



## Non-Suicidal Self-Injury among Turkish Young Adults: An Investigation of Intrapersonal Factors\*

### Türkiye'deki Genç Yetişkinlerde Kendine Zarar Verme Davranışıyla İlişkili Psikolojik Faktörlerin İncelenmesi

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#### ABSTRACT

Nonsuicidal self-injury (NSSI) includes the actions of individuals that inflict intentional harm to bodily tissues without intent of ending one's life. NSSI is especially frequent among young individuals and may predict future suicidal acts. Although scholarly attention on NSSI has increased, it remains a poorly understood and complex condition. Furthermore, NSSI among nonwestern populations is under-examined. According to the benefits and barriers model (BBM; Hooley & Franklin, 2018) of NSSI, benefits, such as self-punishment and affect improvement, play a role in the initiation of NSSI, while barriers, such as pain and a positive view of the self, play a role in its prevention. The current study uses the framework based on the BBM and explores the relative association between several psychological factors (i.e., emotion dysregulation, negative and positive affect [NA and PA, respectively], thought suppression, self-criticism, and self-compassion) and NSSI. The participants were 353 Turkish young adults (NSSI group:  $n = 158$ ; no-NSSI group:  $n = 195$ ) who completed online questionnaires. The results indicated that NSSI was common and repetitive in the sample. The most prevalent NSSI behavior was impeding wound healing. Among the study variables, high levels of nonacceptance of emotional reaction and self-criticism and decreased levels of self-compassion were related to NSSI. PA, NA, thought suppression, and the remaining five dimensions of emotion regulation problems were nonsignificantly linked to NSSI when considering all factors. The results indicate that NSSI is a complex phenomenon associated with various psychological factors, which may require prevention and intervention programs that target multiple aspects. Based on these findings, improving emotion regulation and self-compassion and decreasing self-criticism may be intervention targets for this population.

**Keywords:** Nonsuicidal self-injury, emotion dysregulation, self-criticism, self-compassion

#### ÖZ

Kendine zarar verme davranışı (KZVD) bireyin kendi vücut dokusuna kasıtlı olarak ve intihar amacı olmaksızın uyguladığı zarar verici davranışları içerir. KZVD özellikle genç bireyler arasında sıkça görülmekte olup gelecekteki intihar davranışlarını yordama ihtimaline sahiptir. Alanyazında KZVD'ye yönelik artan bir araştırma ilgisi olsa da KZVD hala tam olarak anlaşılammış karmaşık bir durumdur. Bunun yanında, Batı toplumları dışında KZVD'ye yönelik çalışmalar azınlıktadır. KZVD'nin faydalar ve engeller modeline göre (Hooley ve Franklin, 2018) kendini cezalandırma ve duygudurumu iyileştirme gibi faydalar bireylerin kendine zarar verici davranışı başlatmalarında rol oynarken, acı hissi ve kendine yönelik olumlu bakış açısı gibi engeller KZVD'yi önleyici bir rol oynamaktadır. Bu çalışmada, faydalar ve engeller modelinden yola çıkılarak, çeşitli psikolojik

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değişkenlerin (duygu düzenlemede güçlükler, olumlu duygulanım, olumsuz duygulanım, düşünceleri bastırma, öz-eleştiri ve öz-şefkat) KZVD ile göreceli ilişkileri incelenmiştir. Çalışmaya toplam 353 genç yetişkin (KZVD grubu  $n = 158$ ; KZVD'si olmayan grup  $n = 195$ ) çevrimiçi anketleri doldurarak katılmıştır. Çalışma sonuçları KZVD'nin bu örneklemede yaygın ve tekrarlayıcı nitelikte olduğunu göstermektedir. Yaraların iyileşmesine engel olma en sık rapor edilen davranıştır. Tüm çalışma değişkenleri arasında, duygusal tepkileri kabul etmeme, öz-eleştiri ve daha düşük öz-şefkatın KZVD ile ilişkili olduğu görülmektedir. Tüm faktörler denkleme eklendiğinde olumlu ve olumsuz duygulanım, düşünceleri bastırma ve duygu düzenleme güçlüklerinin geri kalan beş alt-boyutu KZVD ile ilişkili bulunmamıştır. Bu bulgular KZVD'nin pek çok psikolojik değişkenle ilişkili karmaşık bir durum olduğunu ve bu sebeple önleme ve tedavi çalışmalarının birden fazla noktaya odaklanması gerekebileceğini göstermektedir. Çalışma bulgularından yola çıkılarak, duygu düzenleme becerilerini ve öz-şefkati geliştirmenin ve öz-eleştiriye azaltmanın genç yetişkinlerle çalışırken kullanılacak müdahalelerde önemli hedefler olabileceği düşünülmektedir.

**Anahtar Kelimeler:** Kendine zarar verme, duygu düzenlemede güçlükler, öz-eleştiri, öz-şefkat

The International Society for the Study of Self-Injury (2023) defines nonsuicidal self-injury (NSSI) as the “deliberate, self-directed damage of body tissue without suicidal intent and for purposes not socially or culturally sanctioned” (About Self-Injury section). The common forms of self-injury encompass cutting, burning, hitting the self, rubbing or scratching the skin, biting, banging one’s head, and interference with wound healing (Klonsky, 2011). Research suggests that NSSI typically starts in adolescence (Nock & Prinstein, 2004) and is highly prevalent among young individuals (e.g., 19.3%; Voss et al., 2020). NSSI is a seemingly common and recurrent behavior (Hawton et al., 2012), and for adolescents who persist to engage in NSSI, its severity increases over time (Andrews et al., 2013). Importantly, although NSSI excludes behaviors with suicidal intent, it may predict future suicidal behavior (Taliaferro et al., 2012). These alarming findings necessitate the understanding of the mechanisms of NSSI among the youth to guide the development of effective programs for its prevention and treatment.

A notable struggle in the literature is understanding the causal pathways and determinants of NSSI. Numerous studies have explored psychosocial variables that explain NSSI, and various associated variables have received empirical support, including experience of childhood abuse (Liu et al., 2021), presence of a psychiatric condition (Liu, 2021), difficulty in social problem-solving (Lucas et al., 2019), and poor social support (Muehlenkamp et al., 2013). In summary, previous research has proposed that no single pathway exists that can fully explain NSSI (Fox et al., 2019). Although NSSI has received increased scholarly attention in the past few decades, the existing risk factors of NSSI remain weak predictors of this condition (Fox et al., 2015), and NSSI remains poorly understood (Hooley & St. Germain, 2014).

