47**	.23**	.24**	182
6. MD							.56**	.49**	.55**	.59**	.41**	.58**	.44**	.43**	.85**	.58**	.25**	.21**	182
7. SC								.70**	.74**	.74**	.65**	.80**	.73**	.61**	.67**	.86**	.05	.22**	182
8. AU									.77**	.72**	.76**	.74**	.77**	.72**	.62**	.89**	.06	.22**	182
9. IB										.73**	.72**	.79**	.77**	.70**	.63**	.90**	–.02	.13	182
10. II											.66**	.81**	.69**	.53**	.65**	.85**	.18*	.22**	182
11. PB												.68**	.75**	.65**	.46**	.85**	–.11	.09	182
12. RE													.72**	.59**	.68**	.89**	.11	.20**	182
13. SS														.74**	.59**	.89**	.02	.18*	182
14. TO															.59**	.80**	.06	.18*	182
15. IA																.70**	.30**	.25**	182
16. IT																	.08	.21**	182
17. IR[a]																		.67*	182
18. MT																			182

Note. MC = Marlowe–Crowne social desirability measure; AR = Affect regulation; AD = Anti–dissociation; AS = Anti–suicide; SP = Self–punishment; MD = Marking distress; SC = Self–care; AU = Autonomy; IB = Interpersonal boundaries; II = Interpersonal influence; PB = Peer bonding; RE = Revenge; SS = Sensation seeking; TO = Toughness; IA = Intrapersonal composite score; IT = Interpersonal composite score; IR = Number of NSSI incidents (ranked); MT = Number of NSSI methods.

[a]Number of NSSI incidents is reported as a ranking and shows the nonparametric correlation coefficient, Spearman's ρ, whereas the remaining correlations reflect Pearson's r.

* $p < .05$. ** $p < .01$.

Table 6

Correlations Between Dependent Variables and Number of NSSI Methods and NSSI Lifetime Incidents[a] within the Matched NSSI Groups

Measure	NSSI–ME $n = 15$		NSSI–NA $n = 15$	
	Incidents[a]	Methods	Incidents[a]	Methods
BIS	.12	–.35	–.21	–.14
Body Image	–.23	–.39	–.06	–.06
Body Touch	–.02	–.21	–.25	.16
Body Care	.51	–.24	–.22	–.11
Body Protection	.19	–.27	–.25	–.39
ISAS Intrapersonal composite function	.23	.22	.37	.43
ISAS Affect regulation	.27	–.10	.06	–.10
ISAS Anti–dissociation	.33	.41	.31	.32
ISAS Anti–suicide	.15	.23	.20	.34
ISAS Self–punishment	.36	.29	.31	.41
ISAS Marking distress	.42	.04	.47	.37
ISAS Interpersonal composite function	–.45	.40	.43	.61*
ISAS Self–care	–.24	.23	.43	.56*
ISAS Autonomy	–.67**	.28	.46	.64*
ISAS Interpersonal boundaries	–.04	.46	.19	.47
ISAS Interpersonal influence	.33	.30	.24	.45
ISAS Peer bonding	–.69**	.22	.10	.35
ISAS Revenge	.22	.38	.17	.52*
ISAS Sensation seeking	–.56*	.31	.37	.55*
ISAS Toughness	–.63*	.18	.43	.63*

Note. BIS = Body Investment Scale. ISAS = Inventory of Statements about Self–Injury. Correlations involving Incidents are reported as Spearman's ρ coefficient. The rest are Pearson correlations.
[a]Number of NSSI incidents is reported as a ranked variable where a rank of 5 indicates the lowest number of lifetime NSSI incidents and a rank of 143 indicates the highest number.
* $p < .05$. ** $p < .01$.

Table 7

Comparison of NSSI Characteristics Before and During the COVID–19 Pandemic

NSSI Characteristics	Total matched sample *n* = 30	Total sample *n* = 182
Desire to self–injure (%)		
No desire at all	4 (13.33)	16 (8.79)
Less desire	1 (3.33)	14 (7.69)
Somewhat less desire	6 (20.00)	34 (18.68)
No change	11 (36.67)	46 (25.28)
Somewhat increased desire	7 (23.33)	45 (24.73)
Increased desire	1 (3.33)	27 (14.84)
Engage in NSSI during pandemic[a] (%)		
Yes	11 (36.67)	75 (41.21)
No	19 (63.33)	106 (58.24)
Frequency of NSSI[b] (%)		
Much less frequently	0	3 (4.00)
Somewhat less frequently	1 (9.09)	7 (9.33)
No change	2 (18.18)	8 (10.67)
Somewhat more frequently	6 (54.54)	32 (42.67)
Much more frequently	2 (18.18)	25 (33.33)
Number of methods[b] (%)		
Fewer methods	2 (18.18)	15 (20.00)
No change	6 (54.54)	27 (36.00)
More methods	3 (27.27)	33 (44.00)
NSSI severity[b] (%)		
Much less severe	0	2 (2.67)
Somewhat less severe	1 (9.09)	9 (12.00)
No change	2 (18.18)	13 (17.33)
Somewhat more severe	6 (54.54)	34 (45.33)
Much more severe	2 (18.18)	17 (22.67)
Length of time between desire and behaviour[b] (%)		
Much less time	1 (9.09)	5 (6.67)
Somewhat less time	4 (36.36)	16 (21.33)
No change	1 (9.09)	11 (14.67)
Somewhat more time	4 (36.36)	20 (26.67)
Much more time	1 (9.09)	22 (29.33)
NSSI reasons[b] (%)		
Different reasons	1 (9.09)	4 (5.33)
Same reasons	10 (90.91)	71 (94.67)
Degree of desired outcomes from NSSI[b]		
Decreased	3 (27.27)	12 (16.00)
No change	4 (36.36)	18 (24.00)
Increased	4 (36.36)	45 (60.00)

Note. NSSI = Non–suicidal self–injury.
[a]Refers to engaging in NSSI since the start of the COVID–19 pandemic. [b]The total sample size indicated under "Yes" for "Engage in NSSI" are used for these proportions.

