**Early maladaptive schemas are highly indicative of Substance and Behavioral Addictions among Adolescents**

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High levels of risk-taking is associated with adolescence (Ciranka & van den Bos, 2021) with a peak in risky behaviors, such as substance and behavioral addictions (Van Rooij et al., 2014). Substance and behavioral addictions are defined by functional impairment in daily life, increasing priority given to (and preoccupation with) substance use or specific behavior, and continuation or escalation of substance use or specific behavior despite the occurrence of negative consequences (Brand et al., 2020; Zou et al., 2017). To date, much of the research on substance and behavioral addictions among adolescents in Israel has focused on frequency and use behavior (see the Health Behaviour in School-aged Children study [HBSC]; Walsh et al., 2020). Fewer studies mostly among adult have focused on the specific cognitive distortions that characterize people with higher levels of addiction, and especially on early maladaptive cognitive schemas that might be responsible to the development and maintenance of addiction. In the current research, we adopt a lay epidemiological approach (Schluter, Hodgins, Wolfe, & Wild, 2018; Schluter, Hodgins, Konkolÿ Thege, & Wild, 2020; Hodgins, Wilson, & Schluter, 2022) that considers the phenomenological experiences of adolescents from the general population in Israel.

Lay epidemiology proposes that “fields of symptomatology, nosology, etiology, and epidemiology have identifiable counterparts in the thoughts and activities of people outside the formal medical community” (Davison, Smith, & Frankel, 1991, p. 6). From this perspective, the lay public’s conceptions of addiction can have important implications regarding whether or not an individual identifies themselves as an addict. Adolescents who use the term “sense of self” perceive their addiction as an extension of themselves because it reflects their sense of self-identity, which is linked to how they want to present themselves to others (e.g., Jameel, Shahnawaz, & Griffiths, 2019). Wild et al. (2015) suggest that prevalence rates of self-attributed addiction problems exhibit a striking concordance with those obtained using expert-derived, formal diagnostic criteria.

Gender plays a key role in substance and behavioral addictions. Experimentation with psychoactive drugs and the initiation of substance use begin during adolescence, the developmental epoch when the genetic and hormonal processes which contribute to the emergence of adult gender-specific behaviors emerge (Kuhn 2015). According to Martin et al., (2021) among adults with a past-year SUD, 63.4% were men and 36.6% were women. Females also displayed lower rates of binge drinking, heavy drinking, and alcohol use disorder, Nicotine dependence than males (CBHSQ, 2016). Gender differences are also common in behavioral addictions. For example, research indicates that male adolescents are exposed to pornography at an earlier age than females, watch more pornography, and more often tend to describe themselves as being addicted to pornography (Kowalewska et al., 2020; Peter & Valkenburg, 2016). In addition, males in this age group show greater attentional bias toward sexual cues and a higher prevalence of compulsive sexual behavior disorder (Efrati & Amichai-Hamburger, 2021). With regard to gambling, the prevalence of gambling disorder in young people aged between 11 and 16 years was estimated at 4.6% (Calado, Alexandre, & Griffiths, 2017; Montiel et al., 2021), and more frequent in men than in women in the adult group (Ronzitti et al., 2016). Similarly, studies on gaming addiction have shown a higher prevalence in males than in females (Efrati, Kolubinski, Marino, & Spada, 2021). Fam (2018) found that male adolescents (7.1%) are about four times more likely to engage in gaming addiction than female adolescents (1.7%). Conversely, some studies suggest that more females prefer to use the internet for communication, while males prefer game playing (Mihara & Higuchi, 2017), and social networking addiction has been shown to be more prevalent among adolescent females than males (Peris, de la Barrera, Schoeps, & Montoya-Castilla, 2020). In a similar vein, a meta-analysis of adult-representative studies, showed a pooled prevalence of shopping addiction in different populations of approximately 5%, with women exhibiting higher percentages compared to men (Tarka, & Kukar-Kinney, 2022), a prevalence that has been increasing over the years (Maraz, Griffiths, & Demetrovics, 2016). Finally, Rodrigue, Gearhardt, & Begin (2019) have shown that binge eating is nearly as prevalent in young people as in adults. Lee-Winn and college (2016) found no gender differences in the frequency or the degree of problematic eating behavior (Barry et al., 2002; Tanofsky et al., 1997), but found that females were more likely than males to endorse specific symptoms related to loss of control or distress due to binge eating (Lewinsohn et al., 2002; Striegel-Moore et al., 2009). Accordingly, our hypothesis is that the prevalence of self-perceived substance use, gambling, gaming, and sex-related addictions will be higher among male adolescents than among females of the same age. On the other hand, we predict that more females will report having addictions to shopping, binge–eating, and social networks than males.

