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Behaviour and Emotional Health of Adolescent Boys Engaged in Non-Suicidal Self-Injury

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Abstract:

Non-suicidal self-injury (NSSI) among adolescents has become a rising concern worldwide and a risk factor for suicide. There is a noticeable rise in number of children who attempted or committed suicide in past few years in Pakistan. However, not much attention has been paid to identify and target risk factors. A preliminary survey was conducted to assess nature of risk factor for NSSI and significance of main study. Participants were 12-17 years old boys (N=104) from schools of Islamabad. The variables of interest were assessed through The Non-Suicidal Self-Injury Assessment Tool (NSSI-AT), Abbreviated Dysregulation Inventory (ADI), Depression Scale for Adolescents (DSA), Peer Relations Questionnaire (PRQ) and Strengths and Difficulties Questionnaire (SDQ). Findings revealed that 34.6% adolescent boys were engaged in NSSI. Participants who reported self-harm had significantly high levels of distress, conduct problems, emotional, and behavioral dysregulation. Findings manifest the need to identify significant risk factors of NSSI among adolescents.

Keywords: Non-Suicidal Self-Injury, Adolescents, Emotional Health, Behavioural Problems, Distress

1. INTRODUCTION

Non-suicidal Self-Injury (NSSI), characterized as an intentional harm to one's self without an intention of committing suicide, has

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become a rising concern worldwide [Muehlenkamp *et al*. (2012)]. It is now considered as a public health issue [Hawton, Saunders and O'Connor (2012)] due to its high prevalence in school-age children and adolescents [Morey *et al*. (2016)] and its association with suicidal ideation, suicidal attempt and wide range of other psychiatric problems in youth [Victor and Klonsky (2014); Kerr, Muehlenkamp and Turner (2010)]. Small scale surveys conducted in different cities of Pakistan have shown increased prevalence of emotional and behavioral problems in school-age children [Loona and Kamal (2011); Syed, Hussain and Haidry (2009); Javed, Kundi and Khan (2009)]. In the past six years, statistics reported in the newspapers, electronic media of Pakistan and in yearly reports of national and international agencies on children health and safety gives an alarming picture. Every year approximately five to six young adolescents attempted or committed suicide due to failure in exam, intolerable attitude of teacher, conflict with parents, less mature emotional attachments, and other stressors of similar nature. [Child Rights International Network (2010); The Express Tribune, April (2014); Syed, Hussain and Haidry (2008)].

These observations are of particular importance in our context as Pakistan is witnessing a youth bulge; the most recent estimates report 32% of total population in Pakistan falls in age group of 10-24 years [Population Reference Bureau (2013)]. The point of concern is that both parents and teachers are not able to attend appropriately to the emotional needs of children who themselves are struggling due to a number of social and economic challenges. This situation necessitates identifying at-risk children and provision of appropriate interventions before our youth, which is our social and economic asset turned into a liability.

Non-suicidal Self-injury, which is found to be relatively more prevalent in children and adolescents [Hawton, *et al.* (2012)] is differentiated from Deliberate Self-harm (DSH) and is seen as a mal-adaptive coping strategy employed by individuals to relieve themselves from negative emotions without the apparent intention of suicide. It includes less destructive self-harm acts such as skin scratching; preventing healing of wounds along with more intense self-harms acts such as self-cutting, self-poisoning, self-burning [Long, *et al*. (2012)]. Suicide also includes similar kind of self-destructive acts, however, there is an overt

intent to die as a consequence of this self-inflicted act and is more prevalent in adults [Goldsmith, *et al*. (2002); and Caine (2012)]. NSSI may therefore, increase the vulnerability to commit suicide by lowering the threshold of apprehension or alarm and sensitivity to self-inflicted pain and its outcome [Joiner (2005); Klonsky, *et al*. (2013)].

Authors of this research were not able to retrieve any published research on NSSI among adolescents in Pakistan. Available studies primarily focused on suicide in adult sample [Khan, *et al*. (2008)]. Findings from a cross-sectional survey [Shahid and Hyder (2008)] reported that rate of self-injury in females was 59% and in males was 41% whereas 69% of participants were under the age of 30. The most frequently used means of self-harm was medication overdose (73%) followed by ingestion of insecticides 20%. One of the concern commonly reported by health-care professionals around the world is insufficient information and poor understanding of underlying factors for NSSI in adolescents which results in poor prediction of the problem.

