

The Impact of Physical Activity on Physical and Mental Health: A Study of the Mais Vida Project in Pedregulho, São Paulo

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Abstract: *This study investigates the impact of the Mais Vida project on the physical and mental health of patients at the Santa Luzia Family Health Unit in Pedregulho, São Paulo. Through clinical data collection and patient interviews, the research explores how physical activity influences patient's health. The study confirms the positive effects of physical activity on chronic disease management and mental wellbeing, emphasizing the importance of integrating such programs in primary care settings to enhance community health.*

Keywords: Chronic disease, Primary Care, Physical exercise, Mental health, Health promotion

1. Introduction

In the Federative Republic of Brazil, following the promulgation of the Federal Constitution of 1988, states and municipalities assumed a leading role with management autonomy. This shift meant that state governments interested in transferring management responsibilities for Public Policies had to implement successful strategies to gain the adherence of municipal governments [1]. Public Policies have various definitions, depending on the management level where they were formulated and the type of public problem they aim to address. In this dissertation, "Public Policy" is defined as the governmental response to a demand from the population [2].

Societal demands should be presented to public officials through organized groups, known as "Organized Civil Society," which includes unions, business associations, neighborhood associations, employers' associations, non-governmental organizations, councils, and conferences. In other words, public policies result from the competition between different societal groups or segments seeking to address public problems [3]. Moreover, formulating, implementing, and managing public policies require theoretical and operational knowledge of the "Public Policy Cycle," which, after analyzing social demand, seeks alternatives to address the identified issues [3].

In the health sector, to ensure citizens' rights, the Unified Health System (SUS) was created through Law No. 8,080 of 1990. SUS is a complex system that considers biological and social issues, making it one of the most significant social movements for democracy in Brazil. It is the main public health policy, aiming to address all population health demands and ensuring their constitutional right to health. SUS employs broad actions like basic sanitation and specific ones like routine medical consultations, ranging from low to high

technological density, including surgeries and intensive care unit (ICU) admissions. This social program acts as a counter-hegemonic social policy, resisting those who view health as a commodity [4]. Understanding Public Health as a governmental policy requires focusing on the assistance dimension, without disregarding technology and management [1].

In the assistance dimension, one can understand issues related to the production of care. With the creation of the health care network model, the organization and realization of services gained governmental status. Therefore, organizing the health system into networks is a "governmental policy." For actions to be realized, a management model responsible for formulating projects is necessary, aiming to plan and materialize the required assistance actions for the population. Implementing Public Health Policies requires valuing individual assistance in a holistic, empathetic manner, with a participatory management approach where not only capital accumulation determines actions. Thus, it is essential for the management and assistance teams to understand the public and private domains, "hospital" and "outpatient" actions, whether collective or individual, through hierarchized actions based on the intended health care and individual needs. To comprehend Public Health and provide it with the "social policy" dimension, it is necessary to focus increasingly on smaller spaces and understand the set of social relationships formed there, to develop a collective health idea from social forces that, through their rights struggles, shape political options [4].

For this understanding, some actors are extremely important as they shape actions and become specific formulators of the sector: they connect the care model with economic management and turn health actions into public spending standards, through institutional organizations and health promotion projects.

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Public Health involves an interweaving of knowledge and disciplines, making it transdisciplinary in the field of knowledge. As a social project, public health is characterized by the interaction of social, ethical, and cognitive values [5]. Thus, it is evident that Public Health is a field of policies, scientific knowledge, and a societal project that raises anthropological, ethical, and epistemological issues.

Much is said about directing health actions, which involves legally and cohesively coordinating the resources available in public health. Therefore, the transdisciplinary team must be attentive to existing policies to address patients' complexity [6]. The health team is responsible for providing comprehensive care. In this context, the responsibility is shared not only among peers but also among various social actors who can and should participate in public control and participatory management. [7]

2. Methodology

This investigation was conducted using a descriptive and observational research approach. Given the nature of the subject, data were collected through documented records from the health unit's information system and exploratory interviews about the emotional and social impacts of lifestyle changes on patients. This approach allowed for a subjective qualification of psychosocial aspects and a quantitative assessment of the substantial aspects of the body—concerning non-communicable chronic diseases.

