

Report on Experience on Health Education as A Tool in The Prevention of Hypertension and Diabetes Mellitus with Male Female Civic Policies in The Integrated Regions of Public Safety - Risp and 1st Regional Delegation of Juiz De Fora Mg – Brazil

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Abstract

The male population can be considered one of the most vulnerable groups to suffer from chronic diseases, taking into account the socio-cultural factors that hinder the search for health services, as well as the objection to prevention and self-care practices. This situation is further aggravated in police officers, due to the inherent attributions of the profession that directly interfere with the stress level and quality of life of these professionals. Therefore, an extension project was carried out to promote health education for civilian male police officers, with emphasis on the care of stress-related diseases such as hypertension and type 2 diabetes mellitus. It is an experience report about activities carried out with 83 police officers, from November 2015 to February 2016, in the municipality of Juiz de Fora – MG, Brazil. The project involved the presentation of banners, lectures, and tests to verify blood pressure and blood glucose levels of civilian police officers. At the end of the activities, it was verified that the project performed satisfactorily and fulfilled its objective, which can be proven by the engagement and concern of the participants in improving their quality of life, notably in relation to the themes addressed. It was also noticed the importance of extension activities in university education, insofar as it enabled new experiences and knowledge, as well as the opportunity to put into practice the knowledge obtained while theory.

Keywords: *Civilian police; stress; health education; arterial hypertension; type 2 diabetes mellitus.*

1 Introduction

Disease prevention, as well as health promotion, can be considered as naturally applied practices among women. Men, on the other hand, mostly choose to postpone the search for help and assistance as much as possible, only when they can no longer deal alone with their injuries. Among these, it is also common for

the valorization of healing practices to the detriment of preventive and health promotion guidelines (SCHRAIBER et al., 2010). It is challenging to include men in health care for the absence of health care as a social issue (CARRARA; RUSSO; FARO, 2009). It should be noted that males have a lower life expectancy than females and are more predisposed to diseases such as diabetes, cancer, cholesterol, heart disease and hypertension (SILVA, 2010).

According to the World Health Organization (1986 apud SALCI et al., 2013), health promotion is an extended concept that goes towards global and social well-being. It is associated with a set of values such as health, life, solidarity, democracy, citizenship, participation, and self-care.

In this perspective, according to Girondi; Santos (2011), health education constitutes a set of practices aimed at transforming the lifestyle of individuals and society and, consequently, in the promotion of quality of life and health. To put it into practice, it is necessary to know the available strategies that can be applied aiming at greater proximity, sensitization, and adequacy to the target population.

And in the scope of health promotion practices, the quality of life at work is paramount and deserves attention, since the health of the individual is directly influenced by the situations that occur in his daily life and work activities. According to Sanchez-Milla et al. (2001), the profession of police officer deserves attention because it is considered a risk factor for the development of several health problems since it has some characteristics which may trigger or precipitate the onset of some diseases. This professional is an individual who deals, in his daily life, with situations of violence, exposure to danger, brutality and death. Such factors can still be exacerbated by the dull workload, rigidity, discipline, and hierarchy, which increase their physical and mental fatigue, which can compromise their health and quality of life.

And among the injuries that have caused the most damage in the police work environment, stress occupies a prominent place. The literature has demonstrated not only the relationship of stress to working conditions but also the risk of developing or aggravating metabolic diseases, such as type 2 diabetes and diseases of the circulatory system, such as arterial hypertension (ALMEIDA et al., 2011).

Stress is a physiological alteration that occurs when the body is in a situation that requires a more intense reaction than its normal organic activity, that is, it is a factor exerted on the organism that exceeds its capacity of adaptation. The same is posited as an adaptive reaction of the organism to an event that requires a response that goes beyond what is usual. At first, it is an expected response that may even lead to awareness and use of energy to deal coherently with situations. However, this happens to be a risk factor, when it damages the quality of life with the persistence of the stressor and the inability to establish behaviors and ways of dealing with a certain occurrence (FIGUEREIDO; CASTRO, 2015).

