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PHYSICAL ACTIVITY FOR OLDER ADULTS: ADHERENCE, BARRIERS AND HEALTH REPERCUSSIONS

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ABSTRACT

In the last decades, options of leisure activities have been increasing for adults older than 60years. This fact can be easily credited to the increase in life expectancy of the world population, making the leisure industry an attractive market niche to be explored. Although this public have been targeted by the recreation industry -that sought to offer more leisure options - the State has also been concerned with the issue, especially due to the need to fulfill the guidelines set forth by the *Estatuto do Idoso* (Statute of the Older Adult) and by the *Política Nacional do Idoso* (National Policy of the Older Adult). This work brings a literature review regarding the physical activities recommended to older adults, discussing questions related to lifestyle, aging and health, public policies for older adults, among others. As a conclusion, it was identified that Brazil still needs to greatly improve the following categories: accessibility, respect to older adults, public policies and attention to citizens of this age group.

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INTRODUCTION

According to the *Estatuto do Idoso* (Statute of the Older Adult) (BRASIL, 2003), the culture of leisure and sports are pointed as instruments of consolidation of older adult's citizenship; and are among the guarantees cited in article 3 of Law 10741. This topic should take into account the understanding of what leisure is. According to Gomes (2014 p.6) leisure "is conditioned to the work and the different uses of free time, both of which are strongly marked by fragmentation of time and space". Contextualizing physical activity in its dimensions, Zaitune *et al.* (2010) characterizes it as physical labor activities, which are subdivided in three types: of displacement (using bicycle or walking), of domestic nature and of leisure. In the same work, the authors affirm that physical leisure activities are the result of free time. Free time is understood as the time used for purposes other than work and domestic obligations that contemplates time for the practice of sports, physical exercises and others (ZAITUNE *et al*. 2010). Marcelino, Barbosa and Mariano (2006) understand leisure as a social culture, occupying the available time of the individual that seeks to satisfy himself simply because of the benefit of the activity. In addition, they mention that spaces and equipment for leisure are a reflection of urbanization and population growth. In this respect, these authors also understand that leisure becomes a property - in terms of ownership -, before consumption centers such as parks, squares, cinemas and spaces of social coexistence in general.

Aging and health

According to the current law in Brazil, an older adult is someone that is 60 years of age or older. For this age group, both the National Policy of the Older Adult (BRASIL, 1994) and the Statute of the Older Adult (BRASIL, 2003) ensures that they receive free services and benefit from a preferential system on several institutions. According to the Organization World Health (2015), a large part of the world's population has a life expectancy of 60 years or more. In third world countries,

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the increase in the population of this age group reflects the fast pace of global aging. This situation highlights that health aging does not mean aging "without disease" and that this issue goes much further. Several authors comment on aging and discuss several different theories about it. An integrative review performed by Teixeira and Guariento (2010), classified these age theories in programed and stochastic. The first refers to the programming of the "biological clocks" that goes from development to death, the latter refers to the random accumulated changes or damages caused to cells and molecules along the individuals life. Also noteworthy are evolutionary, molecular-cellular and systemic theories presented by Weinert and Timiras (2003). Among the evolutionary theories are: the accumulation of mutations, the antagonistic pleiotropy and the disposable soma. Molecular-cellular theories include: catastrophic-error, somatic mutations, cellular/telomeric senescence, free radicals / DNA, glycosylation (AGE) / crosslinks and cell death. Systematic theories contemplate: neuroendocrine, neuroendocrine-immune and rhythm / speed of life (TEIXEIRA; GUARIENTO, 2010).

The Schneider and Irigaray (2008) review work addresses aging from a biological point of view and adds the chronological, psychological and social aspects to it. The authors reinforce the relationship between age and individual, approaching the social perspective as one of the main determinants of old age. Other analyzes presented by Schneider and Irigaray (2008) sought to examine the different points of view of aging from a social perspective; they aimed to discuss theimages of old age, the "name" of old age, and the ages of old age – whichcan be the chronological age, the biological age, the social age and the psychological age. According to the same authors, whether positive (better linked to oriental culture) or negative (linked to western perception), factors permeating the image of old age include: their stereotypes, the contemporary worship of the youth, the new and the productive. This means that those who do not fit or do not possess these attributes, are outdated or have lost their social utility. Using a name for old age implies several terms and interpretations that may or may not contain prejudices, forms of depreciation of the older adult, and denial of the aging process. From the society perspective on the subject, the ages of old age are proposed to determine when exactly aging starts; however, it is known that aging is multifactorial and, as mentioned, not exact (SCHNEIDER; IRIGARAY, 2008).