Religious affiliation belief seems to be another factor that influences addictive behavioral patterns. Research indicates that religion is often seen as a buffer or barrier against risk behavior and substance and behavioral addictions (see Connery & Devido, 2020; Grubbs & Grant, 2020). Religious adolescents and adults are less likely to experience substance addictions (Acheampong, Lasopa, Striley, & Cottler, 2016; Grim & Grim, 2019; Miller, Davies, & Greenwald, 2000). In some aspects of life, however, religious belief may cause an inner struggle that might sustain an addictive behavior (Faigin, Pargament, & Abu-Raiya, 2014). According to the moral incongruence model (Grubbs, Kraus, Perry, Lewczuk, & Gola, 2020; Lewczuk, Glica, Nowakowska, Gola, & Grubbs, 2020; Grubbs, Kraus, & Perry, 2019) emotional and physical distress arises from the contradiction between a person’s moral beliefs and the behavior in which they engage. For example, there is incongruence between the natural sexual urges of a religious adolescent and the conservative principles endorsed by their religious leaders (e.g., a rabbi) and foundational literature, such as the Bible or the Talmud, in which sexual thoughts and behaviors are discouraged or even condemned. Consistent with this incongruence, a recent study on Polish adults with self-perceived behavioral addiction to pornography, internet use, social networking, or online gaming found that religiosity was uniquely, although weakly, connected to pornography addiction, but not to other types of addictive behaviors (Lewczuk, Nowakowska, Lewandowska, Potenza, & Gola, 2021). Therefore, we hypothesis that secular youth will report more self-perceived substance and behavioral addiction.

Research indicates that the average age of first substance use is 13–14, which applies mainly to alcohol and illicit substances (Nowak, Papiernik, Mikulska, & Czarkowska-Paczek, 2018). Moreover, previous studies have demonstrated that substance use before 16–18 is associated with later substance abuse (Scholes-Balog et al., 2016; Jordan, & Andersen, 2017; Rioux et al., 2018; Brumback, Thompson, Cummins, Brown, & Tapert, 2021). In recent systematic review on patterns of substance use among adolescents by Halladay et al., (2020), found that with 71 % of studies comparing clusters based on age, 88 % of which found significant differences demonstrating higher multi-use groups among older age groups. With regard to gaming (video game), Müller et al. (2015) study in seven European countries based on 12,938 adolescents between 14 and 17 years (separate prevalence estimates for adolescents aged “14–15 years” and “16–17 years”) found no differences by age. In a similar vein, Ustinavičienė et al., (2016) estimates for adolescents aged “13–15 years” and “16–18 years not found differences by age on gaming addiction. By gambling, Olason et al., (2011) found on 1.537 Icelandic youth that developmental differences with older age groups more likely to have wagered money on Internet gambling. In the context of pornography use in adolescents, Farré and colleagues (2020) found that prevalence increases with older ages. Our hypothesis is that older adolescents will report a higher level of substance addiction and sex-related behavior, whereas there will not be any differences based on age for other types of behavioral addiction (gaming, social networks, etc.).

**Early Maladaptive Schemas**

Young and colleagues (2003) defined early maladaptive schemas as “extremely stable and enduring themes, comprised of memories, emotions, cognitions, and bodily sensations regarding oneself and one’s relationship with others, that develop during childhood and are elaborated on throughout the individual’s lifetime, and that are dysfunctional to a significant degree” (Young et al., 2003, p. 7). It is theorized that early maladaptive schemas develop as a result of negative childhood experiences and serve as an organizational system that is stable over time (Riso et al., 2006; Pilkington, Bishop, & Younan, 2021) through which people organize and interpret their feelings, behaviors, and emotions (Young, 1999). Early maladaptive schemas are believed to be at the core of the development and maintenance of psychopathology, particularly psychopathology that is chronic and enduring in nature (Young et al., 2003).

