



جامعة ميدأوشن

كلية الإدارة

ماجستير إدارة المشاريع

عنوان البحث

النشاط البدني وأثره على الاحتراق الوظيفي وتحسين الإنتاجية لدى العاملين في تجمع مكة المكرمة الصحي

**Physical activity and its impact on burnout and productivity enhancement among
employees of the Makkah Health Cluster**

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العام الدراسي

2026

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Introduction

Background

Physical activity is still considered the hallmark of overall health and well-being by the majority of health authorities worldwide. In fact, not engaging in physical activity is one of the major risk factors for several chronic diseases and premature mortality. Few global public health initiatives have placed as much emphasis on this issue as the new WHO Physical Activity Plan, which is designed to reduce the prevalence of physical inactivity and consequently enhance the health of populations at large (Khan & Subhan, 2023). Increasing sedentary lifestyles and work stress are among the factors leading to escalating levels of burnout and decreased productivity at the workplace, thus making health promotion at work a top priority not only in one country but on a global scale as well (Rossi et al., 2025).

Burnout is a syndrome caused by continuous work-related stress. It leads to emotional exhaustion, depersonalization, and decreased professional effectiveness. Lately, it has been indicated that burnout is a problem for a large number of employees, with some research suggesting that as many as 30% of workers in the world suffer from burnout syndrome (Getie et al., 2025). What's more, mental health at work statistics reveals that about 63% of workers manifest the symptoms of burnout, a situation that is tantamount to a mental health crisis that seriously jeopardizes the employee's well-being and company productivity. The negative consequences of burnout have been linked to lowered work output, more days off, and heavy financial loss, which is why appropriate preventive measures are deemed necessary (Ahmad et al., 2025).

Physical activity has been recognized as an effective, economical strategy, with the potential to counter burnout and boost work performance. Raising the level of physical activity

reduces the level of burnout and, particularly to a great extent, the decrease in one's emotional exhaustion and increase in one's sense of personal accomplishment (Whitsel et al., 2023). Also, meeting the physical activity guidelines seems to bring about a 38% reduction in emotional exhaustion besides increases in work engagement and mental well-being. These findings suggest that promoting physical activity at work might do more than just improve productivity; it could also help build employee resilience (Amatori et al., 2024).

Although there is an increasing amount of global evidence, the knowledge gap about how the three factors (physical activity, burnout, and productivity) relate to each other in the specific contexts of the Middle East and Saudi Arabia has not been fully addressed at the same time. The majority of existing research works use different sets of tools, definitions, and methods, resulting in inconsistent outcomes and a lack of generalizability. Additionally, only a few studies have been conducted in healthcare systems such as the Makkah Health Cluster, where the staff members can be exposed to very extreme levels of stress due to the high number of patients and pressure to provide services.

المقدمة

يُعد النشاط البدني من الركائز الأساسية للصحة العامة والرفاهية، حيث تؤكد معظم الهيئات الصحية العالمية على أهميته في الوقاية من العديد من الأمراض المزمنة وتقليل معدلات الوفاة المبكرة. كما أن قلة النشاط البدني تُعتبر من أبرز عوامل الخطر المؤثرة على الصحة. وقد أولت المبادرات العالمية للصحة العامة اهتمامًا كبيرًا بهذا الجانب، مثل خطة منظمة الصحة العالمية للنشاط البدني، التي تهدف إلى تقليل معدلات الخمول البدني وتعزيز صحة المجتمعات (Khan & Subhan, 2023). وفي الوقت نفسه، فإن أنماط الحياة الخاملة وضغوط العمل المتزايدة تُعد من العوامل الرئيسية التي تؤدي إلى ارتفاع

مستويات الاحتراق الوظيفي وانخفاض الإنتاجية، مما يجعل تعزيز الصحة في بيئة العمل أولوية عالمية (Rossi et al., 2025).

