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RESEARCH ARTICLE

Adolescents' Perceptions About Non-Suicidal Self-Injury, Suicidal Ideation and Suicide Attempts

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Introduction: Non-suicidal self-injury, suicidal thoughts and behaviors present high prevalence rates in adolescence.
Aims: This study aimed to describe adolescents' perceptions about these phenomena, and to analyze and compare the differences of these perceptions among adolescents with and without a history of non-suicidal self-injury, suicidal ideation, and suicide attempts.
Methods: The convenience sample consisted of 452 adolescents in ages between 12 and 18 (M(*SD*) = 15.59(1.50), 48% male and 52% female. For data collection, the Free Association Test was used in a survey, and data was analyzed through content analysis.
Results: Results showed that 10.8% of the participants presented a history of non-suicidal self-injury, 19.9% suicidal ideation, and 2.7% suicide attempts. Perceptions were grouped into eight dimensions: Consumption of Psychoactive Substances; Death/Suicide; Interpersonal Factors; Intrapersonal Factors; Moral Judgments; Negative Emotions; Psychological Functions; and Self-Injurious Methods. Further analysis revealed that adolescents with and without a history of non-suicidal self-injury, suicidal ideation, and suicide attempts presented differences in their perceptions of these phenomena.
Conclusions: These findings contribute to the understanding regarding the perceptions of adolescents about these phenomena and might have implications regarding their prevention and intervention.

Keywords: adolescence, non-suicidal self-injury, suicidal ideation, suicide attempts, free word association

Introduction

Over the past few decades, there has been an increase in the prevalence of suicidal thoughts and behaviors (STBs) among adolescents, including suicidal ideation (SI; Azevedo & Matos, 2014; Werlang et al., 2005) and suicide attempts (SAs; Bilsen, 2018; Evans et al., 2017). Likewise, research suggests that the prevalence of non-suicidal self-injury (NSSI) has also been growing in adolescents (Muehlenkamp et al., 2012; Zetterqvist et al., 2021). Although differentiated phenomena, NSSI and STBs usually co-occur, and evidence points to a shared continuum of self-harm (Knorr et al., 2019; Rogers et al., 2018; Webb, 2002).

In Portugal, NSSI prevalence in adolescence ranges from 20.3% to 34.5% (Carvalho et al., 2017; Gaspar et al., 2019; Gonçalves et al., 2012; Nobre-Lima et al., 2018), SI prevalence oscillates between 10.7% and 22% (Azevedo & Matos, 2014; Carvalho et al., 2017; Pereira & Cardoso, 2015), and about 7% of adolescents report

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having attempted suicide (Oliveira et al., 2001; Sampaio et al., 2000). These rates are identical to those found in international studies that focused on adolescents: 7.5-46.5% NSSI (Cipriano et al., 2017), 8.1- 16.9% SI (Biswas et al., 2020; Georgiades et al., 2019; Sampasa-Kanyinga et al., 2017; Uddin et al., 2019), and 3- 17% SAs (Georgiades et al., 2019; Sampasa-Kanyinga et al. 2017; Uddin et al., 2019).

NSSI serves a variety of psychological functions, namely intrapersonal (e.g., to escape from aversive states, or generate positive feelings) or interpersonal (e.g., to access help, or to escape from negative social situations) functions (Klonsky, 2007; Nock & Prinstein, 2004). Studies that focused on the perceptions about these functions concluded that individuals without a history of NSSI tend to emphasize interpersonal functions more than those with a history of these behaviors, while their views regarding intrapersonal functions remain similar (Batejan et al., 2015; Duarte, et al., 2019c).

Exploring and characterizing the societal perceptions of NSSI and STBs might contribute to the understanding of these issues (O'Connor & Nock, 2014; Sampaio et al., 2000; Vieira & Coutinho, 2008). It is also important to comprehend whether these perceptions change according to the lived experiences of young people with NSSI and STBs (Grimmond et al, 2019). For instance, previous studies have shown that adolescents with and without a history of deliberate self-harm reveal different representations regarding the functions of these behaviors (Bresin et al., 2013; Duarte et al., 2019b; Duarte et al., 2019c), which indicates that experience influences how this phenomenon is represented. Other studies have found that a more permissive and accepting attitude towards suicide may itself be a risk factor for STBs (Arnautovska & Grad, 2010; Hollinger, 2016; Joe et al., 2007), which underlines the importance of assessing these perceptions.

