

Clinical features of adolescents with deliberate self-harm: A case control study in Lisbon, Portugal

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Abstract: Deliberate self-harm (DSH) among adolescents is a high-risk condition for suicide. The aim of the present study is to describe the characteristic clinical features of adolescents with DSH according to our local context (Lisbon, Portugal), using easily available information from clinical settings. A case control study was constructed from a sample of 100 adolescents (aged 12 to 21 years). The sample was divided into two groups: adolescents with and without DSH. Case files were examined and data was completed by clinical interviews. Demographic, psychosocial, and psychopathological data were assessed and compared. Ninety-eight subjects completed the protocol. The DSH group was associated with the following: suicidal ideation or suicidal behavior as consultation motive, emergency room referral, previous follow-up attempts, suicidal ideation, psychosocial difficulties, or lack of therapeutic goals. There was a nonsignificant trend towards diagnosis of depression in the DSH group. These results reflect our clinical practice with adolescents and add data about teenagers who self-harm to the literature. Prevention and early recognition of DSH (and frequently associated depression) in adolescents are essential and could be life-saving measures. An integrated approach, which takes into account psychosocial difficulties, family dysfunction, and negative expectations, seems to be of great importance.

Keywords: deliberate self-harm, suicide, adolescents, suicide risk, case control

Introduction

Adolescent suicide is a growing concern, being a major cause of death among adolescents. Data from the United States shows that among youths aged 10 to 17 years, the annual suicide rate is three in 100,000; in youth aged between 17 to 19 years, this rate increases to 10–12 in 100,000.¹ Portuguese data reveals that suicide rates in youth aged between 15 and 24 years have dropped from four in 100,000 in 2003 to 2–4 in 100,000 in 2006.² Suicide is still a major public health issue. Nonetheless, the numbers could be even higher since studies indicate that the so-called “undetermined death” rates may contain a substantial number of hidden suicides,³ which could be true because the Portuguese statistics show a lower suicide rate compared to the European average.⁴

There are great variations in suicide rates according to geographic and cultural variables. Durkheim’s classic work in the field of sociology claims that “the tendencies of the whole social body, by affecting individuals, cause them to commit suicide. The private experiences usually thought to be the proximate causes of suicide have only the influence borrowed from the victim’s moral predisposition, itself and echo of the moral state of society.”⁵ This is an important consideration that justifies, at least in part, the variation in suicide rates across societies.

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Suicide in adolescents has been associated with many factors and a previous suicide attempt (deliberate self-harm [DSH] with suicidal intent) is among the most significant predictive factors for future suicidal behavior.⁶ Studies have associated DSH without suicidal intent (or parasuicide) with the risk of completed suicide,^{7,8} showing that this type of behavior is as serious as attempted suicide, although likely to be underestimated.⁹

There are some differences in the literature regarding the definition of self-harm.¹⁰ For the purposes of this study we applied the definition used in the “Child and Adolescent Self-harm in Europe (CASE) Study.”¹¹ The criteria for self-harm is “an act with a nonfatal outcome in which an individual deliberately did one or more of the following: initiated behavior (for example, self-cutting, jumping from a height), which they intended to cause self-harm; ingested a substance in excess of the prescribed or generally recognized therapeutic dose; ingested a recreational or illicit drug that was an act that the person regarded as self-harm or; ingested a noningestible substance or object.” This definition includes both parasuicide (or DSH without suicidal intent, a designation preferred by some authors)⁸ and suicide attempts (or DSH with suicidal intent). We chose this definition because it emerged from a consensus within a large international work group that recently studied a large sample of adolescents who self-harm.¹¹

According to the latter study, 8.9% of females and 2.6% of males overall reported an episode of DSH in the past year, and 13.5% and 4.3% reported an episode sometime in their lifetime, respectively. The most frequent forms of DHS were self-mutilation and overdose.¹¹

DSH is very relevant in adolescent mental health and is associated in approximately 87% of cases with a *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) axis I diagnosis.⁸ Symptoms of depression/anxiety and delinquent/aggressive behavior were associated with self-harming behavior in both adolescent girls and boys.¹² DSH was associated with varying degrees of suicidal intent.¹³

Studies described that social background factors like problems with work, relationships with family, partners, and friends are most likely to contribute to DSH episodes.^{13,14}

A large community sample study verified that adolescents with DSH were likely to feel the need for help but not try to get any. They were less able to talk to family members and teachers and had fewer categories of people who they were able to talk with. They differed from other adolescents in terms of coping strategies they reported employing when faced with difficulties, showing less focus on problems and

more avoidance behavior.¹⁵ This association can partially explain why social background factors relate with DSH.

