The Specifics of Self-Harmers Attempting Suicide

Slavka Demuthova[1], Andrej Demuth[2]

[1]University of Ss. Cyril and Methodius in Trnava, Slovakia [2]Comenius University in Bratislava, Slovakia

ABSTRACT

Psychological approaches towards the problem of self-harm vary in their opinion whether the suicidal behaviour belongs to its forms. Whilst ICD-10 includes suicidal attempts within the concept of Intentional Self-Harm, DSM-5 strictly excludes suicidal behaviour from the clinical category of Non-Suicidal SelfInjury. The aim of the study is to bring actual data on self-harming population of adolescents with emphasis on the specifics of those who admitted a suicidal attempt within their history of self-harm. Data from 378 self-harmers aged 11 to 19 (mean=15.51; st. dev.=1.446) showed, that participants with the history of suicidal attempts (25.9%) are specific in the female sex, the higher overall prevalence of self-harming acts, the higher number of forms and earlier onset of self-harming behaviour than those without suicidal attempt. Data analysis showed that suicidal attempts are closely tight to self-harming behaviour and should be considered rather as an escalated and extreme form of this risk behaviour than an independent clinical category.
Keywords: DSM-5; deliberate self-harm; ICD-10; tentamen suicidii

1. Introduction

Self-harming behaviour among adolescents is a serious problem whose occurrence and severity has recently been on the rise (Demuthova & Demuth, 2019a). The prevalence of this phenomenon ranges from very low values, for instance only 1% in Hungary or 4.7% in Belgium (Madge et al., 2008), through average values of 8% in Australia (Moran et al., 2012), 9.3% in Norway (Tormoen et al., 2013) and 10% in England (Hawton et al., 2012), up to the highest levels which were measured in the United States – 20.3% (Swahn et al., 2012) and Germany 25.6% (Plener et al., 2009). These data correspond to the prevalence of selfreported self-harm among Slovak adolescents reported by our studies at 29.7% (Demuthova & Demuth 2019b). Probably the highest prevalence was documented by Dyl (2008), who reported 47% or Hallab &
Covic (2010) with 69%. The relatively large differences result from the lack of a clear definition of the term "self-harm" and particularly from the absence of a definition of exactly what type of behaviour is included or excluded from the concept of self-harm.

Self-harm is even defined differently in the two fundamental documents used for psychological clinical diagnosis. ICD-10 (International Statistical Classification of Diseases and Related Health Problems, 10th version; generally used in Europe) defines "intentional self-harm" as a wide range of behaviours (see categories X60 – X84) and it is a category that falls under the category "External Causes of Morbidity and Mortality" (ICD-10, 2016). On the other hand, DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th revision (dominant in the United States) does not mention self-harm as an individual diagnosis; it is listed as "Non-Suicidal Self-Injury" (NSSI) in its appendix ("Section III – Emerging Measures and Models"), and it understands it as "intentional self-inflicted damage to the surface the body of a sort likely to induce bleeding, bruising, or pain (e.g. cutting, burning, stabbing, hitting, excessive rubbing), with the expectation that the injury will only lead to minor or moderate physical harm (i.e. there is no suicidal intent)" (DSM-5 2013, 803). This indicates that while ICD-10 mentions self-harm as an action (potentially) leading to death, DSM-5 strictly excludes attempted suicide from the palette. It seems apparent that these two systems probably only describe very specific and narrowly defined expressions of what is otherwise a rather wide range of self-harming behaviour (ICD-10 defines its extreme as behaviour leading to death and, on the contrary, DSM-5 only behaviour leading to damage of the surface of the body), and as such they are not compatible; however, they are perfect example of the problem of whether attempted suicide should be included in the notion of self-harm or if they should be explicitly excluded (as proposed by DSM-5).

