

Students' physical activity: an analysis according to Pender's health promotion model

ATIVIDADE FÍSICA DE ESCOLARES: ANÁLISE SEGUNDO O MODELO TEÓRICO DE PROMOÇÃO DA SAÚDE DE PENDER

LA ACTIVIDAD FÍSICA DE ESCOLARES: ANÁLISIS SEGÚN EL MODELO TEÓRICO DE PROMOCIÓN DE LA SALUD DE PENDER

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ABSTRACT

The objective of this study was to describe the everyday physical activity habits of students and analyze the practice of physical activity and its determinants, based on the first component of Pender's health promotion model. This cross-sectional study was performed from 2004 to 2005 with 79 students in a public school in Fortaleza, Ceará, Brazil. Data collection was performed by interviews and physical examinations. The data were analyzed according to the referred theoretical model. Most students (n=60) were physically active. Proportionally, adolescents were the most active (80.4%). Those with a sedentary lifestyle had higher rates for overweight and obesity (21.1%). Many students practiced outdoor physical activities, which did not require any physical structure and good financial conditions. The results show that it is possible to associate the first component of Pender's health promotion model with the everyday lives of students in terms of the physical activity practice.

KEY WORDS

Health promotion.
Motor activity.
Child.
Adolescent.

RESUMO

Estudo com objetivo de descrever hábitos de atividade física presentes no cotidiano de escolares e analisar a prática de atividade física e seus determinantes, a partir do primeiro componente do modelo teórico de promoção da saúde de Pender. Estudo transversal, realizado em 2004 e 2005, com 79 escolares de escola pública de Fortaleza. Coleta de dados em entrevista e exame físico. Os dados foram analisados com base no modelo teórico citado. A maioria dos escolares tinha prática ativa de atividades físicas (60). Os adolescentes, proporcionalmente, foram mais ativos (80,4%). Os sedentários tiveram prevalência maior de sobrepeso e obesidade (21,1%). Grande parte dos escolares desenvolvia atividades físicas ao ar livre, que não requeriam estrutura física e boas condições econômicas. Os resultados mostraram ser possível trabalhar a relação entre o primeiro componente do modelo teórico de promoção da saúde de Pender e o cotidiano dos escolares referentes às práticas de atividades físicas.

DESCRIPTORES

Promoção da saúde.
Atividade motora.
Criança.
Adolescente.

RESUMEN

Estudio con los objetivos de describir hábitos de actividad física presentes en lo cotidiano de escolares y de analizar la práctica de la actividad física y sus determinantes, a partir del primer componente del modelo teórico de promoción de la salud de Pender. Estudio transversal, realizado en 2004 y 2005, con 79 escolares de una escuela pública de Fortaleza. Recolección de datos en entrevista y examen físico. Los datos fueron analizados con base en el modelo teórico citado. La mayoría de los escolares tenía práctica activa de actividades físicas (60). Los adolescentes, proporcionalmente, fueron más activos (80,4%). Los sedentarios tuvieron prevalencia mayor de sobrepeso y obesidad (21,1%). Gran parte de los escolares desarrollaba actividades físicas al aire libre, que no requerían estructura física o buenas condiciones económicas. Los resultados mostraron ser posible trabajar la relación entre el primer componente del modelo teórico de promoción de la salud de Pender y lo cotidiano de los escolares referente a las prácticas de actividades físicas.

DESCRIPTORES

Promoción de la salud.
Actividad motora.
Niño.
Adolescente.

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INTRODUCTION

In the healthcare area, the biomedical model, based on biological knowledge, risk and individual care, is increasingly unable to explain and respond to a given population's health and disease processes. Evidence shows that health is more related to people's lifestyle than the prevalent idea about their genetic-biological determination⁽¹⁾.

This situation shows the need to outline strategies and actions that will contemplate the positive aspects of the emerging healthcare approach, replacing the notion of health as absence of disease by another that increases the autonomy of the subjects to attain health with quality of life. Therefore, health promotion arises as a conceptual, methodological and instrumental field, seeking to overcome the idea of the natural history of diseases, demanding a broadened perspective of the health-disease process⁽¹⁻²⁾.

