



Education on Prevention of Burn Injuries

Anushka Dimitrova¹, Petya Trendafilova²

Medical University – Sofia, Faculty of Public Health, Bulgaria

Abstract

Burns are a major global problem for public health. A number of risk factors, such as social, economic, educational, cultural, environmental and occupational conditions, and lifestyle can affect the lives of victims, their families and the whole society. Many of the World Health Organization's programs and international scientific societies are focused on education and preventing risk factors that endanger people's lives and health. Activities in the field of prevention and care of burn injuries aim to follow the public health approach and thus to address gaps and inequalities among people with low and middle income. The paper draws attention to the importance of the problem about education and prevention of burn injuries. The impact of education on the reduction of incidents has been proven globally. Positive change in burn injuries is reported not in the increased survival rate due to modern treatment methods, but in the significant drop in the incidence of burn injuries. Despite the opinion of some researchers (Ahn C.S. & Maitz P.K.M., 2012) that 90% of all burns are preventable, they remain a common and major public health problem [1]. In developed countries, particular attention is paid to legislation, public awareness, education and trauma prevention campaigns, as well as the health and safety directives [1]. Legislative and societal initiatives contribute to reducing the incidence of burns (primary prophylaxis), severity of trauma (secondary prophylaxis) and complications of the disease (tertiary prevention) [3]. Keswani, MH (1986) noted that "challenges to Burns... are not found in 100% successful treatment, but in 100% injury prevention" [5]. In conclusion globally, particular attention is paid to education, public awareness and trauma prevention campaigns, which have been shown to contribute to reducing the incidence of burns and the severity of trauma. The guidelines for raising the health culture of the population are associated primarily with the increasing frequency and importance of the main risk factors of the social environment.

Keywords: Education, Prevention, Burn injuries, raising awareness.

1. Introduction

Burn injuries cover a wide range of injuries to the health and lives of victims. They can cause severe general illness caused by local skin lesions affecting all organs and systems of the human body. Due to damage to the skin and other organs, burns can lead to open wounds, injury, death, major economic consequences, and severe emotional and psychological complications for the victims. Patients with burns go through a long and difficult period, covering not only long and expensive treatment, but also subsequent rehabilitation, reconstruction and long-term therapy to correct the scars. Despite the opinion of some researchers (Ahn C.S. & Maitz P.K.M., 2012) that 90% of all burns are preventable, they remain common and a major public health problem [1].

In South Africa, burns are the third most common cause of accidental deaths among children under 14. According to statistics from the Red Cross incineration department, 650 to 900 injured children of different ages are admitted to a specialized children's hospital in just one year (Albertyn R, Bickler SW & Rode H., 2006) [2]. It is stated that children under 5 years of age are the most endangered age group, and 50% of all burns are observed in children under 2 years of age. The main cause of burns in them are burns from hot liquids. Fire causes only 13% of burns, but is the cause of 83% of deaths (Rode H, et al., 1989) [4].

In the countries of Southeast Asia, most of the victims of burns are in the working age group between 15-60 years. Flame burns are the most common cause of injuries, followed by sunburn, which is common in children. The average hospital stay of patients varies from 13 to 60 days, and the mortality rate is from 4.5 to 23.5%, with the highest relative share of patients with flame burns. Although burns are one of the leading causes of morbidity and mortality, in most cases there is a lack of effective intervention programs due to limited epidemiological data. In developed countries, the frequency of casualties is significantly reduced due to the introduction of effective prevention intervention programs. In the United States, burns are the third leading cause of death from fires and the second leading cause of injury in adults over the age of 70. Burns in the elderly lead to a significant increase in morbidity, prolonged hospital stays, and long-term psychological trauma is often reported



(Stockhausen AL, Katcher ML., 2001) [6]. The annual cost of treating burns is \$ 7.5 billion (Corso P, et al., 2015) [7].

2. Promotion of Injuries

Injuries and poisonings are one of the leading causes of death, both in the world and in Bulgaria (third place), due to their high frequency among young and middle-aged groups. They are a broad category of health damage, including road accidents, burns, poisonings, suicides, homicides and violence at home and abroad. This type of health damage is a leading cause of loss of potential years of life and is becoming a major focus of society and public health.

According to the National Statistical Institute (Health, 2018), there is an increase in hospitalized patients in all age groups with class XIX diseases "Trauma, poisoning and some other consequences of the impact of external causes", incl. Thermal and chemical burns on the outer surface of the body, specified by their location.

Burn injuries are a major global public health problem. A number of risk factors, such as social, economic, cultural, environmental and working conditions, lifestyle can affect the lives of victims, their families and society as a whole, which determines their social significance.