Young and colleagues (2003) proposed 18 early maladaptive schemas that could be grouped into five EMS domains: *disconnection and rejection*, which is characterized by a belief that one’s basic interpersonal needs will not be met; *impaired autonomy and performance*, which is based on the belief that one does not have the abilities to function or survive independently; *impaired limits*, which is characterized by an inability to maintain or understand appropriate internal and interpersonal limits; *other directedness*, which is characterized by concentrating and focusing on the needs of others at the expense of one’s own needs; and *overvigilance and inhibition*, which involves an excessive focus on setting and attempting to accomplish unrealistic, internal standards and values. A recent factor analytic study has confirmed these domains in a large mixed (clinical and non-clinical) sample of adults (Bach, Lockwood, & Young, 2018).

**Substance and Behavioral Addictions and Early Maladaptive Schemas**

The facets of adolescents self-perceived addictions and those of early maladaptive schemas share several possible associations. Adolescents with self-perceived addictions are afraid that their preoccupation with addiction use thoughts and behaviors will harm them and other people around them (i.e. unwanted consequences because of risky behavior), which might be related to the ‘other directedness’ and ‘overvigilance and inhibition’ schemas – setting unrealistic standards on the one hand, and focusing on the needs of others at the expense of one’s own needs and mental health on the other hand. These schemas and especially ‘other directedness’ might also be associated with self-perceived addiction-related negative affect (such as shame and guilt) because of the tendency to do things at the expense of one’s own needs. In addition, Adolescents with self-perceived addictions often lack the ability to control their thoughts and behaviors, which might be related to an inability to maintain internal limits – i.e. the ‘impaired limits’ schema. Finally, Adolescents with self-perceived addictions tend to employ thoughts of addiction use in the hope of regulating distress and pain, often with a short-lived success in doing so. This facet might be related to ‘disconnection and rejection’ – the belief that one’s needs will not be met – and to ‘impaired autonomy and performance’ – the belief in the inability to function without the help of others.

We are aware of studies that examined the link between addiction and early maladaptive schemas: Alcohol (Shorey, Anderson, & Stuart, 2012a; Janson et al., 2019), cannabis (Khosravani et al., 2017), cocaine (Shorey, Stuart, & Anderson, 2014), gambling (Shorey, Anderson, & Stuart, 2012b), Internet (Ostovar et al., 2021; Aloi et al., 2020; Shajari et al., 2016), eating (Zhu et al., 2016; Imperatori et al., 2017), [smartphone addiction](https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/article/10.1007/s11469-019-00186-y&casa_token=ry6ArmAaAjYAAAAA:5UYqjBJr-opoApXdJ4V18jo6sGeR3c151w5Qt5yV03hXOGJlCiSEtrAHywJwZdxkuapbsBHP_4z2QsU) (Arpaci, 2021), compulsive sexual behavior disorder (Efrati, Shukron, & Epstein, , 2019; 2021), and social network (Cudo et al., 2020). Therefore, the current research was designed to explore the possible associations between substance and behavioral addictions and cognitive distortions in the form of early maladaptive schemas among Jewish adolescents in Israel. We predict that early maladaptive schemas will be highly indicative of the high level of

substance and behavioral addictions.

**2. Method**

*2.1. Participants*

In the present study, 1948 participants (756 male, 1192 female) were selected via convenience sampling from the adolescent population in Israel (mean age = 16.20 years, SD = 1.83). Inclusion criteria was as follows: (1) minimum age of 14 years and maximum age of 18 years; (2) Finish filling out the entire questionnaire. Participants were also asked about religiosity, with 558 participants stating that they were ‘secular’, 359 reporting that they were ‘traditional’ in their religiosity, 949 considered themselves ‘religious’ and 83 referred to themselves as ‘ultra-orthodox’. For this study, the first two categories, ‘secular’ and ‘traditional’ were combined, as were ‘religious’ and ‘ultra-orthodox’, providing two categories of low and high religiosity, respectively.