With the publication of the Ottawa Charter for Health Promotion (1986), several conferences and international meetings were held regarding the relevance and meaning of health promotion, including healthy public policies (Adelaide, 1988), favorable environment (Sundsvall, 1991), strengthening of community actions (Jakarta, 1997) and the consolidation of health promotion as a fundamental component of public policies and programs (Mexico City, 2000)⁽³⁾. It is worth noting that all charters address lifestyle as one of the central components of health promotion strategies.

Lifestyle is defined as a set of individual decisions that affect health, over which a certain level of control can be exerted. Personal decisions and habits that are detrimental for health create risks originated by the individual himself. When these risks result in disease or death, it can be said that the lifestyle contributed to or caused the disease or disorder⁽⁴⁾.

After the Industrial Revolution, socioeconomic and cultural changes and the many technological advances yielded a new lifestyle for the world population. Even considering the benefits from an economic perspective, the lifestyle changes brought by modernization can be translated in a general, imminent risk for health⁽⁵⁾.

Among lifestyle changes, one of the main characteristics was that it became more sedentary. A sedentary lifestyle is responsible for approximately two million deaths worldwide. Yearly, it is estimated to be responsible for 10% to 16% of colon and breast cancers and diabetes, and 22% of ischemic heart diseases.

Promoting health, therefore, depends on giving attention to integral development, contemplating the following aspects: attention to the quality of interpersonal relationships, a balanced dietary supply, good living conditions and access to healthcare services, access to information and formal or professional education and doing sports or other

types of leisure in order to have good physical, emotional, intellectual and social development⁽⁷⁾.

School is one of the spaces acknowledged for the promotion of a healthy lifestyle. The health promoting school is defined as a place with an integral view of being human, which considers people—especially children and adolescents—within their family, community and social environments. Therefore, the school is seen as one of the most important spaces in the promotion of a healthy lifestyle, with the practice of physical activities, since children and adolescents, as well as teachers and auxiliaries, spend a great deal of time there⁽⁸⁾.

However, sedentary habits like playing videogames and watching television are increasingly more common in the daily routine of children and adolescents⁽⁹⁾. Besides, physical activity actions acquired in childhood seem to persist during adult life. They can even be vital in the prevention of several diseases, and especially in attaining a healthier life⁽¹⁰⁾.

As such, healthcare professionals need to become aware of the habits of children and adolescents in school, especially regarding the practice of physical activity, so that they can implement strategies to promote health and wellbeing for schoolchildren, as well as the prevention of diseases. In an effort to meet this need, Pender developed a theoretical nursing model of health promotion that may be used to know, execute and assess health promotion actions, including the practice of physical activities⁽¹¹⁾.

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GOALS

The purpose of this study was to describe physical activity habits in the daily routine of a specific group of schoolchildren and analyze the practice of physical activity and its determiners, according to the first theoretical component of health promotion proposed by Pender⁽¹¹⁾.

METHOD

The Health Promotion Model (HPM) was developed by Nola J. Pender, professor emeritus of the Nursing School at University of Michigan in the United States, and is supported on the concept of health promotion, defined as those focused on the development of resources that can maintain or improve wellbeing⁽¹¹⁻¹²⁾.

American, Asian and European researchers have often used this health promotion model to study behaviors that lead to health promotion. Its theoretical basis is focused on the multidimensional nature of individuals, in which there are interpersonal and environmental interactions. Both contribute substantially to achieve health⁽¹¹⁻¹²⁾. Its structure is simple and clear, enabling nurses to provide care either individually or as a group, allowing for planning, intervention and assessment of their actions⁽¹²⁾.

In addition, this science model attempts to evaluate the behavior of individuals that leads to health promotion,

according to three basic components: 1) individual characteristics and experiences (previous behaviors and personal factors); 2) feelings and knowledge about the desired behavior (perception of benefits, barriers, self-efficacy, inter-

personal influences); and 3) desirable health promotion behavior (commitment to the plan of action, demands and preferences), as seen in figure 1⁽¹¹⁻¹²⁾.

