

Problems with Suicidal Behavior Prevention in Adolescents: a Narrative Literature Review

Проблемы профилактики суицидального поведения у подростков: нарративный обзор литературы

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Review

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ABSTRACT

INTRODUCTION: Among the existing issues related to the health and quality of life of Russian adolescents, suicidal behavior is being actively discussed; however, the available comprehensive measures for prevention of suicide and attempts at suicide at this age do not provide an adequate solution. This is due to the fact that suicide is an integrative phenomenon, and the act of suicide itself is interpreted, in essence, as the “tip of the iceberg”. What is especially clearly manifested in adolescence is the fact that the readiness to commit suicide is associated not so much with the level of severity of mental pathology and personality dysfunction, but with the general social context lack of well-being of total trouble. Therefore, suicide prevention cannot be based purely on the timely identification of persons at risk for mental pathology.

PURPOSE: The purpose of this work is to analyze the available literature on current approaches that have demonstrated their efficacy in reducing suicidal behavior in adolescents.

METHODS: The authors performed a narrative review of the relevant literature published between 2012 and 2021. They analyzed the works presented in the PubMed, MEDLINE, and Web of Science electronic databases. Descriptive analysis was used to generalize the data obtained.

RESULTS: The article discusses preventive approaches to suicidal behavior in adolescents, which are most often studied, and which are also used in practical healthcare. It outlines the problems associated with the implementation and evaluation of the efficacy of these preventive programs.

CONCLUSIONS: The continuing high rate of suicide among adolescents calls for an urgent concerted effort to develop, disseminate, and implement more effective prevention strategies. School-based approaches are the most convenient in practical terms, but they require systematic and long-term use of anti-suicidal programs. Digital interventions can reduce the economic burden of their use, including assessing suicidal risk and identifying psychopathology associated with suicidality.

АННОТАЦИЯ

ВВЕДЕНИЕ: В ряду имеющихся проблем, связанных со здоровьем и качеством жизни российских подростков, тема суицидального поведения достаточно активно обсуждается, однако имеет недостаточное решение при реализации комплексных мер по профилактике суицидов и суицидальных попыток в этом возрасте.

Связано это с тем, что суицид является интегративным феноменом, а непосредственно сам суицидальный акт интерпретируется по сути как «вершина айсберга». Особенно ярко проявляется в подростковом возрасте тот факт, что суицидальная готовность связана не столько с уровнем выраженности психической патологии и личностной дисфункции, сколько с общим социальным контекстом тотального неблагополучия. В связи с этим, профилактика самоубийств не может базироваться только лишь на своевременном выявлении лиц из группы риска по психической патологии.

ЦЕЛЬ: Целью данной работы является анализ доступных литературных источников, касающихся современных подходов, показавших свою эффективность в уменьшении уровня суицидального поведения в подростковой среде.

МЕТОДЫ: Был выполнен нарративный обзор релевантных литературных источников, опубликованных в период с 2012 г. по 2021 г. Авторы проанализировали работы, представленные в электронных базах данных PubMed, MEDLINE и Web of Science. Для обобщения полученных данных применялся метод описательного анализа.

РЕЗУЛЬТАТЫ: В статье рассмотрены профилактические подходы к суицидальному поведению подростков, которые наиболее часто исследуются, а также используются в практическом здравоохранении. Обозначены проблемы, связанные с внедрением и оценкой эффективности данных профилактических программ.

ВЫВОДЫ: Сохраняющийся высокий уровень самоубийств среди подростков требует срочных согласованных усилий по разработке, распространению и внедрению более эффективных стратегий профилактики. Школьные подходы являются наиболее удобными в практическом плане, однако они требуют системного и долгосрочного использования антисуицидальных программ. Цифровые вмешательства могут уменьшить экономическую нагрузку при их применении, в том числе при оценке суицидального риска и выявлении ассоциированной с суицидальностью психопатологии.

Keywords: *suicide; suicide attempt; adolescents; prevention*

Ключевые слова: *суицид; суицидальная попытка; подростки; профилактика*

INTRODUCTION

Although suicide rates have declined worldwide in recent decades within the general population, some countries show the opposite trend in adolescent suicides [1, 2]. Suicide in adolescents is a serious social and medical problem. Suicide is the third-most common cause of death at the age of 10–19 years [3], and the second most common at 15–29 years [4]. In adolescence, there are 50–100 suicide attempts per death due to suicide [5].