According to Mesquita et al., (2014) neural and endocrine activities are physiological responses generated by stress, which, consequently, may influence other physiological processes, such as, for example, motivate

increased cardiovascular, metabolic and autonomic functioning, leading to increased heart rate and blood pressure.

From the above-mentioned episodes, stress initiates a psychophysiological process of excitation, where hormones are secreted, which can alter the levels of glucose and free fatty acids in the blood. Such a reaction has the purpose of generating energy for the body and performing the fight or flight action. In type 1 diabetes, for example, stress reduces glucose levels, while in type 2 diabetes, it increases glucose levels (MESQUITA et al., 2014).

In this aspect, according to Hairstyle; Oliveira (2009) occurs with the continued activation of the hypothalamic-pituitary-adrenal axis (HPA), with hypersecretion of cortisol, among other hormones. In diabetes mellitus 2, HPA axis disorder may involve complex interactions between altered sensitivity to hormonal response and factors such as hypoinsulinemia, hyperglycemia and / or hyperleptinemia, stimulating the HPA axis. Hyperactivation that occurs is associated with the increased corticotropin-releasing hormone in the hypothalamus and the hippocampal glucocorticoid receptor.

Second, Junior; Neto (2010) describes that the circulating adrenocorticotrophic hormone (ACTH) is responsible for the regulation of glucocorticoid release by the adrenal gland cortex, as well as other hormones from the adrenal medulla involved in this process. Glucocorticoids have relevance in the regulation of the basal activity of the hypothalamic-pituitary axis and in the final responses to stress, by the existence of negative feedback in the central nervous system stress components. In addition, they are final effectors in the hypothalamic-pituitary axis and participate in the control of homeostasis in the human body, as well as the responses to the body's stress.

The structures of the hypothalamus and thalamus play an important role in this process, as they are involved in the mechanisms of emotion and establish connections with the sympathetic and neuroendocrine nervous system. The hypothalamus has several functions, such as regulation of food intake, water, diuresis, emotional and sexual behavior, as well as sleep and wake regulation, as they have relevant characteristics in the integration of physiological responses, being one of those responsible for body homeostasis. (JUNIOR; NETO, 2010).

In fact, among diseases related to stress and its implications, Type 2 diabetes mellitus (DM) occupies a prominent place. Although not considered a professional disease, its occurrence may be directly related to work activities, since these can compromise the quality and healthy habits of life. Studies have shown that excessive amounts of work, poor diet, sedentary lifestyle and mental stress increase the amount of free glucose in the blood and are considered to be potent risk factors for its onset (RODRIGUES et al., 2013).

It is estimated that the world population with diabetes is approximately 387 million and that by 2035 the number of diabetics reaches 471 million. It may become epidemic and can be classified into the group of

metabolic diseases associated with complications, dysfunctions and insufficiencies of various organs and systems, such as the kidneys, heart, and circulation (Milech et al., 2016).

In relation to systemic arterial hypertension (SAH), according to Brandão et al., (2016), this is a multifactorial clinical category characterized by a rise in blood pressure levels equal to or greater than 140 and / or 90 mmHg. It is usually associated with metabolic disorders, functional and / or structural alterations of target organs, being intensified by the presence of other risk factors, such as glucose intolerance, dyslipidemia, abdominal obesity, stress, among others. It is the most prevalent cardiovascular disease in Brazil, being a serious national and worldwide public health problem. In Brazil, hypertension affects 32.5% (36 million) adults, more than 60% of the elderly, contributing to 50% of deaths due to cardiovascular disease (BRANDÃO et al., 2016).

Chronic stress has psychological characteristics in the environment that contribute to the development of hypertension. They are effects mediated by the activation of the sympathetic nervous system and neuroendocrine pathways, including the strong link between stress and hypertension. Heart rate and blood pressure are controlled by the nucleus located in the posterior portion of the brain. The spinal cord, hypothalamus, and cerebellum are important to heart rate controllers. (JUNIOR; NETO, 2010).

