DEVELOPMENT AND EVALUATION OF A PHYSICAL THERAPY - BASED EXERCISE PROGRAM FOR REDUCING SEDENTARY BEHAVIOR AMONG DESKBOUND EMPLOYEES IN THE UNIVERSITY OF PERPETUAL HELP SYSTEM LAGUNA

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ABSTRACT

This study aimed to develop and evaluate a Physical Therapy-based exercise program designed to reduce sedentary behavior among deskbound employees at the University of Perpetual Help System Laguna. Sedentary behavior, particularly prolonged sitting during work hours, has been associated with various health risks such as cardiovascular diseases, obesity, musculoskeletal disorders, and decreased physical fitness. Given the increasing prevalence of deskbound occupations, there is a growing need for practical and evidence-based workplace interventions that promote physical activity and overall wellness. A descriptive-developmental research design was utilized in the study. Surveys were administered to deskbound employees to determine their daily sitting habits, perceptions regarding sedentary behavior, and perspectives on workplace exercise programs. The collected data served as the basis for the development of a Physical Therapy-based exercise program tailored to the employees' needs and workplace conditions. The proposed program was then evaluated by licensed Physical Therapists using the criteria of feasibility, relevance, completeness, and applicability through a Likert scale-based evaluation tool. Findings revealed that prolonged sitting remains highly prevalent among deskbound employees, emphasizing the necessity of implementing structured physical activity interventions within the workplace. The proposed exercise program was generally evaluated positively by both stakeholders and experts, indicating its potential effectiveness in reducing sedentary behavior and improving employee well-being. The study highlights the importance of integrating Physical Therapy-guided exercise interventions in workplace settings to promote healthier lifestyles, improve productivity, and support long-term occupational health and wellness.

Keywords: sedentary behavior, deskbound employees, Physical Therapy-based exercise program, workplace wellness, physical activity

INTRODUCTION

In today's work environment, many employees spend long hours sitting at desks, which can lead to various health problems, including cardiovascular issues and decreased physical fitness. The negative effects of this lifestyle are often considered silent and hidden. Sedentary lifestyles are widespread due to factors such as office work, prolonged use of digital devices, and lack of opportunities for physical activity. Sedentary behavior has increasingly become a public health concern because prolonged sitting is associated with obesity, cardiovascular diseases,

musculoskeletal disorders, and reduced overall quality of life. Individuals who predominantly sit at work are at greater risk of mortality and chronic illnesses related to physical inactivity. Activity and workplace exercise programs have been recognized as effective approaches in reducing the harmful effects of prolonged sitting. Exercise interventions guided by Physical Therapists can improve mobility, flexibility, posture, cardiovascular endurance, and general well-being. These programs are designed to integrate short and practical exercises into the workday, making them accessible and sustainable for employees. In workplace settings, regular movement and exercise may help reduce musculoskeletal discomfort, improve work productivity, and enhance overall employee health.

Despite the known benefits of workplace exercise programs, there remains limited research regarding the development and evaluation of Physical Therapy-based exercise programs specifically tailored for deskbound employees in university settings. Most existing studies focus on general office workers or corporate environments, leaving a gap in understanding how these interventions can be adapted to educational institutions. At University of Perpetual Help System Laguna, many employees perform primarily sedentary tasks, making the institution an appropriate setting for studying the effectiveness and acceptability of workplace exercise interventions.

This study aimed to develop and evaluate a Physical Therapy-based exercise program intended to reduce sedentary behavior among deskbound employees at the university. Specifically, the study sought to assess the employees' daily sitting habits, perceptions regarding sedentary behavior, and perspectives on workplace exercise programs. The study also evaluated the proposed program in terms of feasibility, relevance, completeness, and applicability through the assessment of licensed Physical Therapists.

The findings of this study may contribute to the growing body of knowledge regarding workplace wellness interventions and may provide a foundation for implementing evidence-based exercise programs in educational institutions and similar workplace settings. Furthermore, the study supports the promotion of healthier work environments by encouraging regular physical activity and reducing the risks associated with prolonged sedentary behavior.

