



Understanding the health behaviors of India's information technology and business process outsourcing employees

Health behaviors of India's IT and BPO employees

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Abstract

Purpose – The purpose of this paper is to investigate the behaviors of India's information technology (IT) and business process outsourcing (BPO) employees in relation to diet, exercise, sleep, stress, and social habits.

Design/methodology/approach – This was a qualitative research study, using in-depth, semi-structured interviews. Descriptive data were collected from a two-stage purposive sample of 28 IT-BPO employees from three IT companies and two BPOs in Bangalore, India.

Findings – The majority of interviewees reported having an unhealthy diet and/or sedentary lifestyle. Lack of time due to demanding work schedules was the largest barrier to diet and exercise. Call-centers were described as a social environment with a young workforce.

Research limitations/implications – Given the qualitative study design and limited sampling frame, results may not be generalizable. However, the qualitative data suggests that India's young IT-BPO employees may be at greater risk of lifestyle-related diseases than the general population. The data also suggests that interventions incorporating social influence may be a promising solution, particularly at international call centers.

Originality/value – There is a lack of literature on the lifestyle of IT-BPO employees in India. The results from this study provide qualitative insight on the motives for health behaviors of IT-BPO employees, as well as the barriers and facilitators for leading a healthy lifestyle in this industry. The findings provide the framework for future workplace wellness interventions.

Keywords Information technology, India, Workplace wellness, Business process outsourcing, Qualitative research, Employee behaviour

Paper type Research paper

1. Introduction

India's booming information technology (IT) and business process outsourcing (BPO) industries have largely contributed to the rapid growth of the country's economy, particularly with increased job opportunities for young adults and foreign exchange. Despite the economic benefits, the rapid expansion of white-collar workers in India may have negative implications on population health.

Across cultures, white-collar workers are found to be at risk for developing a sedentary lifestyle (Lin *et al.*, 2013; Castillo-Retamal and Hinckson, 2011). Unfortunately,

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studies have shown that sedentary lifestyle is adversely associated with cardio-metabolic risk biomarkers, type 2 diabetes, and premature mortality (Dunstan *et al.*, 2012; Wilmut *et al.*, 2012). In addition, Dunstan *et al.* (2012) found that these detrimental associations remain even after accounting for leisure-time physical activity.

For many in the IT-BPO industry, the health consequences linked to white-collar work may potentially be compounded by shift work, which has been shown to be associated with negative outcomes in physical, psychological, and social domains (Akerstedt, 1988; Costa *et al.*, 1989; Kogi, 2005; Paley and Tepas, 1994; Rathore *et al.*, 2012). Oberlinner *et al.* (2009) found that the incidence of obesity, diabetes, and diseases of the circulatory and digestive system was higher among a cohort of 14,128 shift workers as compared to a control group of 17,218 day-wage employees. Others have found a positive association between night shift work and breast cancer, isolation, depression, and sleep disorders (Grundy *et al.*, 2013; Rabstein *et al.*, 2013; Wilson, 2002; Schwartz and Roth, 2006).

Fortunately, workplaces appear to be promising settings for health promotion. A review of 17 studies focused solely on promotion of a healthy diet through education and/or environmental changes found moderate evidence for positive effects of nutrition interventions implemented at the workplace (Maes *et al.*, 2012). Schroer *et al.* (2013) also found that workplace health promotion interventions may improve physical activity, dietary behavior, and healthy weight. These findings, coupled with the fact that many adults spend much of their day at work, demonstrate the value of using the workplace in research and health promotion programs.

A stronger understanding of the impact of the IT-BPO sector on individual-level health behaviors is necessary because such information may provide another layer of insight into factors contributing to the rising prevalence of lifestyle-related diseases in urban Indian settings, particularly obesity, diabetes, and cardiovascular disease (Mathur and Shah, 2011; Jeemon and Reddy, 2010). The current study sought to systematically explore the health behaviors of IT-BPO employees and identify barriers and facilitators to proper nutrition and physical activity. A qualitative approach to data collection was used because of its ability to abstract narrative information about participants' lives and behaviors, therefore allowing us to generate hypotheses on the behaviors and motives of IT-BPO employees as they relate to diet, exercise, sleep, stress, and social habits.