Appendix A

Demographics questionnaire

Instructions for Participants

The following is a list of questions regarding your background information.
These questions will help us understand the demographics of the people taking this questionnaire and contextualize our findings.

1. ***Age***: _____years

2. ***Biological Sex*** (*physical sex you were born with*):

   ☐ Female ☐ Male ☐ I prefer not to say

3. ***Gender*** (*gender which you identify with*):

   ☐ Female ☐ Male ☐ I prefer not to say
   ☐ I identify my gender as (please specify) _____

4. ***Sexual orientation***:

   ☐ Straight ☐ Gay ☐ Lesbian ☐ Bisexual
   ☐ I am not sure ☐ I prefer not to say
   ☐ I identify my sexual orientation as (please specify) _____

5. ***Marital Status*** (*select one*):

   ☐ Married ☐ Separated ☐ Divorced ☐ Widowed
   ☐ Single, never married ☐ Cohabitating (living with a partner but not married)

6. Which city and country were you *born* in?: _____

7. Which city and country do you currently *reside* in?: _____

   - How many years have you lived in this country?: _____

8. Do you self–identify as Indigenous or Aboriginal? No ☐ Yes ☐

   - If yes, please specify your Indigenous/Aboriginal identity:

     _____

9. ***Ethnicity***. Where is your ancestral country?
(Example, for Canadians of Finnish origin, please specify "Finland" as the ancestral country rather than "Canada")

   - Ancestral country: _____
   - Please specify a region and/or ethnic group (if applicable): _____
   - Would you like to add another entry?: No ☐ Yes ☐ _____

10. How you would identify your religious or spiritual beliefs?

    ☐ Muslim ☐ Christian ☐ Jewish ☐ Buddhist ☐ Hindu

    ☐ Atheist (do not believe in the existence of God or a higher power)

    ☐ Agnostic (belief that the existence of God or a higher power is unknown)

    ☐ Other, please specify: _____

    - Would you like to specify a religious sect? No ☐ Yes ☐ _____

11. How important are your religious or spiritual beliefs to you?

    ☐ Extremely important

    ☐ Very important

    ☐ Moderately important

    ☐ Slightly important

    ☐ Not at all important

12. How would you classify your current socioeconomic status (*social class and/or income group*)?

    ☐ Upper ☐ Middle ☐ Lower

13. Are you a current student? No ☐ Yes ☐
    - If yes, please specify if you are:
      Full–time ☐ Part–time ☐

14. Are you currently working? No ☐ Yes ☐
    - If yes, please specify if you are:
      Full–time ☐ Part–time ☐

15. What is your highest *level of education completed?* (*select one*):

    ☐ Completed Grade 8 or earlier

    ☐ Completed high school

    ☐ Completed community college, junior college, or trade/technical school

    ☐ Completed undergraduate university degree program (Bachelor's degree)

    ☐ Completed Masters level graduate university degree program

    ☐ Completed Doctoral level graduate university degree program

    ☐ Other, please specify: _____

16. ***In the past***, have you ever received mental health assistance from a counsellor, therapist, social worker, psychologist, or psychiatrist?

    No ☐ Yes ☐

    - If yes, what was the reason for the assistance?

      _____

17. ***Currently***, are you receiving, or waiting to receive, mental health assistance from a counsellor, therapist, social worker, psychologist, or psychiatrist?

    No ☐ Yes ☐

    - If yes, what is/are the reason(s) for the assistance?

      _____

18. ***Currently***, do you have a diagnosis of a mental health disorder?

    No ☐ Yes ☐

    - If yes, what is/are the diagnosis?

      _____

19. Have you ever engaged in *non–suicidal self–injury* (deliberately inflicting damage to your bodily tissues without suicidal intent)?

    No ☐ Yes ☐

    - If yes:
      - Did you receive help for your self–injury? No ☐ Yes ☐
      - What type of help did you receive? _____
      - Did you seek help out yourself, was it offered to you, or both?
        ☐ I sought it out myself ☐ It was offered to me ☐ both
    - If no:
      Why did you not seek help?: _____

    [*if participants answer yes to question 18, they will be presented with the following 3 questions. If not, they will go to question 22*]

20. Compared to life before the COVID–19 pandemic, has there been any *change* in your desire to engage in non–suicidal self–injury?
    □ Increased desire
    □ Somewhat increased desire
    □ No change
    □ Somewhat less desire
    □ Less desire
    □ No desire at all

21. Have you engaged in non–suicidal self–injury since the start of the COVID–19 pandemic?
    □ No □ Yes

    If no, go to question 19.