Initially, clinical data from patients at the Unidade de Saúde da Família Santa Luzia in Pedregulho, São Paulo, were gathered to identify the health impacts after joining the Mais Vida physical activity group and observe lifestyle changes.

The focus of this work was to analyze blood pressure control parameters, anthropometric data, and emotional complaints before and after the multidisciplinary treatment, comparing the evolution of these disease outcomes. The results were analyzed to check their alignment with or divergence from the literature regarding the obtained results.

The goal of this study is to evaluate the Mais Vida project and determine its impact on the quality of life of the local population. We employed only descriptive observational methods, without the use of statistical techniques. The approach is descriptive, focusing on both the results obtained and the process through which the objectives were achieved. Additionally, a structured questionnaire, attached as an interview, was used to understand the entire process to which the study population was subjected.

With a comprehensive approach, we examined the full nature of the project's application and structuring. The local management needed to acquire theoretical knowledge and practical skills for implementing such educational interventions for the target population to study improvements in quality of life and to serve as a model for further implementations in other municipalities within primary care, with the goal of expanding the project in the Unified Health System.

The project involved professionals in physical education,

medicine, and nursing. Data collection began with obtaining approval from the ethics committee and, subsequently, from local managers. Patient records and interviews were conducted using a semi-structured interview method, with a focus on gathering information from project participants. This method allowed for an interactive process where the interviewer sought to obtain information from the interviewee based on a guide with topics around the central issue—lifestyle modification and its impact on health.

Semi-structured interviews were chosen as they allow informants to elaborate on their experiences around the researcher's main focus. The questions were developed considering the theoretical foundation of the investigation and the information collected about the phenomenon.

For data analysis, the discourse analysis method of the French school of Michael Pêcheux was used. The data were then presented in the discussion section of this research and compared with the theoretical framework.

Regarding ethical aspects, the Free and Informed Consent Term was used, and patient names will not be disclosed to protect their opinions and questions, ensuring their integrity.

3. Discussion and Results

3.1 Public Policies for Chronic Care – What Are Chronic Diseases?

Chronic diseases are a set of chronic conditions that can be associated with various causes, generally beginning gradually, without a predefined duration, which can change over time and lack a certain prognosis. Moreover, they can have acute episodes, leading to disability and even frailty in the elderly [8].

It is important to note that these chronic diseases are a significant factor in the pathophysiology of frailty in the elderly. A frail elderly person is one with organic vulnerability, and these patients often present with dementia, making them dependent on daily activities, including self-care [8].

Regarding chronic diseases, it is crucial for patients to change their lifestyle habits as a form of primary prevention when the disease is not yet established and secondary prevention in cases where the disease is already present [8].

Chronic diseases can lead to mortality and increase the number of hospitalizations, and they are a major cause of amputations, loss of mobility, and reduced neurological functions. Thus, it can be stated that there is a loss of quality of life as the disease progresses [8].

Additionally, there is an economic impact that chronic diseases bring to the country, including costs borne by the Unified Health System (SUS) and expenses related to absenteeism, retirements, and the death of the economically active population [8].

In 2012, the Secretary of Health Care initiated the Network of Care for People with Chronic Diseases, which provides

guidelines and aligns actions and services already occurring in the daily routines of health teams and management. These actions include the development of action plans to address these chronic diseases, which are so prevalent in the elderly Brazilian population [8].

3.2 Process of Developing the Strategic Action Plan for Addressing Chronic Diseases and Non-Communicable Conditions in Brazil

Health Promotion is crucial for addressing the social determinants of health. The main strategy involves building the capacities of individuals and collectives for greater participation and control over processes that directly affect their lives [9].

Comprehensive health care consists of a group of actions that involve health promotion, disease prevention, and health care at all levels of complexity, considering the biological, social, and cultural dimensions of individuals [9].

