

BEHAVIOURAL, ENVIRONMENTAL AND OCCUPATIONAL FACTORS ASSOCIATED WITH DIFFERENT LEVELS OF PHYSICAL ACTIVITY IN PROFESSIONALS

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Abstract : Physical activity is shaped by more than personal choice, especially for working professionals whose days often involve long hours of sitting, job demands and little room for movement. This cross-sectional study examined how behavioural/motivational, environmental and occupational factors relate to physical activity level in 300 professionals. Activity was measured with the International Physical Activity Questionnaire–Short Form (IPAQ-SF) and motivation with the Behavioural Regulation in Exercise Questionnaire-3 (BREQ-3). Environmental and occupational factors were captured through structured, self-developed questionnaires that experts had face validated. Associations between categorical variables were tested with the chi-square test, and $p < 0.05$ was taken as significant. Moderate activity was the most common category (39.7%), ahead of low (32.0%) and high (28.3%). Average weekly activity was 2418.28 ± 2868.04 MET-min/week, and 58.5% of participants fell below the study's WHO-recommended aerobic activity classification. Age, environmental support, occupational barriers and BREQ-3 motivation were significantly associated with activity level, whereas gender, environmental barriers and occupational support were not. Overall, the results suggest that activity among professionals reflects a mix of personal, environmental and work-related influences rather than any single cause.

IndexTerms - physical activity, professionals, IPAQ-SF, environmental factors, occupational factors, BREQ-3, motivation.

I. INTRODUCTION

Physical activity is any bodily movement produced by skeletal muscles that uses energy. Being active on a regular basis supports heart health, muscle function and mental well-being, and it helps prevent chronic disease. Modern work, however, relies more and more on desk-based tasks, which means long stretches of sitting and little movement during the working day. For this reason, the workplace has become an important setting in which to study how people stay active.

For professionals, activity is likely to depend on how personal motivation interacts with job demands and the surrounding environment. Heavy workloads, responsibilities and tiredness can eat into the time and energy left for exercise, while easy access, comfort, safety and suitable places to be active can either encourage or discourage participation. Stamatakis et al. pointed to the health risks of prolonged sitting and the gains that may come from swapping sitting time for physical activity, especially moderate-to-vigorous activity.[1] Work on perceived exercise barriers likewise shows that whether a person exercises depends on practical, psychological and social circumstances, not on willingness alone.[2]

This study therefore treats physical activity as a behaviour that takes place within a wider personal and situational context. Activity level was classified with the IPAQ-SF, and motivational regulation was examined with the BREQ-3. Questionnaires on environmental and occupational factors were added to record how participants themselves perceived the things that help or hinder their activity.

II. NEED OF THE STUDY

The need for this work comes from the changing nature of professional life, in which long periods of sitting, deadline pressure and work-related fatigue can make regular activity hard to sustain. Physical activity is widely accepted as important for health, but knowing that someone is inactive does not tell us why people differ in how active they are. One professional may have access to a gym but no spare time; another may have the time but little motivation; a third may be motivated yet worn out by work. Understanding how these influences overlap is necessary if health-promotion strategies are to be practical.

Earlier studies have looked at physical activity in relation to health, perceived barriers, built and social environments, occupational sitting and exercise motivation, but usually one at a time. Prochnow et al. stressed that both built and social features of the environment matter for physical activity.[3] Esmaeilzadeh et al. showed the value of motivational quality by linking stronger intrinsic motivation with less sitting time.[4] The present study responds to the lack of a combined picture by examining behavioural/motivational, environmental and occupational factors together with measured activity levels in professionals.

The results may help physiotherapists, employers and health-promotion workers pinpoint factors that can be changed. Instead of simply telling professionals to exercise more, interventions could be made stronger by tackling workplace barriers, building supportive surroundings and encouraging more self-determined forms of motivation.

III. METHODOLOGY

This was an observational, cross-sectional, survey-based study of 300 working professionals aged 23–65 years who worked at least eight hours a day. People with physical disabilities or medical conditions that limited their physical activity were excluded. Participants were recruited by convenience sampling.

Data collection began after permission from the institution and ethical clearance from the Institutional Ethics Committee. Participants were told the purpose and procedure of the study and gave informed consent. A structured questionnaire covered four areas: physical activity, behavioural/motivational factors, environmental factors and occupational factors. The environmental and occupational sections were developed by the researchers and face validated by experts. The questionnaire was circulated both on paper and through electronic platforms.