However, our knowledge of how to prevent suicide and suicidal behavior in adolescents is extremely limited. Many questions remain unanswered, research results are often disputed and contradictory, and despite a significant volume of scientific papers published every year on the subject, suicide continues to be one of the most common causes of death among young people in various regions of the world [2].

One of the existing problems is the difficulty in evaluating the effectiveness of preventive anti-suicidal

programs. Given the relative rarity of suicide in the general population, in order to obtain data on the probability of reducing the number of suicides by 15% in 1 year, a preventive intervention must be used in a sample of 13 million people in the general population. A risk group, e.g., people with a history of suicide attempt, requires a sample of 45,000 [6]. The organization and conduct of such studies are thus extremely difficult.

In addition, the most commonly used factorial model of suicidal risk, which focuses on the significance of individual factors in suicidal dynamics, showed relatively little effect on suicide prevention. A meta-analysis of 365 studies over the past 50 years found that, in terms of hazard ratio and diagnostic accuracy, the factorial model prediction of suicidal risk was only slightly better than the probability for all studies, with no categories or subcategories of suicidal factors accurately predicting the event with much higher probability [7]. In this case, there may be a need to shift the emphasis when creating

preventive programs from a factorial to a functional model that takes the experiences and thoughts of an adolescent, the context of their situation and the particularities of their relationship with other people into account, which requires an individual approach, or at least group or family interventions within school-based approaches.

Given the particularities of adolescence and the environment in which suicidal behavior occurs, the daily task for educators, clinicians, and young people and their parents is to find constructive ways to respond to increasingly complex and unprecedented challenges (e.g., mass killings/suicides, cluster suicidal behavior, and cyberbullying on social networks).

The **purpose** of this narrative review is to analyze the available literature on current approaches that have demonstrated their efficacy in reducing suicidal behavior in adolescents.

METHOD

The authors performed a narrative review of the relevant literature published between 2012 and 2021. They analyzed the works presented in the PubMed, MEDLINE, and Web of Science electronic databases. Search queries included keywords such as “adolescents”, “suicide”, “suicidal behavior”, “suicide attempt”, “suicidal thoughts”, and “prevention”. Studies were considered eligible if they evaluated preventive programs to reduce suicidal behavior during adolescence. Descriptive analysis was used to generalize the data obtained.

RESULTS

In practical terms, there are three types of evidence-based strategies aimed at preventing suicide in adolescents; each is associated to some degree with a number of specific risk factors for suicide. Universal strategies aim to reach all adolescents in a specific group (e.g., school, neighborhood, community) with measures to improve overall health and minimize the risk of suicide by removing barriers to receiving help, facilitating access to qualified counseling, and strengthening protective processes such as social support [8–11]. They may also be related to provision of support for the upbringing of children, improvement of educational and training opportunities, creation of a favorable school climate, and other conditions associated with maintaining mental health [12, 13]. Selective suicide prevention strategies target vulnerable groups of adolescents at increased risk

of suicidal behavior, such as adolescents with substance abuse or other mental health problems [14–16]. Finally, individual prevention strategies are addressed to individuals who show early signs of suicidal tendencies or, indeed, who have attempted suicide. A systematic review of these interventions among young people aged 12–25 supported the implementation of these strategies in schools, communities, and healthcare institutions. Moreover, the review concluded that these interventions are relatively safe and cannot increase suicidal activity in adolescents [17].

The article consequently reviews strategies for suicidal behavior prevention in adolescents within school programs, restrictions on access to means of suicide, digital technologies, as well as approaches focused on the connection between psychopathology and suicidality.

School-based approaches

Schools have become one of the most common places to deal with adolescent suicide, and several systematic reviews of school-based suicide prevention programs have recently been published [18–20]. School-based approaches to suicide prevention can take many forms, including those based on the integration of mental health education into the curriculum. These classes can be aimed at raising the suicide awareness of all students and defining their role in supporting their peers in a suicidal crisis. In addition, other approaches are currently being extensively researched, such as school-based screening programs designed to identify adolescents at potential risk of suicide; social support and skills building programs for high-risk adolescents; training for school staff for recognizing potentially suicidal students and form supportive contact; and various multilevel programs that combine several of the above strategies [21–24]. While the ultimate goal of these programs is the prevention of suicidal behavior, intermediate goals typically include one or more of the following: increasing student awareness of potential indicators of suicidal behavior; reducing stigma of seeking help; eliminating inappropriate perceptions of suicide; and improving the skills of social support, overcoming difficulties and solving problems.