    If yes:

22. How has the pattern of your non–suicidal self–injury changed compared to before the COVID–19 pandemic?
    a. *Frequency* of self–injury
       □ Much more frequently
       □ Somewhat more frequently
       □ No change
       □ Somewhat less frequently
       □ Much less frequently

    b. *Number of methods* of self–injury
       □ More methods
       □ No change
       □ Less methods

    c. *Severity* of self–injury
       □ Much more severe
       □ Somewhat more severe
       □ No change
       □ Somewhat less severe
       □ Much less severe

    d. *Length of time* between the desire to self–injure and actually self–injuring
       □ Much more time
       □ Somewhat more time
       □ No change
       □ Somewhat less time
       □ Much less time

    e. *Reasons* for self–injury
       □ Same reasons
       □ Different reasons, please specify:

f. Degree of desired outcomes from self–injury (i.e., your satisfaction with the effects of self–injury)
□ Much higher
□ Somewhat higher
□ No change
□ Somewhat lower
□ Much less severe

g. Any other changes to your self–injury not listed above? Please specify:
_____

23. Have you ever heard about or seen non–suicidal self–injury in music, readings, social, or mainstream media?

No ☐ Yes ☐

24. Do you know of anyone who engages in non–suicidal self–injury?

No ☐ Yes ☐

- If yes, how are they related to you? Please select all that apply:

☐ Parents or grandparents ☐ Siblings ☐ Child or grandchild

☐ Close relatives ☐ Distant relatives ☐ Classmates

☐ Close friends ☐ Acquaintance ☐ Co–workers

☐ Other, please specify_____

25. In your lifetime, have you ever ***thought*** about killing yourself?

No ☐ Yes ☐

- If yes, have you had thoughts about killing yourself within the last 12 months?

No ☐ Yes ☐

26. In your lifetime, have you ever ***tried*** to kill yourself?

No ☐ Yes ☐

- If yes:
  - how many times have you tried to kill yourself?: _____
  - Have you tried to kill yourself within the last 12 months?

No ☐ Yes ☐

Appendix B

Body Investment Scale

Instructions for Participants

The following is a list of statements about your experience, feelings, and attitudes of your body. There are no right or wrong answers.
Please read each statement carefully and rate the degree to which you agree or disagree with it.
(**1**) Strongly disagree
(**2**) Disagree
(**3**) Undecided/neutral
(**4**) Agree
(**5**) Strongly agree

1.	I believe that caring for my body will improve my well–being	1	2	3	4	5
2.	I don't like it when people touch me	1	2	3	4	5
3.	It makes me feel good to do something dangerous	1	2	3	4	5
4.	I pay attention to my appearance	1	2	3	4	5
5.	I am frustrated with my physical appearance	1	2	3	4	5
6.	I enjoy physical contact with other people	1	2	3	4	5
7.	I am not afraid to engage in dangerous activities	1	2	3	4	5
8.	I like to pamper my body	1	2	3	4	5
9.	I tend to keep a distance from the person with whom I am talking	1	2	3	4	5
10.	I am satisfied with my appearance	1	2	3	4	5
11.	I feel uncomfortable when people get too close to me physically	1	2	3	4	5
12.	I enjoy taking a bath	1	2	3	4	5
13.	I hate my body	1	2	3	4	5
14.	In my opinion it is very important to take care of the body	1	2	3	4	5
15.	When I am injured, I immediately take care of the wound	1	2	3	4	5
16.	I feel comfortable with my body	1	2	3	4	5
17.	I feel anger toward my body	1	2	3	4	5
18.	I look in both directions before crossing the street	1	2	3	4	5
19.	I use body care products regularly	1	2	3	4	5
20.	I like to touch people who are close to me	1	2	3	4	5
21.	I like my appearance in spite of its imperfections	1	2	3	4	5
22.	Sometimes I purposely injure myself	1	2	3	4	5
23.	Being hugged by a person close to me can comfort me	1	2	3	4	5
24.	I take care of myself whenever I feel a sign of illness	1	2	3	4	5
25.	To monitor quality, please respond with 4 for this item	1	2	3	4	5

Appendix C

The Marlowe–Crowne Social Desirability Scale – Form C

Instructions for Participants

The following is a list of statements concerning personal attitudes and traits. Please read each item and decide whether the statement is true or false as it pertains to you.

1.	It is sometimes hard for me to go on with my work if I am not encouraged.	True	False
2.	I sometimes feel resentful when I don't get my own way.	True	False
3.	On a few occasions, I have given up doing something because I thought too little of my ability.	True	False
4.	There have been times when I felt like rebelling against people in authority even though I knew they were right.	True	False
5.	No matter who I'm talking to, I'm always a good listener.	True	False
6.	There have been occasions when I took advantage of someone.	True	False
7.	I'm always willing to admit it when I make a mistake.	True	False
8.	I sometimes try to get even, rather than forgive and forget.	True	False
9.	I am always courteous, even to people who are disagreeable.	True	False
10.	I have never been irked when people expressed ideas very different from my own.	True	False
11.	There have been times when I was quite jealous of the good fortune of others.	True	False
12.	I am sometimes irritated by people who ask favours of me.	True	False
13.	I have never deliberately said something that hurt someone's feelings.	True	False
14.	To monitor quality, please select false for this item.	True	False

Appendix D

Deliberate Self–Harm Inventory

Instructions for Participants

The following is a list of items that reflect the ways that people might deliberately harm themselves without having any suicidal intent.
Please read each item carefully.
Answer *no* if the item is not relevant to you.
Answer *yes* if the item is relevant to you.

1. Have you ever intentionally (i.e., on purpose) cut your wrist, arms, or other area(s) of your body (without intending to kill yourself)? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

2. Have you ever intentionally burned yourself with a cigarette? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

3. Have you ever intentionally burned yourself with a lighter or a match? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

4. Have you ever intentionally carved words into your skin? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

5. Have you ever intentionally carved pictures, designs, or other marks into your skin? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

6. Have you ever intentionally severely scratched yourself, to the extent that scarring, or bleeding occurred? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

7. Have you ever intentionally bit yourself, to the extent that you broke the skin? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

8. Have you ever intentionally rubbed sandpaper on your body? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

9. Have you ever intentionally dripped acid onto your skin? ____Yes ____No

   If yes:

   How old were you when you first did this? _____
   How many times have you done this? _____
   When was the last time you did this? _____
   How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
   Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
   Did you experience pain when using this method? ____Yes ____Sometimes ____No
   When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

10. Have you ever intentionally used bleach, or other harsh cleaning agents to scrub your skin? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

11. Have you ever intentionally stuck sharp objects such as needles, pins, staples, etc. into your skin (*not* including tattoos, ear piercings, body piercing, or needles used for drugs)? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

12. Have you ever intentionally rubbed glass into your skin? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

13. Have you ever intentionally broken your own bones? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

14. Have you ever intentionally banged your head against something, to the extent that you cased a bruise to appear? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

15. Have you ever intentionally punched yourself, to the extent that you cased a bruise to appear? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

16. Have you ever intentionally prevented wounds from healing? ____Yes ____No

    If yes:

    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

17. Have you ever intentionally done anything else to hurt yourself that was not asked about in this questionnaire? ____Yes ____No

    If yes:

    What did you do to hurt yourself?