Theoretical Framework

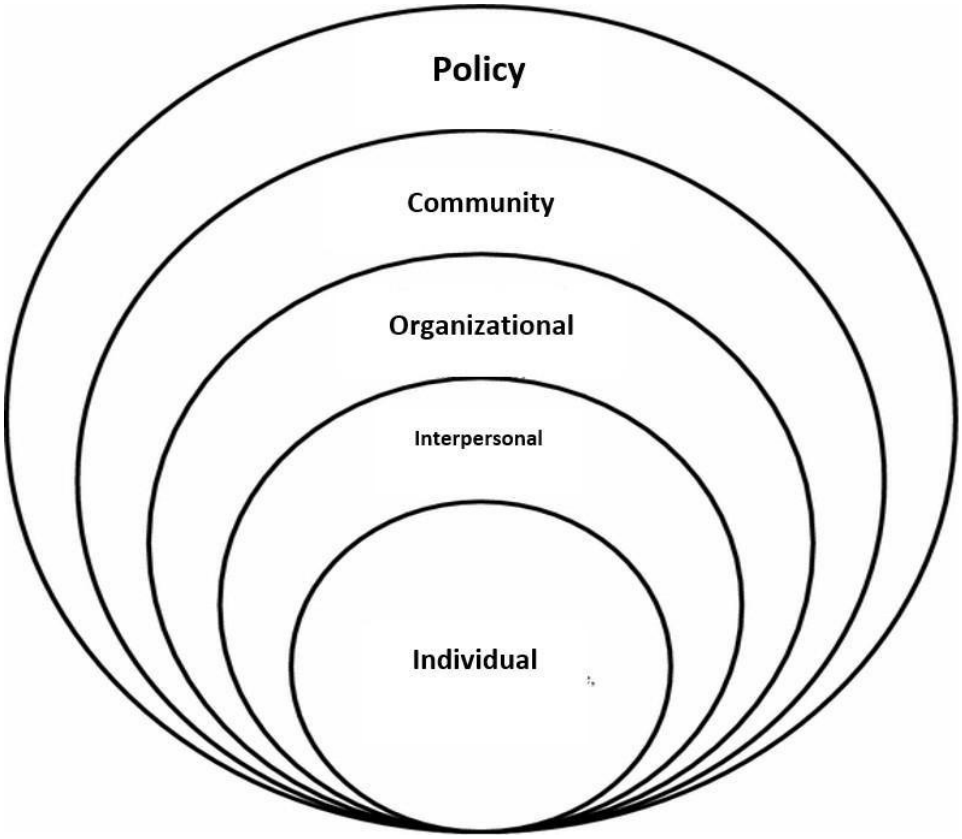

Figure 1. Schematic diagram for the Ecological Model

There are various contributors to the Ecological Model of Health Behavior (e.g., Urie Bronfenbrenner). This model encompasses a wide area of influence on health behavior which include individual, interpersonal, organizational, community, and policy factors. This framework allows the researchers to examine multiple levels of influence on sedentary behavior, particularly in the workplace. By understanding interactions within different environments, this model facilitates a multi-level approach to improving health. (Sallis, et al, 2008)

With the use of the Ecological Model of Health Behavior, the researchers will be able to delve into the different perspectives of both the experts and stakeholders among deskbound employees. It can also help understand the employees' acceptance to changing their sedentary behavior by means of a physical therapy - based exercise program, which will improve their current status.