Health promotion is a unifying concept, including decision-making and measures to change and improve certain factors affecting health with the participation of both the individual and society as a whole, to achieve full compliance between the environment and health. It is related to the philosophy of "health for the healthy" and outlines several basic principles:

- targeted actions to eliminate risk factors;
- support of the factors leading to better health of the population;
- support for appropriate health, social and environmental policies;
- development of social responsibility for health;
- strengthening personal responsibility and developing personal skills;
- reorientation of the health service towards health promotion;
- inter-institutional interaction;
- close interaction with business;
- supporting the participation of health professionals in health education and support [3].

The theoretical model of health promotion includes several elements:

1. Health education - a purposeful method for creating positive personal behavior and supporting the individual, group and society as a whole, by acquiring the necessary information for the development of positive health characteristics, health motivation and affirmation of positive health habits and life skills.

2. Health protection - a set of measures aimed at increasing positive health and creating a healthy living environment.

3. Health prevention - covering all measures taken by health professionals and society to prevent the spread of risk factors and diseases and their complications among the population.

In modern societies, a number of risk factors, such as socio-economic, cultural, environmental and working conditions, lifestyle can provoke disease, whether or not there is a predisposition to it. In order to create real conditions for a healthy lifestyle among the whole population, the actions of doctors, health care professionals, psychologists, pedagogues, social workers, politicians and others must be coordinated. Their main function is to organize effective comprehensive health promotion programs based on broad public support. An important role in this direction is played by the direct involvement and participation of the family and the school environment of adolescents [8].

An individual's behavior can have a positive or negative impact on health. A number of health risk factors stem from the psychology, behavior and relationships of the individual in modern society. These factors are related to:

- the cultural context - traditions, beliefs, moral norms, psychosocial resources for dealing with stressful situations in everyday life;
- lifestyle - primarily in the family with a focus on life events and social support;
- the individual psychological state - the internal resources of the person to deal with life stressful situations, risky forms of behavior [3].

The concept of risk factors should be the basis of preventive activities under the programs, with a leading population approach to intervention, but also with the application of a high-risk approach. The population approach aims to reduce the level of risk factors for all persons by creating a favorable environment that allows a healthy lifestyle through a number of measures, such as changes in legislation, taxes, financial incentives from the government and others. It has a negligible effect on individuals, but significant at the population level, does not require behavioral changes, is relatively



fast and is cost-effective, ie. leads to "benefits for all". The high-risk approach is aimed at detecting and treating high-risk individuals. Requires behavioral changes at the individual level, leads to a significant effect on individuals, but has little effect at the population level, ie. leads to "benefits for some" [3].

According to Rose (1981), many preventable cases occur not in small, high-risk groups, but in large, relatively low-risk groups. The population approach to disease promotion can lead to a significant change in the main health indicators - morbidity and mortality. This approach provides:

- ✓ good knowledge of the facts;
- ✓ study of the causes (risk factors) for the occurrence of chronic non-communicable diseases;
- ✓ choice of interventions - setting goals and objectives, health strategies, programs, priorities;
- ✓ assessment of the costs and effectiveness of the intervention.

Health promotion aims to create opportunities for people to improve their health by self-regulating their health behavior. It is aimed at creating a healthy lifestyle, which is a consequence of the high health culture of adolescents and the population in each country.

Child trauma is typical for children and adolescents up to 14 years. This is a period of rapid changes in physical and emotional development, as well as in the behavior of adolescents. Priority attention in the school environment deserves comprehensive programs for health promotion and the formation of a healthy lifestyle [3].

In the medical and social problems of the third age, the key place is occupied by the measures against the factors of social and psychological nature, limiting the independence of the elderly. One of the priority tasks for ensuring a quality life for the elderly is the improvement of the methods for health-promotional activity with a focus on prevention of falls and injuries, as well as increasing the opportunities for self-care in this age category.

3. Burns Prevention

Various researchers point out that burns are among the most devastating of all injuries and represent a major global public health problem [2, 7, 9 - 11]. In our modern society, burns are everyday at home, in the professional and school environment, but information about the extent of trauma and research on the etiology and characteristics of burns in different age groups are insufficient [3, 5, 11].

Burn injuries affect the life of the victim, his family and the whole society, which outlines their medical, social and economic significance. Activities in the field of prevention and care for burns are aimed at following the approach of public health and thus try to overcome the gaps and inequalities worldwide.

The International Society for Burns Injuries (ISBI), founded in 1965 in Edinburgh, Scotland, is working to reduce the incidence of this severe trauma by proposing strategies to improve treatment while training. Today, the organization has more than 100 members and more than 2,000 members, including from Bulgaria with various specialties related to the treatment of this trauma [8].

A number of studies worldwide have shown that over the last 30 years, a significant change in burn care has not been an increase in survival due to modern treatments, but a significant drop in the incidence of accidents. In developed countries, special attention is paid to legislation, public awareness, injury prevention campaigns and health and safety directives [9]. Legislative and public initiatives contribute to reducing the frequency of burns (primary prevention), the severity of trauma (secondary prevention) and complications of the disease (tertiary prevention) [12].

Keswani, MH (1986) notes that "the challenges of burns do not have 100% successful treatment, but in 100% injury prevention is successful" [5].