    _____
    How old were you when you first did this? _____
    How many times have you done this? _____
    When was the last time you did this? _____
    How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____
    Has this behaviour ever resulted in hospitalization or injury severe enough to require medical treatment? ____Yes ____No
    Did you experience pain when using this method? ____Yes ____Sometimes ____No
    When you self–harmed, were you alone? ____Yes ____Sometimes ____No

---

18. To monitor quality, please respond with yes for this item ____Yes ____No

Appendix E

The Inventory of Statements About Self–Injury

Instructions for Participants

The following is a list of statements about one's experience of non–suicidal self–harm. Please identify the statements that are most relevant to you.
If the statement is *not relevant* for you at all: circle (**0**)
If the statement is *somewhat relevant* for you: circle (**1**)
If the statement is *very relevant* for you: circle (**2**)

"When I self–harm, I am ...

1. … calming myself down"	0	1	2
2. … creating a boundary between myself and others"	0	1	2
3. … punishing myself"	0	1	2
4. … giving myself a way to care for myself (by attending to the wound)"	0	1	2
5. … causing pain so I will stop feeling numb"	0	1	2
6. … avoiding the impulse to attempt suicide"	0	1	2
7. … doing something to generate excitement or exhilaration"	0	1	2
8. … bonding with peers"	0	1	2
9. … letting others know the extent of my emotional pain"	0	1	2
10. … seeing if I can stand the pain"	0	1	2
11. … creating a physical sign that I feel awful"	0	1	2
12. … getting back at someone"	0	1	2
13. … ensuring that I am self–sufficient"	0	1	2
14. … releasing emotional pressure that has built up inside of me"	0	1	2
15. … demonstrating that I am separate from other people"	0	1	2
16. … expressing anger towards myself for being worthless or stupid"	0	1	2
17. … creating a physical injury that is easier to care for than my emotional distress"	0	1	2
18. … trying to feel something (as opposed to nothing) even if it is physical pain"	0	1	2
19. … responding to suicidal thoughts without actually attempting suicide"	0	1	2
20. … entertaining myself or others by doing something extreme"	0	1	2
21. … fitting in with others"	0	1	2
22. … seeking care or help from others"	0	1	2
23. … demonstrating I am tough or strong"	0	1	2

24. … proving to myself that my emotional pain is real”	0	1	2
25. … getting revenge against others”	0	1	2
26. … demonstrating that I do not need to rely on others for help”	0	1	2
27. … reducing anxiety, frustration, anger, or other overwhelming emotions”	0	1	2
28. … establishing a barrier between myself and other”	0	1	2
29. … reacting to feeling unhappy with myself or disgusted with myself”	0	1	2
30. … allowing myself to focus on treating the injury, which can be gratifying or satisfying”	0	1	2
31. … making sure I am still alive when I don’t feel real”	0	1	2
32. … putting a stop to suicidal thoughts”	0	1	2
33. … pushing my limits in a manner akin to skydiving or other extreme activities”	0	1	2
34. … creating a sign of friendship or kinship with friends or loved ones”	0	1	2
35. … keeping a loved one from leaving or abandoning me”	0	1	2
36. … proving I can take the physical pain”	0	1	2
37. … signifying the emotional distress I’m experiencing”	0	1	2
38. … trying to hurt someone close to me”	0	1	2
39. … establishing that I am autonomous/independent”	0	1	2
40. … any other reason for engaging in self–harm not listed above? _____	0	1	2
41. … To monitor quality, please respond with 0 for this item	0	1	2

Appendix F

MTurk General Recruitment Advertisement

Research Volunteers Wanted for a Study on Self–Injury and Culture

We are looking for volunteer participants for a research project being conducted in the Department of Psychology at Lakehead University.

To be eligible to participate, you must:

- **Be at least 18 years of age or older**
- Reside in:
  - **North America**
    Canada
    United States
  - **Middle East**

Afghanistan	Libya
Algeria	Morocco
Armenia	Oman
Azerbaijan	Palestinian territory
Bahrain	Saudi Arabia
Cyprus	Syria
Egypt	Tunisia
Georgia	Turkey
Iran	Turkmenistan
Iraq	United Arab Emirates
Kuwait	Uzbekistan
Lebanon	Yemen

Both individuals **with** and **without a history of self–injury** are welcome to participate.

Volunteers will be asked to complete a confidential and anonymous online research questionnaire on psychological, social, and cultural factors and any incidents of self–injury. The research questionnaire will take ***less than one hour*** to complete.

Participants can earn **$2.00 USD for completing the survey.**

To get more details and/or to participate in the study, please visit the following link:

<SurveyMonkey link>

For more information, please contact Rita Yazici at ryazici@lakeheadu.ca.

Appendix G

MTurk General Recruitment Advertisement (Middle Eastern countries)

Research Volunteers Wanted for a Study on Self–Injury and Culture

We are looking for volunteer participants for a research project being conducted in the Department of Psychology at Lakehead University.