The adolescent's interpersonal sphere can play an important role in this context, namely regarding the individual's initiative to reveal STBs and NSSI to others, to search for specialized help, and to search for support during follow-up and treatment (Baetens et al., 2015). More specifically, peers can be considered both a risk factor and a protective factor for NSSI and STBs. On the one hand, if peers are aware of the reasons for an adolescent to become involved in STBs, they can definitely promote identifying these behaviors and reducing the associated stigma (Bresin et al., 2013). On the other hand, peers can be a risk factor themselves due to the social contagion effect that may exacerbate or encourage these behaviors within peer groups (Hasking et al., 2015). Furthermore, peers can be relevant agents for developing strategies to prevent STBs (Fortune et al., 2008; Hasking et al., 2015; Schlichthorst et al., 2020; Wasserman et al., 2015). Taking these factors into account, the understanding of the perceptions about NSSI, SI and SA can simultaneously contribute to comprehending the personal experience of these phenomena and to the clarification of how interpersonal relations can be a crucial factor for prevention and intervention.

Therefore, considering the prevalence of NSSI and STBs in adolescence and due to the scarcity of Portuguese studies that focused on adolescents' perceptions about these phenomena, the current study comprises two main goals: 1) to explore and describe the perceptions of adolescents about NSSI, SI and SA by means of free word association; 2) to compare the perceptions of adolescents with and without a history of NSSI, SI and SA. Since this still remains an under-researched topic, the present study follows a qualitative design to allow a deeper analysis of these perceptions.

Methods

Participants

Participants consisted of a convenience sample involving 452 adolescents who studied in public schools located in Portugal's central area. From this total, 48% (217) were male and 52% (235) were female, and their ages ranged between 12 and 18 years old (M(*SD*) = 15.59(1.5)). Participants attended school years between the 7th and 12th grades, with the majority (74.1%) attending secondary school (10th to 12th grades). As shown in Table 1, the lifetime prevalence of NSSI was 10.8% (n = 49), the prevalence of SI was 19.9% (n = 90) and the prevalence of SAs was 2.7% (n = 12). However, these phenomena coexist in some participants: 18 adolescents reported a history of NSSI and SI; one adolescent NSSI and SAs; three participants reported a history of SI and SAs; and seven adolescents revealed a history of NSSI, SI and SAs. Female participants revealed a higher prevalence of these phenomena (Table 1).

Table 1. Participants' gender and history of NSSI, SI and SAs

		Female	Male	Frequency	%
NSSI	With NSSI	42	7	49	10.8%
	Without NSSI	193	210	403	89.2%
SI	With SI	56	34	90	19.9%
	Without SI	179	183	362	80.1%
SAs	With SAss	10	2	12	2.7%
	Without SAs	225	215	440	97.3%

Measures

Considering the goal of the present study, the Free Word Association Test was selected as the method of data collection, since it allows the broad study of perceptions and has been previously used in studies with similar objectives (e.g., Araújo et al., 2010). This instrument consisted of three main questions for each of the study variables (NSSI, SI and SAs). These questions started with a brief introduction in which the variables were presented: "Some adolescents exhibit behaviors in which they intentionally hurt themselves" (NSSI); "Some adolescents have ideas and thoughts about suicide" (SI) and "There are some adolescents who have already made suicide attempts, that is, who tried to commit suicide" (SAs). After each of these introductions, the respondent was asked to write down at least five words that came to mind when they thought of the mentioned phenomena. There was an additional question regarding each of the variables (e.g., "Have you ever tried to commit suicide? At what age?"), which allowed us to assess the previous history of NSSI, SI and SAs. Sociodemographic questions were also applied to collect basic information about the participants' age, sex, and school year.

Since these are sensitive topics, at the end of the questionnaire, several helplines and community contacts were provided. The schools' administration was also given the contacts from the research team in order to allow further communication if any issue arose.

Procedures

Several convenience contacts were made with schools, presenting the research goals and procedures. After the request for cooperation was authorized by the schools' administration, classes were chosen, and the schools' director selected specific dates for data collection. After that, consent forms were given to the legal guardians of the students. In a later phase, the adolescents who had this authorization filled out the questionnaire.

The participants were informed about the voluntary nature of the study, as well as regarding the anonymity and confidentiality throughout the process of data collection and analysis.

