

# Planning for active office intervention in Thailand: survey and in-depth interview of university employees

Active office  
intervention in  
Thailand

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## Abstract

**Purpose** – This study aimed to explore knowledge, attitude, behavior and causes of sedentary behavior (SB) among office workers and guidelines for active office intervention.

**Design/methodology/approach** – The study was comprised of a survey and an interview. In total, 39 nonacademic office workers responded to the Past-day Adults Sedentary Time-University (PAST-U) and workplace sitting break (SITBRQ) questionnaire to measure SB level, sitting bout, frequency and duration of sitting interrupted in 1 h and in whole working hours. Eleven executives and staffs participated in in-depth interviews to understand knowledge, attitude, behavior and cause of SB and guidelines for active office intervention.

**Findings** – Participants commonly spend most of their working time in SB ( $383.85 \pm 93.03$  min or 6 h 23 min). The interview indicated that at an individual level, participants lack knowledge and understanding of SB. The most common causes of SB are huge workload, personal characteristics and the weather. At the organizational level, there is no policy, no support from colleagues or organizations, while the physical environment is not conducive to reducing SB.

**Originality/value** – The outcomes of the study are used as basic information and guidelines for establishing an active office intervention in accordance with the culture and context of Thai society. There have been studies in Thailand that examine SB but no studies that have been conducted to study basic information on knowledge, attitudes, behaviors and causes of SB to be used in planning active office intervention to reduce SB.

**Keywords** Sedentary behavior, Active office interventions, Occupational health, Work environmental health

**Paper type** Research paper

## Introduction

Developments in technology have resulted in lifestyle changes that have in turn caused the emergence of health problems. Many people spend most of their time sitting during lengthy

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commutes, office desk work and even leisure pastimes. Sedentary behavior (SB) refers to activities related to sitting or reclining when awake that uses energy between 1.0 and 1.5 METs (metabolic equivalents) such as watching television, working on a computer and driving [1, 2]. Half of the population in Thailand (52.6%) lives in the city [3]. This figure is likely to increase annually and with easier lifestyles, the majority of the population in the country could develop an increasingly SB resulting in greatly reduced physical activity. Insufficient physical activity (PA) and high SB are a major cause of noncommunicable chronic diseases (NCDs) such as coronary heart disease, type 2 diabetes, cancer and obesity [4]. Therefore, the lack of PA and SB is considered a major cause of health problems globally [4].

SB in adults can occur in three major situations such as work hours, leisure time and travel [5]. The World Health Organization reported that the adult population aged 20–59 years old spend 6–10 h per day in SB, which is mostly spent seated, most often in front of a computer or device [6]. It is estimated that on working days, adults practice SB for up to two-thirds of the work day and spend at least 20–30 min bouts of sitting [7, 8]. Studies have shown that careers associated with education including university staff members have an average SB of 7–8 h per day (75%) [9, 10]. This type of career is characterized by long periods of sitting down at a desk or computer with the total duration of sitting in these occupations exceeding 80% of the work day [11]. Therefore, the workplace is considered an influential place in determining health behavior change goals. Also, the workplace has a social support advantage, such as coworkers that will create motivation and effort for change [12, 13]. Personnel employed in educational institutions at an operational level are particularly likely to be desk-bound. The opportunity to reduce desk-based working habits could have a long-term positive impact on staff members and students from a health and education perspective. The results of this study can be used as a model of improved health organization for other organizations.

Because of its significance and importance in social health, researchers are keen to develop active office intervention measures to change SB habits. There is limited research on SB knowledge and practice to suit the culture and context of Thai society (6.7%) [14]. In addition, there is no previous research based in Thailand that studies the planning of an active office intervention in terms of knowledge, attitude, behavior and the cause of SB that can be used to implement an active office intervention strategy that adequately reflects the local setting. Therefore, this study aimed to explore the knowledge, attitudes, behavior and the cause of SB among office workers and to explore guidelines for establishing an active office intervention plan at both the organization and individual levels. The research questions were “what is the level of knowledge, attitude, behavior and the cause of SB among office workers?” and “what are the guidelines for establishing an active office intervention plan at both the organization and individual levels?”

## Materials and methods

### *Study design and participants*

This study used a survey and an in-depth interview approach. Using a pragmatic paradigm as a framework, data was collected in a simultaneous manner using methods that were drawn from both quantitative and qualitative traditions to address the research questions [15]. A convergent parallel design was used in this study, quantitative and qualitative data were collected and analyzed separately, and the findings were integrated in the overall interpretation [16]. In the quantitative phase, participants were nonacademic staff office workers working  $\geq$  five days per week in the Physical Education Faculty at Srinakharinwirot University. In total, 39 office workers (age:  $44 \pm 10$  years, 26 females and 13 males) completed self-reports. For the qualitative phase, 11 faculty members (three administrators and eight nonacademic staff) participated in an in-depth interview.

