PJSS
ISSN: 1309-0356
http://pjss.pau.edu.tr
http://psbd.pau.edu.tr
Pamukkale Journal of Sport Sciences
2017, Vol. 8, No. 2, 41-57
accepted: 24.01.2017

Health promotion needs and ICT supported health coaching expectations of white-collars by exercise stages, sex and daily time slots

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Abstract

Identification of health promotion needs may contribute to the development, implementation, design of health promotion programs and healthy lifestyle behaviours. The purpose of this study was to examine white-collars health promotion needs and ICT supported coaching expectations using transtheoretical model in terms of sex, exercise stages of change and daily time slots. A non-experimental mixed method study was conducted with ranking persona cards and face to face semi-structured interviews. Participants were 40 white collars (20 women & 20 men), who were selected from 312 white-collars by stratified random sampling. Participants are equally representing the contemplation, preparation, action and maintenance levels. Mean age of participants was 30.1 years (SD = 3.3). The findings indicated that white-collars health promotion needs and ICT supported coaching expectations differed by sex, exercise stages and daily time slots, and qualitative interview data supported the findings. Consequently, future ICT supported coaching solutions and health promotion specialists should emphasize on white-collars' specific needs and expectations differed by sex, exercise stages of change and daily time slots.

Keywords: Health promotion, physical activity, sex, gender, daily time slots

INTRODUCTION

Health promotion is defined variously but all definitions focus on striving for good health. WHO expressed health promotion as "The process of enabling people to increase control over the determinants of health and thereby improve their health"(WHO, 1986) Similarly, Green & Kreuter defined as "any planned combination of educational, political, regulatory and organizational supports for actions and conditions of living conductive to the health of individuals, group or communities" (Green & Kreuter, 2005). Health promotion aims to change personal characteristics and skills, social norms and actions, organizational practices and public policies that are reasoned to any kind of health promotion activity.

Health promoting behaviours have various definitions, such as "action taken by an individual or group of individuals to change or maintain their health status or prevent illness or injury"(Nutbeam, 1998). Ingledow (1996) explained health behaviours as any action or behaviour considering health(Ingledew, Hardy, Cooper, & Jemal, 1996). Chen identified six major health promoting behaviours for representing wellness dimensions; exercise behaviour, nutrition behaviour, health responsibility, social support, life appreciation and stress management (M.-Y. Chen, Wang, Yang, & Liou, 2000; Moore & Tschannen-Moran, 2010)

Health coaching in other words wellness coaching, aims to provide healthy, sustainable behaviour change. During this change process health coaches leads their clients to develop inner wisdom, identify own values, and challenge for their goals. The science behind health coaching based on the positive psychology, appreciative inquiry, motivational interviewing and goal setting (Engel, 2011; Moore & Tschannen-Moran, 2010).

Health care sector is now in a point where traditional medical approach and disease management issues are being redefined, bringing about a shift from traditional reactive healthcare to proactive and personal health promotion(Swan, 2009). It is not surprising that, with the power of technology, personal health care systems shaped with ICT (communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, as well as the various services and applications associated with them, such as mobile applications). ICT moves health coaching forward to predictive, personalized, preventive and participatory (4P) model(Lupiáñez-Villanueva, Hardey, Torrent, & Ficapal, 2011; Torp, Hanson, Hauge, Ulstein, & Magnusson, 2008; While & Dewsbury, 2011). 4P health care model energized by ICT. However, technology acceptance and costs are challenges to achieving this proactive model.

White-collars have competencies and confidence to use those technologies and have a higher income than other employment groups for covering cost (Christensen & Knezek, 2008; Jaspers, 2009). Within todays' adult population, white-collars, such as accountants, attorneys, engineers, architects and university staff are usually the group of people with better economic potential, competencies and confidence to use ICT. Moreover, white-collars are working in the office settings, that are very vulnerable to inactivity related health problems such as diabetes, obesity, and some form of cancers (Burton, Chen, Schultz, & Edington, 1998; Knox, Biddle, Esliger, Piggin, & Sherar, 2014; O'Donnell, 2001).