يُعرّف الاحتراق الوظيفي بأنه متلازمة ناتجة عن التعرض المستمر لضغوط العمل، ويتميز بالإرهاق العاطفي، وتبدل المشاعر، وانخفاض الكفاءة المهنية. وقد أشارت الدراسات الحديثة إلى أن الاحتراق الوظيفي أصبح مشكلة واسعة الانتشار، حيث يعاني ما يقارب 30% من العاملين حول العالم من هذه المتلازمة (Getie et al., 2025). إضافة إلى ذلك، تُظهر الإحصاءات أن حوالي 63% من العاملين يعانون من أعراض الاحتراق الوظيفي، مما يعكس أزمة حقيقية في الصحة النفسية تؤثر بشكل مباشر على رفاهية الموظفين وإنتاجيتهم. وترتبط هذه الظاهرة بانخفاض الأداء الوظيفي، وزيادة الغياب عن العمل، والخسائر الاقتصادية الكبيرة، مما يستدعي تبني استراتيجيات فعّالة للوقاية منها (Ahmad et al., 2025).

في هذا السياق، يُعد النشاط البدني من الاستراتيجيات الفعّالة ومنخفضة التكلفة التي يمكن أن تساهم في تقليل الاحتراق الوظيفي وتحسين الأداء في العمل. فقد أظهرت الدراسات أن زيادة مستويات النشاط البدني تؤدي إلى انخفاض ملحوظ في الاحتراق الوظيفي، خاصة في جانب الإرهاق العاطفي، مع تحسين الشعور بالإنجاز الشخصي (Whitsel et al., 2023). كما أن الالتزام بالإرشادات الموصى بها للنشاط البدني يرتبط بانخفاض يصل إلى 38% في مستويات الإرهاق العاطفي، بالإضافة إلى تحسين الاندماج الوظيفي والصحة النفسية. وتشير هذه النتائج إلى أن تعزيز النشاط البدني في بيئة العمل لا يقتصر فقط على تحسين الإنتاجية، بل يسهم أيضًا في تعزيز مرونة الموظفين النفسية (Amatori et al., 2024).

وعلى الرغم من تزايد الأدلة العالمية في هذا المجال، إلا أن هناك فجوة معرفية واضحة فيما يتعلق بدراسة العلاقة بين النشاط البدني، والاحتراق الوظيفي، والإنتاجية بشكل متكامل في سياق الشرق الأوسط والمملكة العربية السعودية. حيث تعتمد معظم الدراسات السابقة على أدوات وأساليب ومنهجيات مختلفة، مما يؤدي إلى تباين النتائج وضعف إمكانية تعميمها. كما أن هناك نقصًا في الدراسات التي أجريت في بيئات الرعاية الصحية، مثل تجمع مكة المكرمة الصحي، حيث يتعرض العاملون لضغوط عالية نتيجة كثافة المرضى ومتطلبات العمل، مما يستدعي إجراء دراسات متعمقة لفهم هذه العلاقة في هذا السياق تحديدًا.

Problem Statement

While worldwide awareness of the role of physical activity in the well-being of workers is increasing, many workplaces still suffer from the problem of high burnout and loss of productivity (Rossi et al., 2025). This leads to major questions: How much of employee burnout is caused by physical inactivity? Is increasing physical activity a really effective way of lowering burnout and improving productivity? And to what degree can results from global research be applied to healthcare settings like the Makkah Health Cluster?

The problem can be described as a gap between the present situation and the ideal one. Currently, a major portion of employees usually lead inactive lifestyles, particularly those in healthcare and administration roles who tend to work long hours and whose job nature hardly provides any opportunity for physical activity (Rossi et al., 2025). This fact links to a higher rate of burnout, less job satisfaction, and lower productivity. On the other hand, the ideal situation is a workforce that is regularly physically active, where burnout is at very low levels, and where work performance and efficiency are at the highest levels (Albedry, Marenus & Chen, 2024).

The World Health Organization states that, worldwide, about 1 in 4 adults (around 27%) fail to get enough physical activity (Haseler & Haseler, 2022). Besides that, burnout has become a major concern, with some recent surveys showing that 30-60% of workers suffer from burnout symptoms, particularly those working in sectors under high stress, like healthcare (Kober & Chang, 2024). In Saudi Arabia and other similar situations, healthcare workers not only have to deal with the heavy patient loads and shortages in the workforce, but also these factors make them more vulnerable to burnout (Jaber et al., 2025).