2. Objective

The question is whether attempted suicide should be established as a separate category or it should be understood as an extreme form of self-harming behaviour. On one hand, many acts of self-harm are not connected with any suicidal intent and their purpose is often to preserve (not destroy) life (National Collaborating Centre for Mental Health, 2004). Also, non-suicidal self-injury and suicidal behaviour show differences in their neurobiology, motivations, or treatment response. With suicidal behaviour, an alteration in central serotonergic neurotransmission has been well documented, while non-suicidal self-injury has been shown to be associated with lower levels of CSF opioids and a greater number of μ-opioid receptors (Stanley & Siever, 2010). On the other hand, non-suicidal self-injury and suicidal behaviour have similar correlates, they are on the same spectrum of self-destructive behaviour and engaging in non-suicidal selfinjury somehow predisposes the subject to suicidal behaviour (Brent, 2011).

In order to better define the concept of self-harm and what behaviour should be covered by this category, it is necessary to gather a plethora of information regarding the relationship or differences between nonsuicidal self-harm and self-harm with attempted suicide. The main objective of this study is to answer the question of whether self-harmers who attempt suicide (AS) differ from those who do not (NS) with the main emphasis on the forms of self-harming behaviour; the frequency of acts of self-harm; the age of onset of self-harming behaviour, and gender.

3. Method

3.1 Participants and Procedure

The study sample was comprised of 1,429 Slovak adolescents who were attending primary or secondary education. All the participants were enrolled within the public-school system and were recruited from randomly selected classes from various public schools representing all the different types of schools in Slovakia. The anonymous collection of data included participants (or their guardians) who agreed that the data could be collected after they received information about the research and did not withdraw their agreement after the completion of the battery of tests. The administration of the battery of tests was completed in a standard manner by trained administrators. Of the total number of 1,429 questionnaires, 116 (8.12%) were excluded due to incomplete data. 1,313 participants were included in the research, of whom 29.5% (N=378) were found to be self-harming individuals. The analysis of the motivation for self-harm was conducted using this sample, comprised of individuals aged 11 to 19 (mean age = 15.51; st. dev. = 1.45 years), of which 71.2% (N=269) were women.

3.2 Measures

A modified form of the Self-Harm Inventory (SHI – Sansone & Sansone, 2010) was used to measure the occurrence and forms of self-harming behaviour. It contained 22 questions to assess the prevalence of various forms of self-harming behaviour. The items are preceded by the phrase "Have you ever intentionally, deliberately to cause yourself harm…" followed by the different forms of self-harm: "cut yourself, burned yourself, hit yourself, scratched yourself," etc. In an adaptation made for our purposes, four of the original items were deleted from the SHI questionnaire as the survey was conducted using a sample that included children from 11 years old, those were specifically: "engaged in sexually abusive relationships", "lost a job on purpose", "driven recklessly on purpose", and "been promiscuous (i.e., had many sexual partners) ". On the other hand, two additional items were added to the questionnaire, which tend to occur as a form of self-harm in the adolescent population: "not slept enough to hurt yourself" and "over-exercised to hurt yourself ". The modified form of the questionnaire thus included 20 questions (the list of all items is included in Table 3). We also added the possibility to scale the occurrence of each form of self-harming behaviour within the personal history of each self-harmer (never=0; very rarely=1, sometimes=2, often=3) with the possibility to add an additional form of the self-harm if it was not mentioned on the list. The SHI questionnaire was part of a more extensive test battery, which inter alia asked for the subjects' age, sex, and first experience of self-harm. For the purposes of the data collection in the Slovak population, the wording of the corresponding part of the SHI was translated by a specialist – psychologist into Slovak, followed by the back-translation into English by an expert, which was subsequently reviewed by the psychologist. The reliability test of the adapted SHI questionnaire showed satisfying results – Cronbach's alpha=0.875.

4. Results

Of the total number of 378 who reported self-harming behaviour, 98 (25.9%) adolescents reported at least one attempted suicide in their history of self-harm. The descriptive data on the age, gender and onset of self-harming behaviour in the AS and NS groups are presented in Table 1.

Table 1: Descriptive data on the age and gender representation in the AS and NS groups.