The transtheoretical model explains individual's motivational readiness to act a new healthier behaviour and change through stages of change. This model was developed on psychological sciences; social cognitive theory and learning theory(Bandura, 1986). The five stages are pre-contemplation, contemplation, preparation, action and maintenance. This model developed for understanding how

different processes of change can affect the way of process in changing behaviours (Marcus & Simkin, 1994; Prochaska & Velicer, 1997; Redding, Rossi, Rossi, Velicer, & Prochaska, 2000)Individual's thought patterns differs throughout the stages of change. This process begins with consciousness raising. At this stage individual learns new facts or ideas and this encourages to understand the existence of a problem (pre-contemplation). At the second stage, advantages and disadvantages of a possible change were considered and decisions made (contemplation stage). This progresses provides self-reflection and compose a commitment to make a change (preparation stage). This stage followed by active involvement in taking steps to change poor behaviour (action stage). Last stage involves maintaining new habit successfully and avoid any temptations to return to the poor habit (maintenance stage) (Prochaska & Marcus, 1994). Exercise stages of change is a model that assesses level of readiness to participate exercise(Marcus & Owen, 1992). At Stage 1 (pre-contemplation) individual is inactive and not thinking about becoming more active. At Stage 2 (contemplation) individual is inactive and thinking about becoming more active. At Stage 3 (preparation) individual participates some physical activity. At Stage 4 (action) individual participate in recommended amounts of physical activity but have not done so for 6 months. At Stage 5 (maintenance) individual participates physical activity as a habit(Marcus & Forsyth, 2003).

Physical activity and exercise affect many dimensions of health and health promoting behaviours(Health & Services, 1996). Recently, a social cognitive theory based physical activity intervention revealed that enhancing physical activity was effective on developing health promoting behaviours, including health responsibility behaviour, social support, nutrition behaviour, exercise behaviour and stress management (Ince, 2008). In another study, physically active participants are better at health responsibility, spiritual growth, interpersonal relationships, nutrition and stress management.

Accordingly, specific needs and expectations with respect to sex need to be examined as a factor for health promotion programs. Main reason of the distinction about sex can be explained as diversity in health related behaviours (Liang, Shediac-Rizkallah, Celentano, & Rohde, 1999). For example; men drive unsafely, smoke and drink more. Whereas, women take vitamin more often than men, brush more frequently their teeth, seek more medical care and/or self-medication(Waldron, 1988). Conversely, men participate more vigorous physical activity than women do (Yen, 2012).

Activities of daily living are expressed as routine activities need to be completed every day without any assistance. There are two types of daily activities; basic activities and instrumental activities. The basic activities of daily living are self-care tasks. The six basic activities are eating, dressing, bathing, toileting, transferring and continence. The instrumental activities are complex tasks that requires organizational skills and physical performance such as taking medications as prescribed, managing money, using technology (A. B. James, 2014). All of the basic and instrumental activities of daily life occur in different time periods of the day, this leads changes in individual's health promotion activities. (Steckler & Goodman, 1989).

There were studies identifying the health promotion needs of individuals, however none of the studies focused white-collars(Buranatrevedh, 2013; Crawford, Graveling, Cowie, & Dixon, 2010; Olsen & Nesbitt, 2010). Considering these issues, the purpose of this study was to examine white-collars health promotion needs and ICT supported coaching expectations using transtheoretical model in terms of sex, exercise stages of change and daily time slots.

METHODS

Sampling and Participants

In this study, participants were 40 white-collars (20 women and 20 men) who were selected from 312 respondents by stratified random sampling, working on a full-time job at least 5 days a week. Initially, 512 white-collars from universities, public offices and private companies were contacted via e-mail. The contact addresses retrieved from related public office managements and also by colleagues who were working in the same workplaces. 64% (n=326) of the contacted participants responded and fill the web-based Physical Activity Stages of Change Questionnaire (PASCQ).

Stratified random sampling method procedure was followed as: strata were constructed on exercise stages of change. Later, five women and five men from each stage drawn from each stratum randomly. Participants in pre-contemplation stage were not included in study, because of no intention to participate in exercise in the future (Marcus 2009).

The participants have a mean age of 30.1 years (SD = 3.3). Mean age of women and men participants were 30.7 years (SD = 3.5) and 29.5 years (SD = 3.2) respectively. According to exercise stages mean age for contemplation (Stage 2) was 30.4 (SD=3.3), preparation (Stage 3) was 29.5 (SD=2.6), action (Stage 4) was 30.9 (SD=3.8) and maintenance (Stage 5) was 29.6 (SD=3.7). None of the participants had a physical inability to participate exercise.

Study Design

Non-experimental mixed method design was used in this study. Design included two consecutive phases. In the first phase, a survey conducted for examining the demographic characteristics and exercise stages of change of participants for applying stratified random sampling. In the second phase semi-structured interviews accomplished with sample of 40 white-collars.