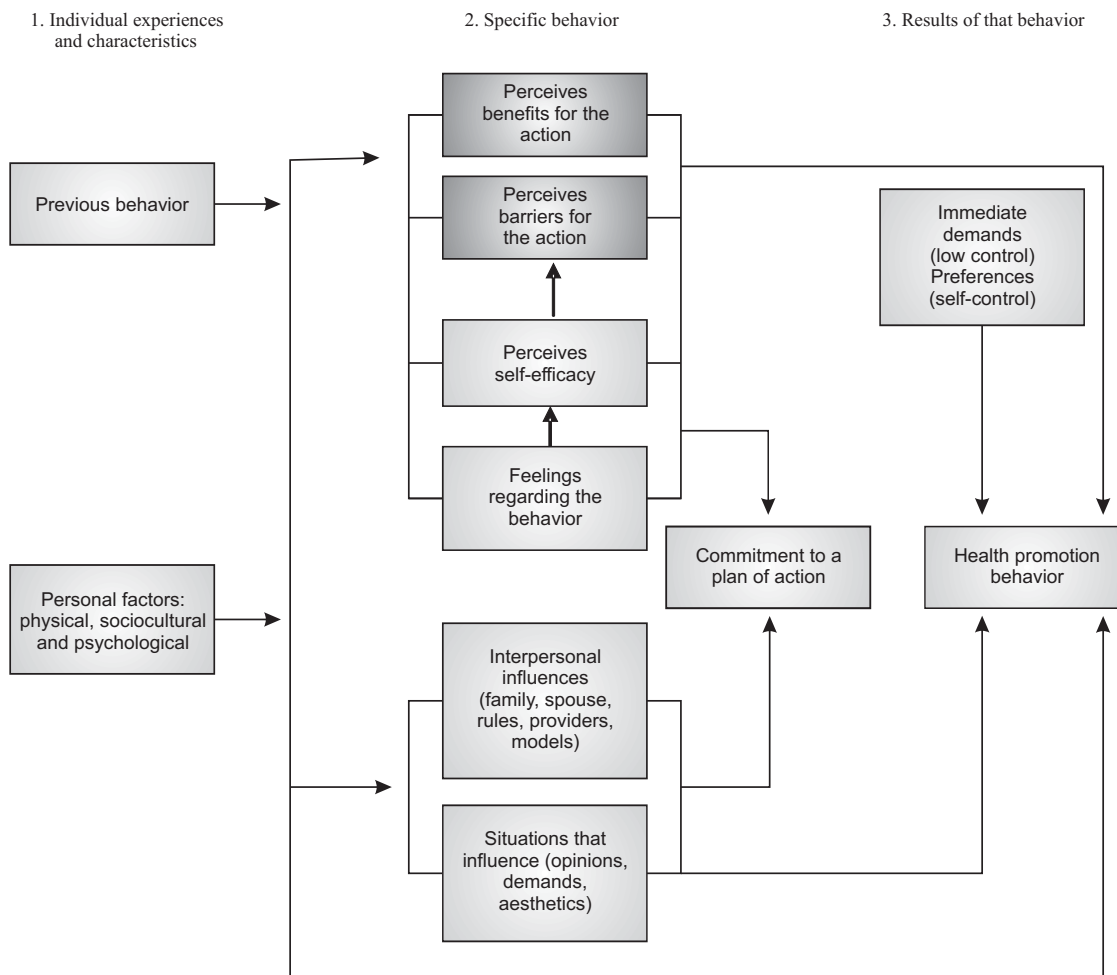


Figure 1 – Diagram of the health promotion model – Fortaleza - 2002.

As nurses have experience with biopsychosocial factors and ongoing contact with the patients, they have the chance to improve the health of the community. It is important for primary care to be organized in order to reduce or eliminate barriers that make it difficult for patients to seek a healthy behavior, which includes doing physical activities⁽¹¹⁾.

In the present study, we chose to address the lifestyle of a group of schoolchildren with children and adolescents, according to the first component of the illustrated diagram (figure 1). Previous behavior is defined in the adopted theoretical model as the individual's previous habits related to the search for health, and is linked to the idea that people have personal factors/characteristics and experiences that subsequently affect their actions⁽¹¹⁾.

As such, previous behavior is the standard condition for the elaboration of nursing interventions, and personal factors interfere directly in individual behavior in order to promote health, especially for the practice of physical activities⁽¹²⁾.