To be eligible to participate, you must:

- **Be at least 18 years of age or older**
- Reside in:
  - **Middle East**

Afghanistan	Libya
Algeria	Morocco
Armenia	Oman
Azerbaijan	Palestinian territory
Bahrain	Saudi Arabia
Cyprus	Syria
Egypt	Tunisia
Georgia	Turkey
Iran	Turkmenistan
Iraq	United Arab Emirates
Kuwait	Uzbekistan
Lebanon	Yemen

Both individuals **with** and **without a history of self–injury** are welcome to participate.

Volunteers will be asked to complete a confidential and anonymous online research questionnaire on psychological, social, and cultural factors and any incidents of self–injury. The research questionnaire will take ***less than one hour*** to complete.

Participants can earn **$2.00 USD for completing the survey.**

To get more details and/or to participate in the study, please visit the following link:

<SurveyMonkey link>

For more information, please contact Rita Yazici at ryazici@lakeheadu.ca.

Appendix H

MTurk Recruitment Advertisement in Canada and the US for Individuals of Middle Eastern descent (General)

Research Volunteers Wanted for a Study on Self–Injury and Culture

We are looking for volunteer participants for a research project being conducted in the Department of Psychology at Lakehead University, Ontario, Canada.

To be eligible to participate, you must:

- **Be at least 18 years of age or older**
- Reside in:
  - **North America**
    Canada
    United States
- **Be of Middle Eastern descent**

In this study, the Middle East is defined as:

Afghanistan	Libya
Algeria	Morocco
Armenia	Oman
Azerbaijan	Palestinian territory
Bahrain	Qatar
Cyprus	Saudi Arabia
Egypt	Syria
Georgia	Tunisia
Iran	Turkey
Iraq	Turkmenistan
Israel	United Arab Emirates
Kuwait	Uzbekistan
Lebanon	Yemen

Both individuals **with** and **without a history of self–injury** are welcome to participate.

Volunteers will be asked to complete a confidential and anonymous online research questionnaire on psychological, social, and cultural factors and any incidents of self–injury. The research questionnaire will take ***less than one hour*** to complete.

Participants can earn **$2.00 USD for completing the survey.**

To get more details and/or to participate in the study, please visit the following link:

<SurveyMonkey link>

For more information, please contact Rita Yazici at ryazici@lakeheadu.ca.

Appendix I

MTurk Recruitment Advertisement in Canada and the US for Individuals of Middle Eastern descent (NSSI)

Research Volunteers Wanted for a Study on Self–Injury and Culture

We are looking for volunteer participants for a research project being conducted in the Department of Psychology at Lakehead University, Ontario, Canada.

To be eligible to participate, you must:

- **Be at least 18 years of age or older**
- Reside in:
  - **North America**
    Canada
    United States
- **Be of Middle Eastern descent**

In this study, the Middle East is defined as:

Afghanistan	Libya
Algeria	Morocco
Armenia	Oman
Azerbaijan	Palestinian territory
Bahrain	Qatar
Cyprus	Saudi Arabia
Egypt	Syria
Georgia	Tunisia
Iran	Turkey
Iraq	Turkmenistan
Israel	United Arab Emirates
Kuwait	Uzbekistan
Lebanon	Yemen

At this time, only participants **with a history of self–injury** are welcome to participate.

Volunteers will be asked to complete a confidential and anonymous online research questionnaire on psychological, social, and cultural factors and any incidents of self–injury. The research questionnaire will take ***less than one hour*** to complete.

Participants can earn **$2.00 USD for completing the survey.**

To get more details and/or to participate in the study, please visit the following link:

<SurveyMonkey link>

For more information, please contact Rita Yazici at ryazici@lakeheadu.ca.

Appendix J

Cover Page and Consent Form (General)

Lakehead UNIVERSITY

Project:	**Self–Injury and Attitudes Toward the Body**
Principal investigator:	Dr. Josephine Tan, PhD, C. Psych, jtan@lakeheadu.ca
Student researcher:	Rita Yazici, HBSc, ryazici@lakeheadu.ca

Study Objectives: This study, which is conducted by the Department of Psychology at Lakehead University, looks at cultural differences in non–suicidal self–injury behaviours. *Non–suicidal self–injury* (NSSI) refers to any intentional, self–inflicted damage done to one's body that occurs without the intent of taking one's life. Examples include cutting or burning the skin, head banging, or ingesting harmful substances, to name a few.

Eligibility: To be eligible to participate, you must be at least 18 years of age or older, and reside in Canada, United States, Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, or Yemen. Both individuals with, and without, a history of self–injury are welcome to participate.

Study Description: Participation in this study will take less than 60 minutes to complete, and will require filling out an online confidential and anonymous questionnaire that asks about your cultural orientation, interpersonal styles, stress reactions, attitude towards your body, adverse childhood experiences, and your experiences with self–injury, if you have a history of NSSI.

Risks and benefits: There is a risk of psychological harm because some of the questions on adverse childhood experiences or NSSI experiences (for those with a history of NSSI) may cause psychological discomfort or distress for some individuals. We will be providing a list of mental health resources that might be useful to you or others.

Compensation: As a token of appreciation for your participation, MTurk participants will receive 2.00 USD each upon completion of the study. Please note that there are several questions for attention checks at various places in the questionnaire to ensure that participants are reading and paying attention; none of these questions will cause you distress. Failing all these attention check questions and/or not meeting the aforementioned eligibility criteria (age 18 and residing in Canada, United States, Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, or Yemen) will disqualify you from receiving the 2.00 USD.

Voluntary participation: Your participation in this study is voluntary. What this means is that you can choose to skip questions if they make you uncomfortable or if you find them distressing. You are also free to discontinue the survey at any time before the submission of the survey. However, we will not be able to delete your responses once you submit because we have no way of linking your responses back to you.