Besides, the data also tells us that physically inactive people tend to feel more burned out, produce less, and are absent from work more often. However, even with these results, no one has done any study in the Makkah Health Cluster area to determine if this happens there, too. The main problem is that researchers mostly study in countries like the US or in workplaces that are not healthcare, so the results hardly fit the Saudi healthcare work environment, where culture, surroundings, and the hospital's way of operating may affect both physical activities and employee burnout. Therefore, the main issue is that very little is known about the effects of physical activity on employee burnout and productivity in the context of the Makkah Health Cluster. In fact, the resolution of this problem is a prerequisite for connecting the employee well-being status quo with the target of a healthier and more productive workforce.

Significance of the Study

This research adds to the theoretical knowledge in the field of occupational health by explaining the relationship between physical activity, burnout, and employee productivity. Although the literature has studied these variables separately, few studies have investigated the interconnection of these variables under one framework, particularly in the context of healthcare (Torab-Miandoab et al., 2024). Also, the research seeks to fill a well-identified void in the existing literature by concentrating on Saudi Arabia, and in particular, the Makkah Health Cluster. To date, most of the studies come from Western settings, which are different in terms of culture, organization, and ways of life. So, this work offers local perspectives that increase the applicability and meaningfulness of the theories in the literature.

Besides conducting this research, we want to propose a better theoretical framework that includes physical activity as one of the main factors affecting psychological well-being (burnout)

and organizational outcomes (productivity). Such an integrated viewpoint might be used as a basis for further research in the fields of occupational and public health.

From a practical perspective, the results of this research should shed light on ways that healthcare facilities, mainly those operating under the Makkah Health Cluster, can benefit from encouraging physical exercise activities through workplace programs. These suggestions can serve as a guide to the management in implementing a healthy lifestyle that not only reduces the three components of burnout (emotional exhaustion, depersonalization, and low personal accomplishment) but also makes employees happier and more effective at work.

The study may also help policy-makers and healthcare administrators to devise wellness programs and strategies for the workplace that focus on employees' well-being. Decision-makers can inaugurate fitness campaigns, provide work time for physical activities, and create a work atmosphere supportive of physical activity when they reveal the role of exercise in improving mood and mental health.

In addition to that, the research might lead to the formulation or alteration of reliable measuring and assessing tools for physical activity, burnout, and productivity levels of individuals in the workplace. These tools might turn into a component of the organization's plans for keeping track of employee welfare, carrying out interventions, and helping with ongoing improvements.

Study Objectives

General Objective

The study aims to examine the impact of physical activity on burnout reduction and productivity enhancement among employees of the Makkah Health Cluster.

Specific Objectives

1. To assess the level of physical activity among employees in the Makkah Health Cluster.
2. To measure the prevalence and levels of burnout among employees.
3. To evaluate the level of employee productivity and work performance.
4. To analyze the relationship between physical activity and burnout among employees.
5. To examine the association between physical activity and productivity enhancement.
6. To determine the impact of burnout on employee productivity.
7. To identify potential demographic and occupational factors (e.g., age, gender, job role, working hours) influencing physical activity, burnout, and productivity.
8. To propose evidence-based recommendations to improve employee well-being and organizational performance through physical activity interventions.

Research questions

1. What is the level of physical activity among employees in the Makkah Health Cluster?
2. What is the prevalence and level of burnout among employees?
3. What is the level of productivity and work performance among employees?
4. What is the relationship between physical activity and burnout among employees?
5. What is the relationship between physical activity and productivity enhancement among employees?
6. How does burnout affect employee productivity in the Makkah Health Cluster?

7. What demographic and occupational factors (e.g., age, gender, job role, working hours) influence physical activity, burnout, and productivity?
8. What strategies or interventions can be proposed to enhance physical activity and reduce burnout to improve productivity?

Main Hypothesis

There is a statistically significant effect of physical activity on reducing burnout and enhancing productivity among employees of the Makkah Health Cluster.

Sub-Hypotheses

H1: There is a statistically significant effect of physical activity on reducing burnout and enhancing productivity among employees of the Makkah Health Cluster.

