



MEDICAL UNIVERSITY
“PROF. DR. PARASKEV STOYANOV” VARNA
FACULTY OF MEDICINE
DEPARTMENT OF PSYCHIATRY AND MEDICAL
PSYCHOLOGY

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ASSESSMENT OF NON-SUICIDAL SELF-INJURIOUS BEHAVIOUR IN A
NON-CLINICAL POPULATION OF ADOLESCENTS AGED 14 – 19 IN
VARNA

Summary

Of dissertation for obtaining the educational and scientific degree "Doctor"
of scientific specialty “Psychiatry”

Research supervisor: Assoc. Prof. Dr. Petar Milchev Petrov, MD, PhD, DSc

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The materials on the defence are available in the Medical university Varna library, as well as on the official website of the university.

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ABBREVIATIONS

ABASI – Alexian Brothers Assessment of Self-injury

ABUSI – Alexian Brothers Urge to Self-injure Scale

BPD – Borderline Personality Disorder

DSM-5 – Diagnostic and Statistical Manual of Mental Disorders, 5th edition

ICD-10 – International Classification of Diseases, 10th revision.

ISAS – Inventory of Statements about Self-injury

NSSI – Non-suicidal self-injury

NSSIB – Non-suicidal self-injurious behaviour

NSSID – Non-suicidal Self-injury Disorder

NSSIDS – Non-suicidal self-injury disorder scale

OSI – Ottawa Self-injury Inventory

RDE – Regional department of education

I. INTRODUCTION

Adolescence is a critical period of development and vulnerability, during which various mental health disorders can occur. It has long been considered a period of turbulence, constant change, with a tendency for impulsiveness and intensity of the emotional experiences. Although most of the described phenomena are developmentally defined and transient, their impact on the adolescent's behaviour could leave a lasting imprint in the process of the developing personality.

This period of constant change confronts the adolescent with several challenges related to developing one's own personality in the context of changing personal, social, educational, and physical requirements. The inevitable stress arising from these situations compromises the implementation of adaptive and mature coping mechanisms, which mechanisms are not fully developed at this stage of individual development. The biologically conditioned tendency for impulsiveness and novelty seeking is a major risk factor for experimenting with risky behaviours such as alcohol, tobacco and drug use, promiscuity, which all aim to achieve pleasurable sensations.

A significant portion of adolescents aged 14-19 report self-injurious behaviours to deal with situations of increased vulnerability and stress. Non-suicidal self-injury (NSSI) is a phenomenon that has been studied relatively intensively over the last 30-40 years. In most cases, its presence is associated with the experience of strong negative feelings, to overcome which adolescents use various methods of self-harm as coping strategies to deal with or mark distress.

Understanding the problem is of great social importance due to its high prevalence, both in the clinical and in the general population, regardless of the limited data in the latter. The first scientific reports of self-injurious behaviours appeared during clinical observation of patients with other psychiatric disorders. This comorbid existence has made it difficult to separately study non-suicidal self-injury, which has been perceived primarily as a symptom of affective and personality disorders. Much later, attention is paid to its manifestation in the general population, and in particular adolescence as a period of first occurrence of the behaviour.

A complete and in-depth assessment of the problem in the general population is accompanied by difficulties characteristic of epidemiological studies among adolescents, as well as due to explicit or implicit stigma, fear of condemnation and misunderstanding. The latter aspects once again emphasize the relevance of the problem and the need to depict a clear picture of non-suicidal self-injury, based on empirical and current data. At this stage, only the first steps are being taken to reveal the scale of the problem.

Research conducted so far, mostly foreign, has focused on the main topics characterizing non-suicidal self-injurious behaviour (NSSIB): definition, prevalence, functions and types of self-harm, natural course, risk factors, neurobiology, distinguishing this behaviour as independent, etc. All these broad aspects of research are united by the need for further study and analysis. For example, a major, current, and unresolved question facing researchers of

this behaviour is where non-suicidal self-injury fits into the scientific classifications of psychiatric disorders.

In recent years, the number of publications in the specialized literature on non-suicidal self-injury shows a growing trend, which testifies to the importance of this topic. Several main areas of scientific interest are distinguished. The scientific search has gone through stages of studying the epidemiological characteristics of non-suicidal self-injury and is currently making a transition to its diagnostic differentiation and search and development of objective and detailed assessment tools.

As well as elucidating the foundations of this phenomenon, considerable scientific interest is focused on the discovery of biological markers that would allow early detection and prevention of non-suicidal self-injury. The pursuit of the discovery of biological markers or the uncovering of potentially impaired neuroanatomical and neurofunctional pathways will help to conceptualize this behaviour. Until these difficult tasks are achieved, current and future researchers need to make efforts to consolidate the progress made so far. The lack of strong evidence for categorial structural and functional impairments should not belittle or be an obstacle to the conceptualization of this behaviour as clinically and socially significant. Underestimating the seriousness of the problem is a prerequisite for untimely professional care, while deepening and reinforcing self-injury as a habitual behaviour.

Despite the significant volume of available contemporary literature, the Bulgarian contribution to the study of non-suicidal self-injurious behaviour in the context of our ethnic and cultural characteristics is valuable, but still modest. Additional confirmatory and updated studies are needed, both in the general population and in clinical settings where they are currently lacking.

The epidemiological study, which is the basis of the present dissertation, attempts to contribute to the building of a foundation for the conceptualization of non-suicidal self-injury in Bulgaria.

II. METHODOLOGY

1. AIM

Based on the analysis of the current scientific knowledge on the problem and the information about Bulgaria, we planned and carried out our research to:

Assess the prevalence of non-suicidal self-injury in a non-clinical population of adolescents using the DSM-5 diagnostic criteria for Non-Suicidal Self-Injury Disorder and determine criteria categorizing a group with greater severity, chronicity, and intensity of self-harm.

To achieve the goal formulated in this way, the following tasks are set:

2. OBJECTIVES

1. To conduct an epidemiological study among a diverse population of adolescents from high schools in the city of Varna.
2. To develop and implement in the epidemiological study an adapted for the Bulgarian population hybrid questionnaire based on Non-suicidal self-injury disorder scale (NSSIDS) and Ottawa Self-Injury Inventory (OSI) for severity and progression of non-suicidal self-injury.
3. To determine the prevalence of NSSIB in a population of adolescents.
4. To apply the criteria for diagnosis of NSSIDS for the detection of a subgroup of adolescents with more severe non-suicidal self-harm.
5. To identify the most common methods of self-injury in the studied population.
6. To establish predisposing factors for non-suicidal self-injurious actions.
7. To establish the functions of non-suicidal self-jury.
8. To identify the trends for progress of NSSI by assessing the addictive (dependent) characteristics of behaviour.
9. To evaluate the possible sources of support and help among adolescents.

3. HYPOTHESES

The goals and tasks described in this way derive from the following hypotheses:

- The prevalence of non-suicidal self-harm among adolescents in Bulgaria is similar to that found in studies in other countries.
- Females are more represented in the sex distribution of NSSI.
- There is a difference in the main method of self-harm between the sexes.
- There is a subgroup of adolescents with a more severe course of NSSI who meet the DSM-5 diagnostic criteria for Non-Suicidal Self-Injury Disorder (NSSIDS).
- There are individuals who to a greater extent continue their participation in the NSSI for reasons similar to the processes described in addictive behaviour.

III. PARTICIPANTS and STUDY DESIGN

1. PARTICIPANTS

The survey was conducted between February 2020 - April 2021 and the participants are adolescents studying in public high schools in Varna with different teaching profiles (mathematics, foreign languages, economics). The schools are indicated by RDE-Varna, which has given its consent to conduct a survey on the territory of Varna's schools. The Ethics Commission of Scientific Research at the Medical University of Varna has approved the research plan and has given its positive decision to conduct the study. Four of the schools indicated by the RDE took part in the study. A total of approximately one thousand informed parental consent forms have been distributed; of those 516 students received parental approval to participate, with 294 students (56% participation rate) giving their online consent, of which 267 have completed the survey in full.

The study covered adolescents, aged between 14 and 19 years, with an intended even representation of both sexes. Our motives to target a population with such age parameters were: 1 / according to literature, the age period with the highest intensity of non-suicidal self-injury is adolescence, and often the onset of self-injury is between 12 and 14 years and the behaviour has a self-remitting course towards the end of adolescence; 2 / from the studies devoted to the natural course and progression of non-suicidal self-injury it is known that the percentage of cases decrease in young adulthood and with advancing age; 3 / retrospective study of the behaviour in adults carries risks of distorting reported data due to memory lapses or misinterpretation of memories by the individual (Plener et al., 2015; Moran et al., 2012).

2. MEASURES

After giving informed consent to participate in the survey, the participants filled in the demographic survey created for this purpose. Data on sex, age, month of birth, siblings, presence or absence of friends, family relationships were collected.

The choice of tool for assessing non-suicidal self-injury in the present study is largely based on our personal experience with two other tools - ISAS and ABASI / ABUSI, used in our pilot epidemiological study on non-suicidal self-injury in adolescence. Inventory of Statements About Self-injury (ISAS) (Klonsky & Glenn, 2009) and Alexian Brothers Assessment of Self-Injury (ABASI) (Washburn et al., 2015), Alexian Brothers Urge to Self-Injure Scale (ABUSI) (Washburn et al., 2010), are widely used and comprehensive, but their application in our cultural settings revealed several methodological difficulties: 1 / none of the tools is a screening instrument; 2 / there is an imbalance between the different aspects of NSSI covered in the questionnaire, which requires additional data collection or the use of an additional tool for a full assessment of the phenomenon; 3 / the questionnaire is long and the completion time is long, which is a demotivating factor for the cooperation of the adolescents. In practice, this was seen as incomplete or carelessly completed questionnaires.

Therefore, for the purposes of this dissertation, we have adapted and modified the instruments Non-Suicidal Self-Injury Disorder Scale (NSSIDS) (Victor et al., 2017) and

Ottawa Self-Injury Inventory (OSI) (Nixon et al., 2015), whose characteristics will be briefly presented.

2.1 Non-suicidal self-injury disorder scale (NSSIDS)

Following the release of the DSM-5 and the proposed new criteria, different research teams begin to develop different tools based on the proposed criteria with the intention uncover groups of individuals with diagnostically significant non-suicidal self-injury. After reviewing the available diagnostic tools, we focused on the NSSIDS questionnaire created by Victor in 2017 (Victor et al., 2017). The questionnaire is composed of 16 questions, fully covers the proposed criteria, and the wording of the questions is designed to be as close as possible to that described in DSM-5. The data described in the article by Victor were used to compare and analyze our own results.

The first criterion (criterion A) is converted into two questions asking about the number of days in the last year in which non-suicidal self-injury was engaged in (criterion for current NSSI) and whether self-harming behaviours occurred 5 or more days in the year before the last (criterion for past NSSI). The criterion for current NSSI is considered fulfilled if the participant has indicated 5 or more days of self-injury in the last year, and for past NSSI if they have answered "Yes" to the question about the NSSI before the previous year.

The second criterion (Criterion B) is converted into three questions, each with a 5-point Likert scale, with answers 0 - "Never", 1, 2 - "sometimes", 3 and 4 - "always". These questions assess the functions of NSSI as a method for eliminating negative thoughts or feelings, for dealing with interpersonal problems and for creating pleasant feelings. Participants meet the threshold for an individual question if they answer 2 or more ("sometimes" or more), and criterion B is generally marked as fulfilled if they have given a positive answer to at least one of the three questions.

Criterion C is converted into 4 questions, again using a Likert scale. The questions are related to the assessment of the events preceding the NSSI: interpersonal difficulties and conflicts, negative feelings or thoughts, difficult to control preoccupation with non-suicidal self-injury before the act and thoughts about NSSI, even when the behaviour is not practiced. Similar to the previous criterion, each question is considered covered if the participant has answered 2 or more ("sometimes" or more), and criterion C is considered fulfilled if the minimum threshold of at least one of the 4 questions listed is met.

Criterion D is converted into a question evaluating valid methods of self-harm. The DSM-5 specifies that individuals cannot be diagnosed with Non-Suicidal Self-Injury Disorder if their only method of self-harm is picking scars (interfering with wound healing) or biting their nails. Based on the provided possible answers to this question related to self-injuring methods, the criterion is considered fulfilled if the participants have given an answer other than picking scars or biting nails.

Criterion E is converted into 3 questions assessing the functional impairments resulting from non-suicidal self-injury. A Likert scale was used to assess whether the NSSI causes problems with others, academic difficulties, or other types of difficulties in the adolescent's life. The

minimum threshold required to cover the question is 2 or more ("sometimes" or more) and the criterion is generally marked as met if at least one of the questions is answered with 2 or more.