A recent conceptualization of self-injury called the benefits and barriers model (BBM; Hooley & Franklin, 2018) provides important insights into this complex clinical condition. Based on this model, NSSI provides benefits such as affect improvement and self-punishment. Conversely, barriers, such as pain, a positive view of oneself, and social norms, prevent individuals from engaging in NSSI. An NSSI episode typically occurs when barriers are lowered or removed (Hooley & Franklin, 2018). Regarding the benefits of self-injury, a vast amount of data from western countries indicate that individuals who engage in self-injurious behavior do so as a means of avoiding and eliminating negative

emotional states or to punish oneself (Chapman et al., 2006; Klonsky, 2007). In terms of the barriers to NSSI, studies indicate that a negative association with the self (e.g., shame-proneness) removes a barrier to engage in self-injury and may play a key role in its trajectory (Schoenleber et al., 2014). However, the majority of research in this field originates from western samples, and studies that examine a wide array of variables associated with NSSI are lacking in nonwestern cultures, including the Turkish culture. NSSI negatively affects a considerable proportion of young Turkish adults with frequency rates exceeding 30%, as reported by several studies (e.g., Oktan, 2014; Somer et al., 2015). Despite these alarming rates, studies that explore NSSI in the Turkish context are scarce, and the majority of previous studies cited restrictions in methodology such as the use of nonstandardized measures. Underrepresentation of nonwestern populations in NSSI research may result in a poor understanding of this condition across cultures and may impede effective prevention and treatment.

Established on the BBM, the first objective of the current study was to elucidate the role of several intrapersonal factors that may be associated with the tendency toward NSSI for its affective and self-punishment benefits among Turkish young adults. Specifically, in connection with the affect improvement benefit, we explored the roles of increased NA and decreased PA, increased emotion dysregulation, and increased thought suppression in NSSI. Furthermore, derived from the self-punishment benefit in the model, we assessed the link between self-criticism and self-injurious behavior. Second, as a potential barrier to NSSI, we examined the role of a compassionate attitude toward oneself. Lastly, the study aimed to evaluate the varying degrees of association between these variables and NSSI.

### **Emotional Experience and Regulation in NSSI**

Consistent with the affect improvement benefit of NSSI in the BBM the most commonly cited objective of self-injury is to regulate emotions (Klonsky, 2007). Increasing empirical evidence proposes that individuals with NSSI have deficits in emotional skills and encounter problems in their experience of emotions, degree of awareness of their emotions, and regulation of such emotions (Wolff et al., 2019). Furthermore, studies demonstrate that individuals with NSSI encounter negative emotions more frequently and intensely in daily life compared with non-injurers (Klonsky & Muehlenkamp, 2007). Without the capacity to effectively regulate emotions, NSSI may serve as an unhealthy method for regulating intense NA for those who self-injure and may result in engagement in NSSI for its affect improvement benefits (Hooley & Franklin, 2018). However, evidence of the experience and management of PA in self-injury is scarce. In one of the limited number of studies, Cohen et al. (2015) found that individuals with a cognitive style characterized by brooding or self-criticism tend to self-injure more frequently only if they undergo infrequent experiences of PA. These findings indicate frequent and intense NA and problems in regulating emotions in NSSI with limited evidence of the protective role of PA.

As stated by the experiential avoidance model, people with NSSI display an increased inclination toward the avoidance of undesired inner experiences, including aversive emotions or thoughts, and use NSSI as an escape from them (Chapman et al., 2006). For people with NSSI, one method for regulating intense negative emotions and unwanted thoughts, including NSSI-related ones or those that contain self-punishment, may be by

avoiding them through suppression. Specifically, thought suppression refers to a cognitive control strategy that involves the intentional avoidance of undesirable thoughts (Wenzlaff & Wegner, 2000). Empirical evidence on thought suppression suggests that one's attempt to suppress unpleasant thoughts can lead to a rebound effect in which suppressed thoughts ironically become frequent and intense (Wang et al., 2020). Research also shows that this rebound effect can manifest behaviorally. To illustrate, suppressing thoughts of smoking seemingly increases cigarette consumption (Erskine & Georgiou, 2010).

Numerous studies support the association between NSSI and thought suppression. For example, in a sample of 87 adolescents, those reporting a history of NSSI more commonly endorsed thought suppression (Najmi et al., 2007). Moreover, using a sample of adolescents, Howe-Martin et al. (2012) demonstrated the relationship between an inclination toward thought suppression and the number of self-injury episodes; adolescents with NSSI exhibited an increased tendency toward thought suppression than did their counterparts. Moreover, Anderson et al. (2018) illustrated that avoidance (as measured by thought suppression and experiential avoidance) played a mediating role in the link among emotional distress, self-injurious behavior, and disordered eating. Based on previous findings, using thought suppression to avoid undesirable thoughts may be a maladaptive strategy for regulating difficult emotions in individuals with NSSI and may be related to engagement in self-injury due to its affect improvement benefits. Despite the initial evidence, the link between thought suppression and NSSI remains understudied, particularly in nonwestern samples. If further research supports the link between thought suppression and NSSI, then it could become a target for intervention in NSSI treatment.

Studies conducted in Türkiye also indicate that deficits in the regulation of emotions are connected to NSSI, and individuals with self-injury frequently use this behavior to downregulate negative emotions (Bakar-Kahraman & Kızılay-Çankaya, 2020; Kabukçu-Başay et al., 2017; Kayar, 2021). However, the majority of prior research on Turkish populations focus on emotion dysregulation as a single factor and lacks an exploration of the various dimensions of challenges in the regulation of emotions in relation to NSSI (e.g., Bakar-Kahraman & Kızılay-Çankaya, 2020; Güçlü & Kapçı, 2020). Furthermore, to the best of our knowledge, previous studies did not explore trait NA and PA and thought suppression in NSSI among Turkish adults. Thus, examining thought suppression in this sample may be especially relevant to the elucidation of the mechanisms of NSSI. Suppression of emotional expression and emotional self-control are more common among cultures with collectivistic values to preserve harmony in relationships with group members (Wei et al., 2013). Although evidence of the association between thought suppression and culture is scarce, mental control, such as thought suppression, may be a mechanism for avoiding distressing internal experiences and maintaining harmonious relationships with others among Turkish individuals with NSSI.