*2.2. Self-report measures*

**2.2.1. Screener for Substance and Behavioral Addictions (SSBA)** (Schluter et al., 2018). The SSBA is a brief screening instrument for measuring self-attributed addiction problems in the general population. The items were translated into Hebrew by a speaker proficient in both languages and then back translated by the first author. It is comprised of four self-report items, each reflecting a distinct sign or symptom of potentially problematic involvement (“I did it too much;” “Once I started, I couldn’t stop;” “I felt I had to do it in order to function;” and “I continued to do it, even though it caused problems”), administered for each of four substances (alcohol, tobacco, cannabis, and cocaine), and six behaviors (gambling, shopping, videogaming, eating, sexual activity, and working [because the focus is on adolescents, in the present study, we adapted the questionnaire to “social networking” instead of “working”]). Participants were asked to rate each item in terms of frequency in the previous 12 months on a 5-point Likert scale: 0 = none of the time, 1 =not much of the time, 2 = some of the time, 3 = most of the time, and 4 = all of the time. Two additional response options were available: “I didn’t do this at all” and “Don’t know/I prefer not to say.” Those who chose either of these latter response options were excluded from the analysis. Participants were also provided with brief definitions of each behavior. To reduce the risk that participants would misunderstand what types of problems the questions were meant to address, descriptions of excessive behavior were provided explaining the symptoms of certain disorders (namely related to food and sex). Coefficient alphas ranged from 0.87 to 0.95, indicating good internal reliability.

**2.2.2. The Young Schema Questionnaire – Short Form 3 (YSQ-S3):**

The YSQ-S3 (Young & Brown, 2005) is a 90-item self-report measure that assesses 18 early maladaptive schemas that relate to cognitive distortions. Hebrew translation used in this study was carried out by Young et al. (2010). The schemas are grouped into five general domains: (1) disconnection and rejection (includes abandonment/instability, mistrust/abuse, emotional deprivation, defectiveness/ shame, and social isolation/alienation schemas; e.g., “I haven’t had someone to nurture me, share him/herself with me, or care deeply about everything that happens to me”), (2) impaired autonomy and performance (includes dependence/incompetence, vulnerability to harm or ill-ness, enmeshment/undeveloped self, and failure schemas; e.g., “Almost nothing I do at work (or school) is as good as other people can do”), (3) impaired limits (includes entitlement/grandiosity, and insufficient self-control/self-discipline schemas; e.g., “I have a lot of trouble accepting “no” for an answer when I want something from other people”), (4) other-directedness (includes subjugation, self-sacrifice, and approval seeking/recognition seeking schemas; e.g., “I think that if I do what I want, I’m only asking for trouble”), and (5) overvigilance and inhibition (includes negativity/pessimism, emotional inhibition, unrelenting standards/hypercriticalness, and punitiveness schemas; e.g., “I find it embarrassing to express my feelings to others”). Cronbach’s alpha for subscales ranged from .73 to .88.

*2.3. Procedure*

The study was presented to participants as a research project on addiction in Jewish adolescents from various regions of Israel (males and females, secular and religious, from the eastern, central, southern, or northern parts of Israel). The participants constituted a convenience sample recruited from a variety of sources (postings on bulletin boards and in online forums). Questionnaires were uploaded to Qualtrics, an online platform for questionnaires, and distributed by several research assistants. Parents of adolescents who agreed to participate in the study were contacted via email and/or phone and were asked to review the questionnaires and sign an informed parental consent form, which was sent back to the research assistants by email. Upon agreement, a link to the online survey was sent to the participant who was assured anonymity. Participants were then asked to complete the survey in private, in a quiet room in their home (without the presence of others). Following receipt of a signed informed consent form, questionnaires were presented in random order. All questionnaires were in Hebrew, Israel’s the native language. Lastly, there was an online debriefing and participants were thanked for their participation. The procedure was approved by the Institutional Review Board (IRB).