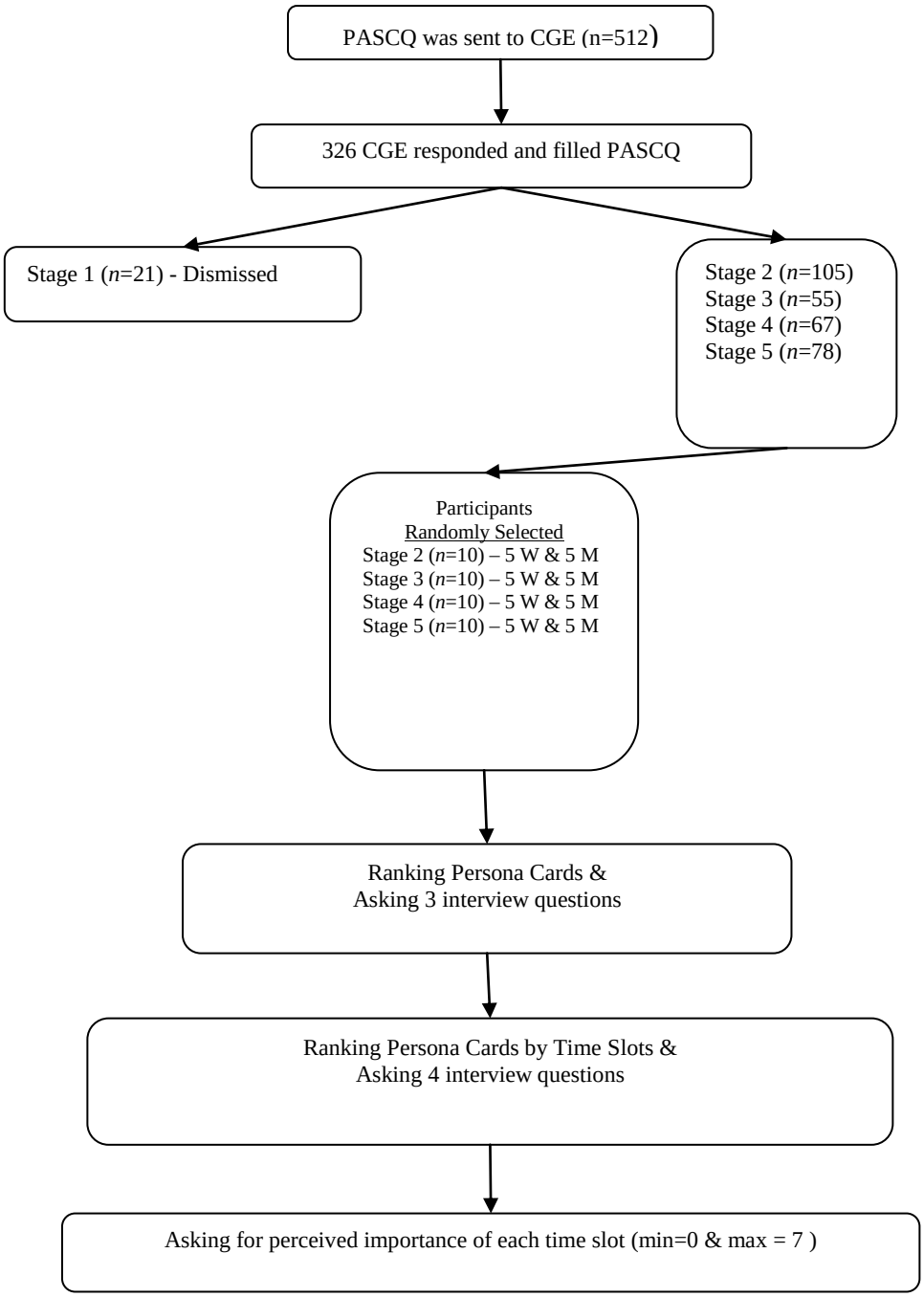

Figure 1. Design of the study

Abbreviations
PASCQ: Physical activity stages of change questionnaire
CGE: College graduate employees
W: Women
M: Men

Measures

Stages of Change. In order to identify the exercise stages of change of participants Physical Activity Stages of Change Questionnaire (PASCQ) applied(Marcus & Owen, 1992). PASCQ measures

individual's motivational readiness for physical activity. In the questionnaire, four questions are asked to assess participants exercise stage of change by a binary type of scale (yes/no). According to answers, participants are classified on five different motivational stages including pre-contemplation (no intention to participate in physical activity), contemplation (have intention to participate in physical activity but does not participate), preparation (has just started to regular physical activity), action (participate in physical activity regularly longer than one month, less than six months) and maintenance (participate in physical activity regularly more than six months). The original scale is in English (Marcus & Owen, 1992). A validated version of the scale submitted in this study (Cengiz, İnce, & Çiçek, 2009).