2. Study design and method

2.1 Study design and recruitment

Given the exploratory nature of the project, we used in-depth, semi-structured interviews. All interviews were conducted between August 2012 and April 2013. Ethical approval was obtained from the Institutional Ethics Review Board at the St. John's Medical College and Hospital, Bangalore, India.

Participants were selected through purposive sampling, a technique in which samples are drawn to include particular groups of interest (Kerlinger, 1986). A two-stage purposive sample technique was used to enhance diversity within the sample. Companies were selected based on size (large, medium, small), type (internationally based, domestically based), and industry (IT, BPO voice process, BPO non-voice process). Companies were recruited by phone calls and electronic correspondences using the online Software Technology Parks of India, Bangalore member database, and by word-of-mouth. Within each consenting company, employees were recruited by the

research team based on gender (male, female), age (18-35), marital status (married, unmarried), and length of time at present company (> 6 months). All IT-BPO employees of consenting companies were eligible to participate unless they: first, were outside the ages of 18-35 years; second, had < 6 months work experience at present company; and third, were unable or unwilling to complete the full interview. Sample sizes depended on theoretical saturation, the point in data collection when new data no longer bring additional insights (Sandelowski, 1995).

2.2 Setting

This study was conducted in Bangalore, the third largest city in India (Kavita *et al.*, 2011). Bangalore is aptly nicknamed the “Silicon Valley of India” because it is the largest hub for IT-BPO companies in India. Given its influx of IT-BPO employees, Bangalore is known to be a demographically diverse city.

2.3 Defining the IT-BPO industry

India's IT-BPO industry encompasses both internationally based and domestically based companies. The “IT industry” generally refers to software companies, while the “BPO industry” refers to the contracting of a specific business process to a third-party service provider. The BPO industry can further be broken down into non-voice processes (e.g. accounting, banking, medical transcription) and voice processes (i.e. call-centers).

2.4 Procedures

Participants were escorted to a quiet and confidential area and informed of the purpose of the project, procedures, risks, and benefits. After obtaining written informed consent, the investigator proceeded with the interview, using open-ended questions that were developed by the research team to elicit information about the domains of interest: participant's work environment, diet, physical activity, sleep habits, stress, and social habits. Questions were pilot tested for clarity, cultural appropriateness, and comprehensiveness on two male and two female volunteer IT-BPO employees prior to data collection. To ensure consistency, all interviews were conducted by a single interviewer.

Prior to the interview, participants were asked to complete a brief demographic questionnaire to collect information on age, gender, religion, income, education, marital status, position at company, length of time at company, and length of stay in Bangalore.

Interviews lasted 30-60 minutes and were audio-recorded. There was no identifying information outside of the information voluntarily provided by the participant. To protect the anonymity of participants, all participants and associated research material were numerically coded.

2.5 Data analysis

Semi-structured interviews were transcribed, coded, and analyzed using NVivo (QSR International Pty Ltd., version 9, Doncaster, Victoria, Australia). A framework analysis involving five stages of analysis was completed (Ritchie and Spencer, 1994):

- (1) Familiarization – reading the transcripts and observational notes.
- (2) Identifying a thematic framework – identifying key issues, concepts, and themes by which the data can be examined and referenced.

- (3) Indexing – applying the thematic framework systematically to all the data in textual form by coding.
- (4) Charting – rearranging the data according to the component of the thematic framework for which they are relevant, using the codes. This process implies data reduction – leaving out irrelevant data – as well as abstraction and synthesis.
- (5) Mapping and interpretation – using the charts to define concepts, create typologies, and aim to plot the relationships between the themes, to understand the findings.

A coding summary chart was created through Microsoft Office Excel 2007, which included key themes across participants with relevant details and quotes.

3. Sample characteristics

3.1 Participant characteristics

Participants ($n = 28$) were a mean age of 27 years, with a slight majority male ($n = 16$, 57.1 percent) and unmarried ($n = 15$, 53.6 percent). About 90 percent of participants held either a bachelor's or master's degree. Employees earned a median monthly income of 31,000 Indian rupees (INR), (range: 8,500-100,000 INR). Overall, employees had spent an average of 2.4 years at the present company and 4.1 years in the IT-BPO industry.