According to Schneider and Irigaray (2008), the chronological age expresses the life span since birth and can differ from the biological age of the individual. Biological age refers to changes in the body and the mind throughout the human life, and can be related to changes in height, skin, vision, hearing, among others. Social age on the other hand, corresponds to societal and cultural aspects of an individual and their chronology. It may or may not be characterized by the retirement since, for some older adults, this moment means a transition to a new lifestyle or to a moment of self-realization (SCHNEIDER; IRIGARAY, 2008). Psychological age has two paths: the first relates to the capacity for learning, perceiving and memorizing; and the second, relates to a subjective self-criticism regarding the presence of the various markers of old age in comparison to other individuals of same social and chronological age (SCHNEIDER; IRIGARAY, 2008). From the physiological perspective, Pedrinelli *et al.* (2009) points out that aging leads to changes in muscle mass and consequent decrease in maximum strength. They also discuss the substitution of contractile proteins by lipids in the cellular structure of the muscle. Furthermore, there is a decline in isometric strength and muscular power, which, in turn, slows down muscle contraction, alters postural maintenance and increases risk of falls. These authors explain that a decline in synaptic markers compromises the ability of the nervous system to signal damaged joint regions.It also compromises the diameter and number of motor units, which, in turn, causes loss of muscle strength. As for the joints, they can increase its rigidity due to changes in the maintenance of water quantity and absorption by the organism, leading to decreased ability to absorb shocks. A potential stiffening of the joints may make it more prone to partial or total ruptures. Proprioception also declines and can lead to subsequent development of osteoarthritis.Finally, the authors point to bone loss and possible osteoporosis due to decreased osteoblast activity (Pedrinelli *et al.,* 2009).

Since the main causes of mortality in this population range correspond to chronic and degenerative diseases, ensuring healthy aging depends on healthy behaviors during life. Therefore, the public health care should be ready to respond to a greater demand of older adults affected by these diseases, with the necessary structures to treat such diseases (Organização Mundial Da Saúde, 2015). In the Brazilian context, policies directed to older adults must transcend concerns with biology, health, social security and their respective services. These policies should demystify the "typical" profile of an older adult as someone who has no utility and therefore, it is seen as disposable, outdated, dependent, and without functionality. In older adults, several factors such as genetic inheritance, life habits, food, among others, can contribute to preserve mental and functional activities equivalent to young people. Thus, the premise that an older adult cannot move, dress, feed themselves, or maintain hygienic care with the same vigor of the adult life can already be seen with other eyes. These age group is present in different environments working, studying, and thus being an active participant of society (BRASIL, 2016).

According to Minayo (2011), the Brazilian population of older adults reached 22 million people in 2009 and surpassed, for example, the mark of developed countries in Europe. This is followed by increase in life expectancy of almost 48% for people between the ages of 60 and 69 years. Minayo's work also states that "85% of Brazilian older adults are active and productive, even when they experience some health problem", therefore, this data confronts the already mentioned images that society has of the older adults (MINAYO, 2011, p.8). From the legislative perspective on aging, Rozendo and Justo (2011) commented that in the 80's the concern with the population of older adults was secondary and restricted to the relatives and assistance facilities, or to the nursing homes of the older adults. Retirement was the initial step of the governmental sphere that demonstrated concern with the older adults. This was an issue that come from the private to the public sphere. Following this step, another important action was the creation of policies directed specifically to the older adult - National Policy of the Older Adult and Statute of the Older Adult. These determined the proper treatment of this age group and added rights for this population.

Another social factor related to aging was addressed by Coutrim (2006) with regards to the contemporary family

structure. In this structure the older adult is the main or intermediary manager of the family's finances. The active older adult with good health and who also has divorced children and grandchildren as dependents in their homes – or even single fathers and mothers – seethemselves as head of the family. As head of the family and financial manager of the home, the older adult is perceived as highly valuable by the family member, what contributes to their self-valorization (COUTRIM, 2006). Thus, this speech along with their active participation in society – as addressed by Minayo (2008) – createsa positive image for old age, demystifying stereotypes imposed by society as previously presented by Schneider and Irigaray (2008). Silva *et al.* (2011), discussed the lifestyle and self-esteem of older adults. Both topics relate to human life because they can express a final phase of the individual's life cycle in a positive or "healthy" way. Self- esteem can interfere with behavioral relationships by altering how an individual faces life - for example with confidence, fears or insecurities - and thus how it interacts with it. Caring for oneself, seeking health and treatment of diseases, and aiming for a successful longevity depends on how an individual led life in the phase prior to aging. Nevertheless, these phases are not chronologically measurable.