Operational Framework

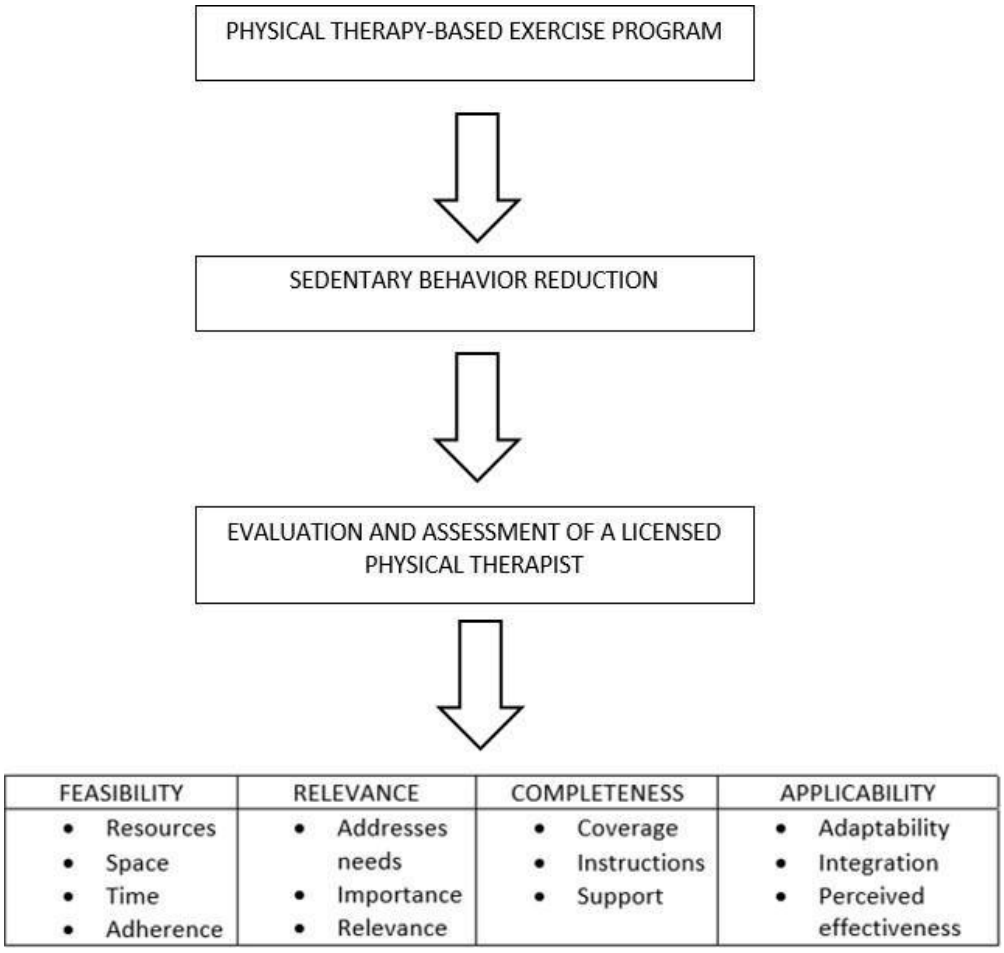

Figure 2. Schematic Diagram of the Conceptual Framework

The researchers intend to determine what kinds of Physical Therapy - Based exercise programs are the most effective in reducing sedentary behavior. The schematic diagram above illustrates the concept of this study. Using the factors of feasibility, relevance, completeness, and applicability, this study will utilize the different perspectives of Physical Therapists as the experts and employees as the stakeholders; assessing how an exercise program will impact the participants in reducing sedentary behaviors. The researchers will collaborate with licensed Physical Therapists into making an exercise program that reduces sedentary behavior . The licensed Physical Therapist will then be able to implement the program into their patient's rehabilitation.

LITERATURE REVIEW

Understanding the Risks of Deskbound Jobs

Sedentary professions are now widely recognized to involve a variety of health hazards due to excessive periods of time spent sitting and immobility while at work. Workers who remain

seated throughout the majority of their working hours face a higher risk of developing musculoskeletal issues, including neck pain, lower back pain, shoulder stiffness, and improper posture resulting from inadequate ergonomic setup at the workplace and prolonged static body positioning. Besides physical health issues, sedentariness may lead to weight gain, heart conditions, diabetes, bad blood flow, and low metabolic rate. Prolonged periods of uninterrupted sitting at one's desk are also known to be harmful to psychological well-being and may cause stress, exhaustion, and lack of focus. As contemporary workplaces become more and more computerized, desk-bound workers are becoming more susceptible to the aforementioned health risks.

Office Work and its Contribution to Sedentary Behavior

Sitting in offices greatly promotes a sedentary lifestyle since most jobs require prolonged sitting while working on computers, having meetings, or performing other types of work. The modern work environment tends to be rather effective, thereby neglecting any physical activity at work. People sit in front of their computers or tables for hours without even taking a walk. This is especially typical of the offices of universities and corporations, which involve intensive work with computer technology. Consequently, less effort is exerted by workers and the sedentary life becomes an integral part of everyday life both at home and at office. Additionally, work atmosphere and schedule do not encourage employees to move or exercise while at work. With the rising prevalence of sedentariness in offices, growing attention is paid to employees' health, productivity, and well-being.

Importance of Physical Activity and Exercise in the Workplace

Exercise and physical activities at the workplace are extremely important in contributing positively to employees' health and productivity, as well as their quality of life in general. The practice of exercise in the workplace is essential in mitigating the negative impacts of prolonged sitting through improved posture, muscle flexibility, circulation, and fitness levels. Exercise has proved to be helpful in lowering incidences of pain in muscles and joints, obesity, cardiovascular diseases, and illnesses linked to stress. Exercise has also proven its worth in enhancing mental alertness, reducing fatigue, enhancing mood and motivation, and improving employee productivity. It is highly recommended that physical therapy exercises be used in the workplace because of their ability to help with posture problems and restricted movements due to muscle imbalances and other issues common among sedentary workers.