This is a cross-sectional study. It was carried out at a public elementary and high school, located in the city of Fortaleza/Ceará/Brazil. Data collection occurred from October, 2004 to March, 2005, during weekly visits to the school in the morning and afternoon periods, according to the researchers' availability.

The study population contained children and adolescents aged 6 to 18 years. The studied group consisted of 79 children and adolescents who agreed to participate in the study, with the consent of their parents.

Data collection occurred with individual interviews, involving the researchers and the schoolchildren and/or their parents, when a form was filled out with data like gender, age, family income, practice of physical activities and time spent daily on sedentary activities. It is worth noting that, whenever the children or adolescents did not know how to answer the form questions, their parents or legal guardians answered them.

The form also included space for observations about what occurred when the students arrived or left school, the spaces available for physical activities in the school and how physical education classes were organized in the school.

After the interview, children and adolescents were submitted to an anthropometric evaluation (weight and height measurements) to calculate the BMI. The BMI values were classified in percentages, according to the American method⁽¹³⁾, such as low weight (below the 5% percentile); normal weight (between percentiles 5% and 85%); overweight (between percentiles 85% and 95%) and obesity (above the 95% percentile).

As for the practice of physical activities, children and adolescents who did physical activities less than three times a week for less than 30 minutes were considered sedentary.

The results were analyzed by reading and interpreting the data, according to Pender's theoretical model of health promotion⁽¹¹⁾, in an attempt to comprehend these data in relation to the first component of the theory.

Considering the administrative and ethical aspects of scientific research, school management received the appropriate documents, requesting authorization to perform the study, which was granted. In addition, the study proposal was sent to and approved by the Review Board of Universidade Federal do Ceará - COMEPE, (Protocol No 95/04), in accordance with recommendations for research involving human beings.

RESULTS AND DISCUSSION

All 79 children and adolescents study in a public school in the outskirts of Fortaleza, being enrolled for either morning or afternoon classes. Most students walked to school by themselves or with friends. The students' parents or legal guardians often did not accompany them.

Once per week, the teachers and coordinators welcomed the children and adolescents in the main schoolyard to inform them about the general activities planned for the week.

In addition, the school offered cultural activities and permitted the development of research and extension activities in several areas, especially healthcare. Among these, projects on cardiovascular disease, healthcare education and eye care of the Nursing Department of Universidade Federal do Ceará, as well as the Schoolchildren's health program, are worth noting.

The physical activities promoted by the school were available only for the 5th grade and upwards, guided by a physical educator. Each class had a 50-minute physical education class once a week. It is worth noting that the place where the physical education classes were held was also used for other activities, which made it difficult to have physical activities more often.

This situation contradicts the recommendations of the National Policy of Physical Activity Promotion⁽¹⁴⁾, which emphasizes the incorporation of at least 30 minutes of physical activity, most days of the week – daily, if at all possible – of moderate intensity, as a strategy to reduce the risk of non-transmissible chronic diseases and to improve quality of life.

Researchers note the importance of the school to promote the daily involvement of children and adolescents in basic physical activities⁽¹¹⁾. The same authors address the need for families, communities and primary healthcare to complement the role of the school in physical activity⁽¹¹⁾. At the school where the study was developed, the idea of a health-promoting school focused on physical activity had not been incorporated.

With the purpose of analyzing the first component of Pender's Theory, we chose to focus on gender, age range and Body Mass Index (BMI) among physical factors. The figure below shows the profile of physical activity practice in children and adolescents.