3.2 Company characteristics

Participants were recruited from five companies: two BPOs and three IT companies. Table I provides an overview of company characteristics.

4. Results

The data were organized into four main domains: stress, dietary behavior, physical activity behavior, and social influence. Important themes, details, and supporting quotes are included within each category. In addition, tables are included to summarize barriers and facilitators to diet and physical activity.

4.1 Stress: demanding schedules, sleep deprivation

When asked to report the largest source of stress in their lives, most employees felt it was related to their work schedules – extended hours, night shifts, and insufficient breaks. Participants working at IT companies were more likely to be stressed from working extended hours, while those working at BPOs were more likely to be stressed from working on a rigid shift schedule. Regardless of schedule type, most interviewees claimed to work between 9 and 11 hours per day, sometimes longer, without

Company	Industry	Size	Type*	No. participants
Company A	IT	Small	Domestic	4
Company B	BPO: voice process	Large	Domestic	6
Company C	IT	Large	International	6
Company D	IT	Medium	International	6
Company E	BPO: non-voice and voice processes	Large	International	6

Note: *Small is defined as < 100 employees, medium as 100-500 employees, and large as > 500 employees

Table I.
Company
characteristics

overtime pay. Of the 28 interviewees, 17 complained about lack of work-life balance. The following quotes highlight common perceptions about working in the IT-BPO industry:

You know how IT works in India—there is no time limit. It's not 8 hours. And for name sake, it's 5 days a week. Sometimes you have to go on Saturday as well. It is not actually 8 hours—it can go to 10 hours, 12 hours (Participant 1, Male, Company A).

Requirements come in the evening time when I am about to leave, so I stay here till 8:30 or 9:00 PM (Participant 13, Female, Company C).

We feel like we have lost everything—our personal life, our personal time. There's nothing apart from work (Participant 4, Female, Company A).

There are times when we have to work at a stretch of 15 to 16 hours. That becomes a bit hectic, especially keeping in mind that you have a family behind you and you need to give time to them as well (Participant 2, Male, Company A).

Initially I thought working night shifts will be pretty cool because in the college time, we used to study the whole night and wake up in the next morning and go for exam [...] but when we started working, we realized how it impacted our health. Everything is impacted (Participant 27, Female, Company E).

We will not get break time when heavy call flow is there (Participant 8, Male, Company B).

Work schedules affected sleep behavior. Of the 28 people who were interviewed, ten felt they were not receiving sufficient sleep because of work. There were two main causes for sleep deprivation: coming home late and working with clients in different time zones:

I reach home by 12 AM and next day morning I will again have to get up by 6 AM [...] and I just can't go home and sleep. I need to spend at least half an hour with parents and do some other work (Participant 18, Male, Company D).

Our work clients are from US or from Europe. Europe means we can manage in the afternoon. But US clients, if I need to talk to them, it will be after 10 or 11 PM (Participant 1, Male, Company A).

Other common sources of stress included unreasonable work deadlines, heavy call volumes, pressure to satisfy clients, pressure to satisfy management, pressure from family to spend more time with them, and pressure from family to get married.

4.2 Changes in dietary habits: eating out, irregular timings, skipping meals

When asked about changes in diet since working in the IT-BPO sector, there were three common themes: eating more snacks and junk food, eating at irregular times, and skipping meals.

The most commonly reported change was an increase in snacking and eating out:

I was never this fat [...]. we end up eating lot of junk food, around 12:00 AM or 1:00 AM in the night. We hog on ice-creams or just go to [local coffee shop] and eat whatever we want (Participant 23, Female, Company E).

When I joined BPO, first 2-3 months I cooked myself. After that, I felt that it was not possible to cook myself so I quit that and now eating two times outside (Participant 25, Male, Company E).

Once I get back home, if I have the patience to cook something, then I will. Otherwise, whatever is there at house—mostly junk food—is what I get to eat (Participant 26, Female, Company E).

If we are working long in the office, we have no option. We have to order food in (Participant 22, Male, Company D).