The IPAQ-SF records walking, moderate and vigorous activity and allows participants to be classified into low, moderate or high activity. The BREQ-3 measures amotivation and five types of behavioural regulation along the self-determination continuum. Responses to the environmental and occupational sections were interpreted using predefined scoring categories.

Continuous variables are presented as descriptive statistics, including the mean and standard deviation where suitable, and categorical variables as frequencies and percentages. Associations between categorical factors and physical activity level were tested with chi-square tests, and $p < 0.05$ was taken as statistically significant.

IV. RESULTS AND DISCUSSION

A. Participant Characteristics and Activity Levels

The sample comprised 300 professionals with a mean age of 31.04 ± 9.20 years, and two-thirds (67.0%) were in the 23–29 year age group. Women made up 66.7% of participants and men 33.3%; because the split was uneven, the gender-related findings need to be read with that in mind.

Moderate activity was the commonest category (39.7%), followed by low (32.0%) and high (28.3%) activity (Fig. 1). The mean weekly activity was 2418.28 ± 2868.04 MET-min/week. Using the study's WHO-recommended aerobic activity classification, 124 participants (41.5%) met the recommendation while 176 (58.5%) did not.

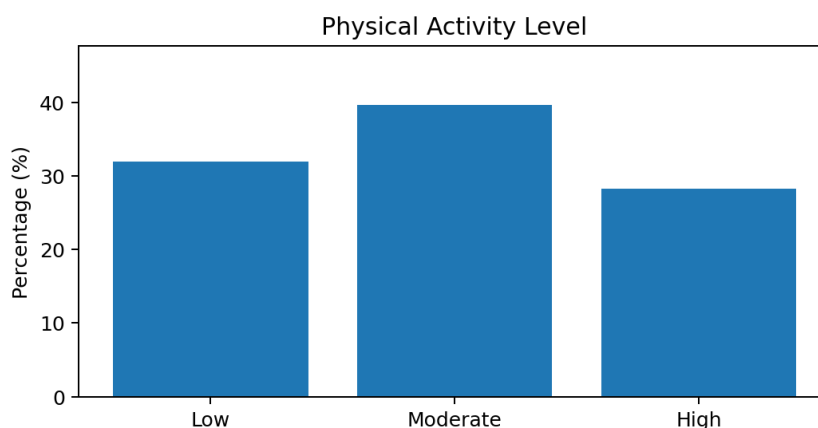


Fig. 1. Distribution of participants according to physical activity level.

B. Environmental, Occupational and Motivational Findings

Environmental barriers had a low perceived impact for 40.7% of participants, a moderate impact for 46.3% and a high impact for 13.0%, and they showed no significant association with activity level ($\chi^2=8.817$, $p=0.066$). Environmental support, on the other hand, was significantly associated with activity ($\chi^2=17.614$, $p=0.001$); 53.7% of participants perceived high support (Fig. 2). The overall environmental interpretation was significant too ($\chi^2=19.829$, $p=0.011$), with 67.0% placed in the moderate/mixed category.

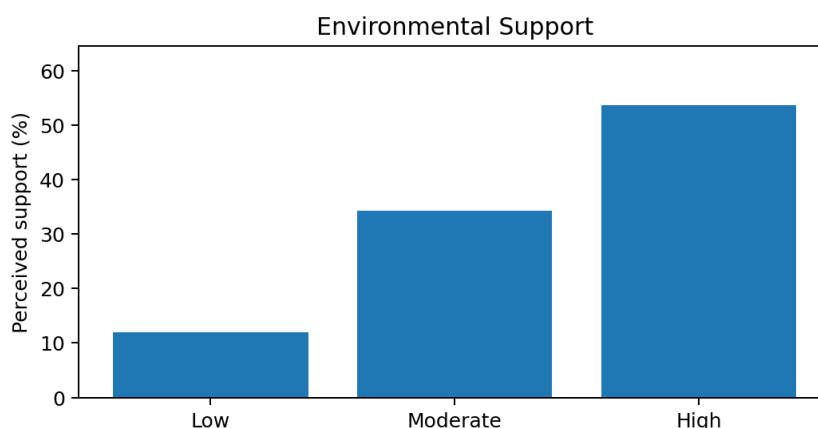


Fig. 2. Perceived environmental support for physical activity.

Occupational barriers were seen as having a low impact by 21.0% of participants, a moderate impact by 51.7% and a high impact by 27.3% (Fig. 3), and they were significantly associated with activity level ($\chi^2=15.455$, $p=0.004$). Just over half (51.0%) said that office responsibilities strongly influenced their decision to skip exercise, and 52.0% felt that office work used up enough of their

energy to interfere with exercise. Occupational support showed no significant association ($\chi^2=3.563$, $p=0.468$), and neither did the overall occupational interpretation ($\chi^2=19.601$, $p=0.075$).

