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## MODERN TECHNOLOGIES FOR IMPROVING AND GUARANTEEING THE LEVEL OF SECURITY OF THE ELDERLY PEOPLE

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***Abstract:** This article explores various solutions in the field of modern technologies for improving and guaranteeing the level of security of the elderly people, applied in the country and globally. Special attention is paid to lonely residents and particularly to those living in remote and small settlements. The topic has been selected in view of the growing share of the aging population in the country and the necessity and search for effective solutions for preventing, intercepting and deterring violent crime actions against elderly and potentially endangered people. The aim is to explore the need, the possibility and the readiness for applying modern technologies in the life of the viewed category of people. The results of an experimental sociological study on the subject are being exhibited and commented. Various possible solutions and applications of panic buttons and mobile applications in the everyday life of the so-called "Third age people" are offered, based on a statistical analysis of the criminogenic situation in the country and the international experience in this field. A forecast has been made on the use of the suggested solutions in the country in the medium term.*

**Keywords:** Elderly, Security, Prevention, Technology, Criminal offenses, Mobile applications, Panic buttons.

### INTRODUCTION

Scientiavincet (lat.) - Science will win.

Aging of population is a process, observed in countries and regions that are in a state of demographic crisis. Regarding this connection, there is a necessity for additional activities and socially oriented events, aimed to ensuring the normal existence of elderly people. The greater attention and concern about elderly people requires the use of modern technological solutions for preventing crime against them, as well as for signaling when needed for help at risk to health or other life-endangering situations. This is a way to minimize and overcome fear and its devastating consequences, which will guarantee a decent life.

### EXPOSITION

#### **Aging of population in the European Union**

Globally, population aging begins in the early 20th century in the economically developed countries. The constantly low birth rate and higher average life expectancy change the shape of the population pyramid of the countries in the European Union. The share of elderly people in the total population of the community will increase significantly over the coming decades, as larger part of the generation of the post-war baby boom has already reached retirement age.

When considering the specific problems, arising from age victimization, it should be noted that the group of elderly people is characterized by high heterogeneity (Oden-Ramadan, R., J. Remington, 2003; Burkhardt, J., 1977). Moreover, contemporary socio-cultural conditions differ dramatically and in many different ways from those in which "third age" representatives have grown up, studied and worked. The evolution of technological and scientific knowledge and skills of the population in the 1950s and today is remarkable.

Practice shows that older people, more than any other age group, tend not to share that they have become a victim of a crime. The high rate of latency for crimes, committed against elderly people, is due to fear, shame, distrust in the institutions, or inability to notify because of the lack

of a trusted person to share with. In many of the cases, elder people are not a reliable source of information - physical disabilities, mental disorders, mistaken judgment of height, age, description of the perpetrator, etc. In this regard, some of them are afraid not to look funny in the eyes of others, which also discourages them from saying they have been the victim of a crime. Most elderly people live on their own and there is a real chance that they get threatening calls or visits from uninvited guests. The threat of a repeated crime against them by the same perpetrator is also high. The available police statistics is showing that criminals are targeting elderly people. The i2010 Strategy for a European Information Society has been adopted within the European Union and the needs of the aging society have been defined as one of its three key priorities. The “Ambient Assisted Living” Program and the the Action Plan on “Information and Communication Technologies and Ageing” (COM (2007) 332 final) have been accepted to support ageing with dignity. The complete use of the potential of the information and communication technologies helps meeting the challenges of the aging of population. This will improve the level of independent living for the elderly people and the remote health surveillance.

### Elderly people in Bulgaria and their safety

Bulgaria, as many European Union (EU) member countries, faces major challenges, related to population aging, which results in the increased need for long-term care services and, accordingly, an increase in public spending on these services.

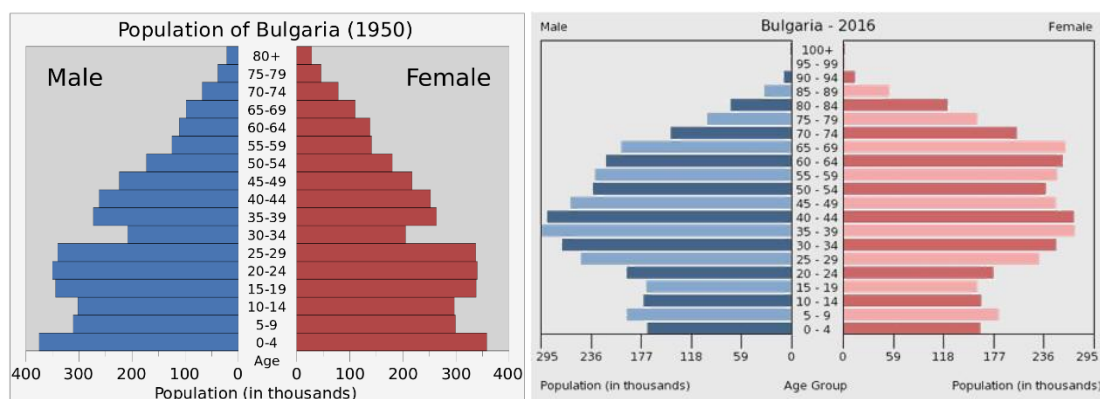


Fig. 1. Population in Bulgaria in 1950 and 2016. Source: National Statistical Institute

There are groups of people in every society, who objectively possess a higher degree of victimization than others. The fact that victimization is different for the different types of crimes has been established through empirical researches and existing practice (Stankov, B., 2008). One of the distinct groups with higher victimization includes elderly people who are subject to aggressive actions because of their inability to respond adequately to violence.