Health surveillance is a set of continuous practices designed to recognize, prevent, and address diseases, disabilities, current risk factors, vulnerabilities, and accidents affecting a population within a territory [9].

Disease and injury prevention involves health surveillance and care actions to structure health care, along with actions targeting disease and accident risk factors, and intersectoral actions that adjust structural interventions for groups within a territory [9].

Mental health is a state of well-being in which an individual can cope with everyday stress, be productive, and contribute to their community [9].

Given these concepts and the public policies included within each, it is clear how essential primary health care is for patients with chronic comorbidities in all types of prevention. It is important to remember that there are four types of prevention:

Primary Prevention: This refers to measures taken to prevent a disease or condition from occurring in the first place.

Secondary Prevention: This focuses on early detection and treatment of diseases or conditions in their initial stages [10].

Tertiary Prevention: Tertiary prevention aims to reduce the impact of a chronic or already established disease by minimizing complications and rehabilitating the patient [10].

Quaternary Prevention: Quaternary prevention refers to actions taken to mitigate or avoid harm resulting from excessive or unnecessary medical interventions [10].

Quinary Prevention: Recently included, quinary prevention focuses on the quality of life of healthcare professionals and their well-being.

These different levels of prevention are essential for addressing public health issues holistically, from initial prevention to care and rehabilitation after diagnosis.

3.3 Exercise and Blood Pressure Reduction in Hypertensive Patients

It is of utmost importance to adopt non-pharmacological measures, such as lifestyle changes, for the prevention and even control of elevated blood pressure levels. These measures should be recommended for all patients with chronic diseases, even those undergoing medication treatment. Among these changes is physical exercise, as a sedentary lifestyle is a risk factor for cardiovascular diseases. Studies have shown that physically trained hypertensive patients have lower morbidity and mortality rates. Additionally, exercise promotes cardiovascular adaptations, such as improvements in vascular function, increased arterial flexibility, and reduced peripheral vascular resistance, all of which contribute to lower blood pressure. [11]

Studies show that reductions in BP and HR, which occur due to physical training, are associated not only with a decrease in plasma catecholamine levels but also with an increase in vagal tone [11].

In addition to the previously mentioned changes, regular physical exercise helps improve overall health, reduce body weight, control type 2 diabetes, and decrease the risk of cardiovascular diseases.

Therefore, the regular and appropriate practice of physical exercise plays a crucial role in the management of hypertension, providing significant benefits for the cardiovascular and overall health of hypertensive individuals.

3.4 Beneficial Effect of Physical Exercise on Short-Term Metabolic Control of Type 2 Diabetes Mellitus

Fasting blood glucose levels decrease after physical training, which is attributed to the beneficial effects of physical activity. This improvement is also due to the increased glucose uptake that occurs during exercise, even with low insulin levels. Studies have shown that acute physical activity in individuals with type 2 diabetes significantly increases glucose utilization compared to those with type 2 diabetes who do not exercise [12].

It's important to note that individuals with type 2 diabetes mellitus (DM2), whether or not they use insulin, experience the same hypoglycemic effect after physical exercise. This indicates that the effect is similar in insulin-dependent and non-insulin-dependent individuals [12].

Therefore, the importance of physical activity in insulin-dependent or non-insulin-dependent type 2 diabetics and its acute effect is well understood. This physical activity should be of light to moderate intensity and, importantly, should be combined with aerobic and resistance exercises to help improve muscle strength, especially since elderly patients tend to experience sarcopenia as they age. It's crucial that these exercises are performed regularly, with a duration of about 60 minutes [12].

Additionally, beyond the effects on DM, there are changes in plasma lipid levels, including reductions in total cholesterol, LDL (low-density lipoproteins), and triglycerides, along with

an increase in HDL (high-density lipoproteins). This also helps reduce cardiovascular risk, as a patient with diabetes mellitus and LDL levels below 190 mg/dl is considered at high risk for cardiovascular events [12].

3.5 Physical Exercise and its Impacts on Mental Health and Functional Capacity in the Elderly

As previously mentioned, frailty in the elderly is very common, and one of the main causes of this condition is dementia.