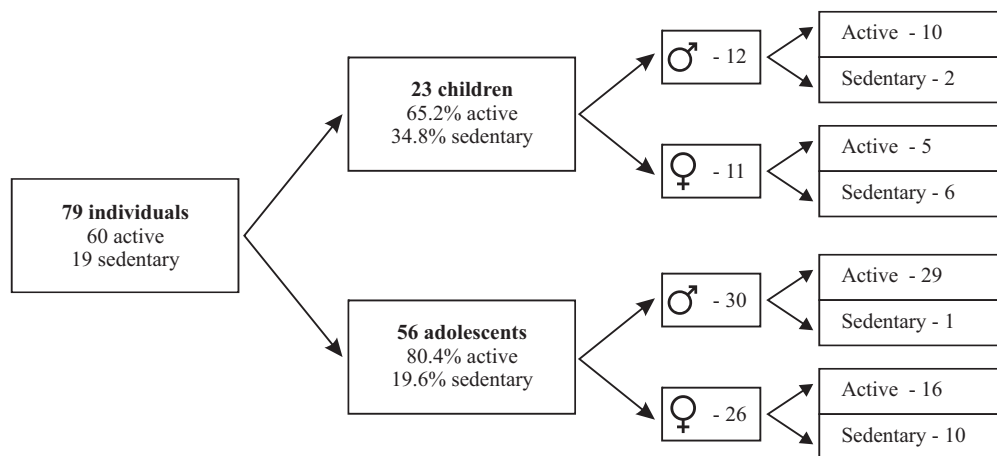


Figure 2 – Description of physical activity according to gender and age range. Fortaleza - 2005

In order to analyze issues regarding the practice of physical activity, it should be noted that physical activity is defined as any body movement produced by the muscle-skeletal system that consumes energy beyond baseline consumption⁽¹⁵⁾.

Although the school did not develop physical activity practice according to health policy recommendations, most children and adolescents practiced physical activities for over thirty minutes more than three times a week.

As for gender, girls were more sedentary when compared to boys. Regarding the age range, adolescents (12 to 18 years old) were proportionally more active.

In contrast with our findings, authors of the theory⁽¹¹⁾ state that physical activity declines by about 50% during adolescence. Regarding gender, the authors state that physical activity is higher among boys than girls, in accordance with our study. Such behavior is justified because girls mention more setbacks to start physical activities and not enjoying physical education classes in school⁽¹¹⁾.

Regarding the Body Mass Index, higher prevalence of overweight and obesity was observed among sedentary children and adolescents (Figure 3).

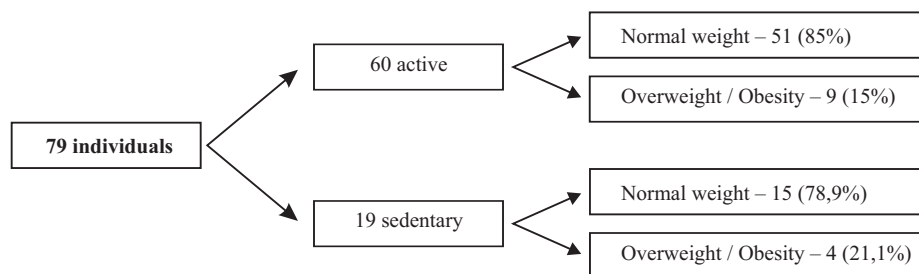


Figure 3 – Description of physical activity according to Body Mass Index - Fortaleza - 2005

It is known that the practice of physical activities in overweight individuals is usually lower than that of non-obese. However, the tendency to a sedentary life is still a matter of discussion as to whether it is a cause or consequence of obesity. Children and adolescents tend to become obese when they are sedentary, and obesity itself can make them even more sedentary⁽⁹⁾.

Changes in the physical activity profile of the population, more time spent on sedentary activities (television, videogames, computers) and the change of sociocultural factors, such as considering excess weight as a synonym of health and prosperity, has a negative impact on health⁽¹¹⁾.

As such, the school, as a health-promoting place, has a fundamental role in changing sedentary habits, since it can encourage and strengthen the capacity of children and adolescents, as well as their families, to deal with the multiplicities of conditioners for physical activity practice. This concept refers to strengthening the promotion of a healthy lifestyle by building on the capacity of choice⁽¹⁶⁾.

In addition to the school, families and informal community networks should not only be considered receivers of healthcare, but also active subjects who can contribute with their own resources for the process of health production, especially the practice of physical activity⁽¹⁶⁾.

Socioeconomic status is one of the sociocultural factors addressed in the theory. Particularly socioeconomic level directly influences participation in sports organized outside the school, since there are financial expenses involved with the sport and transportation. Another obstacle is that family members need to find time to take their children to the places where these activities are held. It is known that the

influence of the family during childhood has a positive effect on the development of an active lifestyle⁽¹¹⁾.

Among active schoolchildren, a large share developed unsupervised outdoor physical activities, which did not require special facilities or good financial conditions, such as: walking, playing soccer and riding bicycles. Other activities needing professional supervision and with financial expenses, such as gymnastics, dancing, bodybuilding, swimming and water gymnastics were not common among these students.