### **Negative Self-Evaluation and Decreased Levels of Self-Compassion in NSSI**

The abovementioned previous studies pointed to the presence of recurrent and profound NA in NSSI, as well as problems in tolerating and regulating unpleasant internal experiences. Furthermore, research evidence of the protective function of PA on self-injury

is limited. Nevertheless, highlighting that not all people with difficulty in emotional processing engage in NSSI is crucial, which emphasizes the need to explore other pathways.

Self-criticism may be a factor that explains the reason why individuals initiate NSSI and endure pain during episodes of self-injury. According to the BBM, NSSI provides satisfaction to the self-punishment desires of those with high levels of self-criticism, which motivates future NSSI episodes. Individuals who self-injure are seemingly particularly prone to engaging in self-criticism; thus, they experience intense anger or aversion toward themselves (Klonsky & Muehlenkamp, 2007), and self-directed disgust (Smith et al., 2014). Importantly, previous studies frequently point to self-punishment as one of the most widespread motives that underlie NSSI with many individuals who self-injure associating it with punishing oneself, anger toward oneself, and self-loathing (Klonsky, 2007). A meta-analysis of 15 studies on self-criticism and self-injury reported moderate-to-large effects for the link between NSSI and self-criticism (Zelkowitz & Cole, 2019). Furthermore, a laboratory study indicated that high scores on a self-criticism scale significantly predicted pain endurance among participants with NSSI (Hooley et al., 2010). Nock (2010) proposed that self-criticism and the tendency to punish oneself among those who self-injure may be a product of experiences with criticism or abuse early in life. In accordance with this proposal, the past research indicated that self-criticism may play a mediating role in the link between traumatic childhood experiences and self-injury (Swannell et al., 2012).

However, one limitation of the previous literature is that the majority of studies focus on western samples, such that the need emerges for future studies to test this relationship on non-western samples (Zelkowitz & Cole, 2019). To the best of our knowledge, only one study examined the connection between self-criticism and self-injury in a group of Turkish college students (Kayar, 2021) and reported that self-criticism and difficulty in emotion regulation were mediators in the association between childhood trauma and self-injury. Investigating the link between self-criticism and self-injury in Turkish samples is seemingly notable given the Turkish cultural context with collectivistic features. Previous studies suggested that individuals from collectivistic cultures may be more prone to making upward social comparison in general and after failure in particular (White & Lehman, 2005), and this tendency may contribute to increased levels of self-criticism. Therefore, the role of self-criticism in NSSI may especially be intensified among Turkish self-injurers.

Given that people with NSSI display a tendency to exhibit self-criticism and to evaluate themselves negatively, struggling with the experience of self-compassion is unsurprising for them. According to the BBM, a positive and non-judgmental view of oneself, similar to self-compassion, may serve as a barrier to NSSI. Self-compassion is composed of three elements, namely, being understanding and kind to oneself without engaging in self-criticism, recognizing mistakes and failures as a part of being human, and holding and accepting difficult thoughts and emotions without attempting to escape from or identifying excessively with them (Neff, 2023). Self-compassion, which emphasizes an accepting attitude toward internal experiences and a non-judgmental approach to one's failures, is considered contrary to self-criticism and the avoidance of negative emotional experiences, which are commonly observed in people who tend to self-injure.

To the best of our knowledge, previous studies that examined the connection between

self-compassion and self-injury are limited. In one of such studies, Jiang et al. (2016) highlighted that a compassionate attitude toward oneself played a moderating role in the relationship between peer victimization and self-injurious behavior in Chinese high school students. Specifically, being victimized by peers was not a predictor of self-injury across one year for participants with higher scores on self-compassion. This finding puts forward that a compassionate attitude toward oneself may be a barrier to the development of NSSI.

In Turkish samples, a small number of studies focused the relationship between self-compassion and self-injury. In a group of Turkish high school students, Toksoy and Oktan (2019) revealed that dimensions of self-compassion were negatively related to NSSI. Additionally, among Turkish university students, childhood traumatic events were associated with problems in emotion regulation, and low levels of self-compassion played a mediating role in the connection between difficulty in emotion regulation and NSSI (Erol, 2021). Lastly, a recent study on Turkish prisoners demonstrated decreased levels of self-compassion among people with NSSI compared with those without NSSI (Gedik-Yeşilyurt, 2022). However, these studies did not explore the relative contribution of self-compassion to NSSI given other associated factors. If forthcoming empirical evidence confirms the protective function of self-compassion against NSSI, then it may be integrated into treatments to deter individuals from participating in self-injury.

### **The Current Study**

Previous studies indicate that self-injurious behavior is a frequent, recurrent, and highly maladaptive behavior that poses a significant threat, especially to young people (Hawton et al., 2012; Nock, 2010; Voss et al., 2020). Despite previous studies that link NSSI to multiple psychological factors, the reasons that underlie self-injury remain unclear due to the complex nature of this condition. Therefore, a need exists for comprehensive studies that examine the mechanisms for explaining why certain individuals subject themselves to physical pain, such as in NSSI, while others do not. Furthermore, given that several intrapersonal factors play a role in NSSI, the need continues for inclusive models that investigate the relative strength of the link between psychological factors and NSSI. For example, past studies indicated that emotion dysregulation is seemingly a dominant factor of NSSI (Nock, 2010; Wolff et al., 2019). However, the contribution of thought suppression as a means of managing unpleasant emotional experiences to the prediction of NSSI after statistically controlling for difficulties in emotion regulation remains unknown. Consequently, the current study aimed to examine the unique relationships between each set of variables and the presence of NSSI using a hierarchical model.

Furthermore, factors associated with NSSI have been largely tested in western samples, which makes the generalization of findings to diverse populations difficult. Evidence from nonwestern samples indicates that the frequency and risk factors of NSSI and the motives that underlie it may change as a function of culture (Gholamrezaei et al., 2015). To illustrate, data from collectivistic cultures do not uphold the emotion regulation purpose of NSSI; instead, they highlight the role of NSSI in regulating interpersonal issues (e.g., You et al., 2012). Furthermore, the majority of studies on nonwestern samples focus on depressive symptoms, childhood abuse/neglect, and suicide attempt as correlates of NSSI (e.g., Gholamrezaei et al., 2015; Zhu et al., 2023). Thus, they overlook many other

factors that may be important in understanding NSSI. The study of NSSI across cultures is especially important for identifying similarities and differences in the factors associated with NSSI and for determining the applicability of the existing interventions to nonwestern populations.