Many large tech campuses were reported to have food courts with a diverse range of food options, such as Western, Indian, and oriental. Some employees mentioned that snacks, meals, or food vouchers were provided as incentives to work extended hours or night shifts:

We have a free of cost dinner that is scheduled for us, so every night we have dinner from here (Participant 27, Female, Company E).

My brother-in-law works for [Company Name]. If he goes early, he gets breakfast. If he goes slightly late, he doesn't get the breakfast. So this is incentive to go early (Participant 12, Male, Company C).

Before [working here] I was not having snacks daily. Here, I get daily (Participant 16, Male, Company C).

The next commonly reported change was eating a late-night dinner. Long work hours and commutes were most often cited as causes:

I gained weight because basically my food habits have changed. I am eating later than I used to. Before, I would finish food by 8 PM at the latest. Now I come home late so I am eating at 9:30 PM and then I am sleeping at 11 PM. There is no time for digestion at all (Participant 17, Female, Company D).

I go back home at 9 o'clock or 10 o'clock in the night. So because of that, my dinner gets delayed (Participant 15, Male, Company C).

People who work night shifts must adjust to eating meals at odd hours of the night:

Your cycle changes. You start your breakfast at 9 PM to 10 PM in the night and at times you don't eat. If you are hungry, you just end up eating chips, or Lays, or anything for that matter. It's just junk (Participant 23, Female, Company E).

[During nightshifts], I am able to eat, but not much. There are digestion problems for me if I eat in night time (Participant 25, Male, Company E).

Skipping meals was another commonly reported theme, particularly among employees who worked strict shift schedules:

Sometimes I wake up late. I need to get ready and come to office, and I need to do some house work also, so sometimes I skip my breakfast (Participant 14, Female, Company C).

Every day I'm late by 5 to 10 minutes, so morning breakfast is not there (Participant 9, Female, Company B).

Some participants mentioned that their meal times were dependent on their work schedule, and skipped meals when overwhelmed with work:

My lunch time goes around 4, 4:30, 5 PM. Sometimes I don't even eat. Something or another keeps cropping up in between (Participant 5, Male, Company B).

I'll just stick to my work and sometimes I don't even realize that I'm hungry (Participant 11, Female, Company B).

Due to the nature of their work, night shift employees mentioned having multiple small breaks instead of one large break. Interviewees claimed this schedule made it difficult to eat proper meals, and instead encouraged snacking and skipping meals:

When I come to office, it will be almost 1 AM in the morning and we'll have only 3 breaks —15 minutes, 15 minutes, and half an hour. In a 15 minute break, the most I can do is have a cup of tea, or I will go to smoke. In a half an hour break, I will just have some cakes. When I come

back to home, it's 11 o'clock in the morning. I will just have some tea or biscuits or cakes or something like that and then I will go to sleep (Participant 28, Male, Company E).

In the call-center, you just have a break of 15 minutes and you have nothing much to eat, so you just grab a sandwich or something that you can quickly finish (Participant 23, Female, Company E).

To identify potential causes for reported dietary changes, participants were asked about barriers and facilitators to maintaining a healthy diet. Tables II and III include a list of the major barriers and facilitators, respectively.

4.3 Inadequate physical activity

The majority of employees recognized and admitted that they did not lead a physically active lifestyle. Out of 28 interviewees, there were 5 who were clearly committed to exercising regularly:

Weekdays it's completely nil. Nothing at all. We just walk from home to office. That's the only exercise we have. We don't even take stairs nowadays. Physically we're not at all fit in IT, especially during the weekdays. We just sit like stones in front of the systems once you get into the office. Only in the lunch break we come out for 45 minutes to one hour (Participant 4, Female, Company A).

Exercise? Absolutely no exercise. Every day before I go to bed, I think, okay I'll get up early, but I don't do it (Participant 1, Male, Company A).

I hardly get any physical exercise compared to what I used to get. Plus the 9-10 hours that I am in the office, I am almost every time sitting. Even walking around is very, very less (Participant 17, Female, Company D).