### *Instruments and procedure*

Participants completed the Past-day Adults Sedentary Time-University (PAST-U) and workplace sitting break (SITBRQ) questionnaire. The PAST-U questionnaire, which demonstrated acceptable reliability (intraclass correlation coefficient: 0.78, 95% confidence interval [CI] 0.45–0.77) and good validity ( $r = 0.63$ ; 95% CI = 0.44–0.76 against activPAL), and the SITBRQ, which demonstrated adequate reliability (intraclass correlation coefficient: 0.71, 95% confidence interval [CI] 0.59–0.79), were used to obtain the SB of each office worker. PAST-U included questions about time spent sitting or lying down during work, study, traveling, viewing television, leisure-time use of a computer, reading, eating, socializing and during any other activity in the previous day. The SITBRQ measured sitting bout, frequency and duration of interruption from sitting down in a 1 h period and during the course of a whole working day. The questionnaires were completed by participants gathered at the same time in a meeting room. Prior to completing the questionnaires, the researchers explained each question to the participants following which the participants completed the questionnaires within 15 min. In case of doubt, participants were able to clarify points with the researchers at any time during that period.

Selected subjects participated in an in-depth interview. The interview audio was recorded for subsequent transcription with interviews lasting between 30 and 60 min. In-depth interview guidelines contained open-ended questions to further understand the knowledge, attitude and cause of SB of office worker staff and guidelines for active office intervention. Sample questions included the following: “Do you know what SB is?” “What kind of behavior do you spend the most time doing in your daily work?” Specific questions for administrators (dean, vice dean and assistant dean) included “Did your workplace have health promotion policies for your staff?” and “If you think of policies to reduce SB in your workplace, what do you think the policies should be?”

### *Data analysis*

This quantitative study was analyzed by Statistical Package for the Social Science (SPSS) 23.0; descriptive analyses were conducted on the SB level. In-depth interview transcriptions were analyzed via qualitative thematic analysis. In each interview transcript, researchers recognized prominent words, phrases and sentences about organization level and individual level related to SB in the workplace and allocated them codes that were then grouped into the preidentified topics and formed renewed subthemes. Data were validated by using a cross-verification technique (triangulation) from various sources including on-site observation, administrator interviews and nonacademic staff interviews, as well as double-checking against all relevant documents.

### *Ethical approval*

Ethical approval for the study was obtained from the Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University, Thailand (146/2019). All participants were informed about the objectives of the research and provided informed consent prior to data collection.

## **Results**

### *Participants' characteristics*

In total, 39 out of 48 participants responded to the survey. The participants were female ( $n = 26$ , 66.7%), male ( $n = 13$ , 33.3%), aged  $44 \pm 10$  years, weighed  $68.82 \pm 17.22$  kg, had a height of  $162.36 \pm 8.05$  cm, a body mass index of  $26.35 \pm 5.67$  kg/m<sup>2</sup>, a waist circumference of

82.5 ± 18.48 cm and worked five days/week. Almost a quarter ( $n = 8$ , 20%) of the participants reported having hypertension.

### *Sedentary behavior*

The PAST-U showed that respondents spent their time seated for work purposes for 383.85 ± 93.03 min, watching television for 129.23 ± 76.91 min, using leisure-time electronic devices for 113.08 ± 71.54 min, traveling for 96.28 ± 75.99 min, socializing for 90.90 ± 10 86.53 min, eating for 87.18 ± 53.24 min and sitting for other purposes for 48.21 ± 42.49 min respectively. The average total of time spent sitting down in a day was 990.01 ± 109.20 min. In addition, the SITBRQ showed that 33.3% of respondents had a period of sitting bout of 120 min (2 h), and 33.8% of those had two breaks per hour. During their break, respondents (28.2%) had 5 min of light PA. In addition, 23.1% of respondents had 3–5 breaks during their working hours in one day and 25.6% had 10–19 mins of PA during work hours.

The information from the interviews included the following key points:

### *Individual level: knowledge, attitudes, behaviors and the reasons that cause SB*

*Knowledge and understanding of SB.* In terms of knowledge and understanding, it was found that most informants did not know of or understand the meaning of SB. Most participants had heard of it for the first time. It was explained that SB is the behavior of those who do not want to be physically active, spend extended time in front of a computer screen and have less movement. There was also a misconception that exercise can compensate for the effects of SB on health. As follows:

... Just heard it here

It's the first time to hear this word ...

