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CONTEMPORARY PRINCIPLES OF SUICIDE PREVENTION

SAVREMENI PRINCIPI PREVENCIJE SAMOUBISTVA

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Summary

Introduction. Suicide remains a significant public health problem worldwide. This study is aimed at analyzing and presenting contemporary methods in suicide prevention in the world as well as at identifying specific risk groups and risk factors in order to explain their importance in suicide prevention. **Material and Methods.** The literature search covered electronic databases PubMed, Web of Science and Scopus. In order to select the relevant articles, the authors searched for the combination of key-words which included the following medical subject heading terms (suicide or suicide ideation or attempted) and (prevention or risk factors) and (man or elders or mental disorders). Data analysis covered meta-analyses, systematic reviews and original scientific papers with different characteristics of suicide preventions, risk factors and risk groups. **Results.** Worldwide evidence-based interventions for suicide prevention are divided in universal, selective and indicated interventions. Restricted approach to various methods of committing suicide as well as pharmacotherapy contributes to a lower suicide rate. Suicide risk factors can be categorized as proximal and distal. The following groups are at highest risk of committing suicide: males, older persons and persons with registered psychiatric disorders. **Conclusion.** There is a lot of evidence that suicide is preventable. It is known that only 28 countries in the world have national suicide prevention strategies and Serbia is not one of them.

Key words: Suicide; Suicidal Ideation; Suicide, Attempted; Preventive Psychiatry; Accident Prevention; Risk Factors; Global Health; National Health Programs

Sažetak

Uvod. Samoubistvo je i dalje vodeći zdravstveni problem širom sveta. Cilj istraživanja bio je da se analiziraju savremeni principi prevencije samoubistva. Takođe, istraživanje je imalo za cilj da ukaže na specifične faktore rizika i grupe sa rizikom među osobama koje su počinile samoubistvo. **Materijal i metode.** Elektronska pretraga literature je izvršena u okviru indeksnih baza: PubMed – Medline, Web of Science i Scopus. Korišćena je kombinacija ključnih reči revidiranih u spisku medicinskih predmetnih naziva (MeSH) za odabir relevantnih članaka: (suicide or suicide ideation or attempted) i (prevention or risk factors) i (man or elders or mental disorders). Analiza je obuhvatila metaanalize, sistematske preglede i originalne naučne radove u kojima su prikazani faktori rizika i grupe sa rizikom za nastanak samoubistva. Takođe, analizirane su i karakteristike nacionalnih strategija prevencije samoubistva na svetskom nivou. **Rezultati.** Rezultati analiziranih metaanaliza i sistematskih pregleda ukazuju da su savremeni principi prevencije samoubistva zasnovani na univerzalnom, selektivnom i indikativnom pristupu. Ograničen pristup različitim metodama izvršenja samoubistva i farmakoterapija doprinose smanjenju stope samoubistva. Faktori rizika za izvršenje samoubistva mogu biti proksimalni i distalni. U grupe sa rizikom za izvršenje samoubistva spadaju: starije osobe, pripadnici muškog pola i osobe sa registrovanim mentalnim oboljenjima. **Zaključak.** Preventivne mere doprinose značajnom smanjenju stope samoubistva. U svetu 28 zemalja, među kojima nije Republika Srbija, ima nacionalnu strategiju prevencije samoubistva.

Ključne reči: samoubistvo; suicidalne ideje; pokušaj samoubistva; preventivna psihijatrija; prevencija nesreća; faktori rizika; globalno zdravlje; nacionalni programi zdravstvene zaštite

Abbreviations

WHO – World Health Organization

Introduction

The World Health Organization (WHO) multi-center study on suicidal behavior [1] has defined suicide as an act with a fatal outcome which the deceased, knowing or expecting a potentially fatal outcome, has initiated and carried out with the purpose of bringing about wanted changes. It represents a complex, dynamic and heterogeneous social phenomenon that is caused by several interacting factors, such as personal, social, psychological, cultural, biological and environmental ones [2].