Even if exercise facilities were available at work, many interviewees claimed they were underutilized:

We have yoga. We have gym. We have outdoor games, indoor games, table tennis. Everything is available here. But the kind of job that we're doing does not facilitate for us to be there (Participant 5, Male, Company B).

On my floor, there are nearly 300 members. Out of 300 members, as per my knowledge, only 5 to 6 members are going to fitness center over here. I don't know about outside gyms, whether they are going or not, but I will say that no one is that much conscious to go in the fitness center here (Participant 25, Male, Company E).

My friend works in [Company Name]. There, they have table tennis and pool tables, but they can't play it because 6 o'clock is their walk-out time and they have to catch a bus to come back home. If they go for those things, they will miss the bus (Participant 20, Male, Company D).

Of the 28 interviewees, 18 reported having gained weight after joining the industry. The most frequently reported reason for weight gain was a sedentary lifestyle due to the sedentary nature of IT-BPO work:

Because there are no physical activities, you put on weight. You become lazy. I used to go to the gym. I used to be very fit. I used to run a lot and I use to be very active. Now I am not even able to climb 6 floors of stairs (Participant 18, Male, Company D).

Previously I was slim. Now I am fat. I continuously sit so I don't do any physical activities so I have increased my weight (Participant 14, Female, Company C).

I think we tend to gain more weight because we are sitting in front of the system for 8 to 10 hours (Participant 26, Female, Company E).

Theme	No. reported	Examples
Lack of time	10	<p>“Morning and afternoon time I am not able to cook myself because I want to reach here in the morning. I can’t wake up early in the morning to cook” (Participant 25, Male, Company E)</p> <p>“Maggi was the routine food in the company because that was the only food that can be made quickly so that we can go back to our seats and we can do our job” (Participant 28, Male, Company E)</p>
Lack of self control	8	<p>“There have been days where I tried getting up and having just oats in the morning and all that, but I just can’t resist the other side of the food so I get back into eating unhealthy” (Participant 26, Female, Company E)</p> <p>“We don’t actually concentrate on the diet. If we’re outside, then we’ll just think about the place and have” (Participant 4, Female, Company A)</p>
Food environment	5	<p>Employees are often limited to the food options on campus or nearby their office</p> <p>“There are not many healthy options around, so you have to go to [Neighborhood Name] or some slightly more remote place and eat. If you are strapped for time, then you go for the easiest or closest place” (Participant 12, Male, Company C)</p> <p>“Most of the things you get in the cafeteria are the junk stuff- the oily food and all those things that people need to avoid” (Participant 24, Male, Company E)</p> <p>People who work night shifts have fewer food options</p> <p>“Times that I work, you don’t have anything open in Bangalore” (Participant 26, Female, Company E)</p> <p>“At night, you will not find much in the cafeteria [...] just cake or maggi” (Participant 28, Male, Company E)</p>
Living away from home	4	<p>People who lived away from their parents were more likely to have difficulties maintaining a healthy diet than those who lived with them</p> <p>“When we were studying, we were at home, so mom made everything. We used to have a proper breakfast, lunch, dinner. On time. It really helped us to stay healthy” (Participant 4, Female, Company A)</p> <p>“Mom used to prepare on time so whenever you wanted, the food was ready. Now, even if you are hungry, the food is not ready. You have to cook for yourself or get it from outside. We don’t expect to have a proper food every day [...] we kind of compromise” (Participant 21, Male, Company D)</p> <p>Many interviewees, particularly unmarried men, did not know how to cook nor had any interest in learning</p> <p>“I am bachelor. I am too lazy to prepare my food. I can’t cook myself so usually I will go outside” (Participant 25, Male, Company E)</p> <p>“If our cook is not there, then we eat out regularly. Right now our cook has not been there for last one month so we are taking food outside. We don’t have another option. We don’t know cooking” (Participant 3, Male, Company A)</p>
Social influence	3	<p>“I try to eat healthy food, but I will get frustrated. People are having all kinds of variety of food. I see what they are having and I feel to eat that. So sometimes I will cut off my diet” (Participant 25, Male, Company E)</p> <p>“There could be instances where your team is planned for a party. You are going out so you have no other option other than ordering some food there, so that might end up being unhealthy” (Participant 23, Female, Company E)</p>