	AS (N=98)	NS (N=280)
No. of women	80 (81.6%)	189 (67.5%)
No. of men	18 (18.4%)	91 (32.5%)
Mean age at time of research	15.44	15.54
Mean age at onset of self-harm	12.42	12.84

Table 1 clearly shows that the number of women predominates in the AS group. The differences between the current age (at the time of testing) and the age of onset of self-harming behaviour are not large, but the significance of such differences must be further verified. As the Shapiro-Wilk W test did not exhibit a normal distribution for the observed variables, non-parametric tests were used for the calculations. The Spearman correlation coefficient value = 0.137 with an approximate value for aprox.sig. = 0.008 shows that the mutual relationship between gender and the occurrence of attempted suicide in the history of self-harm is statistically significant. The number of female subjects in the group of AS adolescents is significantly higher than the number of male subjects.

Table 2: Age differences between the AS and NS groups.

		N	Mean Rank	Mann-Whitney U	Asymp. Sig.
Age (at the time of testing)	NS	280	192.23	12,955.00	0.400
	AS	98	181.69		
	Total	378			
Age at the onset of self-harm	NS	201	153.83	7,472.00	**0.016***
	AS	90	128.52		
	Total	291			

**p<0.05*

Table 3: Differences in the intensity of the occurrence of the individual forms of self-harm between the AS and NS groups

Forms of Self-Harm ((Have you ever intentionally, deliberately to cause yourself harm…)	Group	Mean Rank	Mann-Whitney U	Asymp. Sig.
…abused alcohol to hurt yourself	NS	173.43	9,220.00	**0.000****
	AS	235.41		
…not slept enough to hurt yourself	NS	174.35	9,477.00	**0.000****
	AS	232.80		
… Tortured yourself with self-defeating thoughts	NS	170.19	8,314.00	**0.000****
	AS	244.66		
…hit yourself	NS	173.98	9,373.00	**0.000****
	AS	233.86		
…scratched yourself on purpose	NS	173.80	9,325.00	**0.000****
	AS	234.35		
…cut yourself on purpose	NS	160.93	5,722.00	**0.000****
	AS	271.12		
…exercised an injury on purpose	NS	164.31	6,667.00	**0.000****
	AS	261.47		
…banged your head on purpose	NS	183.52	12,050.00	**0.043***
	AS	206.57		
…over-exercised to hurt yourself	NS	178.89	10,750.00	**0.000****
	AS	219.82		
…prevented wounds from healing	NS	173.67	9,287.00	**0.000****
	AS	234.73		
…starved yourself to hurt yourself	NS	169.80	8,205.00	**0.000****
	AS	245.78		
…made medical situations worse on purpose	NS	171.52	8,686.00	**0.000****
	AS	240.87		
…burned yourself on purpose	NS	175.01	9.664. 00	**0.000****
	AS	230.89		
…engaged in emotionally abusive relationships	NS	173.55	9,255.00	**0.000****
	AS	235.06		
…distanced yourself from God as a punishment	NS	179.87	11,020.00	**0.000****
	AS	217.03		
...abused prescription medication	NS	179.11	10,810.00	**0.000****
	AS	219.17		

…overdosed	NS	178.74	10,706.00	**0.000****
	AS	220.26		
…set yourself up in a relationship to be rejected	NS	186.70	12,940.00	0.094
	AS	197.50		
…abused laxatives to hurt yourself	NS	181.91	11,600.00	**0.000****
	AS	211.17		

**p<0.05; ** p<0.005*

Table 2 presents the age differences between the AS and NS groups in their history of self-harm, and it is apparent that the adolescents in these two groups do not differ in age but in the age at the onset of selfharming behaviour. The AS group began to self-harm statistically significantly earlier in the process of development than those in the NS group.

The descriptive analysis of the occurrences of all the observed forms of self-harm contained in the adapted SHI questionnaire showed that there are no forms exclusive to the AS group. Thus, it appears that the structure of the forms of self-harming behaviour is very similar in both groups. However, the MannWhitney U test showed (see Table 3) that the occurrence of other forms of self-harm is statistically more probable in the AS group. The AS group scored significantly higher in all forms except one ("set yourself up in a relationship to be rejected") and thus perform self-harm in all its forms more frequently than the NS group.