Given these research gaps and the framework based on the BBM, the current study investigated the role of several intrapersonal factors that may be associated with the tendency to use NSSI for affective benefits, including high levels of NA, emotion dysregulation, thought suppression, low levels of PA, and self-punishment benefits, including high levels of self-criticism. We also tested the role of self-compassion given its association with NSSI as a potential barrier. This exploration occurred in a nonclinical, college sample in Türkiye. The examined variables were previously related to NSSI in western samples but received limited attention in Turkish samples. Türkiye is traditionally categorized as one of the collectivistic societies with strong social bonds and an emphasis on family membership as a defining feature of the self (Kağıtçıbaşı, 1994). However, a rapid societal change occurred as a result of various factors, such as political change and industrialization, which led to the emergence of individualistic values, such as assertiveness and autonomy, especially among young people (Akyil et al., 2016). This interplay of collectivistic and individualistic values renders Türkiye a unique population for the examination of NSSI.

Based on earlier findings from western samples (e.g., Claes et al., 2012; Ross & Heath, 2002), the study presents the following hypotheses:

H1: Affect will be associated with NSSI; such that (a) high levels of NA and (b) low levels of PA would be significantly related to NSSI.

H2: Increased difficulty in the dimensions of emotion dysregulation will be significantly related to NSSI.

H3: An increased tendency toward thought suppression will be significantly related to NSSI. We expect that thought suppression would remain linked to self-injury after statistically controlling for PA, NA, and emotion dysregulation.

H4: An increased tendency toward self-criticism will be significantly linked to self-injury. We hypothesized that a critical attitude toward oneself would be significantly linked to NSSI after statistically controlling for other study variables.

H5: Diminished levels of self-compassion will be significantly linked to NSSI.

## Method

### Participants

The study recruited 353 university students (NSSI group:  $n = 158$ ; no-NSSI group:  $n = 195$ ) from a university in Türkiye. The NSSI group comprised participants who engaged in one of the comparatively severe methods of NSSI behaviors (i.e., cutting or burning one's skin, rubbing one's skin against rough surfaces, carving, pulling hair, ingesting dangerous substances, piercing oneself with needles, and severe scratching) during the past year. The decision to include only behaviors in the past year was made on the basis of the diagnostic criteria for the NSSI disorder by the American Psychiatric Association (2013). The no-NSSI group was composed of participants who reported no lifetime incidence of self-injurious behaviors.

The age range of the sample was between 18 and 39 years ( $M = 21.46$ ,  $SD = 2.31$ ), and sample was composed of 230 women (65.2%) and 121 men (34.3%). Two participants did not disclose their gender. The majority were single ( $n = 349$ , 98.9%), and four (1.1%) were married. The majority (58.9%,  $n = 208$ ) also reported belonging to the middle socioeconomic status (SES), while 83 (23.5%) and 62 (17.5%) to the higher and lower SES. Regarding treatment status, 30 (8.5%) reported that they were undergoing treatment for mental health issues at the time of data collection. We compared the NSSI and no-NSSI groups in terms of demographic variables and found them to be similar.

## Materials

### *Inventory of Statements About Self-Injury*

The Inventory of Statements About Self-Injury (ISAS; Klonsky & Glenn, 2009; Klonsky & Olino, 2008) evaluates the number and functions of NSSI behaviors as reported by participants. The first half of the measure examines the frequency of 12 self-injurious behaviors (e.g., burning, cutting, and biting) performed deliberately without intention of suicide in the lifetime of the participants (*i.e.*, *Please estimate the number of times in your life you have intentionally [i.e., on purpose] performed each type of nonsuicidal self-harm*). The second half of the scale has 39 items that evaluate 13 functions of NSSI. Previous work using the ISAS demonstrates that the scale has satisfactory psychometric properties (e.g., Kortge et al., 2013).

Bildik et al. (2013) developed the Turkish form of the scale, which exhibited psychometric properties comparable to those of the original version. The current study utilized only the first part of the scale to evaluate the presence of self-injurious acts in a large screening sample. Given that this part measures only the frequency of NSSI behaviors, Cronbach's alpha coefficient was not calculated.

### *Difficulties in Emotion Regulation Scale*

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a multidimensional scale that consists of 36 items that evaluate self-reported struggles with emotion regulation in six areas in which different struggles may occur, namely, awareness (e.g., *I pay attention to how I feel*), clarity (e.g., *I have no idea how I am feeling*), non-acceptance (e.g., *When I'm upset, I become angry with myself for feeling that way*), strategies (e.g., *When I'm upset, I believe that I will remain that way for a long time*), impulse (e.g., *When I'm upset, I become out of control*), and goals (e.g., *When I'm upset, I have difficulty getting work done*). The items are rated using a five-point Likert-type scale ranging from 1 (*almost never*) to 5 (*almost always*) with high scores representing greater struggle in emotion regulation. The DERS is a frequently used measurement tool, which is known for its strong psychometric properties (Hallion et al., 2018).

Rugancı and Gençöz (2010) developed the Turkish version of the DERS, and their findings confirmed the factorial structure of the original form. The internal consistency of the Turkish version and its subscales was good, as well as its test-retest reliability. The current study utilized the scale to examine problems in emotion regulation and its dimensions. Cronbach's alpha coefficient was .94 for the total 36 items and .83, .71, .90, .90, .91, and .90 for the clarity, awareness, nonacceptance, goals, impulse, and the strategies subscales, respectively.



### ***The Positive and Negative Affect Schedule***

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) is a questionnaire for evaluating self-reported emotional experiences using 10 positive (e.g., excited, strong, and inspired) and 10 negative (e.g., upset, hostile, and afraid) descriptive terms related to PA and NA. Participants rate the extent of their experience with each item over a specified time frame (e.g., last 30 days) using a five-point Likert-type scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS is a widely used instrument known for its good psychometric properties (Watson et al., 1988).