The last criterion (criterion F) is converted into 3 questions with a Likert scale, which would potentially exclude the presence of a diagnosis of "Non-suicidal Self-injury Disorder" (NSSID). Participants answer questions related to the frequency of non-suicidal self-injury under the influence of alcohol or drugs, and the frequency of NSSI while experiencing delusions or hallucinations. The DSM-5 explicitly clarifies that the diagnosis of NSSID is excluded if non-suicidal self-injury is observed exclusively during a psychotic episode or substance intoxication. Therefore, the conditions for a diagnosis of DSM-5 Non-Suicidal Self-Injury Disorder are considered met if the participant has given an answer to each of the two questions other than "always" (i.e., at least part of the time the non-suicidal self-injury occurs beyond the presence of psychosis or intoxication). These two questions are followed by another assessing, with "Yes" or "No", whether the participant has ever been diagnosed with a mental disorder. Participants are marked as fulfilling criterion F if they cover all three aspects of the criterion (i.e., NSSI apart from the use of psychoactive substances, NSSI apart from the presence of psychosis and NSSI, which is not better explained by another diagnosis).

2.2 Ottawa Self-Injury Inventory (OSI)

This self-assessment questionnaire assesses not only the functions of the NSSI, like several other instruments, but it's also the only one that includes a detailed assessment of the dependent characteristics of the NSSI. The latter are derived from the DSM-IV criteria for Substance Dependence (APA, 2000). The questionnaire was first developed in 2002 by Cloutier and Nixon (Nixon et al., 2002) based on reports from hospitalized adolescents, clinicians' reports and the available scientific literature, and subsequently with the help of exploratory factor analysis Martin and colleagues (Martin et al., 2013) investigated the underlying factor structure of the functions and addictive features of OSI. In the present work, questions from OSI concerning the addictive behaviour are used, due to their great importance for the severity and progress of NSSI over time.

3. PROCEDURE AND DATA ANALYSIS

In the current epidemiological cross-sectional non-interventional study, a survey and statistical method were used to test the hypotheses and carry out the tasks.

SPSS 19 (IBM Statistics) was used for statistical analysis. The statistical analysis of the results is conditionally divided into several parts. A frequency descriptive analysis of the participants who completed the demographic survey and the more significant questions from the second part of the questionnaire was performed. In the analysis of NSSIDS, the questions were recoded from a Likert scale into dichotomous values according to the model set by the authors of the scale to check if the criteria are met (Victor et al., 2017). In this way, information is obtained whether the participant has met the requirement to cover a given sub-item of a criterion or the whole criterion.

To assess the psychometric properties of the diagnostic questionnaire, statistical methods were applied, including validity and reliability, cluster analysis, factor analysis, regression analysis and significant correlations. To study the sample distribution depending on the fulfilment of the diagnostic criteria of DSM-5, a two-step cluster analysis was chosen, which is suitable for dichotomous variables. To assess the construct validity of the diagnostic scale, a confirmatory factor analysis was performed. The data were analyzed by the principal components method with orthogonal rotation by the Varimax method with Kaiser normalization. It is universally accepted to exclude factor weights lower than .3 from the rotated component matrix, as values below 0.4 are also negligible and will not be taken into account in the analysis of the results. Bartlett's test for sphericity shows whether the variables are correlated strongly enough to start the factor analysis. To assess questions related to various aspects of non-suicidal self-injury and its severity, we performed correlation analysis, cluster analysis, and Chi-square independence test.

IV. RESULTS AND ANALYSIS

The results of the survey could be summarized as: 1 / Evaluation of demographic indicators of the sample; 2 / Assessment of the prevalence of non-suicidal self-injury; 3 / Evaluation of the criteria proposed by DSM-5; 4 / Assessment of main functions and predisposing factors; 5 / Assessment of the subjective perception of the addictive potential of NSSI; 6 / Assessment of additional characteristics of NSSI related to the significance of the problem in our study population.

1. RESULTS CONCERNING MAIN SOCIODEMOGRAPHIC CHARACTERISTICS OF THE POPULATION COVERED BY THE EPIDEMIOLOGICAL STUDY

During the study period, access to the survey was granted to 294 students, of whom 286 gave an informed consent to participate.

Of the 286 students who agreed to participate, 7 were excluded due to incorrect or incomplete completion of the questionnaire and 279 participants were subjected to initial statistical analysis.

First, a frequency analysis was performed on the total number of students who correctly filled in the demographic part of the survey.

Table 1. Study population distribution by sex

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Female	205	73.5	73.5	73.5
	Male	74	26.5	26.5	100.0
	Total	279	100.0	100.0	

Females are prevalent in the study population. The age distribution shows that the percentage of respondents among older students is lower, and the activity is highest among younger respondents.

Table 2. Study population distribution by age

		Frequency	Percent	Valid percent	Cumulative percent
Valid	14	78	28.0	28.0	28.0
	15	62	22.2	22.2	50.2
	16	66	23.7	23.7	73.8
	17	45	16.1	16.1	90.0
	18	24	8.6	8.6	98.6
	19	4	1.4	1.4	100.0
	Total		279	100.0	100.0

To assess whether the results for non-suicidal self-injury are significant for the urban population, a question was asked about the place of residence, with the majority of participants (N = 264, 94.6%) indicating that they were from the city of Varna. Most of the participants live with their family (N = 273, 97.50%), and 76.79% (N = 215) have siblings. Only 117 participants answered a question about family relationships, as 34.19% (N = 40) answered that their family relationships were "good and harmonious", 62.39% (N = 73) of the participants shared about "good and bad days, like everyone else", 0.85% (N = 1) shared "we fight often, they don't understand me", while 2.85% (N = 3) stated "we prefer not to talk, they are busy".

Regarding friendships, 98.21% (N = 275) reported having friends at school, and 97.86% (N = 274) had friends outside of school.

2. RESULTS RELATED TO THE ASSESSMENT OF PREVALENCE OF NSSI IN THE POPULATION

2.1 Frequency of non-suicidal self-injurious behaviours

Of the 279 respondents, 9 refused to further participate in the second part of the survey about non-suicidal self-injury and therefore the subsequent statistics included 267 participants. Individuals who answered negatively to one or both screening questions are not permitted to the next part of the survey.

The prevalence of NSSI in adolescence is relatively high and thoughts of self-harm are not uncommon in this population. Therefore, two screening questions were asked, which aim to show the spread of thoughts of self-injury without engaging in it and to separate persons who, in addition to thoughts, also perform self-injurious behaviours.

Table 3. Have you ever had thoughts about or a desire to injure yourself without the intention to kill yourself?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	85	31.8	31.8	31.8
	No	182	68.2	68.2	100.0
	Total	267	100.0	100.0	

Table 4. Have you ever injured yourself on purpose without the intention to kill yourself?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	68	25.5	25.5	25.5
	No	199	74.5	74.5	100.0
	Total	267	100.0	100.0	

Of all respondents, 31.8% reported having thoughts or a strong desire to self-harm without the intention to commit suicide, and 25.5% confirmed engaging in self-harming actions without the intention to commit suicide. The rates of prevalence of NSSI established by us fully correspond to those found in similar foreign epidemiological population studies among adolescents, where the cited percentage varies between 13-22%, and in some studies even higher (Taylor et al., 2018). In Eyubova's study, the prevalence rate of self-harm was significantly higher, 35% of the total sample, and of all the possible self-injuring methods described, "wound picking" was the most commonly reported (15%).

A Chi-square independence test was performed to examine the difference between the presence of thoughts and the presence of self-injuring behaviours depending on sex. Such a statistically significant difference was not found in the first screening question for thoughts or desires for NSSI ($\chi^2(1) = 2.900, p = 0.89, \Phi = .104$). A small but statistically significant association was found in terms of self-harming behaviours and sex ($\chi^2(1) = 4.150, p = 0.042, \Phi = .125$). Significantly more girls reported self-harm (57F: 11M). A strong relationship was found between the presence of thoughts and a desire to self-harm and the performance of self-injurious behaviours ($\chi^2(1) = 107.297, p < 0.01, \Phi = .634$).

Table 5. Crosstab. Association between sex and acts of NSSI

			Sex		Total
			Female	Male	
Have you ever injured yourself on purpose without the intention to kill yourself?	Yes	Count	57	11	68
		Expected count	50.7	17.3	68.0
	No	Брой	142	57	199
		Expected count	148.3	50.7	199.0
Total	Count	199	68	267	
	Expected count	199.0	68.0	267.0	

Table 5.1. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.150 ^a	1	.042
Continuity Correction ^b	3.519	1	.061
Likelihood Ratio	4.438	1	.035
Fisher's Exact Test			
Linear-by-Linear Association	4.134	1	.042
N of Valid Cases	267		
Symmetric measures		Value	
Nominal by Nominal	Phi		.125
	Cramer's V		.125
N of Valid Cases			267

Table 6. Crosstab. Association between thoughts/desires about NSSI and acts of self-injury

			Have you ever injured yourself on purpose without the intention to kill yourself?		Total
			Yes	No	
Have you ever had thoughts about or a desire to injure yourself without the intention to kill yourself?	Yes	Count	56	29	85
		Expected count	21.6	63.4	85.0
	No	Count	12	170	182
		Expected count	46.4	135.6	182.0
Total	Count	68	199	267	
	Expected count	68.0	199.0	267.0	

Table 6.1. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	107.297 ^a	1	.000	.000	.000
Continuity Correction ^b	104.196	1	.000		
Likelihood Ratio	105.445	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	106.895	1	.000		
N of Valid Cases	267				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.65.

b. Computed only for a 2x2 table

Table 6.2 Symmetric measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.634	.000
	Cramer's V	.634	.000
N of Valid Cases		267	

As noted in the literature review of the dissertation, non-suicidal self-injury has a variety of functions, often depending on the current psycho-emotional state of the individual and the provoking situation. Non-suicidal self-injury, as a form of anti-suicidal behaviour, protects the individual from extreme actions (suicide) by finding an acceptable alternative to relieve stress. In this regard, we tend to consider the presence of thoughts or a desire for NSSI as a smaller compromise – a volitional action to avoid self-injurious behaviours among those who report it.

Similar to other psychological therapeutic techniques that require visualization for the purpose of actualization, it could be assumed that the presence of thoughts or desire for NSSI can be used as a separate function. Based on our results from the conducted Chi-square test, however, we do not confirm the independent existence of thoughts or desires, which may indicate that they are not sufficient to be assigned to and serve as a function of NSSI (affect regulation or others). In the available literature, we did not find data on studies specifically examining differences between individuals, reporting only thoughts of self-injury without action, which provides a field for future search into the psycho-emotional profile of these individuals.

2.2 Demographic characteristics of the NSSI thoughts and behaviours sample

We would like to note that to achieve reliable results, the following results included participants answered "Yes" to both screening questions for the presence of thoughts and behaviours of self-injury. They represent 20.2% (or N = 54) of our total sample of 267 participants, and we believe this percentage more accurately reflects the actual prevalence of the phenomenon NSSI in the general population of adolescents. Individuals who answered "Yes" to only one of the two screening questions were excluded from further statistical analysis. In the group of individuals who confirmed the presence of self-injurious behaviours and thoughts, an initial descriptive analysis was performed by gender, age, class, presence of siblings. The mean age of the sample is 15.89 years (SD - 1.44).