Ethical Procedures

The current study integrated a wider research project that aimed to characterize NSSI and STBs in Portuguese adolescents. This project was approved by the General Education Directorate of the Ministry of Education and Science from Portugal during March 2017 concerning the participation of adolescents.

Data Analysis

The participants' sociodemographic data was analyzed using SPSS v25 software. The data collected through the Free Word Association Test were studied using content analysis (Bardin, 2008). This analysis implies the specification of categories that constitute classes grouping elements with common characteristics (Bardin, 2008), allowing to reduce the complexity of the study's themes (Vala, 1999). Thus, each answer elicited through the Free Association Test was considered a coding unit that was further sorted into categories. Two researchers conducted the analysis independently, grouping the coding units into categories framed by the existing literature. In a posterior phase, the resultant sets of analyses were compared and discussed, identifying differences and possible issues in the coding process.

Results

Considering the total of responses given by the adolescents, 4237 coding units emerged (mean of nine units per participant). The coding units were organized into 66 categories, which were then grouped into eight main dimensions. As shown in Table 2, these dimensions comprise: Consumption of Psychoactive Substances (42 coding units and three categories); Death/Suicide (247 coding units and two categories), which refers to issues of consummated suicide and death; Interpersonal Factors (601 coding units and 13 categories), that refers to interpersonal and social variables (e.g. Bullying and Social Isolation); Intrapersonal Factors (775 coding units and five categories), that includes intrapersonal factors such as Depression and Low Self-esteem; Moral Judgments (513 coding units and 11 categories), that includes moral judgments and stereotyped perceptions (e.g. Cowardice and Stupidity); Negative Emotions (1792 coding units and 16 categories); Psychological Functions (92 coding units and three categories) that consist of three types of psychological functions usually associated with DSH; and Self-Injurious Methods (175 coding units and 13 categories).

Overall, the Negative Emotions dimension was the most referenced by the four groups of participants (1790 coding units), followed by the dimensions related to intrapersonal (776 coding units) and interpersonal factors (599 coding units). Focusing on the coding units of each adolescent group, some differences emerged. These differences can be seen mostly between groups of participants with and without a history of NSSI, SI and SA. For instance, only the adolescents who did not report a history of these phenomena mentioned the consumption of psychoactive substances. Similarly, in the dimension concerning self-injurious methods, no coding units were mentioned by adolescents with a history of NSSI and SA. In the Moral Judgments dimension, adolescents without a history of NSSI, SI and SA presented more coding units, particularly regarding NSSI. These differences will be further discussed in detail.

Discussion

To comprehensively discuss results, we will first describe the contents that emerged from our analysis and compare them with information from previous research. Secondly, we will focus on the results from each participant group (i.e., adolescents with and without a history of NSSI, SI and SA) and their comparison. Finally, we will reflect on our results as a whole and on their possible impact on the prevention and intervention of NSSI, SI and SA.

From a global perspective, Negative Emotions was the dimension most mentioned by all groups of participants. In addition, it also revealed a considerable diversity of contents with more than 16 categories, which indicates that emotionality amounts to a great importance in how NSSI, SI and SAs are perceived. It is known that emotions have an influence on the prediction of STBs, namely on the propensity of young people to get involved in these behaviors (Kranzler et al., 2016). Sadness, pain, suffering, and despair were the most mentioned negative emotions, which may also be linked to the idea that STBs are associated with difficulties in the emotional field (Xu, 2020; Wolff et al., 2019). Negative emotionality is also often linked to NSSI, and one of the most reported motivations for engaging in these behaviors is to regulate negative emotions (Klonsky, 2007; Taylor et al., 2019). Thus, NSSI is commonly performed as an emotion regulation strategy, as it decreases the experience of negative affect (Andover & Morris, 2014). Furthermore, a recent study revealed that individuals with a history of NSSI showed greater difficulties in negative emotion reactivity and regulation than the comparison group without a history of NSSI (Mettler et al., 2021).

The two following dimensions with more coding units were Interpersonal and Intrapersonal Factors associated with NSSI, SI and SAs. Regarding interpersonal factors, previous studies found that STBs are associated with social isolation (Calati et al., 2019; Oexle & Ruesch, 2018), bullying and peer rejection (Holt et al., 2015), family issues (Fortune et al., 2008), lack of social support (Stewart et al., 2017) and other interpersonal issues (Bazrafshan et al., 2016; Hawton et al., 2012). Likewise, most intrapersonal factors mentioned by the participants have been previously associated with NSSI, SI and SA, namely depression (Chu et al., 2016; Hegerl, 2016; Wang et al., 2017), low self-esteem (Soto-Sanz et al., 2019), and other psychopathologies (Nock et al., 2013).