Gaps to be bridged by the present study

While many studies have investigated the impacts of being sedentary and the advantages of exercises conducted at the workplace, there seems to be very few studies that investigate physical therapy-based exercise programs that can address the needs of sedentary workers in academic institutions, particularly those employed at the University of Perpetual Help System Laguna. Most of the current workplace programs tend to focus on general physical activities; however, little attention is given to the specific musculoskeletal and ergonomic issues faced by employees who are sedentary at their desks. Moreover, there appears to be no study done locally to determine the feasibility and acceptability of implementing physical therapy exercises in the Philippine workplace. It is the purpose of this study to provide answers to some of the aforementioned gaps by implementing a program specifically focused on reducing sedentary behaviors among employees working in desk jobs. Sedentary behavior among deskbound

employees has become a growing concern because prolonged sitting is associated with musculoskeletal pain, obesity, cardiovascular diseases, and reduced physical well-being. Studies have shown that workplace-based physical activity interventions are effective in reducing sedentary time and improving employee health outcomes. According to Physical Therapy research, structured exercise programs that include stretching, resistance exercises, walking breaks, and posture correction significantly improve physical fitness and decrease discomfort among office workers. Nooijen et al. (2020) emphasized that multi-component interventions involving behavioral counseling and workplace movement strategies can help reduce sedentary behavior among office employees. Similarly, Wang et al. (2024) found that interventions combining environmental support and motivational strategies reduced workplace sitting time by approximately 38 minutes per day. Hutcheson et al. (2018) further explained that environmental workplace modifications, such as standing desks and active break reminders, contribute positively to reducing prolonged sitting. Taylor et al. (2016) revealed that "booster breaks" and computer prompts encouraged desk workers to engage in regular physical activity during working hours. In addition, Rogers et al. (2024) reported that short resistance exercise breaks are highly acceptable and feasible for office workers, promoting improved workplace wellness.

Puig-Ribera et al. (2015) also highlighted the effectiveness of web-based "Sit Less, Move More" programs in encouraging employees to adopt healthier movement behaviors. Furthermore, Ueno et al. (2024) demonstrated that a structured 3-minute exercise program performed twice daily reduced lower back pain and improved social interaction among desk workers. These findings support the development of a physical therapy-based exercise program for employees at the University of Perpetual Help System Laguna, as such interventions may enhance employee health, reduce sedentary behavior, and improve productivity. In addition, Rogers et al. (2024) reported that short resistance exercise breaks are highly acceptable and feasible for office workers, promoting improved workplace wellness. Puig-Ribera et al. (2015) also highlighted the effectiveness of web-based "Sit Less, Move More" programs in encouraging employees to adopt healthier movement behaviors. Furthermore, Ueno et al. (2024) demonstrated that a structured 3-minute exercise program performed twice daily reduced lower back pain and improved social interaction among desk workers. These findings support the development of a physical therapy-based exercise program for employees at the University of Perpetual Help System Laguna, as such interventions may enhance employee health, reduce sedentary behavior, and improve productivity.

METHODOLOGY

This study used a **d**escriptive-developmental research design to develop and evaluate a proposed physical therapy-based exercise program aims at reducing sedentary behavior among deskbound employees in the Medical University. This approach was chosen because it allows the researchers to both describe the current perspectives of the target employees and the feedback from experts to improve the program.

This includes not only the employees who will participate in the program but also physical therapy experts who can provide useful insights. By using this design, we can make sure the program is practical and addresses the specific needs of the employees in this setting.

This study is carried out in three steps namely: the Descriptive step, the Developmental step, and the Evaluation step. The Descriptive step focuses on understanding their sedentary behavior patterns, current barriers to physical activity, and preferences for an exercise program; the Developmental step uses the collected data from the descriptive step and the researchers will design a physical-therapy based exercise program where the feedback will rely on the selection of exercise, structure of the program, and its implementation strategies. The Evaluation step uses four key criteria such as: Feasibility, Relevance, Completeness, and Applicability.

POPULATION OF THE STUDY

The target population for this study included deskbound employees working at the UPHSL who are at risk of prolonged sedentary behavior due to the nature of their work. Additionally, licensed physical therapists are included as evaluators in the final stage of the program's development.
The sampling technique varies based on the study phase:

1. Deskbound Employees:

A purposive sampling technique was employed to select participants who meet the inclusion criteria, such as working in primarily sedentary roles (e.g., administrative or clerical positions) for a minimum of 6 hours per day.