Table 7. Sex

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Female	44	81.5	81.5	81.5
	Male	10	18.5	18.5	100.0
	Total	54	100.0	100.0	

Table 8. Distribution by age

		Frequency	Percent	Valid percent	Cumulative percent
Valid	14	14	25.9	25.9	25.9
	15	7	13.0	13.0	38.9
	16	12	22.2	22.2	61.1
	17	14	25.9	25.9	87.0
	18	6	11.1	11.1	98.1
	19	1	1.9	1.9	100.0
	Total	54	100.0	100.0	

Table 9. Siblings

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	39	72.2	72.2	72.2
	No	15	27.8	27.8	100.0
	Total	54	100.0	100.0	

What do the data obtained for sex and age of the total group of participants (N = 267) and in the group of self-injurers (N = 54) reveal? Our results show a greater representation of females, both in the general sample and in the group of self-injurers, with the distribution in the latter being 44 F: 10 M. Out of a total of 199 girls in the initial population who completed the survey 44 (22.1 %) confirm NSSI, and this number of girls represents 81.5% of all non-suicidal self-injurers in our sample (N = 54). Out of a total of 68 boys in the initial population, non-suicidal self-injury was confirmed by 10 participants (14.7%). As a percentage of the total population, 16.5% of females and 3.7% of males engage in NSSI. Available data from foreign studies on differences in the prevalence of NSSI between boys and girls in adolescence show more than a threefold difference in the prevalence rate (19% F : 5% M according to Barrocas et al., 2012). Our results show a relatively higher than expected and described in the literature rate of prevalence of NSSI among just the boys (14.7%). Due to the small number of male participants in our study, it is difficult to conclude whether this percentage would be maintained with an increase in the sample. Understanding that NSSI is more common among girls, neglecting the male population (which demonstrates a significant percentage of NSSI 14.7%), is a premise for missing a serious health problem and ignoring the psycho-emotional needs of boys. The number of committed suicides among males is several times higher than in females (Schmidtke et al., 1999). Given the psychological theories about the undoubted link between non-suicidal self-injury and suicide attempts, neglecting NSSI among males poses a serious health risk for missing possible suicide attempts. It is known that between 47% and 70% of those who commit suicide have an affective disorder; of these, 75% of men did not seek specialist help and support for their mental state in the month before committing suicide (Burke & McKeon, 2007). The greater representation of girls in our sample of self-injurers may indicate greater motivation on their part to participate and share problematic behaviours. The psychological theory of the etiology of NSSI points to the possibility that males are more reserved about reporting problematic behaviours related to the expression of strong negative emotions, which would lead to a negative perception of the individual by his environment. This is supported by data from a study showing that approximately 40% of male students would not seek specialized help for their emotional or personal problems due to privacy concerns (Donald et al., 2000). Other researchers point out that expected shame and disgrace are among the reasons why young people avoid professional support and worry about the subsequent negative reaction of others (Burke & McKeon, 2007; Barney et al., 2006).

3. RESULTS FROM THE NON-SUICIDAL SELF-INJURY DISORDER SCALE

3.1 Diagnostic criteria

Below are presented the results obtained from the adapted questionnaire for non-suicidal self-injury, with the first data showing the questions proposed in the diagnostic tool by Victor and co-authors (Victor et al., 2017). Frequency analysis was performed to determine the percentage of self-injurers who meet the requirements to fulfil a single criterion and the overall diagnosis.

Out of a total of 54 participants with non-suicidal self-injury, 12 (22%) met all the criteria necessary for diagnosis, or 4.49% of all 267 participants in our study.

Table 10. Non-suicidal self-injury disorder

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No diagnosis	42	77.8	77.8	77.8
	NSSID Diagnosis	12	22.2	22.2	100.0
	Total	54	100.0	100.0	

Criterion A, consisting of two sub-items, evaluates current and past non-suicidal self-injury. In total, the criterion was covered by 74.1% of the participants. 27.8% of the participants met the first condition for self-harm in the last year. Regarding non-suicidal self-injury in the past, the criterion was covered by 40.7% of the participants.

Table 11. Criterion A „Duration of NSSI”

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met	14	25.9	25.9	25.9
	Criterion met	40	74.1	74.1	100.0
	Total	54	100.0	100.0	

Table 12. Criterion A1. Number of NSSI episodes in the 12 months (current NSSI)

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Less than 5 episodes	39	72.2	72.2	72.2
	More than 5 episodes	15	27.8	27.8	100.0
	Total	54	100.0	100.0	

Table 13. Criterion A2. A period of NSSI for 5 or more days within a year prior to the last year (past NSSI).

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No NSSI in the past	32	59.3	59.3	59.3
	Yes to NSSI in the past	22	40.7	40.7	100.0
	Total	54	100.0	100.0	

3.2 Functions of non-suicidal self-injury

Criterion B assesses the functions of non-suicidal self-injury. Tables 17. - 20. show the percentages of persons who have met the requirements for the various functions of the NSS. The largest percentage of participants reported that they hurt themselves "to relieve unpleasant feelings and thoughts" (70.4%), followed by "to deal with problems with others" (50.0%). Only 22.2% of the participants gave an affirmative answer to the function "to create positive feelings". Overall, criterion B was met by all participants.

Table 14. Criterion B. "Function of NSSI"

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion B Met Критерий	54	100.0	100.0	100.0

Table 15. Criterion B1. NSSI to relieve negative feelings or thoughts

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met (Never, rarely)	16	29.6	29.6	29.6
	Criterion Met (Sometimes, often, always)	38	70.4	70.4	100.0
	Total	54	100.0	100.0	

Table 16: Criterion B2. NSSI to cope with interpersonal problems

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met (Never, rarely)	27	50.0	50.0	50.0
	Criterion Met (Sometimes, often, always)	27	50.0	50.0	100.0
	Total	54	100.0	100.0	

Table 17: Criterion B3. NSSI to create positive feelings

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met (Never, rarely)	42	77.8	77.8	77.8
	Criterion Met (Sometimes, often, always)	12	22.2	22.2	100.0
	Total	54	100.0	100.0	

Criterion C. Factors that are observed immediately before performing self-injurious behaviours are considered to provoke or motivate the functions of non-suicidal self-injury. Criterion C1 refers to conflicts with others before the act of self-harm, and 46.3% of participants confirmed the existence of such an event. Criterion C2 assessed the presence of negative thoughts or feelings before self-harm, with 87.0% giving an affirmative answer. Criterion C3 assesses the individual's desire / urge to perform NSSI by asking about a difficult to control period of preoccupation with thoughts of self-harm, with 61.1% confirming the presence of such a period before harming themselves. Criterion C4 assesses how concerned the individual is with the behaviour of self-harm, by asking about thoughts about self-injury, even when the behaviour is not engaged in, and 38.9% have reported such thoughts. In total, the criterion was met by 90.7% of the participants.

Table 18. Criterion C. "Antecedents of NSSI"

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met	5	9.3	9.3	9.3
	Criterion Met	49	90.7	90.7	100.0
	Total	54	100.0	100.0	

Table 19: Criterion C1. Interpersonal difficulties prior to NSSI

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	29	53.7	53.7	53.7
	Yes	25	46.3	46.3	100.0
	Total	54	100.0	100.0	

Table 20: Criterion C2. Negative feelings or thoughts before NSSI

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	7	13.0	13.0	13.0
	Yes	47	87.0	87.0	100.0
	Total	54	100.0	100.0	

Table 21: Criterion C3. Preoccupation with NSSI prior to self-harm

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	21	38.9	38.9	38.9
	Yes	33	61.1	61.1	100.0
	Total	54	100.0	100.0	

Table 22: Criterion C4. Thoughts about NSSI when not engaging in it

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	33	61.1	61.1	61.1
	Yes	21	38.9	38.9	100.0
	Total	54	100.0	100.0	

3.3 Main method of self-injury

Criterion D aims to select and differentiate between participants in terms of their method of self-harm. As discussed earlier in the dissertation, there are methods of inflicting direct and indirect injury to the tissue, as well as behaviours that are not considered self-injurious within of the definition of NSSI used in the present work. The criteria for Non-Suicidal Self-Injury Disorder (NSSID) and the authors of NSSIDS exclude scab picking and nail biting as valid methods of NSSI. These two behaviours are widespread and could be considered as socially acceptable forms of expression of anxiety, tension, distractedness. Therefore, the presence of

one of these behaviours as the only method of self-injury is a reason for not meeting the criterion. In our survey the possible answers to methods of self-jury are cutting, scratching, picking scars, burning, bites, hitting, pulling hair, biting nails, piercing the skin with sharp objects, excessive alcohol consumption, excessive use of prohibited substances, attempts to break bones, hitting the head, swallowing things that are potentially dangerous or poisonous. We found that not all methods are evenly distributed in the population of self-injuring adolescents. There are methods that are poorly represented by adolescents in the sample and are probably not typical of our population. Unsupported methods of self-harm are burning, picking scars, piercing the skin with sharp objects, hitting the head, swallowing things that are potentially dangerous or poisonous.

The most common method of self-harm is cutting, reported by 42.6% of adolescents. A distribution of NSSI methods by sex was done and cutting was reported by 47.7% of females and 20% of males.

Table 23. Criterion D “Method of self-injury”

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Severe nail biting and/or nail injuries	1	1.9	1.9	1.9
	Others (Eating or drinking things that are not food, starving, Piercing skin with sharp pointy objects)	3	5.6	5.6	7.4
	Scratching	10	18.5	18.5	25.9
	Trying to break bones	1	1.9	1.9	27.8
	Excessive use of alcohol	2	3.7	3.7	31.5
	Excessive use of street drugs	2	3.7	3.7	35.2
	Cutting	23	42.6	42.6	77.8
	Hair pulling	1	1.9	1.9	79.6
	Hitting	8	14.8	14.8	94.4
	Biting	3	5.6	5.6	100.0
	Total	54	100.0	100.0	

Table 24. Criterion D. Valid method of self-injury. NSSI method exclusion

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Scab picking/ Wound interference/Nail biting	1	1.9	1.9	1.9
	Valid methods	53	98.1	98.1	100.0
	Total	54	100.0	100.0	

Table 25: Distribution of main method of self-harm by sex

		Sex		Total
		Female	Male	
What is your main method of self-harm now or in the past?	Severe nail biting and/or nail injuries	0 (0%)	1 (10%)	1 (1.9%)
	Others	3 (6.8%)	0 (0%)	3 (5.6%)
	Scratching	8 (18.2%)	2 (20%)	10 (18.5%)
	Trying to break bones	1 (2.3%)	0 (0%)	1 (1.9%)
	Excessive use of alcohol	2 (4.5%)	0 (0%)	2 (3.7%)
	Excessive use of street drugs	1 (2.3%)	1 (10%)	2 (3.7%)
	Cutting	21 (47.7%)	2 (20%)	23 (42.6%)
	Hair pulling	1 (2.3%)	0 (0%)	1 (1.9%)
	Hitting	5 (11.4%)	3 (30%)	8 (14.8%)
	Biting	2 (4.5%)	1 (10%)	3 (5.6%)
Total	44	10	54	

Criterion E assesses NSSI-related impairment and distress. Criterion E1 assesses the negative impact of NSSI on relationships with others, with 31.5% of participants reporting problems with others due to behaviour. Criterion E2 assesses academic difficulties resulting from NSSI, with only 18.1% of participants confirming such academic difficulties. Criterion E3 refers to impaired functioning in other areas of the individual's life caused by NSSI, and they are present in 29.6% of the sample. In total, the criterion was met by 40.7% of the subjects.

Table 26. Criterion E. “Distress and impairment related to NSSI”

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met	31	57.4	58.5	58.5
	Criterion Met	22	40.7	41.5	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total		54	100.0		

Table 27. Criterion E1. NSSI causes problems with others

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	36	66.7	67.9	67.9
	Yes	17	31.5	32.1	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total		54	100.0		

Table 28. Criterion E2. NSSI causes academic/work difficulties

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	43	79.6	81.1	81.1
	Yes	10	18.5	18.9	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total		54	100.0		

Table 29. Criterion E3. NSSI causes other types of difficulties

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	37	68.5	69.8	69.8
	Yes	16	29.6	30.2	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Criterion F aims to assess possible exclusionary factors and conditions that would rule out a diagnosis of non-suicidal self-injury disorder. Only 1 participant (1.9%) confirmed engaging in non-suicidal self-injury entirely and solely under the influence of alcohol or substances. On

the second condition (F2), also 1 participant (1.9%) confirmed the engagement in NSSI entirely and solely during psychotic experiences. Criterion F3 assesses the presence of a lifelong psychiatric disorder, with 5 participants (9.3%) confirming that they have been diagnosed with a mental disorder.

Table 30. Criterion F. Diagnostic exclusions

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Criterion Not Met (Diagnosis excluded)	2	3.8	3.8	3.8
	Criterion Met	52	96.2	96.2	100.0
	Total	54	100.0	100.0	

Table 31. Criterion F1. Frequency of NSSI, exclusively, while using drugs or alcohol

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Always	1	1.9	1.9	1.9
	Not always	53	98.1	98.1	100.0
	Total	54	100.0	100.0	

Table 32. Criterion F2. Frequency of NSSI, exclusively, while experiencing hallucinations or delusions

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Always	1	1.9	1.9	1.9
	Not always	53	98.1	98.1	100.0
	Total	54	100.0	100.0	

Table 33. Criterion F3. Lifetime diagnosis of a mental health disorder

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	49	90.7	90.7	90.7
	Yes	5	9.3	9.3	100.0
	Total	54	100.0	100.0	

The results obtained from the recoded questions, as described in the work of Victor et al. (2017 et al., 2017), regarding the criteria for diagnosis lead us to the following considerations.