Regarding the less mentioned dimensions, the consumption of psychoactive substances has been associated with NSSI and SA (Fortune et al., 2008; Stewart et al., 2017), and it can also be a self-injurious method (Duarte et al., 2019a; Gouveia-Pereira, & Gomes, 2019; Hawton et al., 2003). The psychological functions that were referenced by the participants are in accordance with those described by the literature (e.g., Klonsky, 2007), as well as the several self-injurious methods that can be utilized (Duarte et al., 2019a; Gouveia-Pereira, & Gomes, 2019; Klonsky, 2007; Klonsky et al., 2015).

Table 2. Content analysis (NSSI, SI and SAs) – Percentage (%) and frequency (N) of coding units per group of participants in each dimension

		NSSI		SI		SAs	
Dimensions	Categories	With NSSI	Without NSSI	With SI	Without SI	With SAs	Without SAs
Consumption of Psychoactive Substances	Alcohol	–	0.2 (3)	–	0.2 (2)	–	0.4 (5)
	Drugs	–	1.1 (14)	–	0.2 (3)	–	1.1 (14)
	Smoking	–	0.1 (1)	–	–	–	–
	Total	–	1.4 (18)	–	0.4 (5)	–	1.5 (19)
Death/Suicide	Death	–	–	6 (19)	6.7 (81)	–	6.1 (77)
	Suicide	6 (9)	4.3 (54)	–	0.7 (7)	–	–
	Total	6 (9)	4.3 (54)	6 (19)	7.4 (88)	–	6.1 (77)
Interpersonal Factors	Arguments	1.3 (2)	–	–	–	–	–
	Bullying	5.3 (8)	–	2.5 (8)	2.5 (30)	–	2.8 (35)
	Discrimination	–	0.8 (10)	–	0.5 (6)	–	0.5 (6)
	Family Issues	1.3 (2)	0.7 (9)	0.6 (2)	1.2 (15)	4 (1)	–
	Friends	–	0.5 (6)	1 (3)	–	4 (1)	0.6 (7)
	Lack of Social Support	–	–	1.6 (5)	–	–	–
	Loss of Someone Significant	–	–	–	1 (12)	–	1.2 (15)
	Love Issues	1.3 (2)	0.6 (8)	0.6 (2)	0.4 (5)	–	0.4 (7)
	Rejection	0.7 (1)	0.4 (5)	–	–	–	–
	Social Isolation	8.6 (13)	6.5 (82)	11.5 (36)	6.1 (74)	12 (3)	6.9 (88)
	Social Issues	–	–	–	0.2 (2)	–	–
	Social Pressure	–	0.6 (7)	–	0.7 (9)	–	0.7 (9)
	Violence	–	1.8 (23)	–	1.5 (19)	–	1.8 (23)
	Total	18.5 (28)	11.9(150)	17.8 (56)	14.1 (172)	20 (5)	14.9 (190)
Intrapersonal Factors	Depression	11.2 (17)	7.5 (95)	9.9 (31)	6.5 (78)	8 (2)	6.3 (80)
	Insecurity	–	1.5 (19)	2 (6)	1.2 (15)	–	1.1 (14)
	Low Self-esteem	–	2.8 (35)	5.8 (18)	3.3 (40)	16 (4)	4.2 (53)
	Psychological Issues	–	0.9 (11)	6 (19)	8.9 (107)	–	9 (114)
	Psychopathy	–	0.6 (7)	–	0.4 (5)	–	0.4 (5)
	Total	11.2 (17)	13.3 (167)	23.7 (74)	20.3 (245)	24 (6)	21 (266)
Moral Judgments	Childishness	–	1.2 (15)	–	0.4 (5)	–	–
	Cowardice	–	–	1 (3)	0.3 (4)	–	1 (13)
	Exaggeration	–	–	–	–	–	0.7 (9)
	Madness	–	3.6 (46)	–	–	–	–
	Masochism	–	1.7 (22)	–	–	–	–
	Pity	–	0.9 (11)	–	0.3 (4)	–	0.7 (9)
	Ridiculousness	–	–	0.3 (1)	–	–	–
	Selfishness	–	–	0.9 (3)	0.7 (9)	–	0.5 (6)
	Stupidity	–	11.7 (148)	2.2 (7)	5.3 (64)	–	3.6 (46)
	Unnecessary	–	–	1 (3)	0.9 (11)	–	1.2 (15)
	Weakness	–	1.5 (19)	–	1.7 (21)	–	1.5 (19)
	Total	–	20.6 (261)	5.4 (17)	9.6 (118)	–	9.2 117)