Elderly people become often victims of crime (theft, fraud, robbery, rape, personal injury, murder) and domestic violence in or near their homes<sup>301</sup>. Road accidents and fires are also among the daily threats to lonely elderly. They often become more cautious and restrict or change their lifestyle and habits with increasing age, because of the fear of becoming a victim of a crime.

Fear of crime has become a social phenomenon in the past 30 years, which has a strong impact on the lives of people in the country (Stankov, B., 2007). It changes completely the forms of communication and the social roles of the person, and the social activity of people is influenced significantly by crime. When interviewed and asked to list the most serious problems they face, most of the elderly people placed fear of crime first, prevailing over health, financial status and loneliness<sup>302</sup>. This result is not surprising, given the fact that representatives of the "third age" are,

<sup>301</sup> Author's observations and interviews with investigators, investigating police officers and prosecutors.

<sup>302</sup> About another way of using modern technologies for securing society's safety - Antonov, S., 2016, 356-383.

in most cases, defenseless. Physically weak and with reduced mobility, their injuries are treated for a longer period and more difficult, and often lead to immobilization and subsidence. On the other hand, a significant proportion of the elderly is with fixed income, minimal in many of the cases, and even small financial losses make them unable to continue living the normal way. Last, but not least, for objective reasons, with increasing age, the number of their contacts decreases, resulting in psychological traumas.

### **Need for an adequate state policy**

State policy to provide real protection for the population must be based on certain concepts and strategies for crime prevention and control. One of the necessary requirements for an anti-victimization policy is the provision of measures of a social, economic and legal nature, aimed at reducing the victimogenic factors.

According to the EU recommendations, the deinstitutionalization of the care of elderly and disabled people in Bulgaria is aimed at developing a network of community and domestic services in order to ensure an independent and dignified life and their full inclusion in the social life.

The development of long-term care over the next 20 years in support of vulnerable social groups, especially the elderly and people with disabilities, is a key objective of the National Long-term Care Strategy of the Republic of Bulgaria.

Enhancing the competences of adults with the Lifelong Learning Program will create for them conditions to remain creative and socially active.

Last, but not least, it should be noted that this provides an opportunity to reconcile the needs of elder people for information and communication services access and those of young people for job opportunities, thereby contributing to the dialogue between generations.

### **International survey on panic buttons**

In order to exchange good practices in crime prevention area, an international consultation was conducted on the existence of practices, regulating the development and implementation of programs for the supply of elderly and lonely people, victims of domestic violence and other categories, threatened by crime, with panic buttons or other technological solutions. The responses, received from 25 countries, outline the following situation:

Up to this moment in Albania, Australia, Greece, Canada, Cyprus, Lithuania, Macedonia, Malta, Moldova, Norway, United Kingdom, Romania, Slovakia, Serbia and the Czech Republic there is no practice to provide panic buttons for potential victims of crime and defenseless lonely residents by the law enforcement authorities.

There are no established practices in Luxembourg and Hungary to support the provision or implementation of panic button programs for potential victims of crime. This type of technical equipment exists and is available from private companies - medical or healthcare organizations - to call for medical assistance.

In Poland some non - governmental organizations provide for people who do not have enough money panic buttons, used in health- or life-endangering situations - heart attack, diabetes, stroke, etc. The number of companies, offering such kits - alarm devices, is increasing.

Swiss and Belgian police authorities do not provide panic buttons. Citizens can be equipped with panic buttons that are linked to private security companies. In case of activation, the security company intervenes and, if necessary, contacts the police. At the same time, the Federal Security Service has provided panic buttons for the seven federal councils in Switzerland, which is a long-standing practice. In the event of activation, the Federal Security Service National alarm Center receives the signal and undertakes further actions (risk assessment, planning and follow-up, according to the situation).

In April 2010, the Swedish government has decided to authorize the National Police Board to ensure the provision of personal devices for emergency phone calls and packages to protect victims of persecution. The aim is to strengthen the protection of people at risk and to create equal

conditions for the citizens of Sweden to receive such protection. Regarding this, modern equipment has also been provided. The National Police Board had the obligation to submit this equipment to the police authorities. The security packs include an emergency call device with GPS functionality and a voice call recording feature. The police communications center could trace in real time the movement of the person, who activates the alarm button. Technical equipment may be lent to persons, if the existence of such a necessity for them has been estimated by the police officers. In the spring of 2014, a total of 848 emergency call devices were available at all police units in Sweden.