Criterion A is covered by approximately 2/3 of the self-injurious sample. The questions are aimed at gathering information about current and past self-injury. The criterion is informative only if its two sub-items are taken into account, which carry information about the recency, relevance and duration of self-injury. The set threshold of 5 self-injurious episodes are the subject of discussion, because for a number of researchers this threshold is considered too low (Zetterqvist et al., 2013). Bulens et al found that if the diagnostic threshold was raised from 5 to 10 episodes, then 3 out of every 10 adolescents currently meeting the NSSID criteria (27.8%) would no longer meet the diagnostic frequency requirement and prevalence of NSSID in their sample will fall from 7.6% to 5.5% (Buelens et al., 2020). Adherence to a frequency of 5 episodes of current non-suicidal self-injury provides an opportunity for individuals with a milder course of self-injury and less concomitant psychopathology to meet the requirement. A study to assess the opinions of clinicians and specialists in NSSI about the diagnostic aspects of NSSID found that the presence of an episode of self-injury in the past month had a decisive role in diagnosing NSSID (Ammerman et al., 2021).

Criterion B assesses the functions of the NSSI, which in this questionnaire are three - eliminating negative emotions, dealing with problems with others and creating positive feelings. The first two reflect the two-factor model of intrapersonal and interpersonal functions of self-injury, and both factors share the common feature of eliminating something unpleasant for the individual. Creating positive feelings is the opposite of this and is also a common reason for self-harm. In descending order, the individuals in our sample most often report the elimination of negative thoughts and feelings (70.4%), followed by to cope with problems with others (50.0%) and the lowest percentage of the sample report to create positive feelings (22.2%). Our results coincide with the data established by other authors, namely that intrapersonal functions of self-injury are most frequently endorsed (Victor et al., 2017). It is not uncommon for an adolescent to engage in self-injurious acts for more than one reason, i.e., for intrapersonal and interpersonal motives or to alleviate or create feelings depending on the situation (Nock & Prinstein, 2004). Given the high probability of reporting more than one reason, Criterion B is expected to have a high overall coverage rate. At the same time, the listed functions are not specific enough and are likely to be confirmed by a wide group of individuals. The question has little discriminatory value between individuals who self-harm sporadically and those who would be more likely to meet the diagnostic criteria. A number of meta-analyses report more than three NSSI functions, with as many as 13 in the ISAS instrument (Klonsky & Glenn, 2009). In the NSSID scale, the question about NSSI functions seems simplistic and significant and frequently reported functions such as self-punishment and anti-suicide are omitted.

Criterion C. C.1 The first sub-item of criterion C examines the presence of interpersonal conflict immediately before the act of self-injury as a provoking factor. In our sample, 46.3% of participants reported such a conflict. The importance of adolescence in building lasting friendships and more formal interpersonal relationships is well known (Collins, 1997; Hunter & Youniss, 1982). The need for acceptance and connection are driving forces for a number of adolescent behaviours (Laursen & Collins, 1994). Accordingly, the presence of conflict is a logical reason for experiencing adversity and resorting to self-injurious actions to resolve these conflicts or to deal with feelings of rejection. In the survey, participants were asked

about specific events that could lead to negative emotional and cognitive states, namely failure, abandonment, loss, rejection. No statistically significant relationship was found between conflict with others immediately before NSSI and one of the listed causes for self-injury (failure, abandonment, loss, rejection) ($p = .452$, FET). This leads us to think that interpersonal conflicts most likely give rise to other feelings in the individual, which are a cause of self-harm and further research is needed.

We found a statistically significant association between the presence of conflict with others prior to act of self-injury (C.1) and the function of NSSI "to deal with problems with others" ($p = 0.001$, FET). In addition, we performed a regression analysis to find the causal relationship between these two variables - the independent "conflict with others preceding the NSS" and the dependent "NSSI to deal with problems with others". The analysis did not establish a causal relationship between the two variables ($\chi^2 (1) = 3.687$, $p = 0.055$).

C.2 It has been empirically proven that self-injurious acts take place after a variety of unpleasant preceding events and conditions. The majority of our sample report (87.0%) that they experience unpleasant thoughts and feelings before harming themselves. It is interesting to note that no statistically significant association has been established between the NSSI function "to eliminate negative feelings and thoughts" and the presence of negative feelings and thoughts just before self-injury. This can be explained by the fact that the experience of unpleasant feelings and thoughts is a frequently observed phenomenon and carries little weight for the individual, which makes it not specific enough since it is the end result of various events. The occurrence of negative thoughts and feelings is not correlated with any of the functions of self-harm, and it is possible that the mere presence of negative feelings and thoughts is not a sufficient reason for self-injury. Probably the particular event that provoked these experiences is more related to the actions of self-injury and the subjective functions it performs.

C.3 and C.4 Preoccupation with thoughts about NSSI that is difficult to control occurs in 61.1% of our sample, which indicates that more than half of adolescents experience a strong and difficult to control urge to self-harm. Regarding criterion C.4, 38.9% of individuals report the presence of thoughts of self-injury, even when they do not engage in the behaviour. Another study using an earlier version of the NSSID criteria found that 73.2% of individuals reported a strong desire to self-injure and 37.3% reported overbearing thoughts of self-injury, even without engaging in the behaviour (Zetterqvist et al., 2013). The latter is a kind of testament to the extent of the adolescent's daily life dominated by the phenomenon of NSSI and, accordingly, more serious disturbances in functioning can be expected. There is a great similarity between the percentages established by other authors and our own results regarding criteria C.3 and C.4 - a European study among adolescent girls, found that just under a half reported such preoccupation and inability to control the urge of self-injury (In-Albon et al., 2013). At the same time, a 2020 study found a prevalence of lifelong preoccupation with NSSI thoughts of 80.3%, and the presence of thoughts of self-injury without acts of 52.6% (Buelens et al., 2020).

Criterion D. The findings show that three participants identified "others" as a method of self-injury, two of whom reported "excessive food consumption" and "starvation". The

relationship between abnormal eating behaviours and self-injurious behaviours is complex and not fully clarified, but a number of NSSI researchers point to eating disorders as forms of NSSI (Islam et al., 2015; Kiekens & Claes, 2020; Koutek et al., 2016; Wilkinson et al., 2018). From the answers given by the participants, we could conclude that an unknown proportion of the self-injurers use eating to regulate their emotional states, but in-depth and extensive research is needed for further analysis in this relationship. Cutting is the most common method of self-injury with a prevalence of 42.6% of the sample, followed by scratching (18.5%) and hitting (14.8%). A similar preponderance of self-cutting is observed in almost all studies on self-injury methods. At the same time, it was found that there are gender differences in the method used. Claes et al found a higher incidence of cutting, severe scratching and nail biting among girls than boys (Claes et al., 2007). In our study, no statistically significant difference was found between sex and self-injury method ($p = .205$ FET), at the same time from Table 28 we can see the trends for distribution of self-injury methods by sex. Males are poorly represented in our sample, so statistically supported conclusions cannot be drawn. There is a tendency for the largest percentage of boys (30%) to use punching as a method of NSSI, followed by equal percentages of scratching and cutting (20%). These results are consistent with main methods established by other researchers, who also found more frequent hitting among males (Saraff & Pepper, 2014; Whitlock & Eckenrode, 2006).

Criterion E. A small percentage of our sample reported experiencing dysfunction as a consequence of self-injurious behaviour. The three areas that are assessed are disturbances in academic functioning, relationships with others, other areas of life. In the explanatory theoretical models of the NSSI it is mentioned that the behaviour is practiced to eliminate unpleasant experiences or to achieve a certain goal. In general, these functions have an affective regulatory role and bring the individual to a better overall level of functioning. Adolescence is characterized by a certain inability to fully assess the consequences of a given behaviour, which is why this period of development is often accompanied by risky behaviours. It is possible that the low level of reported distress in the sample is related to the inability to objectively assess the negative consequences of NSSI for the adolescent. The behaviour is perceived as effective for dealing with unpleasant and negative emotional and cognitive states, which is why its disadvantages are neglected.

Assessment of distress and functional disturbances caused by a given disorder or behaviour is a common element among the diagnostic criteria of many psychiatric disorders, which is why its presence here provides important information about the clinical significance of NSSI. Higher levels of reported dysfunction are usually associated with concomitant manifestations of more severe psychopathology, life distress, or lack of satisfaction (Glenn & Klonsky, 2013). Research based on physicians' attitudes toward NSSI has found that if emerging guilt and shame after self-injury are perceived as signs of functional impairment, then the clinical significance of NSSI would increase significantly (Burke et al., 2017). It is therefore important to carry out an in-depth assessment of this criterion and to analyze other factors that would have a more significant impact on the functional disturbances, apart from non-suicidal self-injury.

The authors of the NSSIDS validation study note that a significant percentage of participants with self-injury who met the diagnostic criteria A to D related to frequency, methods, antecedents and NSSI functions did not meet the requirements of criterion E (functional disturbances) (Victor et al., 2017). They add that criterion E has rarely been studied in a targeted way in previous tools for evaluation of the NSSID criteria.

4. ASSESSMENT OF THE VALIDITY AND RELIABILITY OF NSSI DIAGNOSTIC SCALE

The internal consistency (Cronbach's Alpha) of NSSIDS questions was assessed. The Cronbach's Alpha value of .762 obtained by us corresponds to the coefficient of .76 established by the authors of the scale (Victor et al., 2017). Such a value corresponds to good internal consistency and testifies to the possibility of successful application of the scale in our population in its current adapted version.

Table 34. Internal consistency coefficient. Reliability statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.762	.695	16

Table 34.1 Scale Statistics

Mean	Variance	Std. Deviation	N of Items
8.3396	9.421	3.06935	16

Table 35 shows the individual values of the items that make up the NSSIDS scale. From the data in the table, it can be concluded that there are items (questions on the scale) that contribute to a lesser extent to the consistency of the instrument. Such items are "Methods of self-injury", "Self-injury exclusively under the influence of alcohol or substances" and "Self-injury exclusively in the presence of psychotic symptoms". Removing these three items would increase the value of Cronbach's Alpha, while removing any other item would decrease its value. It is not among the goals and objectives in this dissertation to modify the scale, but these factors could be taken into account in a future application of the scale. Removing redundant items will lighten the content of the scale without taking away from its informativeness and will lead to more precise completion of tasks and greater participant compliance.

Table 35. Item-total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
• Diagnosis of mental health disorder	8.2453	8.689	.371	.750
• NSSI while psychotic	7.3585	9.542	-.165	.771
• NSSI under influence of alcohol, substance	7.3585	9.311	.108	.764
• NSSI causes academic difficulties	8.1509	8.708	.239	.759
• NSSI causes other difficulties	8.0377	8.152	.398	.746
• NSSI causes problems with others	8.0189	8.134	.396	.746
• Thoughts about NSSI when not engaging in it	7.9434	7.862	.475	.738
• Difficult to control preoccupation with NSSI	7.7170	7.630	.574	.727
• Negative thoughts and feelings prior to NSSI	7.4717	8.639	.331	.752
• Interpersonal conflict prior to NSSI	7.8679	7.925	.438	.742
• NSSI to create positive feelings	8.1132	8.333	.373	.748
• NSSI to cope with interpersonal problems	7.8302	7.951	.427	.743
• NSSI to relieve negative feelings and thoughts	7.6415	8.081	.427	.743
• NSSI in the past (>5 episodes)	7.9245	7.725	.524	.732
• Current NSSI	8.0566	8.324	.339	.751
• Main method of self-injury	7.3585	9.581	-.210	.772

To verify the construct validity of the scale, a confirmatory factor analysis was performed (see Table 36-37). Significant for the interpretation of the results are the adequacy measure (The Kaiser-Meyer-Olkin Measure of Sampling Adequacy, KMO), which shows whether the number of variables for each factor is sufficient and Bartlett's Test of Sphericity, which should be statistically significant, i.e., have values less than or equal to 0.05 ($p \leq 0.05$). The value of the KMO Measure of Sampling Adequacy coefficient in our study was 0.708, and Bartlett's test was statistically significant ($p < 0.001$).

Table 36. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.708
Bartlett's Test of Sphericity	Approx. Chi-Square	248.976
	df	120
	Sig.	.000

The results in Table 37 show that the 16 questions in the NSSID scale are divided into 6 factors. The table " Total variance explained " presents how the variance is distributed

between 16 possible factors, which are equal in number to the number of variables (16 questions on the scale). It is noteworthy that only the first 6 factors have an eigenvalue greater than 1, which is a common criterion that the factor makes sense. The total explained variance after rotation for all 6 factors is 70.33%, and separately it is 18.74%, 15.01%, 10.85%, 9.33%, 8.84%, 7.56%, respectively.