A previous study from our group analyzed the profile of the users of our youth suicide consultation who engaged in DSH, showing that they were predominantly girls aged between 15 and 21 years with vulnerabilities in socioaffective skills, family and love relationships, and who perceive their individual and familial difficulties as intolerable and catastrophic. Their preferred coping strategies were avoidance and elimination.¹⁶

The aim of the present study is to further describe the characteristic clinical features of adolescents with DSH (a high risk group for completed suicide) according to our local context (Lisbon, Portugal).

The other aim is to do so without the use of specific assessment scales, using easily available information from the clinical setting. We decided to do this based on the fact that, although this practice goes against evidence-based medicine, studies show that the majority of psychiatrists do not use outcomes measures in their day-to-day practice.^{17,18} Another potential advantage is that clinical interview data can also provide a richness of detail and contextual information that standardized assessment scales may miss.

Methods

A case control study was constructed from a sample of 100 adolescents (aged 12 to 21 years). The sample originated from the Adolescent Psychiatry and Youth Suicide Consultations of the Hospital de Santa Maria Psychiatry Department in Lisbon, Portugal. The Adolescent Psychiatry consultation is general, accepting all psychiatric referral motives, takes place once a week and has a wait-list of about one month. On the other hand the Youth Suicide Consultation, has no wait-list, takes place every weekday, and only accepts referrals related to suicide ideation or self-harm behavior.

The case files of adolescents followed in 2007 and 2008 were initially screened for any episodes of DSH according to the CASE study definition,¹¹ then divided into two groups (with and without DSH). The case group included adolescents with one or more self-harm episodes. Afterwards they were randomly selected (approximately 400 from the total cases of adolescents followed in 2007–2008 were chosen using a randomizing function) until a total of 50 subjects were reached for each group. All the case files were reviewed and the missing data was completed through clinical interviews.

Demographic, psychosocial, and psychopathological data were collected through a checklist that our group uses in both consultations. All the variables were selected according to

two relevant criteria: readiness of availability (information that is normally collected during clinical interview in adolescents, without the use of any particular screening instrument) and high frequency of data (information that is usually referred by patients in our consultations).

The demographic data collected included age, gender, professional status (currently studying or working), education (primary education, defined as the completion of nine years of school; secondary education, defined as the completion of 12 years of school or; college, defined as completed college education), and family type (nuclear family or other).

The psychosocial data included: main referral motive (collected in four categories: suicidal ideation or DSH; behavior problems; school difficulties or; other psychopathological problems); origin of the referral; reported psychosocial difficulties (collected in five categories, which could co-exist: family conflicts; affective conflicts; peer conflicts; school difficulties and professional difficulties); existence of previous follow-up attempts; therapeutic goals of the present follow-up (collected in six categories, which could be combined: optimization and change of family relations; of affective relations; of peer relations; of school situation; of professional situation and/or; of personality traits).

The psychopathological data included: main psychopathological syndrome, (according to case file data and collected in four categories: depression; anxiety; disruptive behavior or other syndromes); the existence of suicidal ideation and deliberate self-harm behavior at the time of the first consultation.

A comparison between the DSH and non-DSH groups was performed, in an attempt to determine statistical differences between the referred variables. Because no assessment scales were used, most variables were nominal in nature and thus the main statistical tests used were the chi-squared test and Fisher's exact test. In determining the differences in average reported psychosocial difficulties and average therapeutic goals in present follow up, a Student's *t*-test was used.

Data analysis was performed using SPSS for Windows (SPSS Inc., Chicago, IL, USA). The authors confirm that all the research meets the ethical guidelines and legal requirements of Portugal.

Results

Protocol was completed by 98 out of 100 subjects. The DHS group included 48 subjects versus 50 subjects in the control group. Data was incomplete in two adolescents from the DHS group who were unable to complete their clinical interview and therefore were not included in this analysis.

In the DSH group, 21 subjects committed DSH with suicidal intent (suicide attempts). Twenty-seven subjects had DSH without suicidal intent (parasuicides). The most common forms of DSH were overdose and self-mutilation.

There were no statistical differences in the demographic variables between the two groups (Table 1).

With regard to the referral motive, we found a significant statistical association between suicide ideation or previous DSH as referral motive (chi-squared test, $P < 0.001$). Because most referrals on the DSH group were motivated by both suicidal ideation and previous DSH, it was impossible to determine the main reason so we decided to merge them (in the control group there were no referrals motivated by DSH). Nevertheless, 10 out of 48 of the adolescents of our sample (approximately 21% of subjects) with a history of DSH were referred for other reasons.