And when thinking about the prevention of diseases such as type 2 diabetes and hypertension, one of the great difficulties is the need for the cooperation of the individual, especially with regard to self-care. In this sense, projects that call attention to the responsibility of individuals, especially males, should be stimulated and valued, since access to knowledge makes possible the understanding of the functions of the organism and draws attention to the necessary preventions for the well- being (CARDOSO; ZUSE, 2009).

And given the conditions that affect the police profession, to realize the importance of programs aimed at the health of this professional, with the definition of actions that aim at the promotion of health and prevention of diseases. In this perspective, the objective of this work is to report a health education project developed with civilian police of the Integrated Region of Public Security (RISP) and 1st Regional Police Station of Santa Terezinha, located in the municipality of Juiz de Fora- MG, which sought to awaken the self-care, as well as prevention and health promotion practices, with emphasis on stress-related diseases such as hypertension and type 2 diabetes mellitus.

2 Methodology

This is a descriptive study, of the type of experience report, of the project entitled: "Health Education as a tool in the prevention of hypertension and diabetes in Civil Police." The project was carried out at RISP and 1st Regional Civil Police Station of Juiz de Fora / MG, from November 2015 to February 2016 and is part of the extension activities of the Biomedicine course promoted by Faculdade Presidente Antônio Carlos de Leopoldina (FAPAC).

The target audience consisted of 83 police officers, men of all categories, including, delegates, researchers, clerks, experts and employees of Minas Gerais Administration and Services (MGS), with ages ranging from 32 to 59 years of age.

Participated in the project a student of the biomedicine course and two psychologists. The participation of the psychologists occurred voluntarily, by invitation of the student, who proposed an interdisciplinary action, aiming at the insertion of psychology in the activities proposed by the project. The contribution of these professionals involved from the initial sensitization to the service to the police. They also provided important guidelines about the student's posture regarding possible events during the project.

In the first contact with the institution, the delegate was exposed the purposes as well as the activities that would be developed. After acceptance, it was recommended that project members attend departmental offices to understand the functionality and planning of police management, as well as seeking greater proximity to police officers.

The first stage of the project included a lecture in the Integrated Region of Public Security, known as RISP, and the other lectures were given at the 1st Regional Civil Police Station of Juiz de Fora / MG, whose theme of both was: Health and Quality of Life of the Civil Police of Minas Gerais (PCMG) - The Stress of Civil Police.

The lectures were used as an instrument to provide information about stress and the possible consequences for the individual, focusing on the relationship of this with hypertension and type 2 diabetes.

Concurrent with the lectures, additional information on the subject was provided through banners. In a second stage, blood pressure levels and capillary blood glucose levels were verified. It is important to emphasize that the accomplishment of this stage did not have a proposal the local health diagnosis, but it was used as a tool, within the proposal of health education, in order to awaken on the importance of these exams in the prevention, diagnosis, and monitoring of diabetes mellitus and hypertension.

The verification of capillary glycemia was performed according to the Guidelines of the Brazilian Diabetes Society 2015-2016. Monitoring was performed by an 8-hour previous fast, in an environment provided by the Civil Police, with a digital glucometer, lancet and respective brand lancets (G-tech) graduated from 1 to 5 in increasing degrees of penetration depth in the skin. Grade 5 was used as the standard to perform the work. The measurements were performed on the palmar face of the distal phalanx of the 2nd, 3rd or 4th fingers of the right hand.

For blood pressure measurement, participants were advised to remain at rest for approximately 5 minutes. After this period, the left arm was positioned at the level of the heart (level of the midpoint of the sternum), resting on the table, with the palm of the hand facing upwards and the elbow slightly flexed. The cuff of adequate size was positioned to the arm about 2 to 3 cm from the ulnar foramen. Next, the middle of the

compressive part of the cuff was centered over the brachial artery, and the diaphragm of the stethoscope was placed on top of the artery. With the stethoscope in the ear, the cuff was inflated and thus obtained the values of systolic and diastolic pressure. After the first pressure measurement, each participant was informed that their pressure should be re-evaluated, taking into account the criteria established and provided by the Brazilian Arterial Hypertension Guideline VII (BRANDÃO et al., 2016).