... Do not understand the meaning, however, if speaking in general, it is understood that it is sitting and working without going anywhere, no activities to walk ...

*Attitude toward SB.* Some informants thought that movement was better because it helped reduce the stress of sitting for a long time. But some informants understood that sitting and working was better than standing or walking because it was a waste of time while working, causing workers to lose energy, having to cope with the impact of sunshine, inconvenience of unsuitable attire for walking, consideration for colleagues if passing by often. As follows:

... If we walk, work will not be finished ... If it is not necessary, I will not walk, I will sit and work. ...

... If you have to walk, then there must be a sunny environment, I would not want to walk, and going upstairs requires a lot of energy ...

... Wearing a skirt walking up to the 1st floor or 2nd floor is not suitable. ...

... Standing and moving in the workroom, if we are working close to each other it's ok but, if they are not close, they must be considerate when walking about the office ...

*SB while working.* The most common behavior of informants was to remain seated and working continuously for 1–2 h or more and standing or walking only when necessary. Moreover, standing or walking was not for health but when performing work-related duties such as using a photocopier, fetching and sending documents or going to the bathroom. As follows:

... I am mostly sedentary; I almost eat my lunch at my desk ... the working period is quite long ...

*Causes of SB.* The informants indicated that the most common causes of SB were due to personal habits, the burden of work made it necessary to sit for a long time, and also, the environment had an impact. As follows:

... The work can never be finished ... no matter what, there is always more, so, we spend most of the day working to finish our tasks, but it is in our character too ...

... If it is strong sunshine outdoors, I will not walk to other buildings for work purposes ...

*Organization level: policy, physical environment and social environment*

*Policy.* The workplace did not have a clear policy to promote the health of staff. The only recorded practice was in the past on a government campaign to exercise every Wednesday afternoon. But this was discontinued because there were no leaders to promote the activity and no supervision. As follows:

... During the government policy that campaigned last year ... there used to be Wednesday afternoon exercise... there was a policy to follow... we could follow it for a while, however the number of members that attended gradually decreased... there was a leader but there was no supervisor ... at first it was fun but it became a problem with work... until I quit ...

*Physical environment.* From the interviews, it was found that the workplace environment affected the SB. Due to the environment being cluttered, the printers were close, the walkway between the buildings had no roof that made employees not want to move too often between buildings. On the other hand, it was found that if the physical environment was conducive, it made people feel more motivated to move. As follows:

... In our room the material is full we don't want to move anywhere ...

... Everyone has their own printer, it's a disadvantage because they don't have to move anywhere ...

... Some places such as the Chaengwattana Government Center made people think that they wanted to exercise. If there was nothing it was better to go home, eat, and sleep. Having the facilities or space would cause the desire to try it out, why not?

*Social environment.* Informants indicated that the influence of the leader of the organization was either exemplary or supportive. Furthermore, colleagues were influenced by the behaviors of those working close to them. In addition, personal behavior patterns were based on peer practice. As follows:

... The supervisor makes us feel that he is a role model. In the sense that if he practices good habits, then we will follow... we know from watching ...

... It affects... at first, only one person may not be interested, but when 2 people are active, or 3 people are involved in sport, we have to do too ... when colleagues do, we also want to do ...

*Guidelines for the active office intervention*

*Policy recommendations.* Policies to reduce SB as proposed by the management included a 5–10 min active break from work, having a campaign message to encourage staff and wearing sportswear to work for flexibility. There must also be environmental changes, design improvements to encourage movement, work areas that encourage staff to have PA of at least walking, raise awareness of the disadvantages of SB, build motivation and disseminate an incentivizing message. As follows:

... Maybe defined as 10:30 a.m. and 3:30 p.m., 2 periods, which is a simple stretching ... designed for short intervals, maybe no more than 5 mins, 10 mins and then exercising together in the hallway.

... There is a message like 'I know you sit so long' ... there is a message stuck in the room you have to move every 1 h; seeing this message may make the staff see that someone is watching them ...

... There may be policies every Wednesday when you are required to wear sportswear and sneakers to work ... for agility of moving, it will not be any different to Friday when they encourage wearing traditional Thai clothing and Thai fabric to work ...

*Suggestions from staff.* Staff suggested that there should be a break from work with 5–10 min stretching exercises in the morning and afternoon and that there should be better communication providing clear knowledge to all sectors explaining the importance of movement. Acquiring knowledge through social media and the distribution of equipment to measure the level of physical activity and the length of sitting was also mentioned. As follows:

... If during work, there are exercise postures that will allow us to move and give our eyes a break from the computer screen for 5 to 10 mins without having to go anywhere, it would be beneficial because going elsewhere to exercise takes a long time and if I am busy, I would not go ...