The main referral motive of the control group was "other psychopathological problems," which were mostly problems of depression (without suicide ideation or DSH), but motives also included anxiety, psychosis, and drug abuse.

In regard to the origin of the referral, we concluded that 50% of the individuals in the DSH group were referred after a visit to the emergency department. There was a statistically significant difference between the two main groups in this matter (Fisher's exact test, $P < 0.001$). The other significant difference we report is the relative low number of DSH cases referred from primary care (Fisher's exact test, $P = 0.004$).

Moreover, there was no clear statistical difference between the two groups regarding the main psychopathological syndrome diagnosed at present follow-up, although

Table 1 Demographic data of the two groups. Female adolescents aged between 13 and 17 years are the most frequent users of our consultations. Most were currently completing secondary education. There were no statistical significant differences between groups

	With DSH (n = 48)	Without DSH (n = 50)
Age Mean (SD)	15.25 (1.91)	15.94 (1.93)
Gender n (%)	Male = 14 (29%) Female = 34 (71%)	Male = 15 (30%) Female = 35 (70%)
Currently studying n (%)	45 (94%)	44 (88%)
Education n (%)	Primary education = 33 (69%) Secondary education = 11 (23%)	Primary education = 35 (70%) Secondary education = 13 (26%)
Nuclear family n (%)	29 (60%)	22 (44%)

Abbreviation: DSH, deliberate self-harm.

there was a nonsignificant (chi-squared test, $P = 0.059$) trend in diagnoses of depression in the DSH group. Table 2 shows the complete data on referral variables, main psychopathological syndrome, and previous follow-up attempts.

When adolescents were directly asked about present suicidal ideation at the time of the first consultation, 33 subjects of the DSH group gave a positive answer versus only nine positive answers in the non-DSH group. There was a statistically significant difference between the two groups (chi-squared test, $P < 0.001$). Nevertheless, 15 adolescents

(31% of the subjects) with previous DSH denied the presence of suicidal thoughts at the time of the first interview.

There was also a significant difference in the average number of psychosocial difficulties reported between the two groups. In the group with DSH, the mean reported number was 2.00 (standard deviation [SD] = 1.23) versus 1.54 (SD = 0.94) in the control group (Student's t -test, 95% confidence interval [CI]; $P = 0.04$). For both groups, the most frequently reported difficulties were family and affective conflicts.

In regard to the therapeutic goals of the present follow-up, the only statistically significant differences we report were on "change in family relations" (chi-squared test, $P = 0.002$) and "change in school situation" (chi-squared test, $P = 0.001$), as the group with DSH showed less interest in these goals. Additionally, a significant difference was seen in the average number of therapeutic goals in the present follow-up between both groups. In the DSH group, the mean was 1.44 (SD = 1.22) versus 2.10 (SD = 1.45) in the control group (Student's t -test, 95% CI; $P = 0.02$). Importantly, for the DSH group adolescents, the most frequently referred features that they wished to change were personality traits. By contrast, subjects from the control group mainly sought changes in family relations and school situation.

The complete data on the reported psychosocial difficulties and therapeutic goals for the present follow-up are summarized in Table 3.

Table 2 Referral data, main psychopathological syndrome, and previous follow-up attempts. There were some differences between groups. The majority of adolescents who self-harm in our consultations came from the emergency department. Their main motive was suicide ideation or previous DSH. Most of them had a previous follow-up attempt and, although the difference was not statistically significant, most were depressed. "Other psychopathological problems" were anxiety, depression (without suicide ideation or DSH), psychosis, and drug abuse. "Disruptive behavior" included externalizing disorders. "Others," regarding the main psychopathological syndrome were psychosis, drug abuse, and bipolarity

	With DSH (n = 48)	Without DSH (n = 50)	p
Main referral motive			
Suicidal ideation or DSH (n)	38	5	$P < 0.001$ (Chi-squared test)
Behavior problems (n)	4	11	ns
Other psychopathological problems (n)	4	31	$P < 0.001$ (Chi-squared test)
Who made the referral?			
Emergency department (n)	24	2	$P < 0.001$ (Fisher's exact test)
School (n)	9	8	ns
Primary care (n)	1	11	$P = 0.004$ (Fisher's exact test)
Other mental health professionals (n)	6	10	ns
Self-referral (including family and friends insistence) (n)	8	16	ns
Main psychopathological syndrome			
Depression (n)	33	25	ns
Anxiety (n)	9	11	ns
Disruptive behavior (n)	1	9	ns
Others (n)	5	5	ns
Previous follow up attempt			
Yes (n)	32	16	$P = 0.001$ (Chi-squared test)

Abbreviations: DSH, deliberate self-harm; ns, nonsignificant.