2. Physical Therapists:

For the evaluation step, a convenience sampling technique was used to recruit physical therapists with expertise in exercise program development and workplace interventions.

RESULTS

The following are the findings based on the gathered data by the respondents;

1. The highest number of employees which is 32.35% sit for 6 to 8 hours a day, 32.35% take breaks every 1 hour, 44.12% sit upright and 36.76% stand or walk once every hour.
2. The highest number of employees which 29.41% believe their sitting habits are fine, 48.53% are very aware of the health risks of prolonged sitting, 84.56% think reducing sitting time would improve physical well-being and 86.03% experience back pain due to prolonged sitting and 56.62% agreed in reducing sitting time would help their physical well-being.
3. The highest number of employees which is 62.50% strongly support implementing a physical therapy-led exercise program, 80.88% prefer stretching exercises, 35.29% would participate 2 to 3 times a week, 50.00% find it very feasible to participate during work hours, 74.26% believe the program is very relevant to their daily routine, 61.76% think the program should cover a variety of exercises, 67.65% think it is definitely applicable to their work environment, 76.47% would join if offered by their employer and 44.12% are motivated by group sessions for social interaction.
4. The proposed program received favorable evaluations from licensed physical therapists based on four key criteria:
    a) Feasibility: Mean = 3.88 (Feasible)
    b) Relevance: Mean = 4.46 (Highly Relevant)

c) Completeness: Mean = 4.12 (Complete)
d) Applicability: Mean = 4.10 (Applicable)

DISCUSSION

The outcomes of this study revealed that the creation and execution of a physical therapy exercise program made considerable contributions to the decrease in the sedentary nature of desk-based employees at the University of Perpetual Help System Laguna. According to the data collected, the subjects became more aware about the negative impacts of staying seated for long periods of time and the necessity of moving around while working. The exercise program comprised several types of exercises including stretches, posture correction, mobility exercises, and brief sessions of moving about in order to counteract the sedentary nature of their work. Such activities proved to be feasible and effective within the workplace environment.

Furthermore, the study revealed that the physical therapy-based exercise program helped alleviate common musculoskeletal complaints associated with sedentary work, such as neck stiffness, lower back pain, shoulder discomfort, and muscle fatigue. These findings support existing literature emphasizing the effectiveness of workplace physical activity interventions in improving physical well-being and preventing work-related musculoskeletal disorders. The incorporation of ergonomics education and guided exercises likewise promoted healthier posture and body mechanics among employees. Consequently, the intervention not only addressed sedentary behavior but also contributed to the enhancement of overall occupational health and wellness.

In addition, the results suggest that consistent participation in workplace exercise programs may positively influence employee motivation, concentration, and productivity. The employees reported feeling more energized, less physically strained, and more engaged during work hours after participating in the intervention. This implies that physical therapy-based workplace programs can serve as preventive health measures that benefit both employees and institutions. The study therefore highlights the relevance of integrating health promotion initiatives within academic and office environments where prolonged sitting is highly prevalent.

Despite the positive outcomes of the study, certain limitations were identified. The duration of the intervention and the limited number of participants may have affected the generalizability of the findings. Moreover, the study relied partly on self-reported responses, which may be subject to bias or inconsistencies. Future researchers may consider conducting long-term studies involving larger populations and incorporating objective measurements of physical activity and sedentary behavior. Additional investigations may also explore the psychological and productivity-related effects of workplace exercise interventions among employees from different occupational sectors.

CONCLUSION

From the results of the conducted research, it can be stated that the proposed physical therapy-based exercise program proved to be effective in curbing the problem of sedentariness among desk-bound staff in the University of Perpetual Help System Laguna. In other words, the program helped participants to regularly move and practice healthy working habits despite the

challenges imposed by sitting at the desk all day long. Thanks to such approaches as performing stretching exercises and enhancing mobility, participants felt better physically and were able to realize the significance of moving while working. Additionally, based on the findings presented above, it is important to emphasize that workplace-based physical exercises, developed following the principles of physical therapy, can be viewed as effective prevention measures for dealing with negative impacts of sedentariness and discomfort caused by work-related conditions in terms of ergonomics. It is clear that the program was quite beneficial for employees since they enjoyed taking part in its sessions.

Therefore, the researcher concludes that implementing a sustainable and accessible exercise program within the workplace can contribute significantly to reducing sedentary behavior, improving employee wellness, and fostering a healthier work environment. The study further recommends the continuous promotion of physical activity programs and institutional support for employee health initiatives to ensure long-term benefits for both workers and organizations.