2. THEORETICAL FRAMEWORK

The study employs developmental perspective to explain the vulnerability of adolescents to engage in self-harm acts [Barrocas, *et al*. (2010)]. Adolescence is an age of transitional development during which the individual experiences striking physiological, psychological, and social changes [McGee, *et al*. (1995); Steinberg, (2010)]. Adolescents who lack sufficient support to understand and cope with these changes become vulnerable to experience psychological distress. This distress is often expressed through emotional problems such as feeling sad or anxious; and behavioural problems such as acting out, engaging in disruptive or aggressive behaviours or can also be characterized by substance abuse, somatic complaints or social withdrawal [Peterson, *et al*. (2008)]. Some who find the distressing emotional states unbearable attempt to cope with it by engaging in acts of self-harm puts them at compromised mental health state [Joiner (2005)]. Experiences during childhood and adolescence have important repercussions for the adulthood and research [Victor and Klonsky (2014)] also supports that engaging in NSSI is strongly linked with the increased risk for

attempting suicide in the future especially in adolescents with depression that is resistant to treatment [Asarnow (2011)]. The developmental perspective suggests that negative emotions are more intensely experienced by adolescents [Gilbert (2012)]. Literature shows that adolescents who involve in NSSI and/or suicidal behaviours report lower self-esteem, greater despair, preoccupation with suicidal thoughts, and lower emotional support from parents than individuals who do not commit any self-harm acts [Muehlenkamp and Gutierrez (2007); Brausch and Gutierrez (2010)]. Based on this framework, current research looked at how experience of negative emotions, affective, behavioural and cognitive dysregulation and problematic peer relations associate with NSSI among adolescents.

This survey was conducted as a preliminary survey of large study to assess the significance of main study and the nature of risk factors of NSSI by looking at initial patterns of findings on variables selected for this research.

3. METHODOLOGY

3.1 Sample

The sample for this survey comprised of 104 boys selected through convenience sampling method. These students were studying in the 8^{th}, 9^{th} and 10^{th} grades in Federal Government Schools of Islamabad at the time of data collection. Participants fall in the age range of 12 to 17 years. The average number of members in a family was seven and average number of siblings was three. Fathers of participants had relatively higher levels of education as compared to mothers. Majority were living in nuclear family system (Table 1).

3.2 Assessment Protocols

Demographic Information

The demographic profile sheet was used to collect information about participant's age, grade, birth order, number of siblings, family system, number of family members, parents' education and occupation.

Table 1. Mean Scores, Standard Deviation, Frequency and Percentages to Report Demographic Profile of Participants (N=104)

Variable	Mean	S.D.
Age	14.57	1.27
No. of Siblings	3.37	1.43
No. of family members	7	2.15
Birth Order	**Frequency (N)**	**Percentage***
First Born	22	21
Second Born	32	31
Third Born	22	21
Last Born	28	27
Family Structure	**Frequency (N)**	**Percentage***
Nuclear	74	71
Joint	30	29
Father's Education	**Frequency (N)**	**Percentage***
Uneducated	7	6
Primary	6	6
Matric	38	37
Intermediate	18	17
BA/BSc	15	14
MA/MSc	14	14
Higher	6	6
Mother's Education	**Frequency (N)**	**Percentage***
Uneducated	18	18
Primary	8	8
Matric	31	30
Intermediate	24	23
BA/BSc	14	13
MA/MSc	7	7
Higher	1	1
Parents current living status	**Frequency (N)**	**Percentage***
Together	101	96
Separate	3	4

Note:*Percentages were round off.