Although the number of suicides has decreased since 2000 by 9%, it remains a significant public health problem worldwide. The WHO has reported that 804,000 suicides occurred globally in 2012. The estimated annual mortality is 11.4 suicides per 100,000 population (15.0 for males and 8.0 for females), which equates to one death every 40 s. Suicide rates vary widely within and between different geographic regions. The European Region is the second region in the world with the highest annual global age-standardized suicide rate of 13.8 per 100 000 population. In the European Region six European countries fall within the top 20 countries with the highest estimated suicide rates globally. For example, Lithuania has the fifth highest suicide rate globally at 28.2 per 100,000 and Kazakhstan has the tenth highest at 23.8 per 100,000. Of great concern is that suicide is the main cause of death in many European countries for the 15–29 age group [3, 4].

In Serbia, the total number of suicides exceeded 75,000 in the period from the early 1950s to the mid-2010s. Recent data from the Statistical Office of the Republic of Serbia estimated that the average age-standardized mortality rate was 17.4 suicides per 100,000 inhabitants in the whole country, that being above the world and European record [5]. Unfortunately, although the suicide rate in Serbia is high, there is no national strategy for preventing suicide. Recent studies reported the suicide mortality of Serbian population in different time periods related to age and sex [6–9]. The highest suicide rate was in Vojvodina region with 22.7 suicides per 100,000 inhabitants and the lowest was in South and East region of Serbia with 14.0 suicides per 100,000 inhabitants. The differences in suicide according to sex and age in Serbia followed the world trend. In the last two decades, 70.7% of the total number of suicides was committed by males and only 29.3% by females. In addition, 48.1% of those who committed suicide were at 60 years of age or over [5].

Previous studies [10–12] have reported that suicide is preventable according to strong evidence based on clinical trials and natural experiments of drug and psychotherapeutic interventions, improvements in patient identification and restricting access to means of committing suicide. Therefore, this study is aimed at analyzing and presenting contemporary methods in sui-

cide prevention worldwide as well as at identifying specific risk groups and risk factors in order to explain their importance in suicide prevention.

Material and Methods

The literature search covered electronic databases PubMed, Web of Science and Scopus. The authors searched for the key words which referred to the following medical subject heading terms: (suicide OR suicide ideation OR attempted) and (prevention OR risk factors) and (man OR elders OR mental disorders). A manual search involved reference lists from articles retrieved for possible inclusion. Database searches and hand searches were last conducted on July 31, 2016. Data analysis covered meta-analyses, systematic reviews and original scientific papers with different characteristics of suicide preventions, risk factors and risk groups.

Results and Discussion

Heterogeneity in study methodology and populations limited formal statistical analysis, thus we present a narrative synthesis of the results for the key domains of suicide prevention interventions, risk factors and risk groups.

Risk Factors and Risk Groups

Several risk factors act cumulatively to increase a person's vulnerability to suicidal behavior. Usually no single cause is sufficient to explain a suicidal act. In general, these factors can be categorized as state-dependent or proximal and trait-dependent or distal factors. The distal factors increase predisposition, whereas the proximal ones act as precipitants. Psychiatric and physical disorders, psychosocial crisis, availability of means and exposure to models are common proximal risk factors. On the other side, genetic loading, personality characteristics, restricted fetal growth and perinatal circumstances, early traumatic life events and neurobiological disturbances are recognized as distal risk factors [13]. The WHO reports a list of several risk factors that are interrelated [3, 4]. Moreover, they can contribute directly or even indirectly to suicidal behavior. They are divided into three big groups.

Health System and Societal Risk Factors

Stigma against seeking help for suicidal behaviors, problems of mental health or substance abuse, or other emotional stressors continues to exist in many societies and can be a substantial barrier to people receiving help that they need. Moreover, suicide risk increases significantly with different comorbidities [14]. Therefore, limited health care in different countries may contribute to higher suicide risk. Previous studies showed that adequate, prompt and accessible treatment for special risk groups (i.e. mental and substance use disorders) can reduce the risk of suicidal behavior [15–17].