Discussion

As we previously stated, the main goal of our study was to know more about the characteristic clinical features of the adolescents with DSH in our consultations. We tried to achieve this goal through the use of easily accessible clinical data.

As we reported earlier, the demographic variables were not significantly different between case and control groups. This is an important factor in case-control studies and reflects a good randomization of selected cases.

As would be expected, there was a statistically significant association between suicidal ideation or previous DSH as main referral motive. Nevertheless, 21% of the adolescents with a history of DSH were referred to our consultation for other reasons. In our opinion, this finding could have one of two meanings: one of them is that adolescents with DSH are often underrecognized, an idea supported by Clark, who investigated adolescents in primary care settings and found that 83% of adolescent patients with a history of attempted suicide were not recognized as suicidal by their primary care physician.¹⁹ Another possible meaning is that

Table 3 Comparative data on psychosocial difficulties reported and therapeutic objectives of the present follow-up. Adolescents could report one or more difficulties and objectives. The DSH group showed more difficulties and fewer therapeutic objectives

	With DSH (n = 48)	Without DSH (n = 50)	p
Psychosocial difficulties reported			
Family conflicts n (%)	26 (54%)	36 (72%)	ns
Affective conflicts n (%)	25 (52%)	24 (48%)	ns
Peer conflicts n (%)	11 (23%)	18 (36%)	ns
School difficulties n (%)	11 (23%)	18 (36%)	ns
Average psychosocial difficulties reported			
Mean (SD)	2.00 (1.23)	1.54 (0.94)	$P = 0.04$ (t-test)
Therapeutic objectives of the present follow-up			
Change in family relations n (%)	16 (33%)	32 (64%)	$P = 0.002$ (Chi-square test)
Change in affective relations n (%)	8 (17%)	8 (16%)	ns
Change in peer relations n (%)	11 (23%)	10 (20%)	ns
Change in school situation n (%)	9 (19%)	26 (52%)	$P = 0.001$ (Chi-squared test)
Change in personality traits n (%)	24 (50%)	22 (44%)	ns
Average therapeutic objectives of the present follow-up			
Mean (SD)	1.44 (1.22)	2.10 (1.45)	$P = 0.02$ (t-test)

Abbreviations: DSH, deliberate self-harm; ns, nonsignificant; SD, standard deviation.

depression, anxiety disorders,²⁰ behavior problems,²¹ and school difficulties²² can be warning signs for suicide risk in adolescents, and should prompt an assessment of that same risk by a qualified health professional. The control group was clearly different; the referral was mainly motivated by depression (without DSH), anxiety disorders, and behavior problems (externalizing disorders), which is consistent with the literature regarding adolescent psychopathology.²³

Interestingly, we observed that 50% of the individuals in the DSH group were referred after a visit to the emergency department, which is consistent with the findings that suicidal ideation or DSH is frequently disclosed by patients in emergency settings (although they not always turn out to be referenced to mental health services).²⁴ Furthermore, we acknowledge having had a very low number of referrals from primary care physicians, which can reflect an under recognition of suicide risk, as we discussed above. Another possible explanation for this fact is related to the setting of our consultations, which is mainly hospital-based.

Another interesting result documented was the fact that depression was not significantly associated with the case group, although there was a trend in that direction. Our opinion is that the power of the study was probably insufficient to show that difference, and that a larger sample (or the use of specific depression assessment scales) would be needed for it to emerge, as depression is a well established risk factor for DSH or completed suicide.²¹

Additionally, we found that previous follow-up attempts were highly associated to the DSH group. Studies indicate that psychiatric treatment of suicidal youths is often difficult and that noncompliance in treatment is a significant problem.²⁵ This noncompliance issue could account for the existence of a significant number of previous follow-up attempts. Nevertheless, multiple other factors could contribute to this result, namely the presence of common personality traits in DSH adolescents, which can lead to difficulties in establishing a therapeutic relationship.

In the clinical practice, when an adolescent is observed in a psychiatric consultation, suicidal ideation should be assessed by the first visit. Our study confirms that suicidal ideation is associated with DSH in adolescents. Nevertheless, 31% of the DSH subjects in our sample denied the presence of suicidal thoughts at the time of the first interview. In these cases, suicide risk assessment needs to be carefully performed as previous DSH^{9,26} is a major risk factor for completed suicide, meaning that even if suicidal ideation is denied, the risk is maintained.