5. Discussion

The character of the study sample shows that the occurrence of the observed phenomena is very similar to those of samples from other studies focusing on the issue of self-harm. The prevalence of this risky behaviour in our sample of participants was 29.5%, which corresponds with findings from the United States – 20.3% (Swahn et al., 2012) or Germany – 25.6% (Plener et al., 2009). At the same time, it represents a sort of average of those studies whose results have produced extreme values (e.g. 1% reported by Madge et al., 2008 and 69% by Hallab & Covic, 2010). Similarly, the gender representation in the observed groups (67.5% of women in the NS group and 81.6% in the AS group) resembles the data of other studies. For example, Tormoen et al. (2013) report the dominance of females in the NS group at a level of 77.2% and in the AS group at 71.7%. Similarly, Nock et al. (2006) discovered that 70% of the adolescents who had engaged in NSSI reported an attempted suicide during their lifetime. It may be thus assumed that the findings presented here are based on data from a typical sample in the study of this issue, which increases their trustworthiness.

The primary aim of this study was to provide information on the forms of self-harming behaviour, the frequency, age of onset and gender displayed within the group of self-harmers who have attempted suicide (AS) and the group of self-harmers who have not (NS) in order to answer the question of whether these groups differ in terms of the observed criteria and in doing so contribute to the clarification of the question of whether it is appropriate to exclude the individuals

in the AS group from the self-harming population, or attempted suicide is an extreme expression of self-harm, thus belonging to the wider range of suicidal behaviour.

The age analysis of the individuals in the AS and NS groups revealed no significant differences in age. Thus the age composition of the AS and NS groups is very similar. However, the pivotal variable is the age at the onset of self-harm. It is significantly lower among the AS group than the NS group. This finding corresponds with the concept that self-harming behaviour develops over time, which assumes that selfharming behaviour tends to become chronic and continuously evolves into other forms of self-injurious behaviour, including attempted suicide (Hawton et al., 2012). If the individual started to inflict self-harm earlier in their development, it is highly likely that they have performed it for a longer period of time before the conduct of the research than those individuals whose onset of self-harm started later in their development. One of the possible explanations for why the earlier occurrence of the onset of self-harm increases the risk of attempted suicide as part of the self-harming behaviour might be that the longer an individual inflicts self-harm, the higher the probability that other forms of self-harm will appear and this increasing frequency and variability of self-harm results in an increased probability that the individual's repertoire will include attempted suicide. This explanation might be supported by the analysis of whether the duration of self-harming behaviour is linked with the occurrence of attempted suicide.

As to the forms of self-harm, no difference was found between the AS and NS groups. All observed forms of self-harm occurred in both groups. However, there was a difference in how often the observed forms occurred among the participants. The AS group scored higher in all of the 20 observed forms of selfharm than the NS group and in 19 of the cases the differences were statistically significant. The exception was a single form: "…set yourself up in a relationship to be rejected" (the difference was not statistically significant), yet the AS group still scored higher. Once again, the findings lead us to the idea that suicidal behaviour is linked to higher intensities of self-harming behaviour and it does not appear to be an independent concept that differs from self-harm without attempted suicide. This idea corresponds with the view of Grandclerc et al. (2016), who claim that NSSI and attempted suicide appear to be behaviours on a single continuum of self-injury.

It seems that our results suggest suicidal behaviour accompanied by other forms of self-harm should be considered as an extreme form of self-harm. Yet, it remains unclear why certain self-harming adolescents start to use extreme forms (e.g. attempted suicide) while others do not. Our findings have provided some suggestions – the occurrence of attempted suicide increases as the number of forms of self-harm and their intensity increases, but further studies focusing on differences between the AS and NS group, for instance in their motivation for self-harm, their personalities and history of depression, etc. could also prove useful. It might be equally beneficial to observe suicidal ideation, for example whether suicidal tendencies occur together with self-harm in the majority of self-harming individuals and that the only difference between AS and NS is that the AS group makes an attempt, or whether the NS group does not contemplate suicide. These research proposals could be extremely useful when trying to comprehend the character of suicide

attempts as a form of self-harm, which might consequently help to prevent this highly risky phenomenon.