Confidentiality, anonymity, and storage of data: All information you provide will be kept confidential and anonymous. The questionnaire that you will be filling out is designed in such a way that you will not be identified through your responses. Data will be kept in secure storage in Dr. Tan's laboratory in the Department of Psychology at Lakehead University, Thunder Bay, Ontario, Canada, for a period of at least five years, after which time it may be destroyed. You will not be identified by name or other identifying information in the final report or in any publications that come out of this research project. Please note that the online survey software used in this study, SurveyMonkey®, is hosted by a server located in the USA. As such it is subjected to the US Patriot Act, which allows the American law enforcement officials to seek a court order that allows access the records of internet service providers.

Dissemination of information and feedback: The results of this study will be disseminated through conference presentations as well as academic publications. No identifying information will be associated with the data. If you are interested in receiving a summary of the findings upon the completion of the study, there will be an opportunity for you to request that information. This will not interfere with the anonymity of the information you provided, as the contact information you provide for feedback will be kept entirely separate and unconnected from the completed surveys

If you have any questions, please feel free to contact the researchers:

Rita Yazici (ryazici@lakeheadu.ca)
Dr. Josephine Tan (jtan@lakeheadu.ca)

All correspondences will be kept confidential.

This research study has been approved by the Lakehead University Research Ethics Board.

If you have any questions related to the ethics of the research or if you would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at +1–807–343–8283 or research@lakeheadu.ca.

Statement of Informed Consent to Participate

By clicking the *Continue* button below, you are indicating that you have *fully read and understood the information stated above, and that you voluntarily agree to participate in the study*.

CONTINUE

Appendix K

Cover Page and Consent Form (MTurk for Individuals of Middle Eastern descent living in Canada and the US)

Lakehead UNIVERSITY

Project:	**NSSI & Culture Study**
Principal investigator:	Dr. Josephine Tan, PhD, C. Psych, jtan@lakeheadu.ca
Student researchers:	Rita Yazici, HBSc, ryazici@lakeheadu.ca

Study Objectives: This study, which is conducted by the Department of Psychology at Lakehead University, looks at cultural differences in non–suicidal self–injury behaviours. *Non–suicidal self–injury* (NSSI) refers to any intentional, self–inflicted damage done to one's body that occurs without the intent of taking one's life. Examples include cutting or burning the skin, head banging, or ingesting harmful substances, to name a few.

Eligibility: To be eligible to participate, you must be at least 18 years of age or older, are of Middle Eastern descent, and reside in Canada or the United States. Both individuals with, and without, a history of self–injury are welcome to participate. In this study, the Middle East is denoted by the following countries: Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, and Yemen.

Study Description: Participation in this study will take less than 60 minutes to complete, and will require filling out an online confidential and anonymous questionnaire that asks about your cultural orientation, interpersonal styles, stress reactions, attitude towards your body, adverse childhood experiences, and your experiences with self–injury, if you have a history of NSSI.

Risks and benefits: There is a risk of psychological harm because some of the questions on adverse childhood experiences or NSSI experiences (for those with a history of NSSI) may cause psychological discomfort or distress for some individuals. We will be providing a list of mental health resources that might be useful to you or others.

Compensation: As a token of appreciation for your participation, MTurk participants will receive 2.00 USD each upon completion of the study. Please note that there are several questions for attention checks at various places in the questionnaire to ensure that participants are reading and paying attention; none of these questions will cause you distress. Failing all these attention check questions and/or not meeting the aforementioned eligibility criteria (age 18 or older, of Middle Eastern descent, and residing in Canada or the United States) will disqualify you from receiving the 2.00 USD.

Voluntary participation: Your participation in this study is voluntary. What this means is that you can choose to skip questions if they make you uncomfortable or if you find them distressing. You are also free to discontinue the survey at any time before the submission of the survey. However, we will not be able to delete your responses once you submit because we have no way of linking your responses back to you.

Confidentiality, anonymity, and storage of data: All information you provide will be kept confidential and anonymous. The questionnaire that you will be filling out is designed in such a way that you will not be identified through your responses. Data will be kept in secure storage in Dr. Tan's laboratory in the Department of Psychology at Lakehead University, Thunder Bay, Ontario, Canada, for a period of at least five years, after which time it may be destroyed. You will not be identified by name or other identifying information in the final report or in any publications that come out of this research project. Please note that the online survey software used in this study, SurveyMonkey®, is hosted by a server located in the USA. As such it is subjected to the US Patriot Act, which allows the American law enforcement officials to seek a court order that allows access the records of internet service providers.

Dissemination of information and feedback: The results of this study will be disseminated through conference presentations as well as academic publications. No identifying information will be associated with the data. If you are interested in receiving a summary of the findings upon the completion of the study, there will be an opportunity for you to request that information. This will not interfere with the anonymity of the information you provided, as the contact information you provide for feedback will be kept entirely separate and unconnected from the completed surveys.

If you have any questions, please feel free to contact the researchers:

Rita Yazici (ryazici@lakeheadu.ca)
Dr. Josephine Tan (jtan@lakeheadu.ca)

All correspondences will be kept confidential.

This research study has been approved by the Lakehead University Research Ethics Board.

If you have any questions related to the ethics of the research or if you would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at +1–807–343–8283 or research@lakeheadu.ca.

Statement of Informed Consent to Participate

By clicking the *Continue* button below, you are indicating that you have *fully read and understood the information stated above, and that you voluntarily agree to participate in the study*.

CONTINUE

Appendix L
Debriefing Form (General)

Lakehead UNIVERSITY

DEBRIEFING FORM

Thank you for your invaluable contribution to this research study. Without volunteers like you, this study would not be possible.