For example, the Saving and Empowering Young Lives in Europe (SEYLE) project developed and tested a multicomponent mental health education program for young people [25]. A randomized control study was

conducted in 11 European countries, consisting of three active interventions and one minimal control intervention. Active interventions included training for ‘watchmen’ (first contact persons), a mental health outreach program, and occupational screening for at-risk adolescents. Compared with adolescents who received only minimal intervention, those who took part in the mental health education program demonstrated significantly lower rates of both suicidal thoughts and intentions and attempts at suicide over the following 12 months [26].

The use of Empowering a Multimodal Pathway Towards Healthy Youth (EMPATHY) program, which included eight sessions of cognitive behavioral therapy designed to increase resilience to depression, as part of the school-based approach, resulted in a significant reduction in the number adolescents classified as at high and moderate risk of suicide within 12 weeks after the intervention [27]. It was also justified to include interventions aimed at teaching adolescents’ parents to increase support for their children and reduce the level of conflicts in the family in prevention programs, which led to a significant decrease in the severity of suicidal thoughts in schoolchildren during follow-up after 1 and 9 months [28].

According to recent reviews of the available evidence [12, 22, 29, 30], some adolescent suicide prevention programs do appear to be promising, although various methodological weaknesses place limitations on the findings and conclusions [31]. It has been shown that school-based programs are effective in improving students’ knowledge and understanding of the particularities of suicidal behavior formation; however, little is known about their effects on the frequency of suicidal thoughts and attempts in the future. As the authors of one review note, “future suicidal behavior (including thoughts, attempts, or actual suicide) has not been directly investigated in most studies, and studies that have assessed these variables have provided little evidence of suicidal behavior risk reduction in young people” [32]. In other words, there is currently no conclusive evidence that any particular strategy is effective in reducing adolescent suicide mortality [19]. However, according to a recent systematic review, there is moderate-certainty evidence that school-based interventions can prevent suicidal thoughts and suicide attempts in the short term, and low-certainty evidence that they can prevent suicide attempts in the long term [33].

Restriction on access to lethal means

Broader approaches to the prevention of suicide in adolescents may include those associated with a decrease in the availability of certain means to commit suicide. A suicidal act in children and adolescents is most frequently committed in the place where the child lives, and hanging is most often used [34, 35]. Boys are most likely to use hanging and firearms, while girls are more likely to use pesticides or drug poisoning and jumping from height [1]. Limiting access to such drugs is believed to be an effective universal prevention strategy [36]. For example, a significant association between reduced household availability of firearms and suicide among children and adolescents has been noted in the United States. Each 10% decrease in the number of households with firearms corresponded to an 8.3% decrease in gun suicide and a 4.1% decrease in the overall suicide rate among children aged 0–19 years [37]. Structural interventions at jump sites and restricting access to highly hazardous pesticides have also proven to be effective [38, 39]. At the same time, reducing access to lethal means has limited possibilities for some methods of suicide, for example, in the case of hanging. We did not identify other studies that assessed the effects of reducing access to such drugs in the specific case of adolescents. However, studies in the general population, including adults, show that this can be an effective strategy.

Digital methods

More and more preventive approaches to suicide based on the use of digital technologies are being developed. Moreover, given the recent public health crisis due to the COVID-19 pandemic, clinicians are in dire need of new tools for service delivery and preventive interventions. Adolescents are the most active users of Internet technologies: almost a quarter of adolescents are online all the time [40]. Young people are technologically savvy, and a significant proportion of them have smartphones or other devices that allow for various types of interaction. Thus, there is no doubt about the importance of interventions based on new technologies in suicide prevention among adolescents. It should be noted that telepsychiatry may be considered particularly suitable for reaching populations characterized by low attendance at traditional health facilities, such as adolescents [41, 42]. Web platforms can also be used in school-based programs aimed at preventing student

suicide [43]. There are several studies that have tested various mobile smartphone applications in screening for symptoms of depression and suicidal ideation, as well as clinical monitoring of suicidal dynamics using text messages [44–46]. For example, to reduce suicide attempts in adolescents after hospital discharge, a special smartphone application was used that asked participants to assess their emotional stress levels daily and differentially selected personalized emotion regulation strategies and safety planning in the event of a suicidal crisis [47].