H0: There is no statistically significant effect of physical activity on reducing burnout and enhancing productivity among employees of the Makkah Health Cluster.

Literature review

A randomized controlled trial conducted by Gerodimos et al. (2022) aimed to evaluate the effectiveness of a 6-week supervised workplace exercise program on health indicators, physical capacity, total fitness, subjective vitality, and life satisfaction of health professionals. The study sample consisted of 50 participants, and an experimental design was used. Results showed that workplace exercise programs could be safely and effectively used to improve the physical and mental health of employees. Although the study offers robust experimental proof, its generalizability is limited by a relatively small sample size. The study intends to overcome this limitation by enrolling a larger group and analyzing more aspects like burnout and productivity.

In a related context, a cross-sectional study by Howie et al. (2022) aimed to assess health status and health behaviors (e.g., physical activity and sleep) among medical students, faculty, and staff in an academic health center in the United States. The research sample was 2,060 and a cross-sectional design was adopted. It revealed that physical inactivity and poor sleep were significantly associated with poor mental health and increased burnout. The authors argue for institutional programs and policies to promote healthy behaviors. This study confirms the relationship between lifestyle behaviors and burnout, but is limited to an academic setting, whereas the present research is about healthcare organizational environments.

A cross-sectional study by Albedry et al. (2024) explored the link between physical activity levels and work-related burnout in employees. The research sample consisted of 520 participants, and it was revealed that those who partook in moderate physical activities had lowered burnout levels, especially emotional exhaustion, and they also had a higher sense of personal accomplishment. These results confirm that physical activity can be a safeguard against burnout. Nonetheless, the study left out productivity measures, which is one of the aspects that the present research is going to focus on.

Furthermore, a cross-sectional study by Romero-Carazas et al. (2024) adopted the Job Demands-Resources (JD-R) theory framework to study how burnout, physical exercise, and job satisfaction of nurses in Peru are related. There were 420 nurses in the sample for the study. Results showed that physical exercise is a factor that explains the burnout-job satisfaction relationship. The study suggested that physical exercise should be promoted not only to improve well-being at work but also the quality of care. Even though this paper shares most variables with the current study, it is mainly centered on job satisfaction and does not cover productivity, thus underlining the importance of the current research.

Finally, a mixed-methods study conducted by Jaber et al. (2025), One study, with 1, 747 subjects, explored ways to decrease burnout in healthcare environments. Their findings showed that nurse leadership, managing workload, and support from the organization are very important factors in lowering burnout. Creating a good work environment was the top strategy for effectiveness, with mental health education and resilience training next in line. The study, however, despite being thorough, didn't focus on physical activity as a main variable, and this further highlights the significance of our current study, which is about including physical activity in research on burnout and productivity.

Research gap

More literature has studied the role of physical activity in lessening burnout. However, some significant discrepancies remain. Firstly, burnout has mainly been seen as a single outcome by most studies so far. They hardly think of productivity as another important organizational variable. Secondly, very little research has been done in further contexts, such as healthcare in Saudi Arabia, particularly in institutions like the Makkah Health Cluster. However, several studies have chosen mainly quantitative designs, neglecting comprehensive approaches that could help disclose the most profound layers to research questions. Another serious gap in the literature is the absence of studies carried out with the use of a single framework simultaneously investigating the relationship between physical activity, burnout, and productivity.

Methods

Study Design

A descriptive, cross-sectional design will be used to evaluate the levels of a healthy work environment, job demands, and resources, and associations of job demands and resources with nurses' quality of work life. Cross-sectional designs involve the collection of data at one point in time: the phenomena under study are captured during one period of data collection. Cross-sectional studies are appropriate for describing the status of phenomena or for describing relationships among phenomena at a fixed point in time (Durukan, Görücü, and Ayoğlu, 2025).

Study Setting

The study will be conducted at the Makkah Health Cluster, one of the major healthcare systems in Saudi Arabia operating under the Ministry of Health. The cluster consists of a system of hospitals, primary health care centers, and specialty facilities that offer a wide range of medical services to various populations, including both residents and pilgrims.