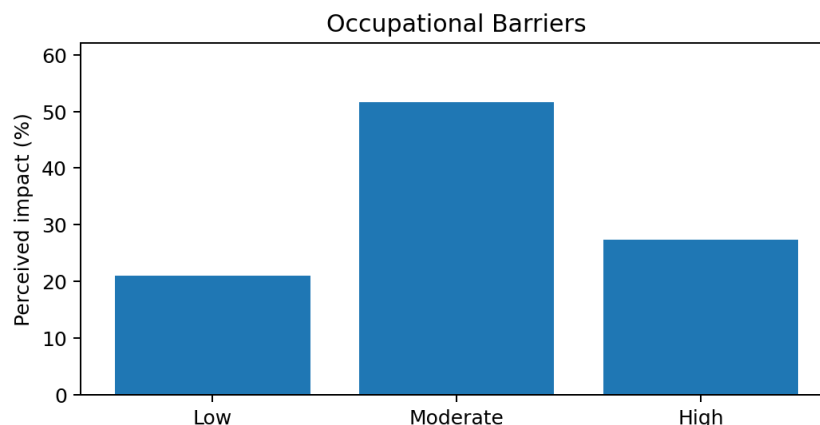


Fig. 3. Perceived impact of occupational barriers.

On the BREQ-3, 74.0% of participants showed a more controlled motivation profile, 19.7% a more autonomous one and 6.3% a balanced/neutral one (Fig. 4). Motivation profile was significantly associated with activity level ($\chi^2=11.448$, $p=0.022$).

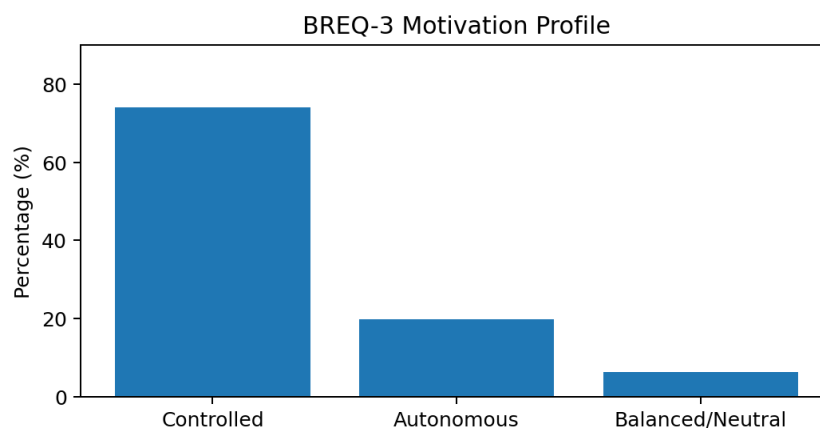


Fig. 4. BREQ-3 motivation profile of participants.

C. Overall Physical Activity Pattern

Moderate activity was the most common category in this study, yet nearly a third of professionals fell into the low-activity group. More telling, 58.5% did not reach the study's WHO-recommended aerobic activity classification. In other words, a large share of professionals may be falling short of recommended levels even though some are moderately or highly active. The wide spread around the mean of 2418.28 ± 2868.04 MET-min/week also shows how much individuals differ, which argues for looking at the factors behind activity and not only at how much of it people do. Dhuli et al. described the broad health benefits of regular physical activity and its part in preventing chronic disease,[5] and the present findings underline why promoting activity among working adults matters.

D. Age and Gender with physical activity

Age was significantly associated with activity level ($\chi^2=13.064$, $p=0.042$), which suggests that activity patterns differed across age groups in this sample. Most participants (67.0%) were in the youngest group, aged 23–29 years. Because the design was cross-sectional, this should be read as an association and not as evidence that getting older leads to less activity. Differences in job responsibilities, daily routines and free time across age groups may partly explain the variation.