MTurk code: *NSSI & Culture Study*

Now that your participation is complete, we would like to offer you more details about the study. We were not able to give you a lot of information prior to your participation because we did not wish to influence your responses in anticipation of what you think we might expect to find.

This study looks at the links between *non–suicidal self–injury* (NSSI) and certain psychological and social factors that include body attitudes (emotional protectiveness of the body), relationship styles, cultural orientation (individualistic or collectivistic), adverse childhood experiences, and resilience (ability to bounce back from adverse experiences). NSSI is the formal term for self–injury, which is the deliberate, self–inflicted injury to the body without suicidal intention. NSSI can take many forms, such as cutting or burning the skin, and is often used to cope with stress. Reasons for engaging in NSSI are varied and can be broadly classified into intrapersonal (e.g., to regulate emotions) or interpersonal (e.g., a form of communication to others) categories.

Most of the NSSI research shows that it is often undertaken to regulate emotions although some people might use it to influence social relationships. As well, it has been linked to adverse childhood experiences and relational problems with caregivers when young. Not much is known about whether having a high sense of protecting the physical integrity of the body or having resilience might be related to NSSI acts.

Most of what is known about NSSI comes from studies that have been carried out in North America and we do not know how well their findings can be generalized to other countries. One of the least–studied geographic locations with regard to NSSI is the Middle East. North American and Middle Eastern cultures are different in many respects, and the psychological and social experiences of the individuals are influenced by the cultures in which they grow up. We are carrying out this project to compare the information from North America (Canada and United States) and from the Middle East (Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, and Yemen). Information gathered from this study will be used to further our understanding of NSSI, and what factors (psychological, relational, and cultural) might be related to NSSI in different cultures. In light of the current COVID–19 pandemic, many individuals have reported increased psychological stress for a multitude of different reasons. In order to contextualize the findings and evaluate whether there have been changes between pre–COVID–19 and current lifestyles, the COVID–19 relevant questions were included.

MTurk participants will be financially compensated for their participation provided that they meet the eligibility criteria (age 18 or older and living in Canada, United States, Afghanistan,

Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, or Yemen) and did not fail all the attention check questions. Please enter the word <***NSSI & Culture Study***> in MTurk to claim 2.00 USD.

We request that you please refrain from discussing the nature of this study with others. This may affect the responses of future participants and influence the validity of our results.
If you have any questions or concerns about the study, please feel free to contact the researchers:

Rita Yazici (ryazici@lakeheadu.ca)
Dr. Josephine Tan (jtan@lakeheadu.ca)

On the next page, you will find a list of mental health resources by country that you or someone else you know might find it useful.

We believe that results of our study will be ready by the end of 2021. If you would like to request for a summary of our findings, please copy and paste the link below into the address bar of your web browser. It will take you to a separate webpage so that the identifying information you provide will not be linked to your answers in the research questionnaire:

<Insert link here to request summary of findings>

Thank you again for your participation, it is very valuable in extending the knowledge about NSSI in different countries.

Appendix M

Debriefing Form (MTurk for Individuals of Middle Eastern descent Living in Canada and the US)

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DEBRIEFING FORM

Thank you for your invaluable contribution to this research study. Without volunteers like you, this study would not be possible.

MTurk code: *NSSI & Culture Study*

Now that your participation is complete, we would like to offer you more details about the study. We were not able to give you a lot of information prior to your participation because we did not wish to influence your responses in anticipation of what you think we might expect to find.

This study looks at the links between *non–suicidal self–injury* (NSSI) and certain psychological and social factors that include body attitudes (emotional protectiveness of the body), relationship styles, cultural orientation (individualistic or collectivistic), adverse childhood experiences, and resilience (ability to bounce back from adverse experiences). NSSI is the formal term for self–injury, which is the deliberate, self–inflicted injury to the body without suicidal intention. NSSI can take many forms, such as cutting or burning the skin, and is often used to cope with stress. Reasons for engaging in NSSI are varied and can be broadly classified into intrapersonal (e.g., to regulate emotions) or interpersonal (e.g., a form of communication to others) categories.

Most of the NSSI research shows that it is often undertaken to regulate emotions although some people might use it to influence social relationships. As well, it has been linked to adverse childhood experiences and relational problems with caregivers when young. Not much is known about whether having a high sense of protecting the physical integrity of the body or having resilience might be related to NSSI acts.

Most of what is known about NSSI comes from studies that have been carried out in Western samples and we do not know how well their findings can be generalized to other cultures. One of the least–studied demographic groups with regard to NSSI are those of Middle Eastern descent. North American and Middle Eastern cultures are different in many respects, and the psychological and social experiences of the individuals are influenced by the cultures in which they grow up. We are carrying out this project to compare the information from North Americans in general (in Canada and United States) with those of Middle Eastern descent in the North American region. In this study, the Middle East is defined as Afghanistan, Algeria, Armenia, Azerbaijan, Bahrain, Cyprus, Egypt, Georgia, Iran, Iraq, Israel, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian territory, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, and Yemen. Information gathered from this study will be used to further our understanding of NSSI, and what factors (psychological, relational, and cultural) might be related to NSSI in different cultures. In light of the current COVID–19 pandemic, many individuals have reported increased psychological stress for a multitude of different reasons. In order to contextualize the findings and evaluate whether there have been changes between pre–COVID–19 and current lifestyles, the COVID–19 relevant questions were included.

MTurk participants will be financially compensated for their participation provided that they meet the eligibility criteria (age 18 or older, of Middle Eastern descent, and living in Canada or the United States) and did not fail all the attention check questions. Please enter the word <***NSSI & Culture Study***> in MTurk to claim 2.00 USD.