After the exams were done, each participant received the results obtained along with guidelines on the importance of their repetition, as well as other periodic exams. And those who showed results outside the guidelines recommended by the guidelines were advised to seek medical attention.

The third step involved the individual servicing of the police by the psychologists. The same occurred by passive demand, by appointment, once a week, in a room provided by the institution.

The resources used in the project, such as pressure gauges, blood glucose meter, disposable gloves, alcohol gel, reactive tapes, explanatory banners, shirt, tickets, and food were all funded by the student, who was supported by the 1st Regional Police Station and FAPAC Leopoldina.

3 Results and Discussion

This study is an experience report of an extension project developed by the student of the course of Biomedicine, having a counselor and co-supervisor of the area of health and education. Through health education, we sought to draw attention to the importance of self-care, as well as health promotion and prevention practices, focusing on stress as a factor related to arterial hypertension and type 2 diabetes mellitus.

At the beginning of the activities, one obstacle was found in relation to the employees resistance to exposing their perceptions and opinions, even with the guarantee that the individual data would be preserved. This situation was verified during the individual visits with the psychologists. Although many police officers indicated that they lacked care, they realized that the search for help was hampered by individual internal and external factors.

Faced with these assumptions, educational activities were carried out with the purpose of bringing to the police know about the risk factors associated with their routine, at the same time making it possible to clarify doubts related to the subject.

However, during the meetings, through a participatory methodology, it was possible to break the initial resistance and interact with the police. Acceptance was perceptible through participation with questions and answers, which contributes considerably to learning. Another factor that contributed to the acceptance of the project was the fact that the activities were developed within the work environment, which created a stronger bond.

During the lecture, the police punctuated the factors considered stressful in work and the way each one dealt with the situation. There were even reports of those who were experiencing some stress situation outside of work. Faced with the opening and exchange of information, suggestions were suggested to reduce the reported stress. Based on the information obtained, the guidelines were directed towards meeting the reality. Changes in the lifestyle of civilian police to improve quality of life were addressed, and healthy habits were discussed. Emphasize the importance of a balanced diet and the valuation of preventive practices for a satisfactory quality of life.

The Institution of the Civil Police in focus does not have on its staff of collaborators a psychologist who works together with the doctor. Likewise, there is no biomedical or another professional that watches over the health of these professionals through research and follow-up of the same, or even that has the autonomy to propose to the police some type of treatment and clinical support. Given this scenario, the conduct for those who need more care is the removal of their functions by means of a medical certificate, so that a more detailed evaluation of their clinical and psychological profile can be made.

According to Dantas et al. (2010), police officers, due to the specific nature of the activities carried out, coupled with some factors such as work overload, organization and working conditions and frustrated personal demands constitute one of the categories of workers more exposed to physical-mental illness, understanding the body in its unity. These factors reduce the quality of life and increase vulnerability to chronic diseases, such as diabetes mellitus and arterial hypertension, in the focus of the project.

The practice of the police profession leads these professionals to face daily situations of great psychological wear and tear, since they must always be ready to protect society, careful to perceive any dangerous situation and act at the exact moment in a preventive manner, without loss of control of the situation and possible accidents (SPODE; CRESPO, 2004).

In this perspective, for Dantas et al., (2010), the phase of exhaustion is when the organism is weak and cannot adjust or resist the stressor. And it is precisely at this moment that the aggravations or the compromise of the well-being, both at the psychological level, begin to appear as acute anxiety, depression, lack of initiative to make decisions, frustration, as well as physical, with organic changes such as hypertension and diabetes.