Gençöz (2000) developed the Turkish version of the scale. The internal reliability coefficients of the Turkish form were .83 and .86 for the PA and NA subscales, respectively. Gençöz reported the test–retest reliability coefficients, which were measured after three weeks, as .40 and .54 for PA and NA, respectively. The current study adopted the PANAS to examine the proneness of individuals to experiences of PA and NA. Therefore, following earlier work (e.g., Schoenleber et al., 2014), the questionnaire was used with an *in general* time frame and asked participants how they generally felt to explore affective tendencies. The internal reliability coefficients in the present sample were calculated as .86 and .80 for NA and PA, respectively.

### ***White Bear Suppression Inventory***

The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self-report tool that consists of 15 items that intend to assess the extent to which people suppress unwanted and unpleasant thoughts (e.g., *There are things I prefer not to think about*). The items were rated using a five-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). High scores denote greater tendency to suppress thoughts. Cronbach's alpha coefficients of the WBSI ranged from .87 to .89, which demonstrates high internal consistency (Schmidt et al., 2009).

Altın and Gençöz (2009) adapted the WBSI into Turkish. Cronbach's alpha coefficient was reported as .90, and the test–retest reliability coefficient was reported as .80 after a four-week interval, which indicates good psychometric properties. In the current study, *this value* reached .90.

### ***Levels of Self-Criticism Scale***

The Levels of Self-Criticism Scale (LOSC; Thompson & Zuroff, 2004) consists of 22 items for measuring the tendency toward engaging in self-criticism based on self-report. It measures self-criticism using two subscales, namely, comparative (12 items; e.g., *I fear that if people get to know me too well, they will not respect me*) and internalized self-criticism (10 items; e.g., *I am very irritable when I have failed*). The items were rated using a five-point Likert-type scale ranging from 1 (*This is a very bad description of me*) to 5 (*This is a very good description of me*). The LOSC is known for its good psychometric properties; its internal reliability coefficients were calculated as .81 and .87 for the comparative and internalized self-criticism subscales, respectively.

Öngen (2006) conducted the Turkish adaptation study of the LOSC. Internal reliability coefficients were reported as .67 and .77 for the comparative and internalized self-criticism

subscales, respectively. The current study adopted the total scale score to evaluate general levels of self-criticism with Cronbach's alpha coefficient of .80.

### ***The Self-Compassion Scale***

The Self-Compassion Scale (SCS; Neff, 2003) is a self-reported assessment tool developed to evaluate level of self-compassion using 26 items (e.g., *I try to be loving toward myself when I'm feeling emotional pain*). The SCS has six dimensions, and the items are rated using a five-point Likert-type scale ranging from 1 (*almost never*) to 5 (*almost always*). Cronbach's alpha coefficient of the SCS was reported as .92, and the scale displayed good construct validity.

Deniz et al. (2008) developed the Turkish version of the SCS. Two items were omitted from the Turkish version, because they produced low correlations with the overall scale. The Turkish version indicated a one-factor structure. Cronbach's alpha coefficient was .89, and test-retest reliability was reported as .83 after a three-week interval. The total scale scores were linked to PA, self-esteem, and satisfaction with life, which demonstrates construct validity. The current study used the total score to evaluate general levels of self-compassion, and the internal reliability coefficient reached .94.

### **Procedure**

First, the study obtained approval from the Middle East Technical University Human Research Ethics Committee (approval number: 28620816-349). Subsequently, students registered in courses in the Psychology Department were invited to participate with extra credits as an incentive. They willingly engaged in the study. Data were collected through an online survey, and the study was conducted in line with the ethical standards stipulated in the 1964 Declaration of Helsinki. Prior to the survey, the participants reviewed and provided their signatures on an online informed consent form that contained concise information related to the study. The questionnaire could be completed in approximately 20 min.

The final sample was selected from a larger screening pool ( $N = 649$ ) of university students. We screened this initial group of participants to designate them under the NSSI or no-NSSI group. In the screening sample, the lifetime rate of participating in at least one NSSI behavior (out of the 12 NSSI behaviors outlined in the ISAS) was 62.87% ( $n = 408$ ). We followed the method used by Lloyd-Richardson et al. (2007) and excluded individuals who solely participated in common and potentially less severe behaviors (i.e., interfering with wound healing [ $n = 249$ , 38.2%], banging or hitting self [ $n = 240$ , 37%], pinching [ $n = 199$ , 30.7%], and biting [ $n = 188$ , 28.97%]) due to the unexpectedly high frequencies of a few self-injurious behaviors. Therefore, individuals who reported engaging only in comparatively common self-injurious behaviors (e.g., interfering with wound healing), which were reported by at least 25% of the sample, were excluded from the NSSI group ( $N = 250$ ). We assumed that these behaviors may lack clinical significance.

### **Data Analysis**

Initially, we categorized the frequency of self-injury into five groups (i.e., 0, 1, 2–5, 6–20, and more than 20 NSSI acts) based on previous studies (e.g., Cohen et al., 2015) due to the significant diversity in the frequency reported for NSSI episodes among participants, which ranged from 1 to 11,000,000.

Afterward, the study conducted univariate analyses to assess departures from the normal distribution and computed descriptive statistics and Cronbach alpha coefficients of the questionnaires. Subsequently, it reported the frequency of NSSI and each specific self-injurious behavior and calculated the correlation coefficients among the variables. For the primary analysis, the study utilized binary logistic regression analysis to test the link among the variables (i.e., NA, PA, DERS subscales, thought suppression, self-criticism, and self-compassion) and the presence of self-injury. Furthermore, it adopted a hierarchical approach to determine the unique contribution of each set of variables to model fit. In Step 1, NA and PA were added to the model given that affective experiences precede the emotion regulation process and that affect greatly influences clinical traits, such as self-criticism (Naragon-Gainey et al., 2018). The DERS subscales were then included in Step 2 due to previous evidence that indicates a consistent and strong relationship between emotion dysregulation and NSSI. Thought suppression was added to Step 3 to explore whether or not it uniquely contributes to self-injury status as a means of regulating difficult emotions, while statistically controlling for affect and emotion dysregulation. In Step 4, self-criticism and self-compassion were included in the model as clinical traits. We analyzed data using SPSS version 22.