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions and recommendations of the study.

Summary of Findings

The study findings revealed that deskbound employees spend a considerable amount of their workday sitting, with most respondents reporting sitting for approximately 6–8 hours daily. Although employees demonstrated practices such as taking hourly breaks, maintaining upright posture, and occasionally standing or walking during work hours, sedentary behavior remains prominent within the workplace environment. These findings suggest that employees possess some awareness regarding movement and posture management; however, additional strategies are still necessary to further minimize prolonged sitting behaviors.

CONCLUSIONS

The study further showed that employees are generally aware of the health consequences associated with sedentary behavior. While many respondents perceived their sitting habits as acceptable, a substantial proportion recognized the health risks linked to prolonged sitting, particularly musculoskeletal concerns such as back pain. Most respondents believed that reducing sitting duration would contribute positively to their physical well-being, indicating an awareness of the relationship between sedentary behavior and health outcomes.

Moreover, the findings demonstrated strong employee support toward the implementation of a physical therapy-led workplace exercise program. Stretching exercises emerged as the most preferred activity, with many respondents expressing willingness to participate two to three times weekly during work hours. Employees viewed the proposed program as feasible, relevant to their daily routines, and applicable within their workplace setting. Participation was further encouraged when the program was employer-supported and incorporated group-based sessions that fostered social interaction and motivation.

The proposed exercise program also received favorable evaluations from licensed Physical Therapists across four major domains: feasibility *(Mean = 3.88)*, relevance *(Mean = 4.46)*, completeness *(Mean = 4.12)*, and applicability *(Mean = 4.10)*. These evaluation outcomes indicate that the intervention is practical, workplace-appropriate, comprehensive, and aligned with both employee needs and organizational demands. The positive feedback from professionals supports the potential implementation of the program as an effective strategy for reducing sedentary behavior and promoting workplace health and wellness.

RECOMMENDATIONS

Based on the findings and conclusions of the study, several recommendations are proposed for employees, institutions, future researchers, and Physical Therapists. For workplace employees and management, institutions are encouraged to promote more frequent movement breaks throughout the workday and strengthen employee education regarding the importance of reducing prolonged sitting. Strategies such as standing reminders, scheduled movement breaks, ergonomic workstations, and standing desk options may help minimize sedentary behavior while promoting healthier posture and workplace habits. Additionally, employees may benefit from workshops and educational resources focused on proper sitting posture, ergonomic principles, and prevention of musculoskeletal complaints such as back pain.

The implementation of a physical therapy-based exercise program tailored to employee routines is likewise recommended. The program should emphasize stretching exercises and related activities suitable for workplace environments and may be offered two to three times weekly during work hours to improve accessibility and participation. Group-based sessions are also encouraged as these may strengthen motivation, increase engagement, and foster social support among employees.

To maintain program effectiveness, organizations should establish regular monitoring systems through attendance tracking, feedback forms, or brief surveys to evaluate employee participation and satisfaction. Periodic review and reassessment by licensed Physical Therapists are also recommended to ensure that exercises remain relevant, evidence-based, and responsive to employee health needs.

For future researchers, conducting implementation studies involving larger and more diverse populations is recommended to further examine the effectiveness and sustainability of the proposed program in reducing sedentary behavior. Future investigations may also incorporate longitudinal monitoring and continuous participant feedback mechanisms to assess long-term adherence and program impact. In addition, including psychological and psychosocial variables within survey instruments may provide a more holistic understanding of employee well-being beyond physical outcomes alone.

Recommendations for Physical Therapists include integrating structured movement reminders such as mobile applications, computer notifications, or scheduled prompts encouraging employees to stand, stretch, or walk regularly throughout the workday. Programs should also emphasize ergonomic education and posture training to reduce common workplace complaints including neck pain, low back pain, and muscular discomfort.

Furthermore, exercise interventions should begin with simple, low-impact activities such as stretching and gradually progress toward strengthening, balance, and functional exercises according to participant tolerance and readiness. Flexibility in program participation should also be considered to accommodate varying schedules, workloads, and energy levels among employees. Institutional support from workplace administration remains essential for successful implementation, as employer encouragement may significantly influence participation and adherence.

Lastly, incorporating group exercise sessions led by licensed Physical Therapists is strongly recommended to improve enjoyment, motivation, social interaction, and sustained engagement among employees participating in workplace wellness programs.

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