Table 37. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.382	27.387	27.387	4.382	27.387	27.387	2.999	18.744	18.744
2	1.933	12.082	39.469	1.933	12.082	39.469	2.401	15.008	33.752
3	1.416	8.849	48.318	1.416	8.849	48.318	1.736	10.848	44.600
4	1.351	8.445	56.763	1.351	8.445	56.763	1.493	9.329	53.929
5	1.168	7.300	64.063	1.168	7.300	64.063	1.414	8.836	62.765
6	1.002	6.263	70.327	1.002	6.263	70.327	1.210	7.562	70.327

Extraction Method: Principal Components Analysis

The following Table 38, Rotated Component Matrix, presents the factor loadings of each of the sixteen items (rows) for the six factors (columns) after the rotation of the factors by the Varimax method with Kaiser normalization. According to the analysis, 3 items (B1, B2, B3), corresponding to criterion B about non-suicidal self-injury functions, belong to factor 1. Factor 2 includes 3 items (E1, E2, E3), corresponding to criterion E for dysfunctions due to NSSI. Factor 3 corresponds to the three questions that serve as exclusions for a diagnosis (F1, F2, F3). Factor 4 includes item C1 regarding interpersonal conflicts prior to NSSI and E1, referring to conflicts with others due to self-harm. Factor 5 is weakly related to thoughts of NSSI without action, as this item testifies to the level of preoccupation of the individual with the behaviour. Factor 6 includes only item C3 "presence of negative thoughts and feelings before NSSI".

Table 38: Rotated component matrix

	Component (Factor)					
	1	2	3	4	5	6
Criterion A:						
1. Frequency of NSSI episodes in the last 12 months			-.636			
2. NSSI in the past.	-.475					
Criterion B:						
1. NSSI to relieve negative feeling or thoughts.	.792					
2 NSSI to cope with	.641					

interpersonal problems.						
3. NSSI to create positive feelings.	.652					.413
Criterion C:				.827		
1. Interpersonal difficulties prior to NSSI.						
2. Negative feelings or thoughts before NSSI.						.823
3. Difficult to control preoccupation with NSSI before the act.	-.722					
4. Thoughts about NSSI when not engaging in it.	-.642				.517	
Criterion D:						
1. Valid method of NSSI					-.782	
Criterion E:		.660		.449		
1. NSSI causes problems with others.						
2. NSSI causes academic difficulties		.792				
3. NSSI causes other difficulties		.812				
Criterion F:			.803			
1. NSSI exclusively under the influence of alcohol or drugs						
2. NSSI exclusively while experiencing psychotic symptoms.	.415		.555			
3. Lifetime diagnosis of mental health disorder.			-.453		.420	
Extraction Method: Principal Components Analysis.						
Rotation Method: Varimax with Kaiser Normalization						

When verifying the construct validity by confirmatory factor analysis, with Varimax rotation and Kaiser-Meier normalization, it is universally accepted that factor weights lower than .3

should be excluded from analysis, and in the rotated component table values below .4 are also negligible and will not be taken into account when analyzing the results. The analysis conducted to assess the validity of the NSSID instrument revealed that the total number of questions (16) is divided between 6 different factors. An analysis of the data revealed that several of the factors correspond fully to a criterion of those proposed in the DSM-5 required for the diagnosis of Non-Suicidal Self-Injury Disorder. Other factors include questions from different criteria that are semantically related. Factor 1, because it includes all three conditions of criterion B, is summatively called "NSSI functions". Factor 2, like the previous factor, is called "Functional disturbances". Factor 3 is called "Exclusion Criteria". The other 3 factors do not show such a clear connection with the proposed diagnostic criteria. Factor 4 combines questions (items) C1 "Interpersonal conflicts before NSSI" and E1 "NSSI leads to problems with others", i.e., this factor is related to interpersonal relationships that non-suicidal self-injury affects. Factor 5 includes item C4 "Thoughts of self-harm without action" and to a lesser extent F3 "Presence of a psychiatric diagnosis". The characteristics of urgency and preoccupation with thoughts of NSSI are among the distinguishing elements of this behaviour in terms of severity and the likelihood of covering the diagnostic criteria. It is not surprising then that factor 5 is composed of a single item. The low factor weight of "Presence of a psychiatric diagnosis" does not provide the necessary confidence to adequately analyze the contribution of this item to the overall importance of the factor. Factor 6 includes B3 "Self-injury to create positive feelings" and C2 "Presence of negative thoughts and feelings before NSSI". Two of the items that make up criterion A do not fall into any factor, and their values are either below 0.3 or have a negative value of the factor loading.

The results show that the applied methodology for measuring NSSI is sufficiently reliable and valid to allow further statistical analysis to be performed.

5. CLUSTER ANALYSIS

We examined the distribution of participants in the NSSI sample according to their answers to the questions from the NSSIDS scale to understand the significance of each question. Two-step cluster analysis was used, which has good analytical properties when used with dichotomous variables (binary), in contrast to the more common hierarchical cluster analysis, which is applied to interval (continuous) variables. Two clusters of individuals were formed, differing in their probability of meeting the proposed diagnostic criteria and, accordingly, having a more severe course of non-suicidal self-injury. The size ratio between the two clusters is 2.83, which is considered a good value (preferably below 3).

The distribution reveals that 71.7% (N = 38) of the sample falls into Cluster 1 (diagnostic) and 28.3% (N = 15) falls into Cluster 2 (non-diagnostic). In Cluster one, 31.6% (N = 12) of the individuals met all 6 criteria for diagnosis. Another 2/3 of the individuals in Cluster 1, although they do not meet all diagnostic criteria, are characterized by a more pronounced clinical course of NSSI and could be perceived as a group in need of continuous monitoring for progression of self-injury.

Figure 3 shows the relative importance of each of the questions that make up the scale. Table 39 presents a detailed model comparing the individual clusters, according to the participants' answers to each of the questions forming the diagnosis scale.

Figure 1. Model summary and cluster quality



Figure 2. Cluster analysis

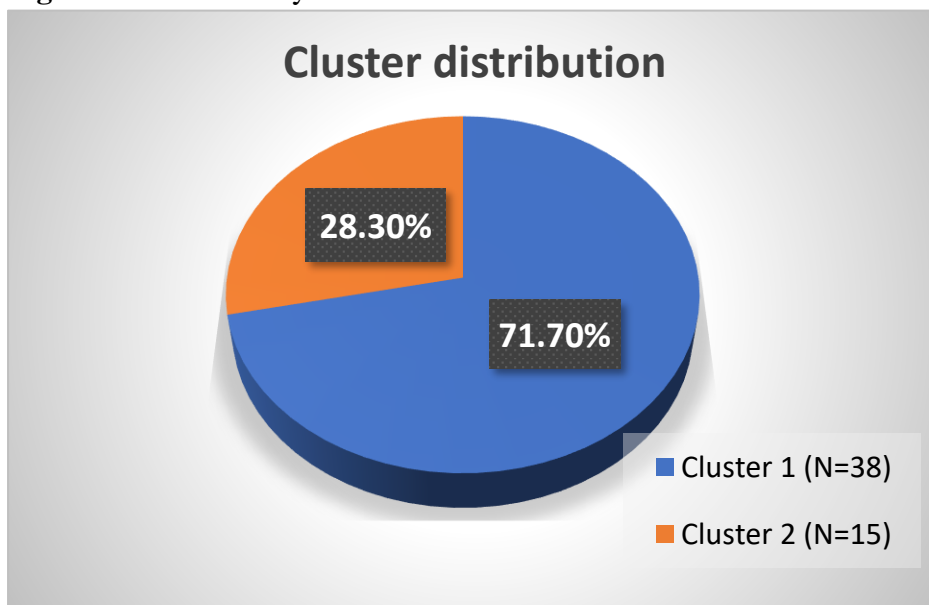


Figure 3. Predictor importance of NSSIDS questions

Difficult to control preoccupation with NSSI before the act

At least 5 episodes of NSSI in the past

NSSI causes problems with others

Interpersonal difficulties prior to NSSI

Thoughts about NSSI when not engaging in it

NSSI causes difficulties in other areas of life

Negative feelings or thoughts before NSSI

Frequency of NSSI episodes in the last 12 months

NSSI causes academic difficulties

NSSI to cope with interpersonal problems

NSSI to create positive feelings

Lifetime diagnosis of mental health disorder

NSSI to relieve negative feeling or thoughts

Valid method of NSSI

NSSI exclusively while experiencing psychotic symptoms

NSSI exclusively under the influence of alcohol or drugs

Table 39. Cluster comparison

Cluster 1		Cluster 2
YES 86.8% NO	Difficult to control preoccupation with NSSI before the act	YES NO 100%
YES 55.3% NO	At least 5 episodes of NSSI in the past	YES NO 93.3%
YES NO 55.3%	NSSI causes problems with others	YES NO 100%
YES 60.5% NO	Interpersonal difficulties prior to NSSI	YES NO 86.7%
YES 52.6% NO	Thoughts about NSSI when not engaging in it	YES NO 93.3%
YES NO 57.9%	NSSI causes difficulties in other areas of life	YES NO 100%
YES 94.7% NO	Negative feelings or thoughts before NSSI	YES 66.7% NO
YES 78.9% NO	Frequency of NSSI episodes in the last 12 months	YES NO 53.3%
YES NO 73.7%	NSSI causes academic difficulties	YES NO 100%
YES 81.6% NO	NSSI to cope with interpersonal problems	YES 100% NO
YES 84.2% NO	NSSI to create positive feelings	YES 100% NO
YES NO 86.8%	Lifetime diagnosis of mental health disorder	YES NO 100%
YES 86.8% NO	NSSI to relieve negative feeling or thoughts	YES 73.3% NO

<input type="checkbox"/> YES 92.1% <input type="checkbox"/> NO	Valid method of NSSI	<input type="checkbox"/> YES 100% <input type="checkbox"/> NO
<input type="checkbox"/> YES 97.4% <input type="checkbox"/> NO	NSSI exclusively while experiencing psychotic symptoms	<input type="checkbox"/> YES 100% <input type="checkbox"/> NO
<input type="checkbox"/> YES 97.4% <input type="checkbox"/> NO	NSSI exclusively under the influence of alcohol or drugs	<input type="checkbox"/> YES 100% <input type="checkbox"/> NO

In Table 42, most individuals in Cluster 1 answered positively to the questions reflecting the diagnostic conditions, except the three questions constituting criterion E functional disturbances. In the non-diagnostic cluster, some individuals partially meet 3 of the criteria for diagnosis: the criterion relating to the functions of non-suicidal self-injury; criteria for engaging in self-injurious acts, outside the context of alcohol, psychoactive substances or psychosis; criterion responsible for the exclusion of individuals whose main method of non-suicidal self-injury is picking scars or biting nails.

The question that differentiates the two groups the most is related to the presence of preoccupation with thoughts of self-harm before the behaviour, which are difficult to control. In Cluster one, 86.8% of the participants answered in the affirmative, and in Cluster two, 100% of the participants answered with "No", i.e., they do not have a period of difficulty controlling the urge to self-injure.

It is followed by a question about self-injury in the past, i.e., a period of at least 5 separate days with self-injury in the period before the previous year. Of significant predictor importance is also the question of thoughts of self-harm without action. In their own way, these questions answer key questions for the conceptualization of NSSI, related to the intensity of the urge to self-injure, its endurance and the dominance of NSSI in the mind of the adolescent. At the top of Table 39 are two questions devoted to interpersonal conflicts related to NSSI, whether they lead to NSSI or NSSI provokes them. They correspond to factor 5 of the confirmatory factor analysis, tentatively called "Interpersonal influences". The importance of these interpersonal influences can be understood from the perspective of adolescence as a period for creating significant social relationships, therefore conflicts with others are expected to be a major area of concern for young people. It is worth noting that in both clusters most individuals answered that they use NSSI to resolve conflicts with others (Cluster 1 -81.6%, Cluster 2-100%). This could be seen as a method of influencing others, and possibly a way to signal distress to others. In both cases, it appears that NSSI serves a communicative function.

In Cluster 1, just over half of the participants (55.2%) reported that their self-injury did not lead to problems with others, compared to Cluster 2, where 100% categorically rejected such negative impact. Questions related to dysfunction are overall poorly represented by adolescents performing self-injurious actions, leading to the conclusion that infrequently or

only under certain conditions, NSSI would lead to dysfunction. This provides an opportunity for future research to focus on the factors leading to functional impairment in an individual with non-suicidal self-injury.