Importance of Health Promoting Behaviours. For measuring perceived importance of health promoting behaviours persona cards were prepared for representation. Six health promoting behaviours were exercise behaviour, nutrition behaviour, health responsibility, social support, life appreciation and stress management(M. Chen, Wang, Yang, & Liou, 2003). The six health promoting behaviours were the six persona cards were wellness dimensions and a previously prepared health promoting behaviour scale by Chen (M. Chen et al., 2003; Roscoe, 2009).

A group of experts (total of five experts) in health promotion and physical activity (two experts), nutrition (one expert), and design (two experts) examined the health promoting behaviours. Researcher and one designer prepared the initial form of the persona cards which are depicting each health promoting behaviour. Finally, persona cards assessed by the above mentioned five experts and final forms were fixed by mutual agreement.

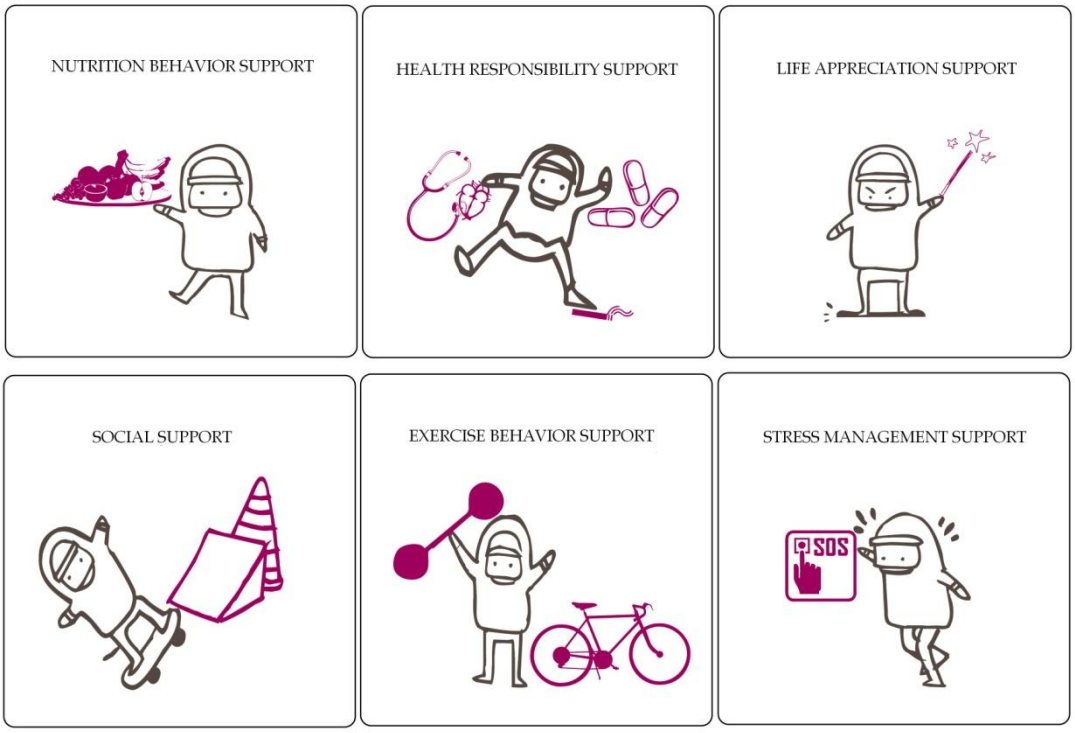

Figure 2. Persona cards representing six health promoting behaviors

Health Promotion Needs and Health Coaching Expectations. For examining health promotion needs and health coaching expectations semi-structured interviews conducted in two consecutive parts. In the first part of the interview, researcher asked three questions to participants about;

1) Rationale behind his/her persona card rankings,

2) Examples of problems that you faced about each health promoting behaviour,

3) ICT-based health coaching expectations for each problem mentioned.

In the second part of the interview, researcher asked four questions to participants for each time slots;

1) Health promotion needs for each health promoting behaviour,

2) Examples of problems about health promoting behaviours,

3) ICT-based health coaching expectations for each problem mentioned,

4) Preferred methods of ICT-based health coaching for each given time slots.

Importance of Daily Time Slots for Health Coaching. During the interview on daily time slots, participants scored each time slot on a 0 to 7 scale according to perceived importance for health coaching.

Procedures

Before the study, Middle East Technical University Human Ethics Committee granted ethical approval. In the first phase of the study, sampling process completed and identification of demographics completed. In the second phase of the study, semi-structured interview conducted. During the interview, participants firstly ranked six cards (persona cards) which were representing one of the six health promoting behaviours [Exercise Behaviour (EB), Nutrition Behaviour (NB), Health Responsibility Support (HR), Social Support (SS), Life Appreciation Support (LA) and Stress Management Support (SM)] according to perceived importance. Later, researcher interviewed for understanding rationale of ranking, problems about each health promoting behaviour and coaching expectations.