"Regular physical exercise with moderate intensity in elderly individuals aged 65 and over can reduce memory loss, such as mild cognitive impairment, Alzheimer's, and other dementias. This is due to the reduction of oxidative stress, the release of nitric oxide, and the promotion of neuronal reserve" [13].

This citation highlights that, in addition to psychological benefits, physical exercise helps prevent or delay the onset of dementias, consequently reducing the likelihood of frailty in the elderly—a condition that causes dependency and significantly increases mortality.

As mentioned before, the elderly are more susceptible to functional incapacity, which is caused by the presence of comorbidities, reduced physical activity, sarcopenia, and loss of muscle strength. Sedentarism brings numerous disadvantages to patients, both in terms of chronic diseases and disability, creating a vicious cycle. Therefore, engaging in physical activity breaks this cycle, allowing the elderly to better manage chronic diseases, reduce cardiovascular risk, and increase muscle strength. This promotes independence in the elderly, preventing frailty and dysfunction.

3.6 Physical Exercise and Its Impact on Peripheral Venous Insufficiency (PVI)

Peripheral Venous Insufficiency (PVI) is a prevalent condition affecting a significant number of individuals worldwide. Characterized by dysfunction of the venous valves or obstruction of the venous system in the lower extremities, PVI can lead to symptoms such as pain, swelling, and venous ulcers, significantly impacting patients' quality of life. Traditional treatment for PVI has primarily focused on venous compression and pharmacological therapy. However, increasing evidence points to the benefits of physical exercise as an effective complementary intervention. Exercise not only enhances blood circulation and muscle function but also may reduce symptoms and improve long-term outcomes for patients with PVI.

In summary, it is evident that physical exercise should not be viewed merely as a practice to improve physical condition but as an essential component for promoting health across all its dimensions. Its benefits range from preventing chronic diseases to improving mental health, significantly contributing to overall quality of life and well-being. Therefore, promoting and encouraging regular physical activity not only benefits individuals but also represents an investment in public health and the creation of a healthier and more resilient society.

3.7 Results

In the contemporary context, the issue of the impacts of physical exercise on the physical and mental health of patients has emerged as a topic of significant relevance and complexity. This study aimed to explore in depth the various impacts related to physical exercise on patients' lives, specifically focusing on the Mais Vida physical activity group at the Unidade Básica Santa Luzia in the municipality of Pedregulho – SP, investigating its nuances, impacts, and current challenges.

To understand the material obtained from interviews with users participating in the Mais Vida Group in Pedregulho/SP, we employed the theoretical-analytical framework of Discourse Analysis. The analysis procedures followed the mechanisms of meaning constitution and subject formation, with the following stages:

Definition of the Corpus: The interview used for analysis.

Superficial Analysis of the Material: Transition from text to discourse.

Elaboration of Discursive Excerpts: Understanding discursive formation and ideological formation.

These stages make it possible to transition from text to discourse. It is important to note that the writing of the analysis, within the theory we are working with, is both a fundamental and delicate process, as it requires the materialization through writing of complex and contradictory processes involved in the analysis [14].

Thus, the text is understood through the observation of processes and mechanisms of meaning and subject formation within their contexts. The importance of discussing this topic lies not only in its academic relevance but also in its practical application and social implications. While there is much discussion about the importance of physical exercise, it is often overlooked that it is a significant non-pharmacological treatment. By better understanding the importance of this non-pharmacological treatment, we can not only expand theoretical knowledge on the subject but also make significant contributions to the development of solutions and strategies in Primary Care, which is the gateway to the SUS.

In this context, this study proposes a critical and in-depth analysis, based on a rigorous literature review and discourse and data analyses. Aspects such as the benefits to mental health for 100% of the group's attendees will be addressed.

The data analysis in this study was conducted to answer the proposed research questions and investigate the formulated hypotheses. This section presents the main results obtained and their interpretation.