Screening of NSSI

Form-A of Non-Suicidal Self-Injury Assessment Tool (NSSI-AT) was used to screen the children for engagement in self-harm [Whitlock, *et al*. (2014)]. This section of tool comprised of items which assess self-harm through single question "Have you ever hurt your body (e.g., cut, carve, burn, scratch really hard, and punch) on purpose but without wanting to end your life?" as well as specific behaviourally based-items to identify specific nature of self-harm act carried out by respondent. Other than listed acts of self-harm; this section also includes one open-ended question to tap any other way of self-harm method adopted by respondent. This tool is known to have adequate reliability and validity ranging from 0.71-0.84 and has been extensively used for research with secondary school students and freshmen college students. After obtaining permission from authors, this tool was translated into Urdu language by following standard WHO guidelines on tool's translation and adaptation [WHO (2017)]. Based upon results of cognitive interviewing few translated items were re-worded to adopt a culturally appropriate expression. The internal reliability of as assessed for this study was 0.89

Emotional and Behavioural Health

Emotional and behavioural health of participants was assessed through a set of standard psychological measures which included following scales;

i. **Depression Scale for Adolescents (DSA) [Naz and Siddiqui (2010)].** It is a self-report screening instrument, designed to screen the depressive symptoms in adolescents. The scale comprises of 36 items and has 3 subscales: Loneliness subscale, Irritability subscale and Anxiety subscale. The present study involved the usage of all three subscales, and their grand total. The internal consistency of the scale has been reported to be 0.88 and the split-half reliability as 0.85. The sample items include: "I feel like crying", "I feel there is no one for me", "I do not feel like going to school", etc. The internal reliability estimates in this survey were found to be $\alpha = 0.94$.

ii. **Strengths and Difficulties Questionnaire (SDQ) [Samad, *et al*. (2005)].** It is a 25-item instrument used to assess various psychosocial problems in children and adolescents. The scale measures emotional and behavioural difficulties on four dimensions: emotional problems, conduct problems, hyperactivity and peer relationship problems. The items include: "I am restless, I cannot stay still for long", "I am easily distracted, I find it difficult to concentrate", "I am kind to younger children", etc. There is also a fifth dimension which measures the strength i.e., pro-social behaviour. The reliability of the scale has been reported to be at least 0.7. This scale is available in Urdu language and has been extensively used in several researches in Pakistan [Syed, *et al*. (2009); Syed, *et al*. (2008)]. The reliability estimate in this survey is $\alpha = 0.64$.

iii. **Abbreviated Dysregulation Inventory (ADI) [Mezzich, *et al*. (1997)].** It is a self-report tool [Mezzich, *et al*. (1997)] developed to assess affective, behavioural, and cognitive dysregulation in adolescents. The tool has four subscales: Affective Dysregulation subscale (e.g. "I have trouble controlling my temper"), a higher score on which indicates difficulty regulating emotional responses, Behavioural Dysregulation subscale (e.g., "I get very fidgety after a few minutes if I am supposed to sit still."), measures the extent of difficulty in behavioural regulation, Cognitive Dysregulation subscale (e.g., "I think about the future consequences of my actions") which measures the difficulty in cognitive regulation, and Anger Subscale (e.g., "I get so frustrated that I often feel like a bomb ready to explode") which measures difficulty in regulation of anger; all of the subscales were used in the current study. The internal consistency of the scale and subscales has been reported to be between 0.75 and 0.80, in various samples [Pardini, *et al*. (2003); Marsee and Frick (2007)]. The scale is available in Urdu language which was conducted for another study aims at assessing emotional and behavioural problems in school children and demonstrated adequate reliability and validity [Mc Donald and Siddiqui

(2015)]. The reliability estimates in this survey found to be in the range of 0.85 – 0.89.

iv. **Peer Relations Questionnaire (PRQ) [Rigby and Slee (1993)].** This scale comprises of 20 item aims at tapping various aspects of peer relations in adolescents. The scores on this questionnaire are obtained on three subscales: Bully subscale which assess the bullying behaviour in students (e.g., "I give soft kids a hard time"), Victim subscale assess the extent to which they have been victimized by their peers (e.g., "I get called names by others") and Pro-social subscale measures the pro-social behaviour towards their peers (e.g., "I like to make friends"). The scale was translated into Urdu language by following standard WHO guidelines on tool's translation and adaptation. The reliability estimates in this study for each sub-scale found to be in range of 0.58 to 0.77.

3.3 Procedure

Data were collected in school settings. In each class students were seated at an appropriate distance and individually completed these self-administered questionnaires. There were approximately 20-25 students in each administration session of study questionnaires. Standard instruct-ions were provided to the participants before the distribution of questionnaire and they were encouraged to ask question if they found any item as less clear. It took 40 to 50 minutes (approximately) to complete the assessment protocol designed for this research.