Afterwards, participants again ranked persona cards for each of 8-time slots [duration between waking-up and leaving home (T1), duration of transportation to work (T2), duration at work (T3), duration of lunch break (T4), duration of transportation to home (T5), duration at home before going bed (T6), duration of sleeping (T7), duration of non-routine days (T8)]. At this process, researcher interviewed for each time slots ranking on health promotion needs and health coaching expectations.

Data Analysis

Quantitative data analysed by descriptive statistics. Afterwards, Mann-Whitney U and Friedman test applied for perceived importance of health promoting behaviours. In descriptive analysis procedure, results of persona card ranking were analysed by recoding the ranking scores. In this method, 1st ranked behaviour was equal to 6 point and the last behaviour (the 6th) was equal to 1 point. Finally, the total points were calculated, and the results of total scores were ranged from 0 to 240. In addition, the importance of each daily time slot calculated using importance scores with a minimum value of 0 and maximum value of 7.

Qualitative data analysed using content analysis method (Creswell, 2013). After transcription of voice records, categories developed on the basis of research questions. After examining qualitative data, glossary of terms created. In glossary of terms was constructed for assisting advocates in understanding commonly used terms for coding the statements under same term. For the trustworthiness, two independent coders provided glossary of terms. After, agreement on the conflicts researcher analysed the data. Intra-coder agreement in two month time span was .96. Qualitative data collected in the study handled for supporting the quantitative findings.

RESULTS

Sex

According to Mann-Whitney U test results, men's health promotion needs (*Mdn*=15.00) on health responsibility behaviour (HRB) was significantly more important than women's HRB (*Mdn*=25.00), *U*=106.50, *z*=-2.60, *p*<.05, *r*=.41. The qualitative data enlightened that participants needs on HRB for preventing and promoting health status and changing health responsibility behaviours for both women and men. The problems about preventing health status were inability to change poor health responsibility behaviours and lack to awareness about health responsibility behaviours. The explained expectations clustered around personal check-up system by a mobile device but they only wanted to use this system at home, considering their privacy for women. On the other hand, men preferred to monitor vital signals by wearable device and they preferred to use it every time and everywhere.

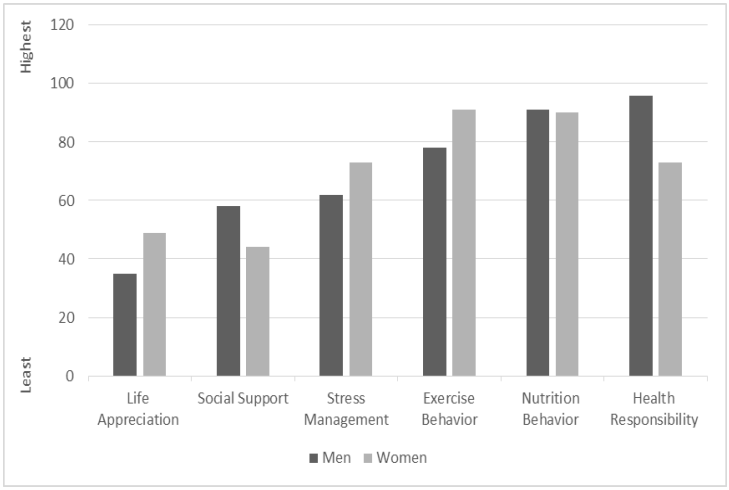

Figure 3. Importance of Health Promoting Behaviours by Sex
(minimum possible score: 0, maximum possible score: 120)

The second explanation about need on HRB was promoting health status. Participants described two major problems about promoting health status; lack of motivation for changing behaviours and lack of awareness about health responsibility behaviours. However, expectations differ; women preferred report of vital signals, log of menstrual cycle, medical tips on a visual platform especially from personal computer at work. Men suggested solutions about reaching information about health responsibility behaviours such as; health responsibility tips and reminder from a mobile platform in an intrusive way.

The third explanation about need on HRB was changing health responsibility behaviours. The mentioned problems about changing health responsibility behaviours were again lack of motivation and lack of awareness about health responsibility behaviours. Women and men preferences differed

about these problems solution. Women preferred visual stimulus about unhealthy behaviours such as nutritional information on credit card bill or barcode, on the other hand men preferred personal health responsibility tips by an application or audio tips while driving car.