Health behaviors may be related to family support, socioeconomic variables and socialization by means of the family, the school and the media. Socioeconomic status plays a significant role in these behaviors, as families with better financial conditions can provide better resources and access to multiple sports activities⁽¹¹⁾.

The authors of the theoretical model of health promotion⁽¹¹⁾, by addressing the psychological factor, described that it includes variables like self-esteem, self-motivation and perception of their health status.

The practice of physical activities offers opportunities for leisure, social integration and development of skills that result in higher self-esteem and confidence for the child. In the present study, although the school does not assume the role of promoting physical activities, as explained before, it was observed that the students were active and motivated to do physical activities during periods like class intervals and before or after school.

In this context, the importance of primary healthcare is evidenced by the empowerment of the school and the community, by making people aware of the importance and

the benefits that derive from a healthy lifestyle in order to attain quality of life. The empowered individual is capable of behaving in a certain way, influencing his own environment and acting according to the goals of health promotion⁽¹⁷⁾.

It should be noted that, the higher the social, environmental and family supports are, the higher are the chances of complying with and keeping up physical activities in children and adolescents. Initiatives that use education with environmental support have the highest chances of success⁽¹²⁾.

The previous behavior of individuals is another element in the first component of Pender's theory⁽¹¹⁾. The theoretical model highlights, in its first precept, that genetic and acquired features influence the search and involvement in activities directed at health promotion. The analysis of previous behaviors in relation to sedentary activities in children and adolescents is presented in Figure 4.

Sitting	→	9.05 hours
Sleeping	→	8.88 hours
Using the computer	→	0.10 hours
Watching television	→	2.63 hours
Attending lessons	→	3.50 hours

Figure 4 - Average hours spent on sedentary activities per day - Fortaleza - 2005

In the studied group, although most subjects practiced some type of physical activity, they spent many hours a day on sedentary activities. Some studies evidenced concerns with the time spent on electronic activities like computers and television⁽⁹⁾.

In this study, the average daily hours spent using the computer and watching television amounted to 2.73 hours. There is a study showing that the obesity rate for children who watch television for more than one hour a day is 10%, whereas habits of watching television for three, four, five or more hours per day are associated to a prevalence of nearly 25%, 27% and 35%, respectively, and that television takes up the free hours in which a child could be doing other activities. The child often eats in front of the television, and a large share of the commercials offer calorie-rich, non-nutritious foodstuffs.

The media plays an important role in broadcasting and building opinions. Therefore, it should disseminate information related to health and wellbeing, emphasizing the

importance of a healthy lifestyle and encouraging such habits since childhood, which would promote the health of individuals, families and communities⁽¹¹⁾.

In addition to the media, the school has an important role in health promotion, as it should encourage children and adolescents to perform leisure and socialization activities in association with the educational process, so that they have fewer moments of idleness, which would favor the development of sedentary habits.

Physical, sociocultural and psychological factors, as well as previous behaviors proposed in the first component of the theory under study are considered to influence physical activity practice of children and adolescents.

CONCLUSIONS

The use of theoretical nursing models could help health-care professionals to understand the health-disease complex, and also support nursing practice.

The present study showed that the first component of Pender's theoretical model of health promotion can be related with the daily routine of children and adolescents, focusing on physical activities, supporting nursing interventions in order to promote the health of schoolchildren.

The main results show that most schoolchildren were active. Sedentary ones had a higher prevalence of overweight and obesity. A large share of the schoolchildren did outdoor physical activities, which did not require special facilities or good financial conditions. In spite of these findings, the school where the study was held did not promote the health of its students.

Healthcare institutions, family and the school environment are important resources that can influence the commitment and involvement of people with behaviors that lead to health promotion either positively or negatively. As such, they can be seen as either benefits or barriers for the acquisition of healthy habits.

The importance of physical activity is well-known as a component that promotes the health of the population, and, if encouraged since childhood, it will contribute to reduce health risks throughout life.

It is worth noting that the notion of schools as health-promoting institutions is an eminent idea, which still needs to be consolidated in Brazilian public policies, so that it can benefit the health of children and adolescents.

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