Gender was not significantly associated with activity level ($\chi^2=4.675$, $p=0.097$). Although women outnumbered men, the data did not show a meaningful gender difference in activity, though the uneven split should still be kept in mind. Earlier work on the BREQ-3 has found that the questionnaire measures motivational regulation equivalently across genders, which supports using it with both groups.[6]

E. Environmental Factors with physical activity

Environmental barriers had a moderate perceived impact for 46.3% of participants, but their association with activity was not significant ($p=0.066$). Barriers such as distance, weather and the sense that special facilities are needed may therefore not explain differences in activity on their own in this sample. This fits with Godbole and Revadkar, who noted that exercise barriers span practical, psychological and social dimensions instead of a single obstacle.[2]

Environmental support, by contrast, was significantly associated with activity ($\chi^2=17.614$, $p=0.001$). Over half of participants perceived high support, which hints that safety, comfort and accessibility may relate to activity more clearly than barriers examined in isolation. Prochnow et al. likewise emphasized how the built and social environments shape opportunities to be active.[3] The overall environmental interpretation was also significant ($\chi^2=19.829$, $p=0.011$), and 67.0% of participants fell in the moderate/mixed category. Many professionals may therefore live with a blend of helpful features and practical limits, rather than an environment that is wholly good or bad.

F. Occupational Factors with physical activity

Occupational barriers were significantly associated with activity ($\chi^2=15.455$, $p=0.004$). A moderate impact was perceived by just over half of participants and a high impact by 27.3%. The large shares who said office responsibilities led them to skip exercise and that work drained their energy offer a practical reason why these barriers matter. Workplace measures that break up sitting and encourage movement could therefore be useful. Chandrasekaran et al. tested technology-assisted and self-directed ways of reducing sitting and increasing movement among Indian desk-based workers, which gives a relevant workplace setting for such interventions.[7] Stamatakis et al. also reported health gains when sitting is replaced with physical activity.[1]

Occupational support was not significantly associated with activity ($p=0.468$), and neither was the overall occupational interpretation ($p=0.075$). The contrast between barriers and support suggests that specific work-related difficulties may track activity more closely than general feelings of workplace support. Put simply, encouragement from the workplace may not be enough if workload, responsibilities or fatigue still get in the way.

G. Behavioural and Motivational Factors with physical activity

Controlled motivation was the dominant profile on the BREQ-3 (74.0%), with autonomous motivation accounting for 19.7%. Motivation profile was significantly associated with activity level ($\chi^2=11.448$, $p=0.022$), indicating that the kind of motivation a person has, and not just motivation in general, may matter for how active professionals are.

The BREQ-3 rests on Self-Determination Theory, which separates less self-determined from more self-determined forms of regulation.[8] Esmaeilzadeh et al. found that stronger intrinsic motivation toward physical activity went with less sitting time, supporting the link between motivational quality and movement.[4] Our findings therefore suggest that efforts to raise activity may work better if they foster more autonomous reasons for exercising, such as personal value and enjoyment, alongside practical changes to the environment and workplace.

Previous research has also shown the BREQ-3 to be reliable and valid and to work equivalently across genders, which supports its use for studying exercise motivation.[6] Sontakke and Hinge reported a weak but statistically significant association between physical activity (MET-min/week) and life satisfaction in college students.[9] Their population differs from ours, but the result offers a wider view of how activity may relate to well-being. Valse et al. similarly examined lifestyle factors and cardiometabolic indicators among college students, which underscores the need to view physical activity within overall lifestyle.[10]

Taken together, the results indicate that no single factor accounts for physical activity among professionals. Age, environmental support, overall environmental conditions, occupational barriers and motivation profile were significantly associated with activity level, whereas gender, environmental barriers, occupational support and overall occupational interpretation were not. The pattern suggests that the practical context in which professionals live and work interacts with their motivation and daily routines. Interventions are therefore likely to work better when they pair workplace movement opportunities and supportive environments with approaches that build autonomous motivation, instead of relying on individual advice to exercise alone.

V. LIMITATIONS

The cross-sectional design and convenience sampling limit causal conclusions and how far the results can be generalized. Physical activity and motivation were self-reported, so recall and response bias are possible. The environmental and occupational questionnaires were developed for this study and face validated, rather than being established standardized instruments. Women made up the majority of the sample, and no objective measures such as accelerometry were used.

VI. FUTURE SCOPE

Longitudinal and interventional designs would help clarify the time order of relationships between environmental, occupational and behavioural factors and physical activity in professionals. Larger, more gender-balanced samples drawn from different occupations and settings would improve generalizability. Future studies could also combine questionnaires with objective measures such as accelerometers or activity trackers to make activity assessment more accurate.

VII. CONCLUSION

A large share of the professionals in this study fell below the study's recommended aerobic activity classification. Activity level was significantly associated with age, environmental support, the overall environmental interpretation, occupational barriers and motivation profile. These findings support a multidimensional approach to promoting physical activity in professionals, one that pairs individual motivational strategies with practical changes to workplace and environmental conditions.

VIII. ACKNOWLEDGMENT

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