Direct access or proximity to means of suicide significantly increases the risk of suicide. The most common means of suicide worldwide are self-poi-

soning with pesticides, firearm, and hanging [18, 19]. Restricting access to the means of suicide is effective in preventing suicide. Mann et al. [16] concluded that firearm control legislation was associated with reduced suicides involving this method. Moreover, several measures have been proposed to prevent suicide by pesticides which include reducing the toxicity of pesticides, reducing the access to pesticides by ratifying their safer storage and disposal, legislating to remove locally problematic pesticides from agricultural practice; enforcing regulations on the sale of pesticides, etc. [20].

Inappropriate media reporting practices can sensationalize suicide and increase the risk of “copycat” suicides (imitation of suicides) among vulnerable people. Additionally, exposure to models of suicide has been shown to increase the risk of suicidal behavior [21, 22]. Responsible reporting of suicide in the media has been shown to decrease suicide rates [16, 17]. Important aspects of responsible reporting include: avoiding detailed descriptions of suicidal acts, avoiding sensationalism and glamorization, using responsible language, minimizing the prominence of suicide reports, avoiding oversimplifications, educating the public about suicide and available treatments, and providing information on where to seek help [23].

Community and Relationship Risk Factors

The communities that people live in have an important association with suicide risk factors and it is related to different cultural, religious, legal and historical factors. Experiences of natural disaster, war and civil conflict can increase the risk of suicide because of the destructive impacts they have on social well-being, health, housing, employment and financial security [24]. Moreover, it has been reported that the stresses of acculturation and dislocation represent a significant suicide risk that has an impact on a number of vulnerable groups, including indigenous peoples, asylum-seekers, refugees, persons in detention centers, internally displaced people, and newly arrived migrants [25]. Additionally, discrimination against subgroups within the population can lead to the continued experience of stressful life events such as loss of freedom, rejection, stigmatization and violence that may evoke suicidal behavior and increase risk for suicide [26, 27]. Trauma or abuse increases emotional stresses and may trigger depression and suicidal behaviors in people who are already vulnerable [28].

Individual Risk Factors

Individual risk factors are related to the likelihood of a person developing suicidal behaviors. There are several individual risk factors that may increase the suicide risk. A prior suicide attempt is the single most important risk factor for suicide in the general population. Persons who have already attempted suicide have significantly higher risk for suicide in future [3, 4]. Another individual risk factor is the presence of mental disorders in persons who committed suicide. Previous psychological autopsy case-control studies

showed a strong relationship between suicide and psychiatric disorders. It has been reported that psychiatric disorders are present in about 80-90% of persons who kill themselves [29–31]. All substance use disorders increase the risk of suicide. Alcohol and other substance use disorders are found in 25–50% of all suicides, and suicide risk is further increased if alcohol or substance use is accompanied with other psychiatric disorders [32]. In addition, chronic pain and illness are important risk factors for suicidal behavior. Suicidal behavior has been found to be 2–3 times higher in those with chronic pain compared to the general population. All illnesses that are associated with pain, physical disability, neurodevelopmental impairment and distress increase the risk of suicide [33].

As mentioned above, several risk factors may contribute to suicidal behavior. Thus, several risk groups in the general population can be identified based on the analyzed data:

Males

According to the WHO report, significantly more men commit suicide than women. In 2012, male-to-female suicide ratio was higher in high-income countries compared to low- and middle-income countries (3.5 versus 1.6). Moreover, there are large differences between world regions, whereas male-to-female ratio is 4.1 in European Region [3, 4]. The differences in suicides between male and female gender in Serbia follow the world trend. In the last two decades, 70.7% of all suicides were committed by males and only 29.3% by females [5]. There are several explanations for this specific ratio. Basically, men are more impulsive and aggressive than women. Additionally, men choose more effective methods for suicide than women [3]. From the cultural aspect, since the society is less likely to accept suicide attempts done by men there are more deaths caused by suicide committed by men and their fewer suicide attempts than in female population [34]. Increased misuse of alcohol and psychoactive substances [35], suppression of emotion [36], and non-acceptance of medical care [37] contribute to higher suicide rate in males.