Sampling

A convenience sample of employees working at the Makkah Health Cluster will be recruited during the data collection period. The selection of participants depends mainly on their availability, and they must have at least six months of work experience in their current job roles. They will be requested to fill out their answers related to physical activity, burnout, and productivity, which are the main variables of the study.

Sample size

The sample size for this study will be calculated using Epi Info and an online sample size calculator to ensure appropriate statistical power and precision. The calculation was based on a total population of 250 employees, with a confidence level of 95%, a margin of error of 5%, a statistical power of 80% (as recommended by G*Power analysis), and a degree of precision set at 80%. These parameters were selected by standard practices in similar nursing research to ensure the reliability and validity of the findings. As a result, the required sample size will be determined to be 150 employees, which is sufficient to detect meaningful differences or associations within the study population.

Inclusion criteria

- Employees working within the Makkah Health Cluster and aged ≥ 18 years.
- Having at least 6 months of work experience and willing to provide informed consent.

Exclusion criteria

- Temporary staff, interns, or participants with incomplete questionnaires.

Measurement

The first part: It will be used to identify personal and professional characteristics of the study nurses, such as age, gender, marital status, educational qualifications, years of experience, working unit, & number of working shifts.

The second part: Physical Activity Questionnaire (IPAQ – Short Form). The study will utilize the International Physical Activity Questionnaire (IPAQ – Short Form) conducted by Craig et al. (2003). to assess participants' physical activity levels. This standardized instrument consists of 7

items that measure the frequency and duration of physical activities performed over the previous seven days, including walking, moderate-intensity activities, vigorous-intensity activities, and sitting time. The IPAQ provides an estimate of total physical activity expressed in metabolic equivalent minutes per week (MET-min/week), allowing classification into low, moderate, or high physical activity levels. The tool has demonstrated acceptable validity and reliability across different populations.

Validity

The tool will be tested for its face and content validity by five experts in the field of study, and accordingly, the necessary modifications will be made.

Reliability

The tool has demonstrated acceptable reliability, with reported test–retest reliability coefficients (Cronbach’s alpha) ranging from 0.70 to 0.88 across different populations (Ånfors, Kammerlind & Nilsson, 2021).

Scoring system

The International Physical Activity Questionnaire (IPAQ Short Form) is scored by quantifying total physical activity in MET-min/week through the use of standard MET values (walking = 3.3, moderate = 4.0, vigorous = 8.0). Participants are then assigned to one of 3 physical activity levels low (<600), moderate (600-3000), and high (>3000).

The third part: The work will be conducted with the help of two well-known research instruments, one of which is the "Maslach Burnout Inventory (MBI)". MBI, created by Maslach and Jackson in

1981, is the most commonly used instrument to measure burnout. The inventory features 22 items spread over three dimensions: "Emotional Exhaustion (9 items), Personal Accomplishment (8 items), Depersonalization (5 items)". The answers are given on a 5-point scale from 0 (never) to 4 (always). Therefore, high scores on the first and third dimensions combined with low scores on the second dimension may point to burnout.

Validity

The tool will be tested for its face and content validity by five experts in the field of study, and accordingly, the necessary modifications will be made.

Reliability

The tool's total Cronbach's alpha coefficients of 0.91 for Emotional Exhaustion, 0.77 for Depersonalization, and 0.79 for Personal Accomplishment, indicating good to excellent reliability across subscales (Ni et al., 2026).

Scoring system

The Maslach Burnout Inventory (MBI) ranges from a minimum score of 22 and the maximum score of 110

The fourth part: The research will employ the Work Productivity and Activity Impairment Questionnaire (WPAI) administered by Reilly, Zbrozek & Dukes. (1993) to quantify the effect of health on work productivity and daily activities. This validated tool comprises 6 questions that evaluate absenteeism (time away from work), presenteeism (ineffective work while present), total

work productivity loss, and activity impairment outside work in the last 7 days. The WPAI produces percentage results per domain where higher scores represent more impairment and less productivity. The measure has been extensively implemented in work and health research and it has shown excellent validity and reliability in different samples.

Validity

The tool will be tested for its face and content validity by five experts in the field of study, and accordingly, the necessary modifications will be made.