Table II.
Barriers to a
healthy diet

Theme	No. Reported	Examples
Living with parents	9	"The good thing is that I stay with my parents. My mom cooks most of the food, so my lunch is prepared by mom" (Participant 22, Male, Company D)
Marriage	3	"When I was in previous organization in Mumbai, we used to eat almost every day outside because being a bachelor you don't want to cook [...] but now, with marriage, we push each other—'Why go outside? Let's cook at home and have food'" (Participant 21, Male, Company D) "When you're a bachelor, your eating habit will not be proper [...] at least now, my wife will say 'you have to eat something before you leave'" (Participant 1, Male, Company A) "Breakfast is the only time I get to spend with my wife. So I have more formal breakfast which is home-cooked" (Participant 12, Male, Company C)

Table III.
Facilitators to
a healthy diet

To better understand the reasons for changes in physical activity, interviewees were asked about perceived barriers and facilitators to routine physical activity. Table IV lists the main barriers to physical activity that were mentioned by interviewees; barriers were not mutually exclusive. Table V includes a list of reported facilitators to physical activity.

4.4 Social influence

When participants were asked to describe the nature of social interactions at work, call-centers (i.e. voice process BPOs) appeared to be a more social environment than IT offices:

You enter the call-center floor and all you can hear is noise- people just talking, your team leader screaming 'Come on guys- lets complete the targets' and all of that. If you enter any of the floors in IT, it's dead silent. People are just into the system. You know, they hardly talk to each other (Participant 23, Female, Company E).

When asked to discuss the reason for this, participants mentioned that call-center employees tend to be younger than IT employees and may therefore place a greater value on workplace social interactions:

Typically [call-center employees] are fresh graduates, whereas in the software industry, they have done additional studies (Participant 24, Male, Company E).

In particular, international call-centers were highlighted as an environment with strong social networks. A few interviewees attributed this to the unique nature of employees who are recruited to work there:

In the international call-center, the crowd that you are dealing with is completely different [...] you go around [with your colleagues] on the weekend – hop pubs, go for a weekend drives and stuff [...] whereas in back office job, people come from very traditional, orthodox, conservative families (Participant 24, Male, Company E).

If you go to international call-centers, of course the people out there are very different. They're outspoken. People are from good backgrounds. A lot of excitement. A lot of fun. Though it's the night, you still feel charged up to go back to work (Participant 5, Male, Company B).

The people [at international call-centers] are very, very open, broad-minded, and more into partying (Participant 23, Female, Company E).

Table IV.
Barriers to physical activity

Barrier	Reported	Examples
Lack of time	17	<p>"I wake up and I need to prepare breakfast, lunch, and pack bags. Whenever I get little time, I feel like I need to take rest, so I don't go much to exercise. I reach home late so there is no time then also. So whenever I get time, I feel like I need to take rest" (Participant 14, Female, Company C)</p> <p>"I sleep at 11 or 11:30 PM. I am up by 6 AM and I leave my house at 8 AM. So in that 2 hours of time I get, it's very difficult to give one hour just for walking, so that doesn't happen. And I tried waking up early, but then I get so tired at work" (Participant 17, Female, Company D)</p> <p>"One and half hours of bus ride – it's not boring, but it takes lot of my time mostly- the time which I could have employed in gym or swimming" (Participant 20, Male, Company D)</p> <p>"If you are exercising at 10 o'clock at night, when you will eat? Time is always an issue" (Participant 20, Male, Company D)</p>
Lack of priority or motivation	16	<p>Many people desired to exercise more and recognized the importance of physical activity, but often felt conflicted in choosing between physical activity and other priorities such as sleep, career, and family</p> <p>"Morning exercise, we have planned it many times, but never execute it because we want to sleep more" (Participant 4, Female, Company A)</p> <p>"If I can get up a little early, then I can do everything, but I feel lazy" (Participant 13, Female, Company C)</p> <p>"Definitely I'll have time to exercise, but I'm not making my mind to do that. Somehow I'll get caught in morning work—helping my wife or doing something like that" (Participant 1, Male, Company A)</p>
Lack of energy	8	<p>"After nightshift, I'm not able to do [exercise] because I'm tired and I want to sleep" (Participant 8, Male, Company B)</p> <p>"On Sunday, we'll feel like 'thank god we got one day, let us take rest.' We'll not feel like going out, so we'll stay at home"(Participant 9, Female, Company B)</p>
Lack of social support	1	<p>"The problem is that I don't have friends with whom I can go out and start [exercising] but yes I am planning" (Participant 21, Male, Company D)</p>
Inadequate built environment	1	<p>"Given the traffic around here, it's not very pleasant to walk. Plus, it's really noisy"(Participant 22, Male, Company D)</p>