The contribution of Lopes *et al.*(2014), bring older adults' own perspective to the discussion. They analyzed the statements of both physically active and inactive long-lived women (80 years or older). They realized that health-related aspects are crucial and imply in limitations by diseases, aging in different ways and in a more active manner. For these women, several difficulties must be overcome in the search of health. Some include: age-related factors, illnesses, environmental and society factors. According to this research, society must provide these long-lived individuals with assistance in order for them to keep control of their own lives. They must be able to manage their destinies, social moments, work, leisure, and the practice of physical activities aiming at improvements in health and injuries that affect them (LOPES *et al.*, 2014)

Practice of physical activities and of leisure

When discussing the subjects of physical activity and physical exercise, Maciel (2010) points out the peculiar definitions of each term. Physical activity comprises body movements produced by the musculoskeletal structure with consequent caloric expenditure and performed above resting levels; examples include walking, going up and downstairs, etc. Physical exercises on the other hand, involves organized, systematic and repetitive activities, in order to maintain or obtain higher levels of physical fitness. In turn, physical fitness can be seen from the health maintenance and performance perspectives. In the first, factors such as muscular strength and endurance, flexibility and aerobic conditioning are developed to fight diseases; for the latter, specific abilities are developed to improve sports performance, for instance, agility, balance, motor coordination, reaction time, among others (MACIEL, 2010). The first step, to encourage the practice of physical activities that aims health maintenance of the population, is to disseminate knowledge about its health benefits. In this sense, several programs of physical activities were offered to the population, both in Brazil and abroad, where this information was widely disseminated. One such example is the event *Programa de Promoção da Atividade Física:Agita São Paulo* (Program for the Promotion of Physical Activity: Agita São Paulo) performed in the metropolitan region and other towns of the São Paulo state (MATSUDO; BARROS NETO, 2001). Another factor pointed out by the authors, concerns with the ideal type of physical activity to be prescribed for the older adult population. At first, physical activities must aim to maintain the functionality of older adults by developing the capacity of muscular strength, balance, aerobic capacity, whole body movements and lifestyle change in general (MATSUDO, BARROS NETO, 2001). Functional capacity, according to d'Orsi *et al.* (2011), is multifactorial and depends on the different levels of autonomy, independence, socioeconomic and cognitive. Functional incapacity means the level of difficulty toperform Activities of Daily Living (ADL), the latter can be broken down into two other categories: physical self-maintenance scale (PSMS) and instrumental activities of daily living (IADL). The authors also commented that functional incapacity may be a determinant factor for mortality in older adults – especiallythe long-lived ones aged 85 or older – surpassingthe numbers of deaths related to possible pathologies. The works of Matsudo, Matsudo and Barros Neto (2001) and d'Orsi *et al.* (2011) pointed out that the mortality in older adults due to respiratory or cardiac diseases is closely and proportionately related to the level of physical activity in this population. They found that the higher the level of physical activity, the lower the risk of death from these diseases.

According to the Guidelines of the American College of Sports Medicine (ACSM) for Exercise Testing and Prescription (2010), the recommendation for the practice of physical exercises for those seeking to improve health condition is 30 minutes daily, whether accumulated or distributed throughout the day. Based on this premise, the Matsudo, Matsudo and Barros Neto (2001) review study found that, the knowledge of the surveyed population regarding the recommendations from the ACMS had no relationship with the adherence to habits of weekly physical exercises. The authors also revealed that in Europe and Brazil, walking is the most common type of physical exercise practiced by older adults; followed by gardening (more common to Europeans). Considering the social conditions of a developing country such as Brazil,which also possess unequal conditions of income distribution, walking would not only be the most recommended physical practice but also the most accessible for older adults. This practice would ensure use of the muscular system and the cardiorespiratory apparatus. The work of Matsudo, Matsudo and Barros Neto (2001) classify physical activities in different types. Vigorous activities are classified as those that require great body and cardiovascular effort, whilst moderate activity requires some body effort but cardiovascular requirement is just slightly above usual. Such definitions form the base for the literature-validated instrument known as International Physical Activity Questionnaires (IPAQ). This can indicate levels of physical activities of a certain population, including older adults.