## Results

### Frequency and Properties of NSSI

Initially, we analyzed the answers of the participants to the ISAS to explore the properties of NSSI. Table 1 reports the frequency of lifetime NSSI episodes reported by the individuals in the NSSI group. Regarding frequency for the NSSI group, 3.2% ( $n = 5$ ), 15.8% ( $n = 25$ ), and 81% ( $n = 128$ ) reported 2–5, 20, and more than 20 NSSI episodes, respectively, in their lifetime.

**Table 1.** *The Frequency of Self-injurious Behaviors Reported at Least Once in the Study Sample (N = 353)*

Self-Injurious Behavior	N	%
Interfering with wound healing	113	32
Banging or hitting self	111	31.4
Biting	95	26.9
Pinching	91	25.8
Hair pulling	73	20.7
Severe scratching	71	20.1
Carving	61	17.3
Rubbing skin against rough surface	48	13.6
Sticking self with needles	44	12.5
Cutting	42	11.9
Burning	25	7.1
Swallowing dangerous substances	24	6.8

### Logistic Regression Analysis

Prior to the main analysis, the study examined the correlations among the study variables across groups (see Table 2 for a summary of results).

**Table 2.** Means and Standard Deviations and Correlations among Study Variables across Groups ( $N = 353$ )

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1.Self-compassion	1											
2.Self-criticism	-.63**	1										
3.Thought suppression	-.40**	.35**	1									
4.Positive affect	.35**	-.16**	-.11*	1								
5.Negative affect	-.58**	.52**	.50**	-.25**	1							
6.DERS total	-.70**	.59**	.48**	-.33**	.66**	1						
7.Clarity	-.46**	.43**	.31**	-.34**	.44**	.65**	1					
8.Non-acceptance	-.50**	.54**	.39**	-.17**	.51**	.79**	.41**	1				
9.Goals	-.49**	.36**	.38**	-.25**	.39**	.70**	.33**	.41**	1			
10.Impulse	-.54**	.47**	.41**	-.17**	.61**	.84**	.49**	.58**	.51**	1		
11.Awareness	-.31**	.23**	.08	-.20**	.14**	.38**	.37**	.26**	.06	.19**	1	
12.Strategies	-.68**	.49**	.45**	-.33**	.64**	.89**	.45**	.64**	.63**	.71**	.11*	1
<i>M</i>	72.12	61.73	52.28	32.71	23.31	89.71	11.57	13.14	16.84	13.95	14.58	19.63
<i>SD</i>	17.46	11.28	11.18	6.06	7.36	22.11	3.48	5.53	4.57	5.62	3.55	7.20

*Note.* DERS: Difficulties in Emotion Regulation Scale; \*  $p < .05$ , \*\*  $p < .01$ .

The study utilized binary hierarchical logistic regression analysis with self-injury as the outcome (i.e., NSSI vs. no-NSSI) and with PA, NA, the dimensions of emotion dysregulation, thought suppression, self-criticism, and self-compassion as predictors. First, to verify H1a and H1b, the study entered general tendency toward NA and PA as the independent variables and yielded a significant model ( $\chi^2(2) = 32.83, p < .001$ , Nagelkerke  $R^2 = .12$ ). Based on Wald's test statistic, NA was significantly associated with the presence of self-injurious behaviors ( $\chi^2(1) = 25.81, p < .001$ ). Thus, H1a was supported, whereas H1b was rejected. The study then added the six aspects of emotion dysregulation (i.e., nonacceptance, goals, impulse, awareness, strategies, and clarity) to the model to assess H2, which significantly increased explained variance ( $\chi^2(6) = 39.14, p < .001$ , Nagelkerke  $R^2 = .25$ ). Thus, H2 was supported. Among the dimensions of emotion dysregulation, nonacceptance of emotional experiences ( $\chi^2(1) = 12.91, p < .001$ ) and difficulty in impulse control ( $\chi^2(1) = 5.12, p = .024$ ) were significantly associated with membership to the NSSI and no-NSSI groups. In Step 3, thought suppression was added to the model to test H3. It did not contribute significantly to the explained variance ( $\chi^2(1) = .28, p = .603$ , Nagelkerke  $R^2 = .25$ ). Hence, H3 was rejected. Lastly, self-criticism and self-compassion were added to the model in Step 4 to assess H4 and H5, respectively. A test of the complete model with all predictor variables was significant ( $\chi^2(11) = 91.33, p < .001$ , Nagelkerke  $R^2 = .31$ ). The Hosmer and Lemeshow test demonstrated that the observed model aligned with the initially hypothesized model ( $\chi^2(8) = 7.53, p = .480$ ). The correct classification rates were 67.1% and 80.5% for the NSSI and no-NSSI groups, respectively, with an overall classification rate of 74.5%. Based on the Wald criterion, nonacceptance ( $\chi^2(1) = 8.45, p = .004$ ), self-compassion ( $\chi^2(1) = 6.36, p = .012$ ), and self-criticism ( $\chi^2(1) = 5.22, p = .022$ ) were significantly related to self-injury status. Hence, the results supported H4 and H5. For every unit increase in the nonacceptance of negative emotions and self-criticism, the possibility of membership in the NSSI group was raised by factors of 1.10 and 1.04,

respectively. Furthermore, as the levels of self-compassion increased by one unit, the probability of being in the NSSI group declined by a factor of 0.03.

**Table 3.** Logistic Regression Models Predicting the Presence of NSSI (N = 353)

	Model 1		Model 2		Model 3		Model 4	
	OR	95% CI for OR	OR	95% CI for OR	OR	95% CI for OR	OR	95% CI for OR
Negative Affect	1.088	(1.053, 1.124)***	1.019	(0.975, 1.064)	1.015	(0.969, 1.062)	0.986	(0.939, 1.035)
Positive Affect	0.987	(0.950, 1.025)	0.995	(0.952, 1.040)	0.994	(0.951, 1.039)	0.998	(0.952, 1.045)
Nonacceptance	-	-	1.115	(1.051, 1.184)***	1.114	(1.049, 1.182)***	1.097	(1.031, 1.168)**
Goals	-	-	1.020	(0.955, 1.089)	1.017	(0.952, 1.087)	1.000	(0.933, 1.072)
Impulse	-	-	1.077	(1.010, 1.149)*	1.078	(1.010, 1.150)*	1.086	(1.016, 1.162)
Awareness	-	-	1.003	(0.931, 1.080)	1.004	(0.931, 1.081)	0.968	(0.894, 1.047)
Strategies	-	-	0.979	(0.923, 1.038)	0.978	(0.922, 1.037)	0.944	(0.885, 1.008)
Clarity	-	-	1.048	(0.962, 1.141)	1.046	(0.960, 1.140)	1.024	(0.937, 1.119)
Thought Suppression	-	-	-	-	1.007	(0.982, 1.032)	1.006	(0.980, 1.033)
Self-criticism	-	-	-	-	-	-	1.036	(1.005, 1.068)*
Self-compassion	-	-	-	-	-	-	0.970	(0.948, 0.993)*

Note. \*  $p < .05$ , \*\*  $p < .01$ .