One participant from an international call-center mentioned being influenced by the social culture at work:

After joining this call-center, I got to know the people, the culture, and their mind sets [...] also how they speak to others, their body language when they speak to others, their dressing style. That's the reason I changed myself. I am a keen observer (Participant 28, Male, Company E).

5. Discussion and implication of results

Our results suggest that the demanding work schedules of IT-BPO employees may have adverse effects on participants' sleep behaviors, dietary habits, and physical activity. We found that lack of time due to demanding schedules was the largest barrier to both healthy diet and exercise. Our results are consistent with other studies that show lack of time is the largest barrier to a healthy lifestyle (Kowal and Fortier, 2007; Booth *et al.* 1997; Wilcox *et al.* 2000). Similarly, Costa *et al.* (2006) found that flexibility and variability of working hours were inversely related to health and well-being: the most favorable effects were associated with higher flexibility and lower variability.

Theme	No. Reported	Examples
Desire to improve body image, fitness, or lose weight	3	"I want to reduce my weight to 80 kg so that is one of my motivations. I have to be healthy" (Participant 15, Male, Company C)
Flexible work schedules	2	"I schedule my workouts during my work time, so morning I will come and I will do my work. After that, up to 12:30 PM, I will finish my work and directly go to the fitness center. I will finish my workout and then at 2-2:30 PM I will finish my lunch and go back to work" (Participant 25, Male, Company E) One woman, who worked from 2 PM to 11 PM, found time to exercise in the morning before work "Every morning I go for my own [dance] practice" (Participant 26, Female, Company E)
Obligation to a friend, family member, or team	2	"I'm pretty regular with my sport activities. I play badminton pretty regularly. When I go back home, in the night, we have a group. We play for couple of hours" (Participant 2, Male, Company A)
Prior physical activity-related commitment	2	"My schooling has been through army school. There we had lot and lots of physical activity. Plus when I was in college, I was part of lot of outdoor sports. Exercise is not a new thing for me. It has continued since college into the job" (Participant 2, Male, Company A) "I am a trained dancer so I find time in the morning to go for my classes" (Participant 26, Female, Company E).
Desire to improve energy levels or reduce stress	2	"I will do my workouts and once I come back, my mind will be fresh" (Participant 25, Male, Company E)
Access to exercise facilities with flexible timings	1	"The [badminton] court is open till 12 o'clock in the night so I end up playing till 10 o'clock in the night" (Participant 12, Male, Company C)

Table V.
Facilitators to
physical activity

In addition, our results suggest that call-center employees may be at higher risk for lifestyle-related diseases than IT employees. First, nearly all participants who worked night shifts were BPO employees. This is consistent with a study by Jha *et al.* (2012), which found that BPO employees were more likely to work night shifts than IT employees. Second, participants reported stronger social networks and a younger workforce at call-centers than at IT companies. Mishra *et al.* (2010) found the mean age of employees in the four BPOs was 23 years, with 80 percent of employees below the age of 25. Unhealthy behaviors may be more "contagious" among call-center employees because younger adults have been shown to have higher rates of social conformity than older adults (Pasupathi, 1999). This is consistent with evidence on call-center employees and drug use, a known social behavior. Jha *et al.* (2012) reported that having multiple addictions was more predominant among BPO employees than IT employees. Similarly Mishra *et al.* (2010) reported cigarette smoking was higher in BPO employees than the general Indian population.