*2.3. Data analyses*

In this study, data were analyzed using SPSS (version 25; IBM Corp, 2017). Participants were first divided into 2 groups across each of the ten scores on the addiction measures, with 0-9 representing ‘Low’ and 10-20 representing a ‘High’ score. A Shapiro-Wilk test determined that all variables were non-normally distributed at the p < .001 level. As a result, it was not possible to run a MANCOVA in order to assess group differences between high and low levels of self-perceived addictions across the five early maladaptive schemas, controlling for gender, age and religiosity. Instead, the research team decided to conduct a series of chi-square tests to assess gender and religiosity differences across high and low levels of the ten different self-perceived addictions and a Spearman correlation for age and scores on self-perceived addictions measures. Then, a series of Mann-Whitney U Tests were conducted to test high and low self-perceived addiction group differences for each of the five early maladaptive schemas. For each analysis, a Bonferroni adjustment was applied, where results were deemed to be significant if at the p < .001 level.

**3. Results**

*3.1. Demographic Differences*

The Chi-square analysis identified that there was a significant gender difference across nine of the ten self-perceived addictions (See Table 1). The exception was shopping. Males were disproportionately represented in the “high” category for alcohol, tobacco, cannabis, cocaine, gambling, videogaming and sex addictions, and females were disproportionately represented in the “high” category for eating and social networking addiction. Differences in religiosity were demonstrated in five of the ten self-perceived addictions, where those who reported low levels of religiosity also disproportionately reported higher levels of alcohol, tobacco, shopping, video gaming and social networking (See Table 2). Lastly, there was a statistically weak positive correlation between age and alcohol (Rs = .20, p < .001), tobacco (Rs = .15, p < .001), cannabis (Rs = .11, p < .001), gambling (Rs = .05, p < .001), and sex (Rs = .11, p < .001) and a significant weak correlation between age and video gaming (Rs = -.10, p < .001), and social networking (Rs = -.10, p < .001).

*3.2. Group Differences*

A series of Mann-Whitney U tests indicated that there were significant differences in almost all early maladaptive schemas across the ten self-perceived addictions, where participants scoring in the ‘high’ group also scored high on all but three early maladaptive schemas (p < .001; see Table 3). The only exceptions were that there was no significant difference in levels of impaired limits between high and low levels of cocaine or gambling on the SSBA and no difference in overvigilance between high and low levels of gambling on the SSBA.

**Discussion**

The purpose of the current research was to examine the cognitive distortions associated with substance and behavioral addiction and especially the early maladaptive schemas that were found to relate to the etiology, development and maintenance of various psychopathologies that are chronic and enduring in nature (Young et al., 2003).To this end, we conducted a large-scale study involving 1,948 Jewish Israeli adolescents from the general population.

In general, males reported a higher prevalence of substance and behavioral addiction than females based on a wide range of studies on adolescent populations (Schulte, Ramo, & Brown, 2009). As we hypothesized, in this research, higher percentages of male participants identified themselves as having alcohol, tobacco, cannabis, gambling, gaming, and sex-related addictions. Females, however, were more likely than males to describe themselves as having addictions uncontrolled binge eating, and social networks. These findings correspond with previous studies indicating higher rats of substance use disorder (Martin et al., 2021; CBHSQ, 2016), gambling (Ronzitti et al., 2016; Weidberg et al., 2018), gaming (Fam, 2018; Efrati, Kolubinski, Marino, & Spada, 2021) and sex-related behavior (Kowalewska et al., 2020; Efrati & Amichai-Hamburger, 2021) in man than females. Females, however, were more likely than males to describe themselves as having uncontrolled binge eating, and social networks. These findings correspond with previous studies on adults indicating higher uncontrolled binge eating scores among women (Lewinsohn et al., 2002; Striegel-Moore et al., 2009) and more severe dependence on cultural mechanisms among individuals living in developed countries (Black, Monahan, Schlosser, & Repertinger, 2001). We can explain that because physiological development changes in the adolescent female body can result in preoccupations with “body image” and issues with food. The problem is compounded by the cultural image of the “beauty model” which puts teenage females under constant pressure to look a certain way, and may even lead to eating disorders. Moreover, social networks are readily available and accessible and provided a way of creating interpersonal connections. Previous research studies have already demonstrated that females prefer to use the internet for communication purposes (Mihara & Higuchi, 2017), which can explain why a recent study in Israel found that female adolescents report more severe social network addiction than males (Efrati et al., 2021). We not found differences between man and female on shopping addiction. In keeping with recent brief review, found that no clear gender differences in frequency of shopping addiction but indicate that there are differences in terms of buying motivation (Niedermoser et al., 2021).