### Discussion

The study examined the link between self-injury and multiple intrapersonal factors, which were understudied in non-western samples and may be associated with affect improvement and the self-punishment benefits of NSSI (i.e., PA, NA, emotion dysregulation, thought suppression, and self-criticism). We also tested the relationship between self-compassion and self-injury based on the assumption that it may be a potential barrier to NSSI. The study also aimed to understand the relative degree of association between these factors and NSSI using the hierarchical model.

Prior to presenting the main findings, highlighting that the study revealed interesting findings regarding the rate and features of NSSI in the current sample is important. The lifetime frequency of NSSI in the screening pool was remarkably high and exceeded previous rates reported by studies conducted on Turkish university students (e.g., Toprak et al., 2011) and teenagers (e.g., Zoroğlu et al., 2003) as well as those conducted across global regions (e.g., Voss et al., 2020). Nevertheless, a number of studies reported rates comparable to those found in the current study. For example, Lüleci (2007) reported the lifetime prevalence of self-injury in a Turkish sample of adolescents as 57%. Similarly, Paivio and McCulloch (2004) found the frequency of self-injury to be 41% in a community sample of young adults in Canada, while Lloyd-Richardson et al. (2007) found it as 46.5% in a sample of American adolescents. The high rate of self-injury in the current sample may be explained as follows. According to Peterson (2001), the participants frequently engage in studies that hold personal relevance to them. Participants of the current study were not randomly selected and were aware that the study focused on self-injury, which have attracted more individuals who engaged in such behavior and contributed to the inflated rates of NSSI. Additionally, the assessment method may have played a role in the high

NSSI rate, because behavior checklists tend to yield elevated prevalence rates in contrast to other measurement tools such as the use of a single item (Muehlenkamp et al., 2012). Particular methods of self-injury, such as biting, interrupting the healing of wounds, and hitting oneself, exhibited notably high rates, which require cautious interpretation due to the potential lack of clinical significance or misunderstanding by the participants.

A significant portion of participants with self-injury (40.8%) reported engagement in more than 20 lifetime acts, which confirms NSSI as a highly repetitive behavior. Interfering with the healing of wounds emerged as the most common behavior, and banging or hitting oneself, pinching one's skin, and biting were the subsequent common behaviors. Conversely, burning emerged as the least common behavior of self-injury. Previous studies also highlighted comparable trends, such as those of Lloyd-Richardson et al. (2007) and Oktan (2014), which identified picking at wounds and interrupting the healing of wounds as the most commonly reported self-injurious behaviors in their respective groups of participants. However, the clinical meaningfulness of each NSSI method remains unclear, which indicates the need for the validation of these methods and their clinical significance in future studies. For example, preventing wound healing may not carry the same clinical weight compared with that of cutting, which highlights the necessity to investigate the validity of each method.

With respect to the main findings, the current study found that experiencing more NA was significantly related to NSSI. Nevertheless, this effect lost its significance when the dimensions of emotion dysregulation were added to the model. Previous research indicated that individuals who engage in the acts of NSSI not only face heightened negative emotions prior to these acts (e.g., Klonsky, 2009), but also tend to be more susceptible to encountering negative emotions overall (e.g., Baetens et al., 2011; Nicolai et al., 2016). In their emotional cascades model, Selby et al. (2008, 2012) consistently emphasize that being susceptible to experience negative emotions is a notable factor that contributes to acts of self-injury. In the current sample, although negative emotion was significantly related to NSSI, difficulty in the regulation of negative emotions is seemingly a stronger factor associated with NSSI. Furthermore, we found no indication that PA is linked to NSSI, which is in agreement with the findings of Klonsky et al. (2003), who indicated that trait negative affectivity plays a role in NSSI but not positive affectivity. On the contrary, Hasking et al. (2018) found that a decrease in PA increased the odds of NSSI. Furthermore, PA moderated the link between NA and self-injury, such that the relationship between NA and self-injury was weak if the level of PA was high. These mixed findings highlight the necessity to address PA and its interaction with other related factors in future research on NSSI.

The current study found strong evidence that emotion dysregulation is significantly related to the presence of self-injury. The link between difficulty in emotion regulation and NSSI, as demonstrated by the present findings, may explain why individuals with NSSI utilize this behavior for affect improvement benefits (Hooley & Franklin, 2018). Interestingly, among the six subdimensions of emotion dysregulation as evaluated by the DERS, nonacceptance of emotional responses was most strongly linked to NSSI. After including all variables in the model, self-injury was related to increased difficulty in the nonacceptance dimension. This finding supports substantial previous evidence that links

NSSI to emotion dysregulation and its specific dimensions in healthy and clinical samples (Anderson & Crowther, 2012; Andover & Morris, 2014; Gratz & Roemer, 2008). In general, nonacceptance is linked to varying forms of psychopathology, and researchers indicate that negative secondary emotions in response to emotional experiences may lead to maladaptive consequences and complicate the effective regulation of emotions (Gratz & Roemer, 2004). In the case of NSSI, previous studies have documented the importance of the nonacceptance dimension (Wolff et al., 2019), which has been a target of clinical interventions for self-injurious behaviors in conditions such as borderline personality disorder (see Dixon-Gordon et al., 2017). In accordance with previous research, the present study demonstrated that refusal to accept and feel negatively about one's emotional reactions are closely associated with a history of NSSI among Turkish young adults. Interestingly, although thought suppression is positively correlated with the presence of NSSI, it did not significantly contribute to NSSI after PA and NA, and problems in emotion regulation were statistically controlled for. The literature proposed that avoidance behaviors, such as thought suppression, are common among the NSSI population (e.g., Najmi et al., 2007). Furthermore, the current study hypothesized that the role of thought suppression in NSSI would be especially emphasized in the Turkish sample given the increased frequency of emotional control and suppression in collectivistic cultures. A possibility exists that using avoidance and suppression to cope with negative internal experiences may overlap with certain aspects of emotion dysregulation (e.g., restricted access to strategies for regulating emotions), which may explain the lack of a significant relationship between thought suppression and the presence of self-injury after accounting for the dimensions of emotion dysregulation.