Exercise Stages of Change

Health promoting needs were significantly differed by exercise stages of change $H(3) = 7.82$, $p < .05$. Mann-Whitney test applied for follow up this finding. Findings indicated that Stage 3 (preparation) participants' needs on stress management (SM) were significantly more important than Stage 2 (contemplation) participants' needs (U=104, r=-.17). The qualitative results revealed that Stage 2 and Stage 3 participants both have problem of coping with stress. The related problems were having no control on managing stress level and solving daily problems. Stage 2 participants expected an invisible stress management coaching, which detect level of stress and applies needed operation, custom relaxing stimulus and time and coaching work plan for daily duties. However, participants at Stage 3 suggested to be assisted on preparing time and work plan for daily duties and get a coaching support on exercise and nutrition behaviours.

Daily Time Slots

In this part, the results of importance scores for each time slots (0 to 7) were presented. The results showed that the most important time slots for ICT supported health coaching was duration of non-routine days-weekends, holidays (T8). Duration at home before going bed (T6) was the 2nd time slot and duration at work (T3) was the 3rd time slot according to the total scores for importance. In the 4th place duration of lunch break (T4) was ranked. Afterwards, duration between waking-up and leaving home (T1) was at 5th place, duration of transportation to home (T5) was 6th, duration of transport to work (T6) was 7th and duration of sleeping (T7) was the 8th on the ranking (Figure 4).

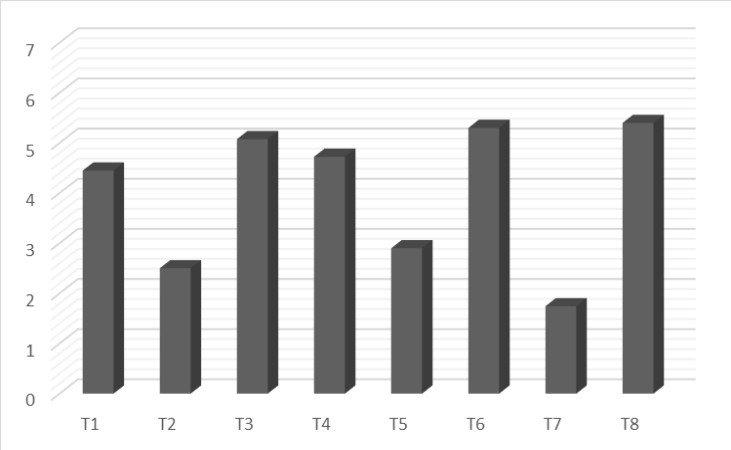

Figure 4. Perceived Importance scores for Daily Time Slots
(each participant gave a score between 0 and 7. 0 indicates least importance and 7 indicates highest importance)

T1 - duration between waking-up and leaving home

T2 - duration of transportation to work

T3 - duration at work

T4 - duration of lunch break

T5 - duration of transportation to home

T6 - duration at home before going bed

T7 - duration of sleeping

T8 - duration of non-routine days

In order to understand the relation between health promotion needs in terms of daily time slots, Friedman test was conducted. The results showed that health promoting needs were significantly differed for nutrition behaviour ($X^2(6)=.00$, $p<.05$), exercise behaviour ($X^2(6)=.001$, $p<.05$), health responsibility ($X^2(6)=.00$, $p<.05$), life appreciation ($X^2(6)=.045$, $p<.05$), social support ($X^2(6)=.00$, $p<.05$) and stress management ($X^2(6)=.00$, $p<.05$) with respect to each time slot. In other words, needs all health promoting behaviours significantly differ at all daily time slots (Figure 5).