(continued on the next page)

Table 2. continued

		NSSI		SI		SAs	
Dimensions	Categories	With NSSI	Without NSSI	With SI	Without SI	With SAs	Without SAs
Negative Emotions	Anger	2.6 (4)	2.7 (34)	1.6 (5)	2.5(30)	–	1.8 (23)
	Angst	2 (3)	1.7 (22)	0.3 (1)	2 (25)	–	–
	Blame	–	0.6 (7)	–	–	–	–
	Contempt	1.3 (2)	–	–	–	–	0.5 (6)
	Despair	7.9(12)	5 (63)	8.3 (26)	6.4(77)	4 (1)	7.6 (97)
	Disappointment	–	–	–	1.7(21)	–	0.9 (12)
	Disgust	–	–	–	0.7 (9)	–	–
	Fear	3.3 (5)	2.1 (26)	–	2.2(27)	4 (1)	3 (38)
	Frustration	1.3 (2)	0.9 (11)	0.6 (2)	1 (11)	–	1.4 (18)
	Impulsivity	0.7 (1)	0.2 (3)	0.6 (2)	–	–	–
	Pain	11.8(18)	7.7 (98)	8 (25)	5.2(63)	12 (3)	6.1 (78)
	Rebellion	1.3 (2)	2 (25)	0.6 (2)	1.3(16)	–	1.3 (17)
	Sadness	15.8 (24)	12.6(159)	7.3 (23)	10.9(132)	12 (3)	11.7 (149)
	Shame	0.7 (1)	0.6 (7)	–	–	–	–
	Sorrow	2.6 (4)	2.3 (29)	1.3 (4)	2 (24)	12 (3)	2.4 (31)
	Suffering	4.6 (7)	6.2 (78)	4.5 (14)	4.8(58)	12 (3)	5.1 (65)
	Total	55.9 (85)	44.6(562)	33.1 (104)	40.7(493)	56 (14)	41.8 (534)
Psychological Functions	Affect Regulation	4.6 (7)	0.5 (6)	2 (6)	–	–	–
	Escape Mechanism	4 (6)	–	3.1 (10)	2 (24)	–	–
	Interpersonal Influence	–	2.5 (33)	–	–	–	–
	Total	8.6 (13)	3 (39)	5.1 (16)	2 (24)	–	–
Self-Injurious Methods	Drowning	–	–	–	–	–	0.2 (3)
	Hanging	–	–	1 (3)	1 (12)	–	–
	Jumping from High Places	–	–	1 (3)	1.2(15)	–	0.5 (6)
	Knife	–	0.6 (8)	–	1 (12)	–	1 (13)
	Lye	–	–	4.7 (15)	–	–	–
	Medication	–	0.1 (1)	0.3 (1)	0.4 (5)	–	0.9 (12)
	Overdose	–	–	1 (3)	–	–	0.7 (9)
	Pencil Sharpener	–	0.1 (1)	–	–	–	–
	Rope	–	–	–	0.2 (3)	–	0.5 (6)
	Run Over	–	–	–	–	–	0.3 (4)
	Scissors	–	0.2 (2)	–	–	–	–
	Self-Mutilation	–	–	0.6 (2)	1.1(13)	–	0.7 (9)
	Weapon	–	–	0.3 (1)	0.6 (7)	–	0.5 (6)
	Total	–	1 (12)	8.9 (28)	5.5(67)	–	4.8 (68)
Total Coding Units		152	1263	314	1212	25	1271

Focusing on the comparison of the contents mentioned by the six adolescent groups , some differences emerged from our analysis. Globally, these differences were considerably accentuated in the dimensions Consumption of Psychoactive Substances, Moral Judgements and Self-Injurious Methods, where the three groups without a history of NSSI, SI and SAs presented less or no coding units. On the other hand, the differences in the remaining dimensions/categories were residual. Regarding the dimension Consumption of Psychoactive Substances, this finding may be explained by the fact that adolescents without a history of STBs generally attribute contents and causes of external nature to individuals with STBs, such as the consumption of drugs and alcohol (Stewart et al., 2017). Likewise, in our results, adolescents without a history of NSSI, SI and SA tended to associate negative judgments and stereotypes with these phenomena, using terms such as "Stupidity", "Cowardice" and "Ridiculous". These results are somewhat in accordance with previous research indicating that stereotypical discourses and stigma are common in the context of STBs (Duarte et al., 2019c; Gouveia-Pereira, & Sampaio, 2019; Fortune et al., 2008; Hollinger, 2016). Regarding the dimension of Self-Injurious Methods, our results suggest that the perceptions of adolescents without a history of NSSI, SI and SA give greater emphasis to the physical or behavioral engagement in self-aggressive methods.