Corroborating the relationship between stress and chronic diseases in police officers, Gonçalves; Veiga; Rodrigues (2012), in a study that sought to describe the importance of research on the quality of life of Military Police officers working in the 2nd CIA of the 10th Military Battalion of Miguel Pereira (RJ) and Paty de Alferes (RJ), found an association between stress and individuals with diabetes and hypertension (10%). At the end of the study, the authors also found that the investigated police showed a strong tendency to develop other chronic diseases, which make up the metabolic syndrome, such as dyslipidemias and sclerotic diseases.

Several studies have been carried out with police officers in Brazil to verify the prevalence of chronic diseases such as diabetes and hypertension. For example, in a recent study conducted in 2017 with military police in the state of Paraíba, prevalence rates of 63% and 5% were observed for hypertension and diabetes, respectively. The authors point to the need to incorporate preventive actions into police daily life, with the purpose of avoiding greater losses both in the professional life and in the personnel of these individuals (PAIVA et al., 2017).

It is important to consider that when systemic arterial hypertension (SAH) occurs along with Diabetes Mellitus, its complications (cardiac, renal and stroke) have a higher impact on the labor and consequently family income, estimated at the US \$ 4.18 billion between 2006 and 2015 (MACHADO et al., 2016).

The work environment is a factor that directly affects the health of the individual. When a person acquires any kind of illness or injury in the work environment, one should make a diagnosis and remove the person from what is directly or indirectly assaulting his organism (ALMEIDA et al., 2011).

In addition, it must be considered that stress is, in most situations, reversible, thus validating the importance of the institution to seek methods and ways to minimize its effects on the professional life of the police officer. Some preventive measures such as balanced nutrition, relaxation, leisure, physical exercises, psychological counseling, coping tactics to maintain the emotional stability of the police, positive attitude towards work, educational and preventive actions can make a difference in the professional life within the institution.

According to the objectives of the project, the glycemic and blood pressure tests were carried out within the health education proposal, not aiming the analysis of the data. However, this study supports the need for a deepening of these conditions so that the local health diagnosis of the police can be carried out. In this regard, it is also suggested to carry out other work with the previous submission to the Ethics and Research Committee with human beings for further dissemination of the results.

According to the authors, health education is an important tool for the dissemination of knowledge acquired at university level (Chaves et al., 2006; For example, for Silva, Ribeiro, Silva Junior (2013), health education provides society with the benefits of developing skills and actions, being a means in which academics are inserted and participate in strategies developing extension projects in which the theory and practice thus having an early contact with the future professional practice.

In this paper, Chaves et al. (2006), in an article that aimed to analyze strategies to develop health education with hypertension, report that this practice has contributed considerably to the prevention of pathologies in the last 20 years. According to the authors, the proposal of health education is to provide knowledge for the purpose of stimulating individuals to operate changes in their behaviors.

And in the scope of health education combined with interdisciplinary and integrative actions, it should be

mentioned that the biomedical is a qualified professional and can assume a role of relevance within the practices of prevention and awareness for the diagnosis and adherence to the treatment of diseases chronic diseases, such as type 2 diabetes and hypertension. At the end of this experience, the importance of extension projects in order to promote a better quality of life for the society, through the dissemination of practices of prevention and health promotion, became evident in the university context. The exchange of knowledge and experience is equally constructive and productive for the academic community. Thus, this project not only aroused care in relation to the health of the target population but also contributed valiantly to the professional construction of the academic.

4 Final considerations

At the end of the project, we noticed that the educational actions carried out performed satisfactorily and complied with the proposed objective, since through the meetings it observes an engagement and concern of the policemen to improve their quality of life, especially in relation to the topics addressed.

Police participation was satisfactory after terminating their resistance, as many participants sought medical and psychological help in the face of the facts exposed in the execution of the project.

To hope that the present work contributes to other similar actions and also instigates future investigations on the subject, including the investigation of other aspects related to the work activity of the policemen that can compromise the physical, mental health of these professionals.

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