Our results support the findings of various authors (Kahan & Pattison, 1984; Favazza & Rosenthal, 1993) that it is the inability to delay the impulse, mental and behavioural preoccupation, and the frequency of episodes of NSSI are the main distinguishing features of NSSI, giving it its uniqueness as a disorder. Performing non-suicidal self-injurious behaviours to deal with conflict with others is a commonly reported function among hospitalized adolescents (Washburn et al., 2015). Its predominance in clinical settings and the position of this question in the cluster analysis support the importance of this function as a predicting factor for the diagnosis of NSSID.

Previously established results regarding poorly informative questions or questions that are not valid for our population are also apparent in the current analysis. These are presence of negative emotions and thoughts before the NSSI and all questions assessing dysfunction. Cluster 1 also includes individuals who have noted that there are situations in which they engage in NSSI under the influence of alcohol or while psychotic. These results do not provide information on the severity of the self-injuring behaviour itself, but rather give an idea of the situations in which the behaviour is observed.

When discussing the individual criteria and their sub-items, we found that there are criteria that are covered by almost the entire self-injuring sample. We believe that this is due to the general validity of the sub-item and is a widely accepted, universal characteristic of self-injurious behaviour. There is a tendency for some of the diagnostic questions to be formulated too broadly or not specific enough and thus predispose to over-inclusion of individuals in the potentially diagnostic group. These are criteria B and C, which can be perceived as generic for non-suicidal self-injury, and in our opinion are relatively poorly informative from a diagnostic point of view since they are semantically overlapping. Due to this fact, it is not surprising that in the cluster analysis a higher percentage of individuals fell into group 1, which would be more inclined to receive a diagnosis of NSSID. In summary, what we can conclude from the cluster analysis is that there are characteristics of NSSI, which considerably differentiate individuals by the level of clinical significance of their self-injury.

We examined the groups obtained from the cluster analysis using the Chi-square test for independence to find out whether there is a relationship between cluster membership and certain characteristics of the NSSI. We first examined the existence of an association between cluster membership and NSSI-related relief and pain experiences. A statistically significant association ($p = 0.002$, Fisher's exact test) was found with respect to experience of relief after self-injury, with 78.9% ($N = 30$) of Cluster 1 reporting that they "sometimes" or more often feel relief after self-injury, while only five ($N = 5$) of the individuals in Cluster 2 reported similar relief. No statistically significant association was found for presence of pain during NSSI ($p = .193$, Fisher's exact test).

Table 40. Crosstab. Association between cluster membership and feeling of relief after NSSI

			Do you feel relief after self-injuring?					Total
			0 - never	1	2 - sometimes	3	4 - always	
Two-step cluster number	1	Count	3	5	17	6	7	38
		% within cluster	7.9%	13.2%	44.7%	15.8%	18.4%	100.0%
	2	Count	9	1	4	1	0	15
		% within cluster	60.0%	6.7%	26.7%	6.7%	.0%	100.0%
Total		Count	12	6	21	7	7	53
		% within cluster	22.6%	11.3%	39.6%	13.2%	13.2%	100.0%

Table 40.1 Chi-square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	17.623 ^a	4	.001	.001		
Likelihood Ratio	18.058	4	.001	.002		
Fisher's Exact Test	15.056			.002		
Linear-by-Linear Association	13.199 ^b	1	.000	.000	.000	.000
N of Valid Cases	53					

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 1.70.

b. The standardized statistic is -3.633.

Table 40.2 Symmetric measures

	Value	Approx. Sig.	Exact Sig.
Nominal by Nominal Phi	.577	.001	.001
Cramer's V	.577	.001	.001
N of Valid Cases	53		

Of interest to us was how the participants perceived their desire to self-injure depending on their cluster membership. A statistically significant relationship was found between cluster membership and experiencing the desire for NSSI as distressing - 71.1% of individuals in Cluster 1 (N = 27) confirmed that "sometimes" and more often they perceive their desire as distressing. An intrusive desire to self-injure was reported by 68.5% of individuals in Cluster 1 (N = 26), which was also statistically significant. No significant relationship was found with regard to cluster membership and the perception of self-injury urge as comforting.

Table 41. Subjective perception of urge to injure yourself

	Cluster membership
The urge is distressing / upsetting	P = 0.001** FET
The urge is intrusive / invasive	P = 0.001** FET
The urge is comforting	P =0.137

From the independence tests conducted, we observe that Cluster 1, where individuals are more likely to meet the criteria for diagnosis, has higher levels of perceived distress from their urge to self-injure. With statistical significance, we found that most individuals experience the desire to self-harm as intrusive and distressing, while at the same time experiencing significantly more difficult-to-control thoughts of self-injury. We could conclude that the desire and the inability to postpone the urge to self-harm are ego-dystonic experiences for the individual. Further research is needed to clarify the relationship between these aspects.

The data presented so far show that functional impairments from non-suicidal self-injury have low overall support from the majority of self-injurers, but such dysfunctions do exist. It can be assumed that individuals reporting higher levels of functional impairment are marked by a more severe and potentially diagnosable NSSI. In this regard, it is important to screen and monitor individuals who report dysfunction. We analyzed the relationship between cluster membership and criterion E of the NSSIDS for "Functional Disturbances". A statistically significant association was found between cluster membership and the assessed three domains of dysfunction- conflicts with others ($p = 0.002$), academic troubles ($p = 0.046$) and negative impact on other areas of the adolescent's life ($p = 0.002$). The tables show that none of the individuals included in Cluster 2 (non-diagnostic) answered positively to a question about functional disturbances due to NSSI.

Table 42. Crosstab. Association between functional impairment and cluster membership

			NSSI causes conflict with others		Total
			No	Yes	
Cluster number	1 (NSSID)	Count	21	17	38
		% within cluster	58.3%	100.0%	71.7%
	2 (non-diagnostic)	Count	15	0	15
		% within cluster	41.7%	.0%	28.3%
Total		Count	36	17	53
		% within cluster	100.0%	100.0%	100.0%

Table 42.1. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	9.879 ^a	1	.002	.002
Continuity Correction ^b	7.933	1	.005	
Likelihood Ratio	14.251	1	.000	.001
Fisher's Exact Test				.001
Linear-by-Linear Association	9.693 ^c	1	.002	.002
N of Valid Cases	53			

Table 43. Crosstab. Association between cluster membership and academic difficulties due to NSSI

			NSSI causes academic difficulties		Total
			No	Yes	
Cluster number	1 (NSSID)	Count	28	10	38
		% within cluster	65.1%	100.0%	71.7%
	2 (non-diagnostic)	Count	15	0	15
		% within cluster	34.9%	.0%	28.3%
Total		Count	43	10	53
		% within cluster	100.0%	100.0%	100.0%

Table 43.1 Chi-square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	4.865 ^a	1	.027	.046
Continuity Correction ^b	3.298	1	.069	
Likelihood Ratio	7.535	1	.006	.027
Fisher's Exact Test				.046
Linear-by-Linear Association	4.774 ^c	1	.029	.046
N of Valid Cases	53			

Table 44. Crosstab. Association between cluster membership and other difficulties due to NSSI

			NSSI causes difficulties in other areas of life		Total
			No	Yes	
Cluster number	1 (NSSID)	Count	22	16	38
		% within cluster	59.5%	100.0%	71.7%
	2 (non-diagnostic)	Count	15	0	15
		% within cluster	40.5%	.0%	28.3%
Total		Count	37	16	53
		% within cluster	100%	100.0%	100.0%

Table 44.1. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	9.047 ^a	1	.003	.002
Continuity Correction ^b	7.159	1	.007	
Likelihood Ratio	13.192	1	.000	.002
Fisher's Exact Test				.002
Linear-by-Linear Association	8.876 ^c	1	.003	.002
N of Valid Cases	53			

6. RESULTS RELATED TO THE COURSE AND PROGRESSION OF NSSI. NSSI AS AN ADDICTIVE BEHAVIOUR

The questionnaire included 7 questions related to the tendency for progression and the course of non-suicidal self-injury. To assess the progression of non-suicidal self-injury, a frequency analysis of the questions related to the worsening of non-suicidal self-injury was performed. The results show that 25.9% report an increase in the frequency in self-injury; 42.6% report intensification of injuries; 20.4% report an increase in frequency and intensification of self-injury to achieve the same effect; 31.5% report spending significant time planning self-injuring behaviours; 24.1% report inability to stop the behaviour, despite their wish to do so, and 53.7% continued the self-harming behaviour, despite the perceived negative consequences; 35.2% report neglecting duties and relationships on account of self-injury.

Table 45. Since you started to self-injure, have you found that the self-injurious behaviour occurs more often than intended?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	14	25.9	26.4	26.4
	No	39	72.2	73.6	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total		54	100.0		

Table 46. Since you started to self-injure, have you found that the severity in which the self-injurious behaviour occurs has increased (e.g., deeper cuts, more extensive parts of your body)?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	23	42.6	43.4	43.4
	No	30	55.6	56.6	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Table 47. Since you started to self-injure, have you found that if the self-injurious behaviour produced an effect when started, you now need to self-injure more frequently or with greater intensity to produce the same effect?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	11	20.4	20.8	20.8
	No	42	77.8	79.2	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Table 48. Since you started to self-injure, have you found that this behaviour or thinking about it consumes a significant amount of your time (e.g., planning and thinking about it, collecting and hiding sharp objects, doing it and recovering from it)?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	17	31.5	32.1	32.1
	No	36	66.7	67.9	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Table 49. Since you started to self-injure, have you found that despite a desire to cut down or control this behaviour, you are unable to do so?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	13	24.1	24.5	24.5
	No	40	74.1	75.5	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Table 50. Since you started to self-injure, have you found that you continue this behaviour despite recognizing that it is harmful to you physically and/or emotionally?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	29	53.7	54.7	54.7
	No	24	44.4	45.3	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

Table 51. Since you started to self-injure, have you found that important social, family, academic or recreational activities are given up or reduced because of this behaviour?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes	19	35.2	35.8	35.8
	No	34	63.0	64.2	100.0
	Total	53	98.1	100.0	
Missing		1	1.9		
Total			100.0		

An interesting conceptualization of the nature of NSSI is related to its understanding as potentially addictive behaviour. This hypothesis is not new, and as early as the 1990s, there was evidence that self-injurious behaviours shared common features with addictive behaviours, namely that they were experienced as "coercive" and "relieving" by the affected individual (Tantam & Whittaker, 1992). In this early period, one theoretical rationale for the perception of NSSI as an addictive behaviour proposed by Faye (Faye, 1995) stands out. The author of the proposed addictive model compares the increasing negative emotions immediately before the act of self-injury with the unpleasant withdrawal symptoms experienced by dependent individuals.

There are newer scientific reports that build a clear link between non-suicidal self-injury and addictive behaviours (Buser & Buser, 2013; Nixon et al., 2002; Victor et al., 2012). The questions in the "Addictive features" section of the OSI tool explore implicitly the addictive traits of non-suicidal self-injury. Addiction as a pathological behaviour is characterized by the following symptoms, which are the core of the diagnostic criteria of the individual disorders:

- strong desire to take the substance;
- difficult control over intake;
- continuation of use despite the presence of harmful effects;
- giving priority to the intake of the substance over other types of activity and commitments;
- increased tolerance;
- sometimes a physiological state of abstinence.

The results we found shed light on such a possible association, as the largest percentage of our sample (53.7%), report continuing self-injurious behaviours, despite the perceived negative consequences to their own emotional / physical health. Approximately 1/5 of the individuals (20.4%) report that to achieve the same effect (NSSI to serve its functions) it is necessary to injure themselves more often and more seriously. These data resonate with another characteristic found in individuals with addiction, namely increased tolerance. A significant percentage (42.6%) also reported a deepening of the severity of self-injuries, which indicates a lack of control over the behaviour. In support of this statement is another

question that directly assesses the violated control, as 24.1% reported an inability to reduce their self-harm, despite their desire. More than 1/3 report neglect of important aspects of life for the individual at the expense of self-harm.

In the DSM-5 criteria for NSSID, there are conditions that bring attention to the presence of habituality and compulsiveness in the occurrence of non-suicidal self-injurious behaviours, which are characteristic of addictive behaviours. Criterion A of NSSID requires the behaviour to occur 5 or more times in the last year, and empirically established data indicate even higher values than this. In a narrower interpretation of the word “compulsiveness”, DSM-IV-TR (APA, 2000) describes compulsions as habitual behaviours that are precipitated by a desire to avoid or alleviate negative emotional states. In this sense, two conditions laid down in the NSSID criteria open up a field for reflection on possible unifying bridges between self-injurious and dependent behaviours, noting that NSSI is usually immediately preceded by negative feelings or is engaged in to eliminate negative emotional states.