As expected, the increased tendency of the participants toward self-criticism was significantly related to NSSI after statistically controlling for the other variables. Previous studies conducted mostly in western samples also indicated that elevated levels of self-criticism is extremely common among individuals involved in self-injury (Claes et al., 2012; Hamza et al., 2014), and they have intense adverse feelings directed toward themselves, such as self-loathing and self-disgust (e.g., Smith et al., 2014; Xavier et al., 2016). The BBM posits that NSSI may function as a strategy for gratifying self-punishment motivations among people with elevated levels of self-criticism. As for the origin of self-criticism, a possibility exists that individuals who faced severe criticism and verbal and/or emotional abuse may have internalized this negative attitude toward themselves, which led them to become self-critical. This cognitive style, which is characterized by intense self-criticism, may promote the initiation of self-injury as a means of punishing and abusing oneself (Glassman et al., 2007) and may clarify the reasons that underlie the engagement of individuals with NSSI for its self-punishment benefits (Hooley & Franklin, 2018). Building on previous evidence that suggests a more frequent upward self-comparison after failure among individuals from collectivistic cultures (e.g., White & Lehman, 2005), future research should investigate the interplay among social comparison, self-criticism, and NSSI in Turkish samples.

In line with the present findings on self-criticism, low levels of self-compassion were associated with NSSI. This finding provides preliminary support to the BBM, which posits that a positive association with oneself is a barrier to NSSI (Hooley & Franklin, 2018).

Although previous work on the link between self-injury and self-compassion is scarce, research suggested that a compassionate stance toward oneself is negatively related to the presence of self-injury and may play a protective role in the risk factors of self-injury (Gedik-Yeşilyurt, 2022; Toksoy & Oktan, 2019; Xavier et al., 2016). Therefore, the current results contribute to the previously established body of evidence that indicates that a compassionate attitude toward oneself could serve as a barrier against NSSI. Self-compassion involves acknowledging one's personal shortcomings, adopting a sense of common humanity, and embracing one's emotional experiences (Neff, 2023). We propose that this approach may mitigate the impacts of a cognitive style characterized by self-criticism and tendency toward NA in individuals who harm themselves. However, further prospective studies are necessary for ascertaining whether or not self-compassion plays a protective role in self-injury in the long-term.

The study has its limitations. First, the sample was composed of participants enrolled as university students and recruited from a single university in Türkiye, which limits the generalizability of the results to the wider population of young adults. The meta-analysis conducted by Peterson (2001) highlighted the tendency of college-based responses in social science studies to be uniform, which emphasizes the need to replicate research studies conducted on college samples using nonstudent samples to ensure generalizability. Additionally, the study was cross-sectional in nature, which implies that the findings cannot establish causal links between NSSI and its related factors. Given the scarcity of prospective studies in the NSSI field, a critical need emerges for future studies to address this research gap and explore these relationships using a longitudinal design. A further limitation of the study was that it used only one method to measure NSSI. Thus, a possibility exists that the frequency of NSSI may have decreased if the participants were probed through an interview protocol based on their answers to ISAS (e.g., Ross & Heath, 2002). Furthermore, self-report data on self-harm may be subject to social desirability bias (Nock & Cha, 2009). Therefore, future studies should employ multiple methods for assessing NSSI.

The researchers hope that the present study has expanded the current understanding of NSSI in a group of Turkish college students. The findings could pose multiple implications for practitioners in the field. The results confirm the existing evidence that demonstrates that self-injury is a widespread behavior among young individuals. Therefore, mental health practitioners working with young individuals are advised to remain mindful of this pattern in their practice (Heath, et al., 2008). Additionally, the results verify that NSSI is a recurrent condition that may persist into adulthood. This result underscores the potential for NSSI to become persistent without intervention, which calls for the necessity of implementing preventive measures and interventions that intend to address self-injury among young individuals. Furthermore, the results affirm multiple points for psychological prevention and intervention programs that target NSSI. Accordingly, the focus of clinical efforts should be negative affectivity, deficits in emotion regulation skills (especially problems in accepting one's emotional experiences), self-criticism, and lack of self-compassion. Gaining an adaptive and healthy emotion regulation capacity should seemingly be the major target of NSSI interventions. Nevertheless, individuals faced with NSSI tend to experience difficulty in regulating emotions and lean toward avoidance instead of acceptance. Consequently, treatments centered solely on the management



of emotions may be less beneficial for those with NSSI. Gratz (2007) proposes that interventions should integrate acceptance strategies and adaptive approaches to respond to emotional experiences. Additionally, given that young individuals with self-injury exhibit a tendency toward self-criticism and suffer from low levels of self-compassion, enhancing self-compassion and fostering self-acceptance could be crucial focal points of interventions. The BBM posits that reestablishing diminished barriers to NSSI may be a novel and crucial target in the treatment of this condition. Interventions oriented toward self-compassion hold the potential to significantly help individuals with NSSI in which the cultivation of self-compassion may be a fundamental element in the journey toward recovery from self-injury (Van Vliet & Kalnins, 2011). However, a certain need exists for longitudinal and intervention studies on self-compassion and self-injury (Suh & Jeong, 2021).

In summary, the present study highlighted that self-injury is extremely widespread in the current sample of Turkish young adults. Furthermore, among the various intrapersonal factors, emotion dysregulation, self-criticism, and low levels of self-compassion are associated with the presence of NSSI. The findings highlight that NSSI is, indeed, a complex phenomenon influenced by various mechanisms and associated factors. Therefore, interventions that target NSSI should address multiple areas to effectively address this phenomenon.

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**Ethics Committee Approval:** First, the study obtained approval from the Middle East Technical University Human Research Ethics Committee (approval number: 28620816-349).

**Informed Consent:** Informed consent was obtained from all participants for the study.

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