Concerning the reported psychosocial difficulties, we found no significant differences in their categories between the two groups, with family and affective conflicts being the most reported categories of psychosocial difficulties in both groups. Nonetheless, we documented that the group with DSH had in average more psychosocial difficulties than the control group. This finding agrees with previous studies reporting that self-harm often follows a period of stress or psychosocial difficulties.^{13,14,27}

Furthermore, we documented a difference concerning the therapeutic goals of the present follow-up between the two main groups, as the wish to change family relations and school situation was less frequently reported in the DSH group. The case group also reported less average therapeutic goals, although it referred more psychosocial difficulties than the control group. This fact could be accounted by previous ineffective follow up attempts or by negative expectations regarding treatment (eg, belief that “nothing could help”; seeking help is a “sign of weakness”; reluctance to admit having mental health problems and being too embarrassed to seek help), which, according to previous studies, are common thoughts in

youth who later commit suicide.²⁸ This can also be related to nonproductive coping strategies (like avoidance behaviors or less focus on the problem).¹⁵ The low expectations concerning change in family relations or in the school situation by the DSH group is a fact of concern, since other studies about adolescent self-harm prevention point to family, friends, and school as the main sources of support in preventing suicidal behavior (which are believed to be more pertinent than external helping agencies in this matter).²⁹

Interestingly, the most frequently referred feature that subjects in DSH group wished to change were personality traits. We think this probably reflects that the adolescents in our sample had at least a minimum degree of insight to help them identify some traits, like impulsivity or harm avoidance, commonly associated with suicidal behavior.²¹

Lastly, we share the opinion that there are a number of limitations that should be noted when interpreting these results. One of them is that there could be a bias in our sample, since its subjects were recruited from two different types of consultation: an adolescent consultation (general) and a youth suicide consultation (very specific to the issue of suicidology). Moreover, this sample is representative of the adolescent population of our adolescent psychiatric consultations; in fact, self-harm involves many local and cultural issues, which limits generalization. As to the size of our sample, we acknowledge that numbers are important in every study and that although we obtained almost 100 adolescents, the study would be stronger with larger numbers. Importantly, this study is retrospective, using clinical case files and completing interviews, so it would be fair to assume that errors in data recording and the lack of monitoring of the data in a prospective fashion can be a bias. Also, as no assessment scales were used, more specific diagnosis categories were not obtained, and a quantitative analysis of suicide risk, depression, or impulsivity was not performed. We hereby recognize this limitation, but wish to underline that one of our goals was precisely to determine simple clinical features that characterize our adolescents with DSH. This certainly agrees with the theory that in clinical practice, and for many different reasons, assessment scales are not always used. On the other hand, performing a clinical interview is mandatory when evaluating an adolescent in a psychiatric consultation, rendering it possible to collect most of the information we presented in this study and that we consider easily accessible.

Conclusions

The profile of the adolescent with DSH, in our consultation, is as follows: an adolescent who is referred from the emergency

department in which the referral motive is mainly DSH or ideation, is usually depressed, with previous follow-up attempts, and discloses suicidal ideation when questioned. This adolescent has several psychosocial difficulties, mainly family conflicts and affective conflicts, and has negative expectations regarding treatment.

We aimed to obtain more knowledge about our local sample by describing the adolescents who harm themselves that we see in our practice. We traced a profile that is oversimplistic, but reveals some important issues for mental health professionals who work with adolescents.

The study was limited because no assessment scales were used; further studies could use specific instruments to evaluate how adolescents who DSH cope differently with psychosocial problems and how psychopathological measures differ. Also more in-depth interviews can also be conducted to collect supplementary qualitative data, like reasons for the adolescents' low expectations concerning change of family relations or school situation by the DSH group.

There is a need to recognize and prevent self-harm in adolescents before they reach emergency departments. It would be interesting to study if DSH could be reduced if primary care physicians or school teachers recognized this problem at an early phase.

An important conclusion is that working with adolescents with DSH is difficult and cannot be done solely on a biological approach. Psychosocial difficulties, family dysfunction and negative expectations have to be addressed and included in the therapeutic plan.

Preventing and treating DSH (and frequently associated depression) in adolescents is important and could be a life-saving measure.

Key points

- Adolescent suicide is a growing concern and a major cause of death in the youth.
- DSH is strongly associated with the risk of completed suicide.
- There is no local data about the clinical characteristics of adolescents followed in psychiatric consultations that deliberately harm themselves.
- This case control study describes the clinical profile of adolescents with DSH in our consultations.

Disclosures

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