We request that you please refrain from discussing the nature of this study with others. This may affect the responses of future participants and influence the validity of our results.
If you have any questions or concerns about the study, please feel free to contact the researchers:

Rita Yazici (ryazici@lakeheadu.ca)
Dr. Josephine Tan (jtan@lakeheadu.ca)

On the next page, you will find a list of mental health resources by country that you or someone else you know might find it useful.

We believe that results of our study will be ready by the end of 2021. If you would like to request for a summary of our findings, please click the link below. It will take you to a separate webpage so that the identifying information you provide will not be linked to your answers in the research questionnaire:

<Insert link here to request summary of findings>

Thank you again for your participation, it is very valuable in extending the knowledge about NSSI in different countries.

Appendix N
Mental Health Resources

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MENTAL HEALTH RESOURCES

The following is a list of mental health resources by country.

The mobile app, *Calm Harm*, is a useful and *internationally* available resource that provides different distraction methods for self–harm. It is available to download on the Apple App Store or Google Playstore.

North America

Canada:
Crisis Text Line (available 24 hours any day of the year)
Text *HOME* to 686868
Crisis Services Canada (available 24 hours any day of the year)
1 (833) 456 4566
Or *text* 45645 (available 4 PM to 12 AM)
The Hope Line
1 (877) 723 2263
Tips from the Canadian Mental Health Association
https://cmha.ca/documents/getting–help

United States:
Crisis Text Line (available 24 hours any day of the year)
Text *HOME* to 741741
Suicide Prevention Hotline
1 (800) 784 2433 or 1 (800) 273 8255
Crisis Prevention Hotline for the Hearing & Speech Impaired
1 (800) 799 4889
Tips from Mental Health America
http://www.mentalhealthamerica.net/finding–help

Middle East

Afghanistan:
Emergency: 119 (Police) and 112 (Ambulance)

Algeria:
Hotline: 0021 3983 2000 58
Emergency: 34342 and 43

Armenia:
Trust Social Work and Sociological Research Centre
Hotline: (2) 538194 / (2) 538197
Emergency: 112 and 911

Azerbaijan:
Official Youth Crisis Hotline
Hotline: 510–66–36
Emergency: 112

Bahrain:
Helpline: 0097 161 199 188
Helpline: 0097 161 199 260
Helpline: 0097 161 199 191
Helpline: 0097 161 199 334
Emergency: 999

Cyprus:
Cyprus Samaritans (http://www.cyprussamaritans.org)
Phone number: 8000 7773
Hotline: +357 77 77 72 67
Hotline: 0809 1122 / Military 2345
E–mail Helpline: samscy@hotmail.com
Emergency: 112 and 199

Egypt:
Befrienders Cairo (https://befrienderscairo.com/)
Hotline: 762 1602 or 762 1603
Hotline: 762 2381
E–mail Helpline: befrienders@befrienderscairo.com
Emergency: 122 (Police), 123 (health services), and 126 (foreigners)

Georgia:
Emergency: 112

Iran:
The Iran National Organization of Well–Being (Moshaver.behzisti.ir)
Phone number: 1480
Hotline: 00989127181037
Emergency: 110 (Police) and 115 (ambulance)

Iraq:
Emergency: 112 and 911

Israel:
Israel Association for Emotional First Aid (available 24 hours any day of the year)
1201
Enosh – The Israeli Mental Health Association Hotline
1 (700) 551616
Enosh – The Israeli Mental Health Association Guide
https://www.mhinnovation.net/sites/default/files/downloads/organisation/Enosh%2C%20The%20Israeli%20Mental%20Health%20Association%20–%20Brochure.pdf
"ERAN" ("Emotional First Aid by Telephone and Internet")
Hotline: 1201
Hotline abroad: 972–9–8891333
Hotline abroad: 972–76–8844400
Text message: 076–88444–00
Emergency: 100 (Police) and 101 (ambulance)

Kuwait:
Emergency: 112

Lebanon:
Suicide Hotline: 1564
Embrace LifeLine (https://embracelebanon.org/)
Phone number: 1564

Libya:
Emergency: 1515 (general) and 193 (ambulance)

Morocco:
Centre d'Etude et de Prévention du Suicide
Hotline: 022 382 42 42
Sourire de Reda (Befrienders Casablanca: https://www.sourire2reda.org/)
Hotline Landline: 212 (5) 22 87 47 40
Hotline Mobile: 212 (6) 62 58 95 70

Oman:
Emergency: 9999

Palestine State:
Emergency: 100 (Police) and 101 (Ambulance)

Qatar:
National Mental Health Helpline – COVID–19
(for those experiencing mental health problems as a result of the current COVID–19 pandemic; available 7 AM to 10 PM every day)
16000

- Press 2 for English, then 3 for Hamad Medical Corporation Medical Services, then 1 for Medical Consultation

Guide to Mental Health Services in Qatar
https://guidetohealthcare.qa/EN/Mental–Health/Documents/Guide–Mental–Health–EN.pdf
Emergency: 999

Saudi Arabia:
Emergency: 112 (general), 999 (Police), and 997 (ambulance)

Syria:
Emergency: 112 (Police) and 110 (ambulance)

Tunisia:
Emergency: 197 (Police) and 198 (ambulance)

Turkey:
Emergency Hotline: 182
National Medical Emergency Line: 112
Emergency: 155 (Police) and 183 (child abuse and family violence)

Turkmenistan:
Emergency: 112 (general), 102 (Police), and 103 (ambulance)

United Arab Emirates:
National Committee for the Promotion of Mental Health
Hotline: 920033360
Hotline: 800 46342 (for Indian expats)
Emergency: 112 and 911

Uzbekistan:
Emergency service: 1050
Emergency: 102 (Police) and 101 (ambulance)

Yemen:
Emergency: 194 (Police) and 191 (ambulance)