The population of Israel is composed of different types of religious, traditional, modern, and ultra-Orthodox groups. Confirming my hypothesis, non-religious individuals (adhering to secular principles) showed a higher tendency to identify themselves as having an addiction to alcohol, tobacco, shopping, gaming, or social network. Previous studies have suggested that religion acts as a buffer or deterrent against patterns of substance use (Connery & Devido, 2020) and gaming (Lewczuk et al., 2021). In addition, we found high rats of shopping addiction and social network in secular adolescents than religion. In religion society, geographically concentrated in certain dense residential neighborhoods, children and adolescents are educated in institutions that are under constant supervision, and the experience of mobility and social networking is very limited (Rosenberg, Blondheim, & Katz, 2019; Rosenberg, & Blondheim, 2021). This can explain also shopping, most of the shopping defined as online shopping that need accessibility to the internet or mobile internet. Duong, & Liaw, (2021) found that the excessive time spent for and the frequency of using the internet for shopping purposes are predictors of online shopping addiction. Moreover, online buying behavior is also inextricably linked to electronic payment systems, such as credit cards (Xu et al., 2022), most of adolescent in these ages didn’t have credit card or daily work to get money for shopping.

Unsurprisingly, and in keeping with the hypotheses, differences were found relating to age: older adolescents display higher rates of alcohol, tobacco, cannabis, gambling, gaming, and sex-related addictions. Previous research has also shown that older adolescents report higher levels of addiction to substance use (Halladay et al., 2020), gambling (Olason et al., 2011) and sex-related addiction (Farré et al., 2020). This finding may be explained by greater exposure to alcohol, tobacco, and sex-related behavior, all of which are more accessible in the context of social events attended by teenagers, reflecting social acceptance.

Regarding early maladaptive schemas, we found in keeping with our predictions that early maladaptive schemas associate with various addictions, behavioral and others. Early maladaptive schemas were found to be indicative of various addictions such as Alcohol (Shorey, Anderson, & Stuart, 2012a; Janson et al., 2019), cannabis (Khosravani et al., 2017), cocaine (Shorey, Stuart, & Anderson, 2014), gambling (Shorey, Anderson, & Stuart, 2012b), Internet (Ostovar et al., 2021; Aloi et al., 2020; Shajari et al., 2016), eating (Zhu et al., 2016; Imperatori et al., 2017), [smartphone addiction](https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/article/10.1007/s11469-019-00186-y&casa_token=ry6ArmAaAjYAAAAA:5UYqjBJr-opoApXdJ4V18jo6sGeR3c151w5Qt5yV03hXOGJlCiSEtrAHywJwZdxkuapbsBHP_4z2QsU) (Arpaci, 2021), compulsive sexual behavior disorder (Efrati, Shukron, & Epstein, 2019; 2021), and social network (Cudo et al., 2020).