Old People

The WHO reports that with regard to age, suicide rates are lowest in persons under 15 years of age and highest in those aged 70 years or older for both men and women in almost all regions of the world [3]. In Serbia, 48.1% of person who committed suicide were aged 60 years or over [5]. The risk of suicide in old people increases with alcohol misuse [38], and higher number of diseases among them [39].

Psychiatric Disorders

According to a year-long research on suicide the patients with current psychiatric disorders top the list of those who commit suicide. Previous studies have reported that psychiatric disorders are present in about 80–90% of persons who kill themselves and contribute 47–74% to the population risk of suicide [29–31]. Harris & Barraclough [40] have reported

that the risk of suicide is increased 5 to 15-fold in persons with psychiatric disorders. Moreover, they claim that the functional psychiatric disorders (major depressive disorder, bipolar disorders, schizophrenia, etc.) pose a greater risk of committing suicide than organic psychiatric disorders (epilepsy and brain injury) [39]. In addition, previous meta-analyses showed that specific psychiatric disorders were associated with a higher risk of committing suicide. They reported that mood disorders (RR = 13.4), substance-related disorders (RR=5.2), personality disorders (RR=4.5) and psychotic disorders (RR=6.6) were the most common psychiatric disorders among the persons who committed suicide [41, 42].

Suicide Prevention Interventions

Despite the evidence that many deaths caused by suicide are preventable, often with low-cost interventions, suicide is too often a low priority for governments and policy-makers worldwide. In 2004, Sher [43] proposed three modes of suicide prevention. Namely, it has been stated that the ideal method of protection against suicide is primary prevention, i.e. reduction of number of new cases. In addition, the goal of secondary prevention is to decrease the likelihood of a suicide attempt in the high-risk patients. Furthermore, tertiary prevention is aimed at diminishing the consequences of suicide attempts.

World-wide evidence-based interventions for suicide prevention are divided into universal, selective and indicated interventions. Universal prevention strategies are designed to reach an entire population in an effort to maximize health and minimize suicide risk by removing barriers to care and increasing access to help, strengthening protective processes such as social support and altering the physical environment. Selective prevention strategies target vulnerable groups within a population based on characteristics such as age, sex, occupational status or family history. Indicated prevention strategies target specific vulnerable individuals within the population [3, 4].

Several reviews of the efficacy of different prevention practices have been published [16, 17]. One of the most comprehensive studies that are up-to date is the one conducted by Zalsman et al. [17]. Several aspects of suicide prevention interventions have been

analyzed in this systematic review. The authors have concluded that there is strong evidence that restricting access to lethal means is clearly linked to a decrease in suicide rates. They have reported that restricted access to the means of committing suicide include erection of barriers at sites popular for suicide by jumping, limiting pack sizes of analgesic and withdrawal of particularly toxic analgesics, restricting access to firearms in some countries, and withdrawal of more toxic pesticides in others. Furthermore, the authors analyzed the potential benefit of pharmacotherapy and psychotherapy. They have concluded that the anti-suicide effect of Clozapine and Lithium is confirmed but it might be less specific than thought before. Effective, pharmacological as well as psychological treatment of depression remains an important suicide and self-harm prevention strategy. Moreover, the authors have concluded that more research is needed to confirm the efficacy in suicide prevention in regard to the following public health approaches: gatekeeper training, media regulation, internet-based intervention, helplines, education of physicians and screening in primary-care population as healthcare strategies [17].

Conclusion

Evidence-based data suggest that several risk factors contribute to suicidal behavior, including societal, relationship and individual. Moreover, the most vulnerable risk groups are males, older persons and persons with registered psychiatric disorders. Analysis of previous studies indicates that the restriction of means and pharmacotherapy are effective in suicide prevention.

Although there is a lot of evidence that suicide is preventable, only 28 countries in the world are known to have national suicide prevention strategies today. Serbia, as a country with annual suicide rate above the world and European record, is not one of them.

It is well known that there is no way to predict those who will commit suicide. Thus, it is necessary to conduct more epidemiological studies which will help to recognize the population groups at risk of self-injuring and suicidal behavior. Based on data from other countries, the establishment of the national suicide strategy will improve suicide prevention in our country.

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