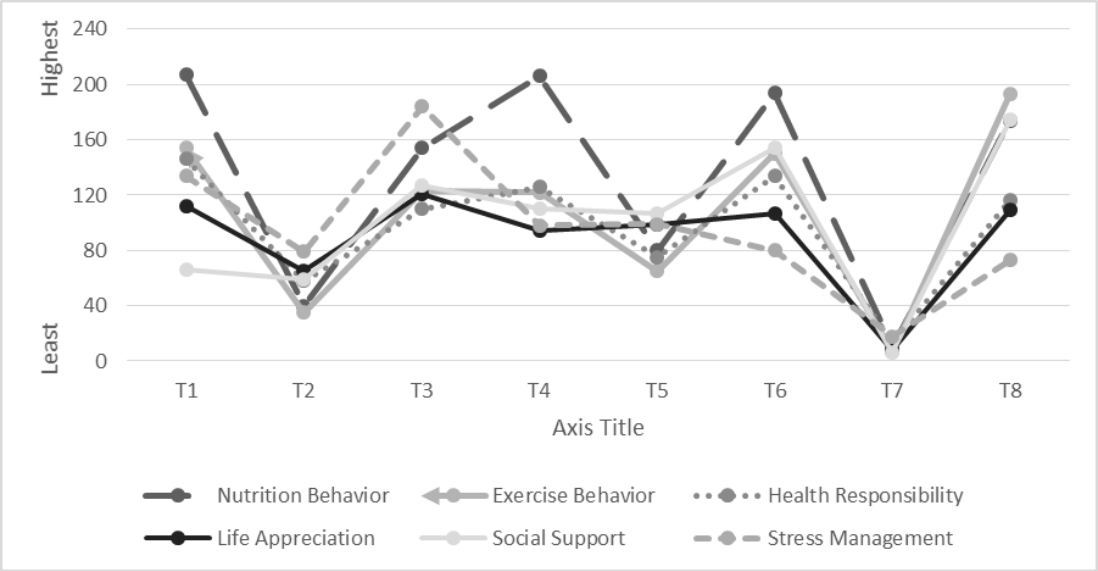

Figure 5. ICT supported Health Promoting Behavior Coaching Needs of CGEs' by daily time slots (minimum possible score: 0, maximum possible score: 240)

T1 - duration between waking-up and leaving home

T2 - duration of transportation to work

T3 - duration at work

T4 - duration of lunch break

T5 - duration of transportation to home

T6 - duration at home before going bed

T7 - duration of sleeping

T8 - duration of non-routine days

T8 - Duration of Non-routine Days

The results indicated that duration of non-routine days (T8) was the most expected time slot for ICT supported health coaching. In this time slot, participants ranked importance of health promotion needs as; exercise behaviour was the 1st, social support was the 2nd, nutrition behaviour was 3rd, health responsibility was the 4th, life appreciation was the 5th and stress management was the 6th.

According to interview data results, participants desired to be physically active on non-working days. However, in this time slot, participants faced with two major problems; lack of motivation and lack of awareness on nutrition behaviours. Participants expected to be motivated by socialization and get suggestions on physical activity for being motivated by ICT supported health coaching. ICT supported health coaching should provide personal workouts, tips on exercise and coaching during exercise time. Most preferred ways of interaction in his time slot were visual and audio stimulus but should be intrusive. Another explained health promotion need at this time slot was about eating healthier. The problem on this behaviour is having difficulties on limiting calorie intake on these days. Participants explained the barrier as lack of awareness on nutrition behaviours. Participants clarified expectations as getting tips on nutrition and a smart prescriptive plan, which can be adaptable for daily conditions. The preferred way of interaction with ICT supported health coach was visual stimulus via smartphone.

T6 - Duration at Home Before Going Bed

The time spent at home before going bed was the 2nd most important time slot. In this time slot, participants ranked health promoting behaviours as; nutrition behaviour as the 1st, social support as the 2nd, exercise behaviour as the 3rd, health responsibility as the 4th, life appreciation as the 5th and stress management as the 6th.

The interview findings revealed that nutrition behaviour is more important since participants desire to have healthier diet. The main problem faced was lack of understand personal nutritional needs. Participants' expectations shaped on getting prescriptive menu for dinner and getting nutrition tips. The preferred way of interaction was clustered around on a visual interaction by smartphone.

T3 - Duration at Work

The time spend at work was the 3rd most important time slot for participants for being supported by ICT supported health coaching. The importance of health promoting behaviours in this time slot ranked as: stress management as the 1st, nutrition behaviour as the 2nd, social support as 3rd, exercise behaviour as the 4th, life appreciation as 5th and health responsibility as 6th.

The qualitative data enlightened that participants needs on stress management behaviour, since they felt stressful at work. Participants had difficulties on coping with stress, expected to be coached about managing stress. Participants preferred to be supported by relaxing audio stimulus from office computers or smartphone.

DISCUSSION

Sex

Findings on health promotion needs in terms of sex indicated that health promotion needs for exercise behaviour was the most important for women, and health responsibility was for men. Nutrition behaviour is the 2nd most important behaviour for both sex. Reasons behind rankings were similar both

sex, women considered body weight management, knowledge health promoting behaviours, and poor motivation for exercise. Similarly, men stated reasons were same with women, however, men did not consider body weight management. In earlier studies, Davis and Cowles stated that women motivated by aesthetical concerns rather than health related issues in wellness. James also found that men were significantly satisfied with their current weight than the women even they (men) were overweight. Current study findings support the relevant literature (Davis & Cowles, 1991; James, 2003)Sex related studies on health promoting behaviours indicated higher health responsibility behaviours in women as compared to the men (Verbrugge, 1985; Waldron, 1988). Studies also indicated that men have higher exercise participation than the women (Azevedo et al., 2007; Lee, 2005). The findings of this study did not represent the same pattern. This shows that white-collars health promotion needs differ from other employment groups, supports the significance of the study.