Despite differences between IT and BPO employees, there was one finding that was strikingly consistent across both sectors – the lack of physical activity. We found that the majority of participants reported a sedentary lifestyle, with only four out of 28 people clearly committed to exercising regularly. In fact, nearly two-thirds of the

participants reported having gained weight after joining the IT-BPO industry, the most frequently cited reason being a sedentary lifestyle due to the sedentary nature of IT-BPO work. This is consistent with the literature that white-collar workers are at higher risk of developing a sedentary lifestyle than the general population (Lin *et al.*, 2013; Castillo-Retamal and Hinckson, 2011). Thorp *et al.* (2012) found that in a convenience sample of 193 employees working in offices, call-centers, and customer service, call-center workers were generally the most sedentary and least physically active at work.

We found that some large IT-BPO companies have attempted to address the sedentary lifestyle associated with IT-BPO work by offering subsidized or free gym memberships, fitness classes, and/or recreational areas. Some also invite nutritionists, doctors, and counselors to speak to employees. While such initiatives are a step in the right direction, many participants noted that these resources are underutilized due to demanding work schedules and conflicting priorities. This is consistent with research showing that simply the existence of a resource is insufficient to foster long-term behavior change (Sallis *et al.*, 1998). In addition, education alone has proven to be insufficient to foster long-term behavior change (Darke *et al.*, 1992).

In light of the results from this study, it is important to identify innovative ways to encourage IT-BPO employees to lead healthier lives. One promising solution to improve health behaviors among IT-BPO employees could be to capitalize on the power of social influence, particularly given the young workforce at call-centers (Ng and Mitter, 2005; Mishra *et al.*, 2010). A review of 21 workplace health promotion programs found that effectiveness increased in younger populations (Rongen *et al.*, 2013). More specifically, peer-based interventions, such as walk groups during meal-breaks, running clubs, company fitness challenges, or sports teams may be effective solutions in the workplace because they hold employees accountable to others, which has been shown to improve adherence in health promotion programs (Leahey *et al.*, 2012; Mohr *et al.*, 2011). Similarly, role models have been shown to be effective because they encourage goal-setting, increase self-efficacy, and improve self-regulation in others (Earley and Kanfer, 1985; Bandura, 1994; McAlister *et al.*, 2008).

To optimize the outcomes from health-related investments, we propose that health promotion programs should be integrated with company policies to create a health-friendly work environment. For instance, companies can support more flexible work schedules or offer built-in time for exercise during the workday. Additionally, companies can offer healthier meal and snack options that are well-labeled and available during all shift times or they can incentivize employees to choose healthier options through subsidies or vouchers. Lin *et al.* (2013) found that when worksite resources are coupled with supportive workplace policies, there are positive effects on physical activity in white-collar workers. In addition, Schroer *et al.* (2013) found multi-component worksite interventions were the most effective. Consequently, when health promotion programs are leveraged with supportive workplace policies, they may have more potential to increase health awareness at work and foster long-term behavior change.

This study is not without limitations. Depending on company policies, we faced varying degrees of flexibility in selecting employees based on desired characteristics. Due to challenges in obtaining corporate permission to conduct research, only companies permitting us to interview employees were included. The results are not generalizable and should be interpreted with caution since conditions could be different

elsewhere. A longitudinal prospective study would be needed to confirm the two main hypotheses from this study:

- H1. IT-BPO employees are at higher risk of lifestyle-related diseases than the general population.
- H2. Within the sector, BPO employees, particularly those at international call-centers, have a higher risk of lifestyle-related diseases than IT employees.

As a whole, the findings from this paper provide qualitative insight into the health challenges faced by India's IT-BPO employees and assist worksite wellness facilitators in making informed recommendations for improvement. The demanding schedules and sedentary nature of IT-BPO work seem to be the largest barriers to health. Ultimately, we propose that improving health behaviors among IT-BPO employees requires a partnership between the individual and employer – individuals must find the motivation to make health a priority despite demanding schedules, while employers should identify ways to facilitate behavior change by improving health awareness at work, supporting policies that encourage work-life balance, and creating a health-friendly work environment. Finally, we believe social influence can be a powerful tool in sparking health behavior change, particularly in call-centers where employees are young and social networks appear strong.

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