Regardless of the activity, whether prescribed or chosen by the older adult, or even the place in which the activity will take place, leisure will be the foundation of it. It will combine factors such as the health maintenance, socialization and change of lifestyle, all of which seek to achieve the well-being of this population. Other authors pointed out that the participation of older adults suggests a "free choice for experiences which provide personal satisfaction, life quality improvement, a minimum of social stability and opportunities

for interpersonal relationships"(Fenalti; Schwartzd, 2003, p. 133). Salvador *et al.* (2009) bring up issues related to the environment and the leisure for older adults. This work analyzed several aspects related to the practice of physical and leisure activities by men and women. Their analysis includes the following: perception of safety, presence of nearby sports courts or gyms, residing near bank branches, churches or health clinics (10 minutes on foot) and invitation of friends to practice physical activities. Taking into account these factors, the same authors have identified that the perception of safety may be the main element that could increase chances of an older adult become more active. In this sense the authors add that these factors "are associated with the practice of physical activities in the leisure and should be considered in the planning of programs that promote physical activities for the older adult population" (Salvador *et al*., 2009, p. 979). An analysis of the sedentary lifestyle in older adult leisure programs was done by Zaitune *et al.* (2007). Carried out in the city of Campinas, this work demonstrated a high level of sedentarism, mostly, among older adults that present at least one of the following aspects: low socioeconomic level or low education, smokers, female and with some type of mental disorder. The discussion brought up the important relationship between sedentarism and lifestyle. They noticed that the practice of physical activities in leisure time is a result of an active lifestyle; such practices can be offered by the public services. They ended the discussion pointing out that public policies on quality-of-life should focus on lower socioeconomic levels in order to reduce inequalities related to information, acquisition of habits for maintaining quality of life and health care (Zaitune et al., 2007).

The authors Jannuzzi and Cintra (2006) addressed leisure from the perspective of hospitalization of older adults. In the hospital, where the research was carried out, inpatients could use the TV and see magazines. The authors noted that visits from loved ones occurred when the individual was hospitalized, but not in times of non-hospitalization. Furthermore, there is the occurrence of new friendships within the hospital environment. Conversely, at the interview, interviewees did not identify the conversations and the visits as leisure practices; even though it is a leisure activity for those who make such visits. The same authors affirmed that the clinical condition of the patient obviously reduces the participation of these population in leisure activities. They also identified activities that the inpatients would like to participate in spite of their clinical condition such as recreational, social, occupational, craft work, cultural, and physical; these, aim to reduce the effects of hospitalization and aid in how they deal with situation and the diseases that afflict them (Jannuzzi; Cintra, 2006). Gaspari and Schwartz (2005) analyzed the re-signification of leisure in older adults. They explain that independently of the social context in which the older adults insert themselves (parks, theaters, cinemas, restaurants, family, among others) they realize their own ability to modify the image of excluded, incapable, vulnerable, among other, that is attached to older adult person. By participating in programs of physical activity for the older adults they can reinvent their own aging process and can even overcome difficulties such as isolation, depression, low willpower, fatigue and etc.

Although the re-signification of leisure is able solve the emotional aspect related to the practice and the feeling of belongingin physical activity groups, authors like Cassou *et al.* (2008), Nascimento *et al.* (2008) and Eiras *et al.* (2010), present barriers as well as factors of adherence and maintenance of these practices. For Cassou *et al.* (2008), elements that negatively influence physical activities are named barriers; when these elements are positive, they are called facilitators. The authors also point out other classifications for these elements, they correspond to aspects related to psychological, cognitive and emotional expression, demographics and biology, aspects of the environment, characteristic of the physical activities and of behaviors. They also state that such models are closely linked to the socioeconomic levels of the older adult population. Finally, studies revealed a drop in the level of physical activities due to the following factors: disease, environment, cultural-beliefs, personality, motivation and self-efficacy (NASCIMENTO, 2008). As for the adherence and maintenance of physical activities, these were mainly related to the promotion or development of physical / biological health. The most relevant factor mentioned by older adults are mainly associated with medical recommendation, and the influence of friends, neighbors and relatives. Such factors can be included in the social, emotional and psychological dimensions of the classification of barrier to the practice of physical activities (EIRAS *et al.* 2010).

Final considerations

The guidelines set forth by the Statute of the Older Adult (2003) and by the National Policy of the Older Adult (BRASIL, 1994), aim to meet the need of older adult population in the whole country. However, all the efforts made so far by the government have not been enough to meet the Brazilian needs. The biggest issue is related to accessibility. Neighborhoods that present senior centers installed in their surroundings usually do not have quality public transportation. This barrier hinders or make it impossible for many potential users to access it, especially those with functional limitations.
In this sense, in order for older adults to enjoy their free time with greater satisfaction, it is necessary to adapt streets, sidewalks, walkways, but also the public transportation, making impossible for physical barriers to discourage older people from leaving home.

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