ICT supported coaching expectations were providing visual messages, instant coaching during the workouts/daily activities, and workout/nutritional prescriptions. Women emphasized visual messages and workout/nutritional prescriptions. Men focused more on instant coaching during the workouts/daily activities. Both sex expected having medical check-up and tracking of vital signs about health responsibility. However, women preferred to get it support only at home by stressing on personal privacy. These findings were also similar to the designing suggestions in different studies(Neter & Brainin, 2012; Wilkowska, Gaul, & Ziefle, 2010).

Exercise Stages of Change

According to the findings, health responsibility and nutrition for Stage 2, NBS for Stage 3, EBS and HRS for the Stage 4 and NBS and EBS for Stage 5 were the most important health promoting behaviours. The results showed that in all stages participants desire to have prevention and promotion in health status by changing health responsibility behaviours. However, only at Stage 4 and Stage 5, participants feel comfortable about health responsibility behaviours. This can be interpreted as association between level of exercise and health promoting behaviours (Blair, Jacobs Jr, & Powell, 1985). Participants of these stages have higher participation in exercise and perform better health promotion behaviours than lower stages (Cardinal, 1995; Laforge et al., 1999; McAuley & Courneya, 1993).

On expectations from ICT supported health coaching, participants (Stage 4 & Stage 5) suggested that a mobile primary prevention support is a good solution. According to literature, exercise and health status have a positive correlation, so that, individuals at Stage 4 and Stage 5 have better health status than lower stages and less need on health responsibility(İnce & Ebem, 2009).

Participants at Stage 2 and Stage 5, expected to gain knowledge about nutrition behaviour. Although, during the interviews Stage 2 participants explained that they need to get knowledge on the basics of nutrition. On the other hand, Stage 5 participants' expectations are related with physical performance. However, the findings did not have any association with literature, the literature showed no significant association between physical activity and knowledge about nutrition. (Gürel, Gemalmaz, & Dişçigil, 2004).

The results showed that Stage 2 and Stage 3 participants need to be coached for exercise on a motivational perspective. However, Stage 4 and Stage 5 participants did not want to be supported about motivation, they mostly focused on gaining knowledge about exercise. The differentiation in motivational needs can be explained by trans-theoretical model; in the lower stages, a more powerful motivation is needed for changing exercise behaviours, on the other hand, in the higher stages instead

of behaviour change maintenance is fixed (Fallon, Hausenblas, & Nigg, 2005; Laforge et al., 1999; Woods, Mutrie, & Scott, 2002).

Daily Time Slots

Findings on time slots indicated that T8, T6 and T3 were the most critical time slots for ICT supported health coaching. Participants consider exercise and nutrition behaviours at T8, nutrition at T6, and stress management at T3.

At T8, individuals are on their non-routine day and mostly this time slot means as weekend or holiday. In these type of days, a significant change in nutrition and exercise behaviours are observed(Davison, Tsujimoto, & Glaros, 1973; Heimendinger & Van Duyn, 1995). Participants majorly preferred to be supported by EB, SS and NB at T8, in order to control sharp changes in their behaviours.

At T6, individuals are just arrived home and spend their time on themselves. This duration is main meal time. On contrast to breakfast and lunch, individuals pay more attention for dinner and have a chance to spend more time for preparation and eating (Ramey & Juliusson, 1998). Accordingly, participants explained the importance of dinner and NB that they have better chance to prepare a home-made meal and they can prepare the meal according to their nutritional needs.

Finally, since T3 is the time duration spend at work, the level of stress increases hopefully. Recent studies showed that, different causes of work-related stress were listed; long hours, heavy workload, tight deadlines, lack of autonomy, inadequate working environment (Firth-Cozens & Payne, 1999; Ganster & Schaubroeck, 1991). According to interviews, time and work plan is one of the major solutions for work-related stress. Individuals need assistance for their workplace and daily duties and planning is a good way to cope with stress. Literature showed that developing a plan is an effective tackle for work related stress (Eerde, 2003; Ivancevich & Matteson, 1980).

CONCLUSION

According to the findings of the study, white-collars' health promotion needs differ by sex, exercise stages and daily time slots. The results showed that physical health was more important, since NB, HR and EB have ranked mostly in the 1st, 2nd and 3rd place. With the findings, ICT supported health coaching should be primarily focused on HR, EB and NB. In addition, the results showed that, ICT supported coaching have to be predictive and preventive; change an undesired behaviour, situation or habit; manage a situation, participate or promote a desirable behaviour or situation. The problems and design solutions differ generally. Women preferred permanent and specific solutions about a situation or habits, however, men prefer instant and temporary solutions that affect their habits in a short period especially on health responsibilities.

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