3.4 Ethical Considerations

Permission for conducting this research was acquired from the Federal Directorate of Education, Islamabad. Permission was also taken from the school principal/vice-principal to seek their consent in data collection. Students (boys) from 8th, 9th and 10th grades between the ages of 12 to 17 years were asked to voluntarily participate in the study. Those students who gave their assent were given the parental consent form, to be filled by their respective parent or guardian.

Contact numbers were given in the consent forms to provide an opportunity to parents to contact the investigators of this research if they

want to seek any guidance and need any help to dealt with behavioural or emotional problems of their child. After the collection of the questionnaires, educational material was distributed among the participants of the study. This material included self-help tips on stress reduction (in Urdu) and included a toll free number for professional psychological consultation if needed.

4. RESULTS

4.1 Indulgence in Non-Suicidal Self-injury (NSSI)

In a sample of (N = 104) adolescent boys (N = 36; 34%) were screened as cases of NSSI (Table 2). The most frequently reported act of

Table 2. Frequency and Percentages to Report Prevalence of NSSI in this Sample (N=104)

Screened for NSSI	Frequency (N)	Percentage*
Yes	36	34
No	68	66
Nature of NSSI Act		
Skin Scratching	20	18
Hitting something	17	15
Joining a fight	15	13
Preventing healing	14	13
Hitting self	9	8
Pricking skin	8	7
Cutting	8	6
Carving symbols	8	6
Tried breaking bone	5	4
Broke a bone	3	2
Biting	3	3
Tearing skin	3	3
Burning	3	2

Note: *Percentages were round off.

self-harm was ‘skin scratching’ followed by ‘hitting something’; ‘joining a fight’ and ‘preventing the healing of wound’. It is striking to note that some severe acts of self-harm such as ‘burning’; ‘dripping acid’ and ‘ingesting a toxic substance’ were reported by 2-8% of the participants. Among demographic variables, age and father education were found to

be significantly associated with NSSI. Children who reported self-harm are likely to be one year older (M=15; S.D. =1.3; t (102) = 2.62, p=0.01) than children who did not report self-harm. To see the association of father and mother's education with child indulgence in NSSI, education was re-coded into two categories (un-educated vs. educated). Fathers' uneducated status was significantly associated (χ^2 (2, N=104) = 6.246, p = 0.04) with self-harm in children.

4.2 Emotional and Behavioural Health of Adolescent Boys Engaged in Self-Harm

The comparison of mean scores of boys who were identified as cases and non-cases of NSSI had significant differences on indicators of emotional and behavioural health. The mean scores of boys who reported indulgence in self-harm had significantly high mean scores at ($p<0.001$) on three sub-scales of Strength and Difficulties Questionnaire (SDQ), which assess emotional problems, conduct problems and hyper-activity. SDQ also differentiate between internalizing and externalizing problem experienced by children and adolescents. The 'internalizing problems' are tapped by combining score on emotional and peer problem subscales of SDQ whereas, 'externalizing problems' are assessed by combining scores on conduct and hyperactivity subscales of SDQ. The comparison of means scores on internalizing and externalizing problems also revealed that boys who reported self-harm had significantly high mean scores ($p<0.001$) than non-cases (Table 3).

The likelihood of high rates of emotional, conduct and behavioural problems among adolescent boys who engage in NSSI is supported by pattern of scores on another measure Abbreviated Dysregulation Inventory (ADI) that assess affective, cognitive, behaviour and anger problems in adolescents. The comparison of cases and non-cases of NSSI revealed that on all sub-scales expect cognitive dysregulation, participants who reported self-harm had significantly high mean scores at ($p<0.001$) (Table 3).