The World Health Organization (2017) called on leading burn experts from around the world to guide the further development of the Burn Prevention Program and provide guidance to address these challenges. The first consultation meeting on burn prevention and care allowed the use of the knowledge of many specialists, as well as the collective expertise of international organizations such as the International Society for Burns Injuries (ISBI) in developing its 10-year plan for prevention and care burning.

The WHO points out the main shortcomings in the prevention and care of burns in several areas:

- limited awareness of the problem among the population and especially among politicians in the countries;
- limited implementation or lack of policies to address the problem of burns;
- data on the extent of the problem, the risk factors and the economic consequences of the problem are missing or in some places insufficient and inaccurate;
- there are no studies on the severity and risk factors for burns in the circumstances of low- and middle-income countries, as well as in relation to the assessment of intervention trials or the cost-effectiveness of prevention and care strategies;



- Inadequate application of known, effective prevention strategies, such as smoke detectors and temperature control of the hot water heater, in an environment in which they are likely to be effective;
- Insufficient scientific assessment of strategies to counteract the risk factors causing burns in low-income countries;
- In many low- and middle-income countries, the implementation of effective burn care, including rehabilitation and long-term rehabilitation of burn victims, is insufficient;
- limited resources, lack of sufficiently trained staff with the skills needed to undertake the mentioned range of combustion control activities.

The large-scale strategic plan aims to support countries' efforts to prevent trauma worldwide. A number of special projects and activities include the development of various training materials (TEACH-VIP training modules cover burn prevention), as well as a number of publications addressing the problem (burn data sheet). Some of the manuals contain information on burns, including Guidelines for the Monitoring of Injuries [13] and Guidelines for Emergency Care of Injuries [14] and others.

4. Results

A study (A. Dimitrova, 2019) aimed at establishing the level of awareness of parents and students regarding risk factors, the level of severity and the impact of health education on trauma prevention found that the studied groups are informed about the risk factors of the surrounding environment and assess the seriousness of the threat to their life and health.

The results show that 75.82% of parents (n = 91) and 78.02% of students (n = 93) assess the severity of the impact of trauma on the health and lives of victims, for 95.60% of parents and 96, 70% of students providing information about the risk to adolescents will reduce accidents, for 96.70% of parents conducting health education in the school environment will reduce the risk of trauma, and 81.72% of students are willing to participate in forthcoming health training on the topic [8].

The experience of advanced countries shows that the most effective for injury prevention are complex programs aimed at change in people, change in specialists, change in the living environment [7, 11].

A sociological survey (Dimitrova, A., 2019) [8] was conducted among 288 health care specialists, of which 134 are working in outpatient care structures and 154 nurses from school and child health aimed at establishing the level of awareness regarding risk factors, the level of severity of the burn and the impact of health training aimed at injury prevention. The results found that for 82.98% of the surveyed persons it is necessary to provide information to the population about the possible causes and risk factors, and 84.38% of them expect the provided information to influence the reduction of incidents. According to 89.24% of the respondents (n = 288) conducting health education in the school environment on the topic of electric burns will contribute to the prevention of trauma among adolescents.

Effective burn prevention programs begin with an accurate assessment of the frequency of trauma, through situational analysis and extrapolation studies, which in itself requires an extremely expensive resource.

There is no information in our country about introduced programs for burn prevention. Health education programs for children and adolescents are determined and set by the Ministry of Education and the Ministry of Health. They lack the topic of burn prevention, although thermal and electrical burns are common in these age groups. Various serious incidents with teenagers affected by high-voltage burns are discussed in the public space, but the institutions lack specific guidelines for prevention [8].

5. Discussion

Following the example of developed countries, legislative and public initiatives should be engaged to collect data, conduct research and develop appropriate interventions to promote trauma, strengthen prevention, prevention and effectiveness of burn care. The development of multidisciplinary national strategic plans, including regulatory measures and guidelines to prevent and reduce the incidence of burns, should be encouraged, such as:

- ✚ information brochures / flyers with recommendations for burn prevention;
- ✚ health education programs for children and adolescents including basic ones
- ✚ knowledge of burns depending on the age of adolescents;
- ✚ use of safe heating systems;
- ✚ working electrical appliances;
- ✚ refractory toys;



- ✦ standards for electrification;
- ✦ smoke detectors in residential and public buildings;
- ✦ opening the doors to the outside, etc. [3].

Prevention strategies should be aimed at awareness of the prevention of accidents at work with flammable materials, compliance with fire safety measures, knowledge of evacuation plans in the event of a fire in a building and others.

6. Conclusion

Globally, special attention is paid to public awareness and injury prevention campaigns, which have been shown to contribute to reducing the frequency of burns and the severity of injuries. The guidelines for raising the health culture of the population are primarily related to the increasing frequency and importance of the main risk factors of the social environment. The consequences of burn injuries are a leading cause of loss of potential years of life, making them a major focus of public health.

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