The results showed that the use of mobile applications represents a quick and easy way to contact adolescents, keep in touch with them, and monitor their behavior [45, 47]. Moreover, given the very high rates of attempts at suicide and suicide-related deaths after discharge from psychiatric institutions, it seems important to develop new digital tools to screen and support adolescents from this high-risk group.

Studies have recently been published on the use of linguistic analysis to identify suicidal tendencies among Internet users [48]. With the growth in the use of social media and the increasing complexity of their communication component, adolescents have increasingly begun to express suicidal thoughts on online forums, in tweets and other social networks, which has led to the formation of an extensive set of phrases that define the motives associated with suicide. Despite limited evidence, algorithms have been developed that can recognize people at risk of suicide by examining their social media posts; they are accurate and timely enough to promise some clinical efficacy [49]. However, there is a need for useful ways of responding to such online communications in adolescents, if they occur.

Overall, new and rapidly developing technological tools (including language programs) may become part of adolescent suicide prevention strategies in the future. It is likely that new technologies will complement existing strategies rather than replace them. Such digital tools can improve subjective approaches to suicide prevention, including by allowing faster contact with clinicians. Several ethical issues arise with the implementation of these approaches, such as the need for privacy protocols and the rationale for suicide prevention algorithms using social networks. At the same time, there is no doubt that new technologies are well received by adolescents

and can be quickly adapted to prevent suicidal behavior in them. However, there is currently little evidence as to the effectiveness of such interventions in clinical practice, which requires further research.

Syndromic approach

In developing and implementing suicide prevention programs over the past twenty years, many researchers have been exclusively concerned with suicide's association with mental disorders. In this conceptualization, suicidal behavior is directly associated with mental illness, usually depression, and is not seen as a variant of the normal response to stress or emotional distress. At the same time, suicidal thoughts reported by adolescents themselves are relatively common and occur in almost one in four aged 13–19 years [50], which casts doubt on the notion that these thoughts should, in all cases, be considered a consequence of mental disorder. In addition, the question arises, how does the statement that suicidal thoughts are the result of mental illness affect young people? In theory, such a notion should contribute to an increase in the number of calls to specialists for appropriate treatment. In some cases, however, this can lead to self-stigmatization and, on the contrary, contribute to the worsening of the suicidal crisis, especially in the absence of access to structures for providing psychiatric and crisis care. It is even more revealing when thoughts of suicide, which, paradoxically, can help a young person reduce their stress levels by presenting a comforting opportunity to “escape”, are taken as clear evidence of illness.

Most mental disorders are believed to be somehow correlated with the presence of suicidal thoughts, but not with suicidal actions [51], so approaches that prioritize psychiatric disorders may not be sufficiently specific to the mechanisms that cause suicidal behavior in adolescents, which may result in a reduction in the severity of psychiatric symptoms but, at the same time, the preservation of suicidal risk [52].

Of course, mental disorders have a significant impact on suicidal behavior in adolescents; however, one of the consequences of the prevailing biomedical approach to posing the problem of suicide at this age is that the developed methods of prevention tend to favor expert intervention and individual treatment of the problems and difficulties encountered by almost all adolescents. Unfortunately, this is a rather limited answer given the complexity of adolescent suicide. More specifically, when

suicidal behavior occurs (at least in part) as a reaction to or escape from “unbearable living conditions” such as discrimination, harassment, sexual abuse, or bullying, then in this context the allocation of major resources to mental illness treatment may be extremely inappropriate. It can be stated that therapeutic practices very often privatize problems and leave untouched a number of the more general socio-economic difficulties that support and perpetuate the “*locus minoris*” in social relations, which cannot but concern such a vulnerable group as adolescents [53].