Reliability

Recent studies show that the Work Productivity and Activity Impairment Questionnaire (WPAI) had a good level of internal consistency, marked by Cronbach's alpha values around 0.74, which is an indication of acceptable reliability, and it has been as high as 0.89 in the latest research, which means that it is very reliable in different populations (Ford et al., 2023).

Scoring system

The Work Productivity and Activity Impairment Questionnaire (WPAI) is scored by first converting the responses to the 6 items about the past 7 days into 4 domains: absenteeism, presenteeism, overall work productivity loss, and activity impairment. Percentage scores are then calculated for each domain. The resulting scores lie between 0% (which means no impairment) and 100% (which means complete impairment), and higher percentages indicate a greater loss of productivity and more severe activity limitation.

Data collection (Procedure)

By signing the permission form and completing the questionnaire, participants confirm that they have read, understood, and agree to the study's purpose, procedures, and their rights as participants. Each participant will complete a Google form that describes the study, explains their role in it, provides instructions for completing the questionnaire, and outlines any additional requirements they may need to fulfill. A permission form must be filled out and signed before participation in the study may begin. At any time and for any reason, a participant may terminate their participation. All participants' privacy will be protected at all times. Participants in this survey can be certain that their details will not be passed on to any third parties.

Data analysis

Data will be coded, entered, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 29. Demographic characteristics of the study sample will be expressed using frequency distribution, mean, standard deviation, and percentile. The relationship among variables will be tested using a t-test and the Pearson correlation coefficient.

Ethical Consideration

The research will adhere to all applicable ethical standards. The IRB will be presented with this proposal for review. Informed consent will be obtained from participants. Participants' names will be digitally hidden. Information received from participants will be treated confidentially, and confidentiality will be guaranteed. To maintain confidentiality, each participant will be assigned a unique code. Data will be kept strictly confidential and used for research purposes only. The fact that participation is entirely optional and that withdrawal is free of repercussions will be

emphasized to all participants. Additionally, participants will be made aware that their data will only be used for research. Ethical guidelines will be followed strictly during this investigation.

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APPENDIX**Appendix (A): Personal and Professional Characteristics Sheet**

- **Age:.....**
- **Gender:**
 - ☐ Male
 - ☐ Female
- **Marital Status:**
 - ☐ Single
 - ☐ Married
 - ☐ Divorced
 - ☐ Widowed
- **Educational Qualification:**
 - ☐ Diploma
 - ☐ Bachelor's degree
 - ☐ Master's degree
 - ☐ Doctorate
- **Years of Experience:.....**
 - **Working Unit:**
 - ☐ Emergency Department
 - ☐ Intensive Care Unit
 - ☐ Medical Ward

- ☐ Surgical Ward
- ☐ Outpatient Department
- ☐ Administration

Appendix PHYSICAL ACTIVITY QUESTIONNAIRE**INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE**

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

_____ **days per week**

☐

No vigorous physical activities → **Skip to question 3**

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

☐

Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

_____ **days per week**

☐

No moderate physical activities → **Skip to question 5**

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

_____ hours per day

_____ minutes per day

☐ Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

_____ days per week

☐ No walking → *Skip to question 7*

6. How much time did you usually spend **walking** on one of those days?

_____ hours per day

_____ minutes per day

☐ Don't know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

_____ hours per day

_____ minutes per day

☐ Don't know/Not sure

This is the end of the questionnaire, thank you for participating.

Appendix A Maslach Burnout Inventory (MBI)**Maslach Burnout Inventory (MBI)**

The inventory consists of 22 questions which have five graded Likert-type answers. To determine the risk of burnout, the MBI explores three sub-scales: emotional exhaustion, depersonalization and personal accomplishment.

A high score in the first and third sections and a low score in the second section may indicate burnout.