Substance and behavioral addiction are associated with distorted expectations that one’s basic social needs – love, warmth, safety and social belonging – will not be met (Efrati et al., 2022). This expectation does not result in social distancing but paradoxically in greater dependency in other people for effective functioning. Thus, these two cognitive distortions clash together to create a vicious cycle in which a person is dependent on other people but perceive them as unable to fulfill his or her needs. These distortions might explain why adolescents self-perceived addictions revolve around the attempt to regulate distress and pain by escaping to addictive thought and/or behaviors and not by intimate interpersonal relationships. Given that the additional cognitive distortions relate to setting unrealistic standards and focusing on the needs of others at the expense of one’s own needs, it could explain why negative affect, including shame and guilt, is constantly present for adolescents with higher levels of self-perceived addictions – not only that the emotion regulation strategy is not effective, one’s standards are unrealistic and harmful. In addition, we found that adolescents with higher levels of self-perceived addictions have impaired internal and interpersonal limits that might explain, on the one hand, the lack of behavioral control and the constant uncontrolled engagement with thoughts, urges, and behaviors. On the other hand, it may also explain the fear that thoughts, urges and behaviors carry harm to oneself and/or to one’s close others such as family members, colleagues, and peers. Finally, surprisingly, and contrary to the hypothesis, there was not a significant difference between in levels of impaired limits between high and low levels of cocaine or gambling on self-perceived addictions and no difference in overvigilance between high and low levels of gambling on self-perceived addictions. Our explanation is that adolescents seem to be less able to perceive gambling as a problem, with a discrepancy between self-perception and the objective problematic behaviors of gambling

(Cronce et al., 2007; Aloi et al., 2020). With this line, in Israel cocaine among adolescents and especially in non-clinical population is unknown problem, like gambling they be less able to perceive cocaine as a problem.

**Limitations and future studies**

The results of the current study should be considered in light of its limitations. The study was based on self-report measures, which may have been subject to response bias. This is especially relevant for items that address intimate subjects, such as addiction behavior. Because the design was cross-sectional, causal relations between the study variables could not be inferred. Longitudinal studies are necessary to determine the directionality of the associations between psychological, cognitive, psychopathological, and cultural characteristics in self-reported addiction. Finally, the research population was comprised of Jewish adolescents from the general population of Israel. Future studies should examine various other ethnic and cultural populations to ascertain the replicability and generalizability of the findings. To date, studies in Israel have examined the prevalence of substance and behavioral addiction (the HBSC; Walsh et al., 2020).

Despite these limitations, the current study has revealed patterns of self-perceived substance and behavioral addiction among Israeli adolescents. These tendencies are, without doubt, related to the “normal,” adventurous, and psychological developments that characterize adolescence. On the other hand, they might also help us to gain a better understanding of early maladaptive schemas for self-perceived addiction among adolescences and its related negative outcomes, including increased risk factors for later adult life.

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**Table 1:** Chi-Square for Gender Differences on the SSBA

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-Square Value | Degrees of Freedom | Significance |
| Alcohol | 36.07 | 1 | .000 |
| Tobacco | 64.75 | 1 | .000 |
| Cannabis | 43.06 | 1 | .000 |
| Cocaine | 22.14 | 1 | .000 |
| Gambling | 41.91 | 1 | .000 |
| Shopping | 7.87 | 1 | .005 |
| Videogaming | 131.34 | 1 | .000 |
| Eating | 21.76 | 1 | .000 |
| Sex | 113.83 | 1 | .000 |
| Social Networking | 74.05 | 1 | .000 |

**Table 2:** Chi-Square for Religiosity Differences on the SSBA

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-Square Value | Degrees of Freedom | Significance |
| Alcohol | 21.33 | 1 | .000 |
| Tobacco | 15.60 | 1 | .000 |
| Cannabis | 4.93 | 1 | .026 |
| Cocaine | 5.10 | 1 | .024 |
| Gambling | 10.00 | 1 | .002 |
| Shopping | 24.11 | 1 | .000 |
| Videogaming | 30.95 | 1 | .000 |
| Eating | 2.68 | 1 | .10 |
| Sex | 2.02 | 1 | .16 |
| Social Networking | 15.55 | 1 | .000 |