... Executives should inform or enlighten the personnel to understand the need for these measures and also its benefits because not everyone has the knowledge to take care of themselves ...

## Discussion

According to results from the PAST-U questionnaire survey, it was found that office workers in the university had high levels of SB while working ( $383.85 \pm 93.03$  min or 6 h 23 mins), representing 77.87% of the working day (8 h), representing 38.93% of waking time (16 h). This result was similar to a previous study, which found that university staff spent 75% of their working time seated with only an occasional break [17]. The qualitative results found that participants lacked knowledge about SB and did not understand the true meaning or importance of regular movement. This is similar to a study among African American women [18]. The SITBRQ showed that participants only had 3–5 rest breaks from work due to low physical activity in one day and rest with accumulated light physical activities averaging 10–19 min during the working hours (8 h). This is not enough to reduce the health effects of SB [19]. Most participants remained seated for 120 min at a time and usually remained seated for more than 1 h making them prone to chronic noncommunicable diseases in the future, such as coronary heart disease and diabetes [20, 21]. Staff at the university agreed that sitting for a long time affected their muscles such as in the neck, shoulder and lower back, causing pain. Likewise, a study of office workers in Australia indicated that the most popular health concern recognized among office workers was musculoskeletal conditions or function [22]. Without awareness of the side effects of extended sitting, being considerate to colleagues was also cited as an attitude that affected changing postures in the office. The study results are in line with a study in Singapore that found that office workers noted that some "Asian cultures" and work culture restricted movement causing reduced SB at work because standing or walking between workspaces would interfere with their colleagues. Similarly, it was noted that standing during work hours was viewed as a disrespectful expression. Therefore, standing at work and meetings in an open office setting is not treated the same as in Western culture [23]. The results from the interview suggested that huge workloads, the weather (high temperature with strong sun), habits and dress codes were obstacles to improving SB. Similar to the results from a study of office workers in Singapore, it was confirmed that personal behavior such as sitting as a habit, lack of knowledge of the health benefits of regular movement, lack of motivation, social and work cultures had an influence on SB in office workers [23]. It is also consistent with a study in Belgium that found that responsibility for other duties was an obstacle to physical activity [24]. In addition, the weather (hot sun) was

the cause of SB, which is consistent with previous research in Scotland that found that weather conditions were seen as one of the major obstacles for participants in a trialed walking program [25].

Data shows that the organization does not have a policy to support staff to reduce SB. The study of secondary school teachers in Belgium states that the problems and obstacles in the movement caused a lack of organizational support and planning [24]. Furthermore, the organization did not have a favorable environment to encourage personnel to wanting to be physically active. On the other hand, the office was cluttered, crowded with printers everywhere causing personnel to not want to move, this is consistent with previous research that found that the workplace environment, such as narrow spaces, and the presence of distributed printers and chairs influenced SB at work [23], which, with a lack of environmental support, therefore, affected the SB of a person [26]. The management developed the policy of an active break during work hours and modification of clothing for flexibility of movement. Environmental change also played a part in motivation with a need to educate employees on the necessity for mobility and overcoming environmental factors in undertaking regular exercise during working hours. Having a positive campaign message using strategies to change behavior, environmental change or the integration of these elements by combining all the components and applying the theory of health behavior modification is extremely beneficial to reduce SB at work [26].

Socially, superiors and executives were the role models that influenced a pattern for employees to follow. Executives who practiced good habits encouraged personnel in the department to do the same. This is consistent with studies from the Australian government, which show that leaders are regarded as important to reducing SB in the workplace [27]. While colleagues have a direct effect on personal behavior, if a colleague doesn't like to walk or move, it is more likely for coworkers nearby to be influenced by those behaviors. At the same time, if coworkers are health-conscious, it had the effect of making coworkers also interested in health. This result is similar to a study of African American women whose family and friends influenced their SB, particularly regarding the habit of sedentary eating and free time in which food and snacks were divided between employees with chatting during free time [26].

## Conclusion

This research shows that when planning to implement an active office intervention program, the department should have a policy to drive and support organizational health culture, organizational health behavior and organizational environmental factors related to reduced SB at the personal level but also with regard to education to provide personnel with an awareness of the health effects of SB and the benefits of PA. A change in office culture and improved behaviors within the organization can also effectively reduce SB. These elements are necessary to help promote the health of people at work.

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