In the conceptualization of NSSI, considerable attention is paid to the role of impulsivity, which is seen as an important and sometimes integral feature of non-suicidal self-injury and substance use (Anestis et al., 2014; Herpertz et al., 1997). Various researchers have found that impulsivity is involved as a distal risk factor for the development of self-injurious and suicidal behaviours in individuals with addiction (Roy, 2003).

A 2017 study among Turkish hospitalized patients (inpatient and day-in-hospital settings) for the treatment of substance-related disorders found that 52% of individuals reported non-suicidal self-injury (Guvendeger Doksat et al., 2017). The results of this study show that, depending on the substance used, the highest percentage of comorbid presence of NSSI is observed among the group of individuals abusing benzodiazepines (73.60%).

Although there has been more recent interest in the relationship between NSSI and addictive behaviours in adolescence, available empirical research on the subject is limited. One of the most extensive studies conducted by Nixon was conducted in a clinical setting among a population of patients with self-injury and a diagnosis of Borderline Personality Disorder (Nixon et al., 2002), and it is not known whether the findings are applicable to the general population. A 2008 study by Whitlock, Muehlenkamp, and Eckenrod found a 13.4% prevalence of NSSI among university students, with students divided into three groups according to the severity of the NSSI (Whitlock et al., 2008). The data show that the subgroup of individuals with the most severe course is significantly more likely to perceive their self-injury as addictive, with the severity of the course determined by multiple methods of self-harm, serious injuries to the integrity of the skin, and NSSI in the past year.

Critical assessment of apparent similarities is needed because there are important aspects that distinguish self-injury and addictive behaviours. There are many specific reasons and motivations for engaging either behaviour, but the great variety could be reduced to the type of reinforcement that underlies the maintenance of the behaviour. The observation that addictive and self-injurious behaviours differ in the main type of reinforcement has been cautiously pointed out (Victor et al., 2012). Prolonged drug use in addictive disorders is sustained by hedonistic experiences following intake of the substance, i.e., mechanisms of

positive reinforcement are at play. Non-suicidal self-injury is largely supported by negative reinforcement mechanisms, i.e., unpleasant, or unwanted emotional and cognitive states are avoided.

The presented data draw attention to the probable existence of another view of the nature of non-suicidal self-injury as an addictive behaviour. At this stage, there is no definite data confirming or refuting this hypothesis. The relevance of our results is evident given that more signs of addiction are associated with a higher frequency of NSSI behaviours (Martin et al, 2013, Nixon et al, 2015) and a longer duration over time (Martin et al, 2013, Nixon et al, 2002, Whitlock et al, 2008).

In order to identify groups of individuals with a more serious course and likelihood of having "addictive" features, regardless of the presence of a diagnosis, a two-step cluster analysis was performed. Two clusters with the following distribution were identified: Cluster 1, in which no progression or exacerbation of the course of self-injury was observed, and Cluster 2, where the participants gave more positive answers to the questions regarding worsening of the severity of and the presence of addictive features.

Figure 4. Two-step cluster analysis. Progression of NSSI over time.

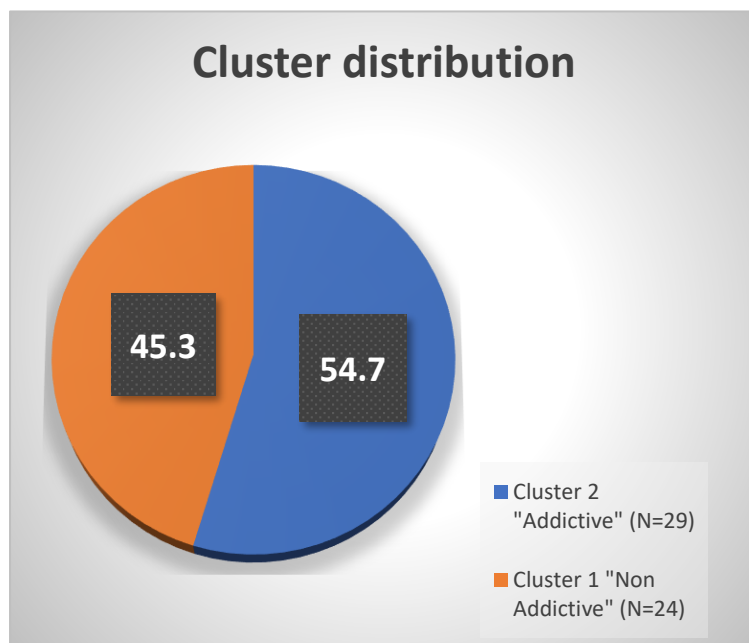


Table 52. Cluster comparison

	„Addictive features” Cluster 2 (N=29)	„No addictive features” Cluster 1 (N=24)
Since you started to self-injure, have you found that you continue this behaviour despite recognizing that it is harmful to you physically and/or	YES ✓ 89.66%	NO ✓ 87.5% N=21

emotionally?	N=26	
Since you started to self-injure, have you found that the severity in which the self-injurious behaviour occurs has increased (e.g., deeper cuts, more extensive parts of your body)?	YES ✓ 75.86% N=22	NO ✓ 95.83 % N=23
Since you started to self-injure, have you found that this behaviour or thinking about it consumes a significant amount of your time (e.g., planning and thinking about it, collecting and hiding sharp objects, doing it and recovering from it)?	YES ✓ 58.62% N=17	NO ✓ 100% N=24
Since you started to self-injure, have you found that important social, family, academic or recreational activities are given up or reduced because of this behaviour?	YES ✓ 62.07% N=18	NO ✓ 95.83% N=23
Since you started to self-injure, have you found that the self-injurious behaviour occurs more often than intended?	YES ✓ 51.72% N=15	NO ✓ 100% N=24
Since you started to self-injure, have you found that if the self-injurious behaviour produced an effect when started, you now need to self-injure more frequently or with greater intensity to produce the same effect?	YES ✓ 62.07% N=18	NO ✓ 100% N=24
Since you started to self-injure, have you found that despite a desire to cut down or control this behaviour, you are unable to do so?	YES ✓ 58.62% N=17	NO ✓ 95.83% N=23

The questions in the table are given in descending order of their calculated predictor importance. From the analysis we could conclude that the level of awareness of the problem is the main dividing line between the two clusters. This is somewhat at odds with the low reported values of questions related to functional impairments resulting from NSSI. Individuals may be aware that they are harming their bodies on a physical level, and it may be detrimental to their health, but may not be able to see how self-injurious behaviours affect their overall functioning in society (emotional, cognitive, academic, social). We could speculate that these are two separate points that characterize non-suicidal self-injury - how the individual perceives the influence of NSSI on himself and how he perceives its influence on his life.

A Chi-square test for independence was performed between the groups obtained from the two cluster analyzes - diagnostic and for severity of progression ($\chi^2(1, 53) = 10.177, p = 0.001, \phi$

= .438). A strong statistical association was found - individuals who are more likely to fall into the diagnostic cluster are also more likely to have a more severe course and progression.

The presence of addictive features could be used to identify a diagnosis of Non-suicidal self-injury disorder or to look for the coexistence of two separate disorders - a diagnosis of NSSIDS and dependency.

7. CORRELATION ANALYSIS

Given the importance of certain factors for the diagnosis and course of NSSI, a correlation analysis was performed to reveal possible relationships that could serve to further clarify the behaviour.

1 / Non-suicidal self-injury in the past (5 episodes for a period of a year before the last) is negatively correlated with the NSSI function "to create positive feelings". Probably longstanding engagement in NSSI is sustained by other mechanisms, while creating positive feelings serves a short-term or rapid satisfaction of needs through NSSI.

2 / NSSI in the past is positively correlated with the two questions assessing the urge for NSSI (impulse) and the individual's preoccupation with thoughts about this behaviour. The interpretation of these correlations is that most likely the principal distinguishing features of NSSI (impulse and preoccupation) take part in its continuance, i.e., inability to restrain it over time.

Table 53. Correlation analysis "NSSI in the past"

		NSSI to create positive feelings	Interpersonal difficulties prior to NSSI	Preoccupation with NSSI before self-injuring	Thoughts about NSSI when not engaging in it
NSSI in the past	Pearson Correlation	-.379**	.288*	.352**	.344*
	Sig. (2-tailed)	.005	.034	.009	.011
	N	54	54	54	54

V. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Epidemiological studies conducted in the general population are valuable because they provide undiluted information regarding the studies topic, with minimal errors resulting from sample selection. The cooperation of individuals, which to some extent depends on their level of understanding of the topic, could also vary with the age of the participants. Working with adolescents is generally characterized by specifics that modify and require adaptation of the work process. In our study, we encountered several challenges that we believe are important and have influenced the results we have obtained.

1. The survey was conducted in schools, and access to the educational institution was provided by the Regional Department of Education (RDE) and the principals of the respective high schools. The RDE was willing to cooperate, given the sensitivity of the research topic. Significant negativism and scepticism was met by school principals. Among the arguments cited as the reason for "inability to conduct the survey on the territory of the high school" were "concern about the reaction of parents", "inability to devote the necessary time and staff", "the presence of more important regular educational activities", "conducting another recent survey", "sensitivity of the research topic".

Despite repeated meetings with principals, psychologists, and other school staff, several schools refused to participate in our study.

2. The study coincided with the declared emergency epidemic situation in the country, which prevented meetings with parents to explain the nature and objectives of the study. Undoubtedly a limitation in the recruitment of participants was the high rate of parental refusal. We do not have exact data on the specific reasons for parents to refuse their children's participation in the study, but we believe the stigma associated with non-suicidal self-injury has contributed significantly to the final outcome. Non-suicidal self-injury is accompanied by misinformation, avoidance and even refusal to understand or discuss it openly, which creates a frightening and defensive feeling in parents, teachers and students. As a society and a culture, there is a tendency among us not to discuss uncomfortable and unclear topics such as non-suicidal self-injury. The inability to conceptualize this behaviour provides a convenient opportunity to omit it when discussing other problematic behaviours, typical of adolescence and inherent in the psychoeducation conducted in schools. At this stage, risky behaviours such as alcohol and substance use, eating disorders, violence among students, promiscuity and risky sexual behaviour are openly discussed. It is not clear why, however, given its widespread occurrence, non-suicidal self-injury remains out of the spotlight. Difficulties in conducting a large-scale survey in the community to show the real scope of the issue further complicate bringing it before school and other authorities, which determine the risky behaviours discussed in class.

3. The requirement of parental informed consent reveals the existence of non-suicidal self-injury as a behaviour and thus raises the topic within the family. It is not known how this topic is discussed among the families - with understanding, condemnation, contempt, excessive anxiety and overreaction? This discussion could lead to changes in a positive direction, but at the same time it could lead to denial of the problem by adolescents, and thus

to parental refusal due to lack of a problem. Another option is for the authoritarian parent to refuse participation because of the inability to permit the existence of such behaviour in the child. It is not within the author's competence to speculate on parental motives, but to shed light on the possible reasons for low parental consent.

4. The willingness and consent of adolescents to participate is no less important than parental informed consent. The distribution of the questionnaires was carried out by the class teachers, who were supposed to explain the aim and objectives of the study. Similar to the difficulties already mentioned above, teachers' commitment to an adequate and comprehensive explanation and motivated encouragement to participate is unknown and questionable. The inability for a personal visit by the researcher to each class is considered a disadvantage for the compliance of the adolescents in the survey.

5. The epidemiological study did not screen for psychiatric comorbidity, and the coexistence of non-suicidal self-injury with another pathology that would aggravate its course is unknown.

We believe that more extensive future research is needed on the subject to overcome these limitations. From the obtained results we can assume that there are valid reasons for the open discussion of non-suicidal self-injury in schools, as well as introducing psychoeducation among parents and adolescents.

Future directions for research and work:

1. Improving and personalizing approaches to working with vulnerable groups of adolescents exhibiting risky behaviours: The presence of a diagnosis of Non-suicidal self-injury disorder should be justified as a high-risk condition requiring screening for suicidal ideation and intention due to its importance as a predictive factor for suicide attempts.

2. Research into and identification of comorbid conditions in the adolescent population diagnosed with Non-suicidal self-injury disorder.