Questions	Never	Rarely	Sometimes	Frequently	Always
I. Emotional Exhaustion					
I feel emotionally drained from my work	0	1	2	3	4
I feel used up at the end of the workday	0	1	2	3	4
I feel fatigued when I get up in the morning and have to face another day on the job	0	1	2	3	4
Working with people all day is really a strain for me	0	1	2	3	4
I feel burned out from my work	0	1	2	3	4
I feel frustrated by my job	0	1	2	3	4
I feel I'm working too hard on my job	0	1	2	3	4
Working with people directly puts too much stress on me	0	1	2	3	4
I feel like I'm at the end of my rope	0	1	2	3	4
II. Personal Accomplishment					
I can easily understand how my recipients feel about things	0	1	2	3	4
I deal very effectively with the problems of my recipients	0	1	2	3	4
I feel I'm positively influencing other people's lives through my work	0	1	2	3	4
I feel very energetic	0	1	2	3	4
I can easily create a relaxed atmosphere with my recipients	0	1	2	3	4
I feel exhilarated after working closely with my recipients	0	1	2	3	4
I have accomplished many worthwhile things in this job	0	1	2	3	4
In my work, I deal with emotional problems very calmly	0	1	2	3	4
III. Depersonalization					
I feel I treat some recipients as if they were impersonal 'objects'	0	1	2	3	4
I've become more callous toward people since I took this job	0	1	2	3	4
I worry that this job is hardening me emotionally	0	1	2	3	4
I don't really care what happens to some recipients	0	1	2	3	4
I feel recipients blame me for some of their problems	0	1	2	3	4

Appendix Work Productivity and Activity Impairment Questionnaire (WPAI)

	Participant ID: _____	Pin # _____
	Discovery Site: _____	Clinical Center _____
	CRF Date: ____/____/____	Visit #: ____

Work Productivity and Activity Impairment Questionnaire:Specific Health Problem V2.0 (WPAI:SHP)Participant completes via online survey at **Week 4 Baseline and Months 6, 12, 18, 24, 30, & 36 Follow-up Contacts**

The following questions ask about the effect of your **PROBLEM** on your ability to work and perform regular activities. *Please fill in the blanks or circle a number, as indicated.*

1. Are you currently employed (working for pay)? ☐₁ Yes ☐₀ No

*If NO, check "NO" and skip to **question 6**.*

The next questions are about the **past seven days**, not including today.

2. During the past seven days, how many hours did you miss from work because of problems associated with your **PROBLEM**? *Include hours you missed on sick days, times you went in late, left early, etc., because of your **PROBLEM**. Do not include time you missed to participate in this study.*

____ HOURS

3. During the past seven days, how many hours did you miss from work because of any other reason, such as vacation, holidays, time off to participate in this study?

____ HOURS

4. During the past seven days, how many hours did you actually work?

____ HOURS *(If "0", skip to **question 6**.)*

5. During the past seven days, how much did your **PROBLEM** affect your productivity while you were working?

Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If **PROBLEM** affected your work only a little, choose a low number. Choose a high number if **PROBLEM** affected your work a great deal.

Consider only how much **PROBLEM** affected productivity while you were working.

PROBLEM had no effect on my work

PROBLEM completely prevented me from working

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Reilly MC, Zbrozek AS, Dukes E: The validity and reproducibility of a work productivity and activity impairment measure. *Pharmacoeconomics* 1993; 4(5):353-365.

v2.0.20150306

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WPAI

	Participant ID: _____	Pin # _____
	Discovery Site: _____	Clinical Center _____
	CRF Date: ____/____/____	Visit #: ____

Work Productivity and Activity Impairment Questionnaire:

Specific Health Problem V2.0 (WPAI:SHP)

Participant completes via online survey at **Week 4 Baseline and**

Months 6, 12, 18, 24, 30, & 36 Follow-up Contacts

SELECT A NUMBER

6. During the past seven days, how much did your PROBLEM affect your ability to do your regular daily activities, other than work at a job?

By regular activities, we mean the usual activities you do, such as work around the house, shopping, childcare, exercising, studying, etc. Think about times you were limited in the amount or kind of activities you could do and times you accomplished less than you would like. If PROBLEM affected your activities only a little, choose a low number. Choose a high number if PROBLEM affected your activities a great deal.

Consider only how much PROBLEM affected your ability to do your regular daily activities, other than work at a job.

PROBLEM had
no effect on my
daily activities

PROBLEM
completely
prevented me
from doing my
daily activities

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

SELECT A NUMBER

WPAI:SHP V2.0 (US English)