Besides these disparities, most dimensions/categories were mentioned by all the adolescent groups, implying that their perceptions were integrated in a system of shared meanings and that they were independent of the personal experience of STBs. These conclusions allow us to hypothesize that adolescents without a history of these behaviors are aware of these phenomena and try to understand the possible reasons that lead adolescents to engage in NSSI, SI and SA. Likewise, it might imply that adolescents share information amongst themselves, discuss different subjects, considering each other's opinions and experiences, which can justify the absence of differences in most of the categories. Other possible justification for this lack of differences is due to the growing media visibility regarding mental health, NSSI and STBs and to the fact that it may influence views, attitudes and beliefs about these issues. Lastly, we think it is essential to highlight the similarity of the perceptions concerning the three variables, which might be a sign that adolescents view NSSI, SI and SA as part of the suicidal continuum (Knorr et al., 2019; Rogers et al., 2018) and not as entirely separate phenomena.

Strengths and Limitations

Although this study's results contribute to the understanding of the perceptions of NSSI, SI and SAs, it is important to underline some limitations. Firstly, the free word association test has some negative points, such as the fact that free associations are determined by fragments of ideas and concepts that, instead of continuing thought and elaborate new associations, may create blocks that do not allow individuals to relate new associations to the previous concept (Merten, 1992). Secondly, although the qualitative approach allows a deeper content analysis, it also limits the results' generalization. Thirdly, the previous history of NSSI, SI and SAs was assessed through simple questions, which might bear some influence on the prevalence rates. Since this study used a convenience sample, further limitations relate to the homogeneity of the sample, sample size, sampling method, and data collection setting (classroom).

Conclusion, Implications, and Future Directions

Considering the scarcity of studies focusing on the perceptions of NSSI, SI and SA and their increasing prevalence in adolescence, this study aimed to describe adolescents' perceptions about these phenomena, and to compare the differences of these perceptions among adolescents with and without a history of NSSI, SI and SAs. Our findings revealed that all the participants groups associated negative emotions with these variables and that adolescents with and without a history of NSSI, SI and SAs presented differences in their perceptions of these phenomena.

Besides contributing to the global understanding about these perceptions, our results might also have clinical implications, since they indicate? that peers can play a potential supportive role in signaling NSSI and STBs and for posterior intervention. Also, these results help to clarify and identify stereotypes and stigma that should be addressed in prevention programs, adapting them to adolescents and their realities.

We consider it important to continue this line of research. Future studies could focus on understanding the possible changes of perceptions over the development of adolescents, as well as should they change their perceptions according to the exposure to NSSI, SI and SA (i.e., friends' knowledge; contact with online contents about these phenomena). Also, we consider it equally important to understand whether STB perceptions differ in articulation with other variables, such as religion or cultural background.

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Author contributions
Eva Duarte: conceptualization, design, methodology, investigation, data management, formal analysis, interpretation, writing original draft, writing review and editing.
Sofia Silva: conceptualization, methodology, project administration, data management, formal analysis, interpretation, writing original draft.
Maria Gouveia-Pereira: conceptualization, design, methodology, project administration, interpretation, supervision, writing review and editing.
All authors gave their final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of Interest
The authors declare no conflicts of interest to disclose.

Ethical Statement
The research was approved by the General Education Directorate of the Ministry of Education and Science from Portugal during March 2017.
This manuscript is the authors' original work.
All participants engaged in the research voluntarily and anonymously, and provided their written informed consent to participate in this study.
Data are stored in coded materials and databases without personal data, and the authors have policies in place to manage and keep data secure.

Data Availability Statement
The data presented in this study are available upon request. All information regarding datasets was kept safe in an encrypted file in our computers to preserve the anonymity of all participants. Still, we can make it available upon request, by sending the authors an email with a valid request.

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