There are many initiatives in the Netherlands - technical assistance in connection with the care of elderly. A commonly used installation is a "receiver" - a box that is placed in their homes and is connected to the Internet or a telephone. The person, in whose services it is installed, wears a red panic button around his neck or a bracelet, and when a signal is received, relevant actions are taken. Green panic buttons are also used, which send daily signals via an application, and if the message is not returned, the necessary measures are taken. There are also the so-called "mobie" - GPS tracking devices that are used in open spaces for people who are lost or in trouble, to be able to report a signal. These are private initiatives of social workers. Victims of domestic violence, disabled people - physical or mental, or persons with a long-term illness can also apply for a personal alarm system, and fees could be covered by their health insurance.

In Ireland there is an established and effective strategy to support elderly people by the police and the health services.

The National police in Colombia has developed a "POLIS" smartphone application as a kind of a panic button. The application has been designed for the citizens to gain more effective access to them, to report signals on cases when their life and safety are endangered. The application allows quick allocation of the victim and the police patrol responds to the signal.

### The Bulgarian experience

At present, there is neither separate definition of long-term care and long-term care services in the Bulgarian legislation, nor an official classification of the persons, entitled to it. At the same time, there is no state mechanism planned to provide technological solutions in the security field to the needy, be it elderly or other threatened persons.

Table 1 Elderly people (over 60 years) of Bulgaria - 31.12.2017

Age	Generally			Towns			Countryside		
	All	Male	Female	All	Male	Female	All	Male	Female
60 - 64	487 548	227 799	259 749	352 312	160 770	191 542	135 236	67 029	68 207
65 - 69	479 638	210 746	268 892	335 261	145 183	190 078	144 377	65 563	78 814
70 - 74	388 263	160 541	227 722	257 404	105 678	151 726	130 859	54 863	75 996
75 - 79	275 717	106 393	169 324	173 046	65 613	107 433	102 671	40 780	61 891
80 - 84	202 086	72 708	129 378	126 403	44 037	82 366	75 683	28 671	47 012
85 - 89	101 920	35 174	66 746	65 461	21 973	43 488	36 459	13 201	23 258
90 - 94	29 861	9 408	20 453	19 662	6 161	13 501	10 199	3 247	6 952
95 - 99	4 215	1 247	2 968	2 718	820	1 898	1 497	427	1 070
100 +	208	58	150	133	41	92	75	17	58

93.5% of the elderly people interviewed, express that they are hoping to live their entire lives at home. It was found through the last official census in the country that the household fragmentation process continues, with 59.2% of households in 2011 being single or two-member. The number of lonely residents is increasing substantially, which in the same year was 925 385, or their relative share of all households is 30.8%. The largest relative share of lonely residents is reported in the region of Veliko Tarnovo - 38.6%, and in the capital - 36.5%, and the smallest is in the region of Kardzhali - 22.4%.

The number of elderly people, using mobile phones and modern technological devices in their daily lives, is steadily increasing. Almost all questioned people say they could handle a mobile application if they were trained and share their hope that the idea is applicable to our country.

The population at risk of poverty or social exclusion, aged 65 and over, has 719,300 persons by 2017 or 48.5% of the population and 36.3% of the population in the same age group is living with material deprivation. The results of the survey show that almost 80% of the respondents would have owned and used a panic button, for which they would have paid personally or with the support of their relatives, if the funds allow. The observed increase in the share of the elderly population also leads to an increase in the share of the poor. The practice of elderly people to rely for help on their younger relatives will change, given the fact that working-age population shrinks. If the state provides such a service, however, 100% of the respondents would have obtained and relied on similar means of alarming.

In the last few years, various modifications of panic buttons with a subscription have been offered in the country, but they are within the competence of the private sector and the beneficiaries are fully committed to paying for them.

## CONCLUSION

Ensuring quality, affordable and sustainable long-term care services for the elderly and people with disabilities is one of the key priorities of the EU's political agenda. The perception of uncertainty and risk has a negative impact on the health of elder people. Comprehensive consideration of the current situation and an adequate multi-institutional approach - police, health and social institutions, NGOs, voluntary and public organizations, could facilitate supporting elderly and creating conditions for a decent life. It is of vital importance that the help for independent living does not lead to more loneliness, technologies to be customized to the needs of the targeted group and not the opposite, and the services provided to respect the rights of privacy and dignity of elderly people. At present, the potential for development and use of European products, such as smart homes applications and technological innovations, is already quite good. In regard of Europe's demographic future and the encouragement of independent living and remote health surveillance, exactly now is the time to develop practical and affordable technological products for people who need help in their day-to-day activities for an extended period of time. Local and regional authorities in Europe should make full use of the opportunities, given by information and communication technologies, to meet the challenges of the aging of population and thus to improve the standard of living of elder people.

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