Initially, it is important to highlight that we had several participants in the group, all women and residents of Pedregulho-SP. The group consists of 30 participants, and our sample included 14 random participants, for whom we conducted semi-structured interviews followed by data analysis in the E-SUS medical record system.

Of the participants, 1 was 40 years old, 2 were between 50-55 years, 1 was 57 years old, 2 were between 61-65 years, 3 were between 66-70 years, 1 was 75 years old, and 1 was 83 years old. Some participants were retired, while others were homemakers. The participants came to the interviews randomly and spontaneously.

The group performs their physical activities under the supervision of a physical educator in a gymnasium adjacent to the Unidade de Saúde da Família Santa Luzia. After a preliminary screening to ensure the users' well-being, they engage in the activities in the municipality of Pedregulho-SP. Therefore, the interviews were conducted during the activity, with one patient interviewed at a time. After the interview and signing of the informed consent form (TCLE), the participant returned to their exercise without any disruption to their session.

In stages 1 and 2 of our analysis, we observed some regularities concerning the process of meaning-making that indicates the effective assistance provided by the Unidade de Saúde da Família in the lives of these users:

U1: "When we feel something is wrong, we are very well attended, so we have to go there to be taken care of by the health service."

U3: "I often go to request tests because I had pre-diabetes, I was pre-diabetic, there I am followed up."

U6: "I go to check my blood pressure, get vaccines, those things, because thank God my health is quite good. Praise be to God."

These responses highlight the ongoing support provided by the health unit and the integrative role of the group, which facilitates the therapeutic follow-up of these users.

When asked about the benefits of being part of a group where care is provided through group physical activities, the following insights were provided:

U10: "It improves the mind and body. And we feel more energetic to do things."

U7: "...So I feel good and I don't like solitude."

U13: "I think it's good for health, both for the mind and my knee, the pain has improved a lot, blood pressure is even under control, you know? And my anxiety has also improved a lot, I am calmer and more relaxed. It feels like my mind has opened up; I was very closed off at home only with the kids, and now I do things for myself."

U9: "Oh, I noticed that my weight is decreasing a lot, and my cholesterol is also helping a lot, the sugar has dropped significantly, I'm in control."

The responses from the interviews highlighted the importance of physical activities not only in physiological terms but also in emotional, cognitive, and psychiatric aspects.

It is important to emphasize that according to the Basic Care

Policy related to health promotion, groups are a working tool in Primary Health Care. They assist professionals in promoting health by providing a space for exchanging information and experiences, learning, and reflecting on the health-disease process. This, in turn, stimulates changes in user attitudes and beliefs, leading to increased self-care skills and better ways to handle their issues.

Additionally, groups provide a space for creating or strengthening social networks and experimenting with new ways of living.

4. Final Considerations

Based on the objectives set forth in this investigation and the results obtained, it is concluded that the emotional impacts are highly significant, as they provide users with actions and services that permeate relational and interactive spaces.

These spaces are also in accordance with public policies, as the care is delivered through adherence to treatments and actions taken in the follow-up and monitoring at health units focused on chronic care.

Finally, improvements in glycemic, blood pressure, and mental conditions of patients assisted by this physical activity program are identified. Users can experience greater openness in a group setting, allowing them to share and discuss their experiences in managing their condition, addressing doubts and curiosities that sharing can only facilitate.

Group physical activity allows for the aggregation of various individuals from the same community with similar thoughts, habits, life stories, and values.

The exchange of experiences presents an opportunity to strengthen social networks and support for daily life beyond the group. This process of resonance and affect brings something essential to the group's constitution: a sense of group identity and internal representation of that space. The group only continues to function when each member recognizes themselves among the others and feels a sense of belonging.

Ultimately, the freedom and relevance of being with those individuals at that moment, and the creation of meaning for each participant, enhance group cohesion. Group cohesion is facilitated when strong bonds are formed.

The responses to the questions in this study enabled a local diagnosis. The best venue for conducting this diagnosis is undoubtedly the team meetings that occur after the group sessions, where the main needs and demands of the community can be analyzed and discussed.

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