**Table 2:** Mann-Whitney U Tests Comparing SSBA Group Differences

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | EMS Disconnection | EMS Autonomy | EMS Impaired Limits | EMS Other Directness | EMS Overvigilance |
| Alcohol | High Mean | 78.99 (23.64) | 56.73(17.80) | 34.92(7.14) | 50.19(10.99) | 66.55(14.22) |
|  | Low Mean | 60.09(24.09) | 42.35(15.93) | 30.52(8.05) | 43.68 (11.03) | 59.27(15.74) |
|  | U | 212,869\*\* | 215,210.5\*\* | 194,692\*\* | 196,751\*\* | 187,795\*\* |
| Tobacco | High Mean | 73.79(24.37) | 53.64(18.38) | 34.47(7.49) | 48.04(11.66) | 64.92(14.72) |
|  | Low Mean | 60.45(24.31) | 42.53(16.06) | 30.52(8.04) | 43.84(11.05) | 59.37(15.62) |
|  | U | 212,979\*\* | 217,725\*\* | 206,932.5\*\* | 195,527.5\*\* | 195,128\*\* |
| Cannabis | High Mean | 76.13(19.55) | 57.24(17.33) | 34.84(7.29) | 47.98(10.32) | 66.16(13.94) |
|  | Low Mean | 61.06(24.63) | 42.94(16.30) | 30.71(8.06) | 44.06(11.18) | 59.60(15.77) |
|  | U | 111,729\*\* | 115,686.5\*\* | 102,748.5\*\* | 98,655.5\*\* | 100,795.5\*\* |
| Cocaine | High Mean | 81.38(15.61) | 64.62(11.63) | 33.81(6.65) | 49.21(8.57) | 68.67(10.28) |
|  | Low Mean | 61.26(24.61) | 43.10(16.40) | 30.83(8.10) | 44.12(11.20) | 59.70(15.79) |
|  | U | 61,460.5\*\* | 68,218\*\* | 49,905 | 53,198.5\*\* | 55,756\*\* |
| Gambling | High Mean | 74.95(15.68) | 59.61(15.07) | 32.38(4.95) | 48.59(7.04) | 64.30(10.90) |
|  | Low Mean | 61.30(24.73) | 43.09(16.41) | 30.85(8.14) | 44.10(11.24) | 59.76(15.85) |
|  | U | 74,734.5\*\* | 82,100.5\*\* | 60,900.5 | 68,611\*\* | 63,670.5 |
| Shopping | High Mean | 69.07(24.60) | 50.17(16.91) | 33.50(7.88) | 48.18(11.19) | 63.99(15.17) |
|  | Low Mean | 59.40(24.18) | 41.51(15.96) | 30.08(7.95) | 43.00(10.88) | 58.61(15.71) |
|  | U | 426,350.5\*\* | 451,963.5\*\* | 429,191\*\* | 432,054.5\*\* | 412,305\*\* |
| Videogaming | High Mean | 67.33(24.35) | 48.70(17.03) | 33.00(8.11) | 46.45(11.06) | 62.12(14.80) |
|  | Low Mean | 60.00(24.45) | 42.02(16.16) | 30.26(7.95) | 43.56(11.12) | 59.22(15.97) |
|  | U | 402,448\*\* | 418,741.5\*\* | 408,201.5\*\* | 389,856\*\* | 379,845.5\*\* |
| Eating | High Mean | 71.68(25.82) | 50.23(17.40) | 33.23(7.55) | 48.44(10.87) | 64.68(15.59) |
|  | Low Mean | 57.21(22.68) | 40.57(15.32) | 29.84(8.07) | 42.34(10.78) | 57.74(15.35) |
|  | U | 542,046\*\* | 542,157\*\* | 506,363\*\* | 532,692.5\*\* | 507,727.5\*\* |
| Sex | High Mean | 71.92(22.49) | 51.04(17.62) | 34.82(7.43) | 48.25(10.16) | 63.86(14.19) |
|  | Low Mean | 60.09(24.56) | 42.40(16.13) | 30.28(7.99) | 43.60(11.19) | 59.27(15.89) |
|  | U | 292,391\*\* | 287,236.5\*\* | 295,801.5\*\* | 280,686.5\*\* | 262,688\*\* |
| Social Network | High Mean | 65.84(25.24) | 46.85(16.97) | 32.30(7.97) | 46.70(11.09) | 62.20(15.63) |
|  | Low Mean | 55.18(22.10) | 38.40(14.60) | 28.67(7.72) | 40.35(10.14) | 56.26(15.26) |
|  | U | 565,536\*\* | 590,037\*\* | 569,207\*\* | 594,916\*\* | 545,852\*\* |

\*\* p < .001