Table 3. Independent Sample T-Test to Report Significance of Mean Differences on Measures of Emotional and Behavioural Health between Cases and Non-Cases of NSSI (N=104)

Scales of Emotional and Behavioural Health	NSSI Cases (n=36)		NSSI Non-Cases (n=68)		
Strength and Difficulties Questionnaire (SDQ)	M	S.D.	M	S.D.	*t*
Emotional Problems Scale	5	1.8	3.7	1.7	3.6**
Conduct Problems Scale	3.9	1.8	2.3	1.3	4.9**
Hyperactivity Scale	4.1	1.6	2.7	1.7	4.0**
Externalizing	8.1	2.8	5.1	2.6	5.4**
Internalizing	8.3	2.7	6.7	2.9	2.6*
Depression Scale for Adolescents (DSA)					
Loneliness Scale	13.3	7.4	7.1	4.5	5.1**
Irritability Scale	15.4	7.2	7.7	4.2	6.8**
Anxiety Scale	9.7	4.5	4.3	2.7	7.4**
Abbreviated Dysregulation Inventory (ADI)					
Affective Dysregulation	1.3	0.6	0.5	0.4	7.5**
Behavioural Dysregulation	1.4	0.6	0.7	0.4	6.4**
Cognitive Dysregulation	1.4	0.5	1.5	0.5	0.4
Anger Scale	1.4	0.7	0.5	0.4	7.1**

Level of distress was assessed through Depression Scale for Adolescents (DSA) which taps feelings of loneliness, Irritability and anxiety among participants through three separate subscales. Participants who had ever engaged in self-harm had significantly high means scores at ($p<0.001$) on Loneliness, Irritability and Anxiety subscales of DSA (Table 3). The total variance explained by single factor as assessed by Harman's single factor test is 23% thus showing data does not suffer from common method bias issue.

4.3 Self-Harm and Peer-Relationship

The nature of peer relationships as experienced by participants was assessed through Bully, Victim and Pro-social subscales of Peer Relationship Questionnaire (PRQ). Children who reported self-harm had significantly high mean scores at ($p<0.001$) on 'Bully subscale' thus indicating children who engage in self-harm are also likely to bully their peers. However, they are also likely to report being a victim of peer bullying as the findings showed that children who committed self-harm had high mean scores on 'Victim Subscale' and the difference was significant at ($p<0.01$) (Table 4).

Table 4. Independent Sample T-Test to Report Significance of Mean Differences on Measures of Peer Relationship between Cases and Non-Cases of NSSI (N=104)

Scale of social and emotional well-being	NSSI Cases (n=36)		NSSI Non cases (n=68)		
	M	S.D.	M	S.D.	*t*
Peer Relationship Questionnaire					
Bully Scale	10	3.8	7.6	1.7	4.3**
Victim Scale	9.5	3.7	7.8	2.5	2.6*
Prosocial Scale	13.2	2.6	13.2	2.2	0.1
Strength and Difficulties Questionnaire					
Isolation	0.9	0.7	0.5	0.7	2.3*
Have friends	0.2	0.5	0.5	0.7	1.9*
Likeliness by friends	0.6	0.7	0.6	0.7	0.1
Victim of Bullying	0.4	0.7	0.4	0.7	0.1
Better relation with adults than peer	0.9	0.7	0.9	0.7	0.4
Pro-social Behaviour Scale	7.6	1.5	7.1	1.4	1.5

Note: *d.f. = 102, *p = 0.01, **p<0.001.*

Few domains of peer relationship were also assessed through single items on SDQ and findings showed that adolescent boys who reported engagement in NSSI had significantly high mean scores on item tapping "Isolation" and had significantly low mean score on item asking about "Having more friends". This pattern support that adolescent boys who engage in self-harm are more likely to experience some difficulties in peer relationship. There were non-significant differences in mean

score on single items which assessed about 'likeliness by friends', 'being a victim of bullying', 'better relation with adults than peers' (Table 4). The difference in means scores on "Pro-social subscale" of both PRQ and SDQ were also non-significant (Table 4).