Acknowledgment

This work was supported by the Slovak Research and Development Agency under contract No. APVV-17-0123.

References

[1] Brent, D. (2011). Nonsuicidal self-injury as a predictor of suicidal behavior in depressed adolescents. The American Journal of Psychiatry, 168 (5), pp. 452-454. doi:10.1176/appi.ajp.2011.11020215.

[2] Demuthova, S. and Demuth, A. (2019[a]). The Prevalence and most frequent forms of selfharm in adolescents. In: *International Conference on Research in Psychology.* London, Diamond Scientific Publication, pp. 39-51.

[3] Demuthova, S. and Demuth, A. (2019[b]). The specificities of the motivation for self-harm in adolescents. (unpublished manuscript).

[4] DSM-5 (2013). *Diagnostic and Statistical Manual of Mental Disorders.* 5th ed. Washington, DC: American Psychiatric Publishing.

[5] Dyl, J. (2008). Understanding cutting in adolescents: Prevalence, prevention, and intervention. *The Brown University Child and Adolescent Behavior Letter*, 24 (3), pp. 4-6.

[6] Grandclerc, S. et al. (2016). Relations between nonsuicidal self-injury and suicidal behavior in adolescence: A systematic review. PloS ONE, 11 (4), e0153760, doi: 10.1371/journal.pone.0153760.

[7] Hallab, L. and Covic, T. (2010). Deliberate self-harm: the interplay between attachment and stress. *Behaviour Change*, 27 (2), pp. 93-103.

[8] Hawton, J. C. et al. (2012). Self-harm and suicide in adolescents. *Lancet*, 379, pp. 23722382.

[9] ICD-10 (2016). *International Statistical Classification of Diseases and Related Health Problems.* [Online]. World Health Organization. Available <https://www.who.int/classifications/icd/icdonlineversions/en/> [2019-07-15].

[10] Madge, N. et al. (2008). Deliberate self-harm within an international community sample of young people: comparative findings from the Child & Adolescent Self-harm in Europe (CASE) Study. *The Journal of Child Psychology and Psychiatry*, 49, pp. 667-677.

[11] Moran, P. et al. (2012). The natural history of self-harm from adolescence to young adulthood: a population-based cohort study. *Lancet*, 379 (9812), pp. 236-243.

[12] National Collaborating Centre for Mental Health (2004). Self-Harm: The Short-Term Physical and Psychological Management and Secondary Prevention of Self-Harm in Primary and Secondary Care. In *NICE Clinical Guidelines, No. 16*, National Collaborating Centre for Mental Health (UK). Leicester (UK): British Psychological Society.

[13] Nock, M. K. et al. (2006). Non-suicidal self-injury among adolescents: diagnostic correlates and relation to suicide attempts. Psychiatry Research, 144 (1), pp. 65-72.

[14] Plener, P. L. et al. (2009). An international comparison of adolescent non-suicidal self-injury (NSSI) and suicide attempts: Germany and the USA. *Psychological Medicine*, 39 (9), pp. 1549-1558.

[15] Sansone, R. D. and Sansone, L. A. (2010). Measuring self-harm behavior with the Self-Harm Inventory. *Psychiatry*, 7 (4), pp. 1-20.

[16] Stanley, B. and Siever, L. J. (2010). The interpersonal dimension of borderline personality disorder: toward a neuropeptide model. American Journal of Psychiatry, 167, pp. 24-39.

[17] Swahn, M. H. et al. (2012). Self-harm and suicide attempts among high-risk, urban youth in U.S.: Shared and unique risk and protective factors. *International Journal of Environmental Research and Public Health*, 9 (1), pp. 178-191.

[18] Tormoen, A. J. et al. (2013). Nonsuicidal self-harm and suicide attempts in adolescents: differences in kind or in degree? *Social Psychiatry and Psychiatric Epidemiology*, 48 (9), pp. 1447-1455.