It is also worth noting the fact that approximately 20–40% of adolescents who seek medical help at all have a high level of emotional stress and/or suicidal thoughts, while primary care specialists identify these problems in only 24–45% of these young people [54]. In this case, clinicians need to pay attention to indirect indicators of a suicidal crisis or experienced stress, such as sleep disturbances, changes in eating behavior, withdrawal from friends and family, withdrawal from habitual activities, aggressive or oppositional behavior, alcohol and/or drug use, trouble concentrating, and frequent complaints of physical symptoms that may be related to a negative emotional state (abdominal pain, headaches, or constant fatigue).

Thus, it is implied that internists play an important role in the assessment of suicidal risk in adolescents who present with complaints of a non-psychological nature. However, in this case, the main problem may be the lack of routing of adolescents in need of specialized assistance.

Summarizing the discussion of the relevance of identifying mental illness in adolescents for suicide prevention, at present, the evidence for the effectiveness of screening for symptoms of depression (as the disorder most commonly associated with suicidal response) in this age cohort is generally very low, so the benefits and harms of such interventions are unknown [33].

DISCUSSION

The continuing high rate of suicide among adolescents calls for an urgent concerted effort to develop, disseminate, and implement more effective prevention strategies. Comprehensive programs that combine elements of screening, follow-up, activation of protective factors, and mobilization of the social environment are considered to be the most appropriate for the adolescent environment. A comprehensive review of

the existing literature shows that the introduction of such programs in schools is the most reproducible and effective approach.

A better understanding of the role of various risk and protective factors is essential to the development and implementation of comprehensive suicide prevention strategies. At the same time, it is necessary to take the particularities of adolescence into account, which can determine the significance of some suicidal risk factors and anti-suicidal factors. In this case, issues related to relationships in the family and with peers, the formation of the ability to make decisions, and the use of adaptive strategies, as well as victimization in the school environment, acquire greater significance in comparison with adults.

At the same time, studying only the risk factors for suicide in the hope of creating the most accurate measuring instruments possible is not justified. Based on accumulated data on risk factors, it is necessary to identify specific program components that may be responsible for reducing suicide so that they can then be generalized and exported to multiple, dynamic, and diverse social contexts. From our point of view, it is necessary to shift the scale and emphasis of the programs that have demonstrated their effectiveness in preventing suicide in adolescents, depending on local conditions, social aspects of relations, cultural norms, and organizational processes. The goal is not to replace one research or practical structure with another, but to expand existing approaches. For example, an adolescent’s suicidal behavior can be considered within the framework of an existential crisis, and appropriate preventive work can thus be organized [55].

Undoubtedly, formal and specialized interventions (including mental health services and hospitalization) can save the life of a suicidal adolescent. At the same time, it should be remembered that professional service delivery models may not seem very attractive to some young people due to the fact that many of them are based on the “bottleneck” of biomedical approaches. It is well documented that adolescents express a clear and consistent preference for the kind of help provided by informal networks and friends when they have suicidal thoughts [56]. It might also be helpful to ask the young people themselves what, specifically, they find helpful about how their friends, peers, and classmates respond to what is happening to them when they report their

suffering. Thus, within the development of school-based suicide prevention programs, adolescents themselves can be positioned as knowledgeable “authorities” and “agents of influence” with a valuable understanding of what is important to them, as opposed to the role of passive recipients of adult advice and recommendations. This is in line with the trend towards the increasing use of approaches that emphasize the importance of youth self-governance systems, organizational flexibility, and social change, which can be of great value in adolescent suicide prevention practices. Based on the positive experience of school-based approaches, when planning programs for adolescent suicide prevention, we can move away from principles that promote a one-sided and didactic dissemination of facts about suicide and move towards pedagogical strategies that actively encourage communication, critical thinking, and exchange of opinions among adolescents, not only about the nature of despair, hopelessness and suicidal tendencies, but also about the possibilities for overcoming them.

CONCLUSION

Additional studies are required to develop an effective and comprehensive public health approach to adolescent suicide prevention. School-based approaches are the most convenient in practical terms, but they require systematic and long-term use of anti-suicidal programs. Digital interventions can reduce the economic burden of their use, including assessing suicidal risk and identifying psychopathology associated with suicidality. More active participation by adolescents themselves in the implementation of mental health programs, including, among other things, preventive aspects of suicidal behavior, can be considered a promising option for building a dialogue of qualified professionals directly with young people.

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