3. Assess the personality characteristics of individuals presenting with addictive features and search for other addictive behaviours that pose a risk of severe pathology.

VI. SUMMARY

For researchers dedicated to concerning and risky behaviours in adolescence, non-suicidal self-injury is the subject of intensive and intriguing research. The overview of the literature shows that knowledge is constantly being upgraded and new models of conceptualization are being developed in line with advances in science. Most Western countries have epidemiological studies that lay the foundation for up-to-date and focused research on a specific issue of non-suicidal self-injurious behaviour. Our country did not have such a study, so we wanted to lay the foundations for future research on the subject. The terms and definitions used in our study correspond to the generally accepted and established as the most accurate and inherent in this behaviour. From our overall results it is clear that the definition of NSSI, which is presented to each participant in the informed consent to participate, is clear, understandable and includes valid behaviours of non-suicidal self-injury and does not include other peripheral methods of self-harm discussed.

In our epidemiological cross-sectional study among adolescents in high school in the city of Varna, we aimed to assess the prevalence and main characteristics of non-suicidal self-injury. To achieve this goal, we applied the criteria proposed by DSM-5 for the diagnosis of Non-suicidal self-injury disorder (NSSID), as well as additional questions, creating a hybrid and adapted to our population questionnaire.

We found a 20.2% prevalence of self-injurious behaviours and thoughts in the population. Our data correspond to the results of international epidemiological population studies among adolescents. Consistency of the data implies constancy of the problem in time and its topicality, which require its in-depth understanding. Our expectations were that in the group of self-injuring individuals there would be people with different severity of self-injury and that an additional subdivision of adolescents would be needed to better understand the problem. Females were more represented in the sample of self-harming individuals, as well as in the general population of adolescents who participated in the study. The research population consists of four secondary schools with different profiles of education in a large Bulgarian city, which we consider to be a representative sample for this age group and for a large Bulgarian city.

The last 10 years have seen a growing interest in the study of this behaviour and efforts have been made to certify non-suicidal self-injury as its own clinical diagnosis. The methods of assessment and analysis of non-suicidal self-injury are many and varied, mainly self-assessment tools have been developed, assessing the frequency, methods, functions, and precursors of NSSI. There is no comprehensive tool, which is why several tools are often combined to achieve a complete picture.

Therefore, among the tasks of the present work was the application of a hybrid questionnaire, adapted for the Bulgarian population, developed not only for the detection of NSSI among adolescents, but also for the detection of groups with more severe and clinically significant behaviour. To accomplish this task, the DSM-5 diagnostic criteria for Non-Suicidal Self-Injury Disorder were translated for the first time, as well as a scale created based on these criteria - NSSIDS, according to the rules of scientific translation.

When applying the diagnostic questionnaire, we first examined the presence of diagnostically significant non-suicidal self-injury among the sample of self-injuring adolescents. The application of the proposed criteria from the fifth revision of the DSM revealed to us that 12 individuals, or 22.2%, met all 6 criteria necessary for a diagnosis of NSSID. Of the total population of adolescents who took part in the epidemiological study, this is 4.49%. Our data confirm and support international efforts to collect epidemiological data on the prevalence of NSSID, which cite values ranging from 5.6% to 7.6% among adolescents, and lower values in adults $\approx 3\%$ (Andover, 2014; Buelens et al., 2020; Zetterqvist, 2015).

The examination of the individual criteria led us to factors that are distinctive and central to non-suicidal self-injury and others, which are more broad or peripheral, and therefore carry little diagnostic information. At the same time, the analysis of the individual criteria revealed which of them stand out with low prevalence and, probably, low applicability to our conditions.

We found that criterion B and aspects of criterion C stand out with strong endorsement from almost all self-harming individuals. Studies have found significant overlap between sub-items in the two respective criteria (Buelens et al., 2020). Due to this high fulfilment of the criteria and their semantic similarity, we do not perceive their division as justified. Their salience regarding the distinction between diagnostic and non-diagnostic NSSID is weak and we believe that the criteria need to be revised and modified. There are criteria that have low empirical support, regardless of the source of the study or the methodology used. Aspects of non-suicidal self-injury associated with functional impairments of any kind stand out with low support from adolescents. We perceive these data as evidence of the subjective benefits that the NSSI brings and the inability of the individual to objectively assess the negative consequences on functioning. Our results indicate that individuals who are more likely to meet the diagnostic criteria for NSSID are those who experience the most distress from self-injurious behaviours. From the analysis of criteria B and C, we found that affect regulation, which is the most widely studied function of NSSI in theoretical models and empirical research is also the most predominant in our sample.

The variety of self-harming methods has been a significant barrier to the clear conceptualization of NSSI, given the wide range of possible behaviours. A sign of parity could not be placed between all of them due to differences in the severity of the injury and the possible lethality that some of them carry. In our sample, the most commonly used method of self-injury is cutting, which corresponds to what has been reported in other literature on the subject. The established sex differences in the preferred method of self-injury also correspond to the data from foreign studies. Women are more likely to resort to self-cutting, and men prefer hitting as a method of self-injury. This is important in the context of counselling and working with adolescents with problematic or risky behaviours - knowledge of the specifics of NSSI in both sexes allows a more focused assessment for possible non-suicidal self-injury.

The percentage of people with diagnostically significant non-suicidal self-injury carries valuable information, but the group of self-harming individuals is significantly larger and needs additional attention and assessment. Our cluster analysis revealed the presence of two

clusters differing in the degree of coverage of the diagnostic criteria, and respectively, the degree of seriousness. We perceive the diagnostic cluster as a high-risk group of individuals who must be identified and monitored for deepening and progression of the self-injury.

Due to the notable empirical and theoretical data on the conceptualization of NSSI as an addictive behaviour, we set ourselves the task to study the progression of NSSI and assess its features inherent to dependence. Our results support the thesis that among certain individuals non-suicidal self-injury could be considered a form of addictive behaviour. Not surprisingly, there is a significant association between individuals who are likely to meet the diagnostic criteria for NSSID and individuals who perceive their behaviour as highly addictive.

In addition to the highlighted findings, which provide guidance for the development of screening tools and opportunities for improved detection of vulnerable adolescents, our study also highlights the distinctive features of non-suicidal self-injury. Our data show that difficult-to-control thoughts and behaviours of self-harm are the most prominent factors that distinguish between individuals with milder and more severe forms of NSSI. The endurance for self-injury in time is also relevant to the severity of the behaviour. It is no coincidence that individuals who report a longer period of self-injury (a period of 5 separate days in the year before the previous one) are those in whom the features of addictive behaviour are more pronounced.

In our opinion, when studying any relatively new phenomenon for our population, it is appropriate to obtain information on the opinions of the participants about how they could be helped. Our results from the final section of the questionnaire aim to reveal how adolescents would like to be helped, which is important for building trust and a therapeutic relationship, and compliance when working with them. It is important to note that no participant perceives school counselling as a possible method of support and / or help, and we believe that efforts should be made to change this attitude among students.

The conducted epidemiological study provides empirical evidence for the existence of a serious and concerning behaviour characteristic of adolescence. The results establish features of non-suicidal self-injury, which could find practical application in the daily lives of specialists engaged in ensuring the psycho-emotional health of this age group. These characteristics support the uniqueness of non-suicidal self-injury as a diagnosis with its own clinical significance and in need of its own therapeutic approach, which has not been developed at this stage.

VII. CONCLUSIONS

1. Based on the epidemiological study on non-suicidal self-injury, we found that this to be a phenomenon with significant prevalence among adolescents in the city of Varna, and its frequency corresponds to that observed in other populations in Europe and the world.
2. A hybrid questionnaire adapted to the Bulgarian population, based on Non-suicidal self-injury disorder scale (NSSIDS) and Ottawa Self-Injury Inventory (OSI) for severity and progression of non-suicidal self-injury, was successfully developed and applied in the epidemiological study.
3. The NSSI diagnostic questionnaire is a reliable tool for identifying a subgroup of individuals meeting the criteria for the disorder. Possible aspects for optimization:
 - 3.1 In criterion A, for more precise differentiation between individuals with self-injury of diagnostic significance and individuals with a milder course, it is appropriate to increase the number of episodes to more than 5 as a threshold to meet the criterion.
 - 3.2 Criterion B is interpreted as poorly informative in diagnostic terms. The functions set out in the scale are limited and do not cover other common motives (functions) of non-suicidal self-injury.
 - 3.3 For complete and successful application in the Bulgarian population it is appropriate to eliminate questions with low diagnostic significance.
4. Cutting is the most common method of self-injury among the observed sample, although there are differences between self-injuring girls and boys - cutting is the most common among females, and in males hitting is the most common method of self-injury.
5. The presence of thoughts or desire for self-harm is not statistically correlated with either sex, but the engagement in behaviours of non-suicidal self-injury correlates positively with the female sex.
6. Non-suicidal self-injury is observed approximately twice as often among females, compared to males, in the studied sample of the Bulgarian adolescent population and this corresponds to what is reported in the scientific literature and is in line with our expectations.
7. The reasons for engaging in non-suicidal self-injurious actions are diverse and strictly personal, but the leading function is for intrapersonal reasons, while interpersonal functions are more limited.
8. In most cases, self-injury is not a behaviour "copied" or "borrowed" from another source but results from an idea of the individual himself.
9. The isolated presence of thoughts and desire for non-suicidal self-injury does not serve a function in itself without the presence of behaviours of self-injury, which complicates their clinical interpretation.
10. Self-injuring individuals are more aware of the consequences of NSSI affecting their interpersonal relationships than of the effects on academic performance.
11. The coexistence of several specific features of NSSI increases the likelihood that individuals will meet the criteria for diagnostically significant non-suicidal self-injury

- individuals with a strong urge to self-harm, longstanding NSSI, more pronounced interpersonal influences resulting from self-injury and preoccupation with NSSI are more likely to be diagnosed with RNSS.

- 12.** Individuals in the non-diagnostic cluster (with a milder course) do not have functional disturbances resulting from non-suicidal self-injury.
- 13.** Among some individuals, non-suicidal self-injury can be considered an addictive behaviour, exhibiting most of the features necessary for a clinical diagnosis of "Dependency".
- 14.** Learning and applying mechanisms to cope with difficult situations (rejection, failure) could reduce the occurrence of non-suicidal self-injury in such situations.
- 15.** The conduct of a school-based survey is characterized by a number of limitations uncharacteristic of other epidemiological surveys conducted among adults or in other settings.

VIII. CONTRIBUTIONS

The contributions of the dissertation can be divided into theoretical and applied.

Theoretical with original character:

- The frequency and characteristics of non-suicidal self-injury in adolescence in the Bulgarian urban population were studied, and we assume that the existence and identification of a clinically significant disorder of non-suicidal self-injury is justified.
- Factors have been identified to distinguish individuals with more severe non-suicidal self-injury.
- Significant correlations between the degree of severity of NSSI and the degree of functional disorders in the daily lives of adolescents are uncovered.
- For the first time in our scientific literature, the topic of non-suicidal self-injury as a form of addictive behaviour among adolescents has been raised and discussed.

Theoretical contributions of a confirmatory nature:

- Based on observations in the Bulgarian population, the main methods of self-harm, existing sex differences, preceding and provoking events and functions of NSSI have been confirmed.
- An analysis of the psychometric properties proving the validity and reliability of the instrument "Non-suicidal self-injury disorder scale" (NSSIDS) was performed.

Contributions of an applied nature:

- An epidemiological study of NSSI among adolescents was carried out using the DSM-5 diagnostic criteria for NSSID.
- A new methodology / questionnaire for diagnosing individuals with NSSID - Non-suicidal self-injury disorder scale (NSSIDS) was applied in the Bulgarian population.
- The addictive features of non-suicidal self-injury are studied and possibilities for screening in the population of self-injurers for the possible existence of other addictive behaviours are revealed.

IX. PUBLICATIONS RELATED TO THE DISSERTATION

1. R. Dimitrova, Non-suicidal self-harm as a form of addictive behaviour. E-Journal VFU, 2021, no.16
2. R. Dimitrova, Zl. Stoyanov, P. Petrov, G. Radkova. Non-suicidal self-injury: application of ISAS and ABASI / ABUSI in a non-clinical population of adolescents, Bulgarian Journal of Psychiatry, 2020, vol.5 (1).
3. R. Dimitrova, G. Radkova, Zl. Stoyanov, P. Petrov. First results from the application of ISAS and ABASI / ABUSI in a study of non-suicidal self-injury among students in Varna. Notices of the Union of Scientists - Varna. Medicine and Ecology Series. 1'2019; 24: 85-89