5. DISCUSSION

The alarmingly high rate of NSSI as reported by adolescent boys who participated in this survey strongly implies the need to assess and address NSSI among school age children in Pakistan. The findings are alarming in context of high prevalence rates in such a small group of adolescent boys (104) who completed this survey. Also, the kinds of acts such as burning, dripping acid, ingesting a toxic substance) were carried out by some of these children, which is likely to cause severe damage to their bodies and increase the threat to life. The estimates on international prevalence of NSSI among adolescents fall in the range of 18%-30% [Madge, *et al.* (2008); Hunter, *et al.* (2013)]. This difference in prevalence rates is attributed to the methods used for assessment. It has been supported through literature (Muehlenkamp, *et al.* (2012)) that behaviour based items are better able to gauge the occurrence of NSSI than single item scales. The current study therefore used screening section (Form A) of Non-Suicidal Self-Injury Assessment Tool (NSSI-AT) to screen the children for engagement in NSSI [Whitlock, *et al.* (2014)]. Other than a single item "*Have you ever hurt your body (e.g., cut, carve, burn, scratch really hard, punch) on purpose but without wanting to end your life?"* it also includes thirteen specific behaviourally based-items to identify specific nature of self-harm act. This could also be one of the reasons for high rates of prevalence as it is quite possible that some of these acts might have been carried out by participants for fun with other mates. The current survey did not explore the possible reasons for such acts and thus one needs more information and evidence to understand more clearly the actual intentions of adolescents when they engage in any self-harm activity. However, in second phase of the main study, adolescents, screened as cases, are being interviewed to examine the possible functions or underlying reasons for this behaviour. Regardless of the any possible reason behind such an act, the intensity of the act itself cannot be ignored. Engagement of an adolescent in any kind of

activity which involves self-harm itself reveals a lot about psychological state of these children and weakness of our social systems. It is quite possible that our school and family environments are not providing better means where youth can channelize their energies in a more positive way. It is also possible that they are not equipped with strategies to deal with stressors they face in school or home environment.

In present survey, the age range of participants fall between 12-17 years and findings showed that boys at age of 15 years or more were more likely to report self-harm. Literature supports [McGee, *et al.* (1995)] that childhood through adolescence is an age of transitional development during which the individual experiences striking physiological, psychological, and social changes. These changes sometimes may also lead to psychological disturbances, and are a normal part of the maturation process. If the distress persists it finds expression through emotional problems such as feeling sad or anxious; and behavioural problems such as acting out, engaging in disruptive or aggressive behaviours. In extreme cases, this can also be characterized by substance abuse, somatic complaints or social withdrawal and self-harm [Peterson, *et al.* (2008)]. Previous researches also suggest that self-harm peaks during mid-adolescence [Hawton, *et al.* (2012)]. Findings also suggest that prevalence of NSSI in adolescence is linked with brain chemistry during this time period of development [Moran, *et al.* (2012)]. The increased vulnerability of 15-17 years old boys in present survey signifies the need for more in-depth exploration of this phenomenon among these children and to appropriately help them through targeted interventions.

The significant association of father's uneducated status with self-harm in adolescent boys is of specific significance and draws our attention to other possible social factors contingent with this. Lack of education limits the opportunities for better employment, income, as well parents, own capability to be more effective as parents. Also children from families with less advantageous socio-economic background are more at risk to be exposed to other forms of violence such as child abuse/family/domestic violence (Capaldi, *et al.* (2012); Malik and Rizvi (2009)) and community violence (Salzinger, *et al.* (2002)), which may impact them in several ways. It has negative implications on their mental

well-being and at the same time it might lessen their fear or sensitivity to refrain from acts that involve harm to self or others.

The findings of present survey showed that on several measures of emotional and behavioural health, boys who reported self-harm had poor ratings as compared to their counterparts. These children also had more difficulties in peer relationships. Literature supports (Nock, *et al.* (2006)) co-morbidity of NSSI with internalizing and externalizing disorders and substance abuse. Self-harm by adolescents is carried out sometime as means to cope with the stress and undesirable feelings. For instance a study from Iran (Babakhanian (2014)) showed that adolescents are at increased risk for self -poisoning with a pharmaceutical agent and the most reasons for the act were family conflicts followed by relationship issues with peers. The existing evidence, therefore, takes the position that self-harm and suicidal behaviours are multifactorial in origin, and the magnitude and effect of these factors are culturally determined [Al Ansari and Hamadeh (2010)].

We know that poor family and school environments may pose as a risk for poor emotional and behavioural health that increases the vulnerability to engage in self-harm, however; it cannot be said with certainty without evidence from large scale survey, and advance analysis of data. Findings of survey thus underscore the need for large scale study to examine some of the specific risk and protective factors for self-harm which might be operating at individual, familial and societal level. Considering, the high rates of emotional and behavioural problems among school age children in Pakistan that has been reported by previous studies (Loona and Kamal (2011); Syed, *et al.* (2009)); the significance of research in this area is further enhanced. The authors are hopeful that at the end of the main study more insight about risk and protective factors for this problematic behaviour will be available.

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