Worksite Wellness Intervention Programs

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- **Objective:** To apply theoretical knowledge and constructs in employee wellness program obesity interventions utilizing the Health Belief Model, Social Cognitive Theory and the Transtheoretical Model
- **Methods:** Several databases were employed to research these three models and determine the effectiveness of multiple workplace obesity interventions.
- **Theories and Constructs:** Some barriers from the Health Belief Model were listed as time, location, and attitudes towards physical activity. Program designers targeted different audiences based on the stage of the Transtheoretical Model that they would be in. Social support, self-efficacy, barrier efficacy, and developing self-regulation skills were necessary for achieving goals according to the Social Cognitive Theory. Increasing an individual's intention and self-regulation skills were keys to helping an individual reach their goal.
- **Recommendations:** Practitioners should properly research their audience before designing an intervention, and using evaluations for levels of the Transtheoretical Model may be most helpful in determining how to conduct an intervention program. Assessing barriers and benefits before conducting the intervention is necessary for getting the most participation in the program. Addressing the problem and creating solutions based on levels of the socio-ecological model creates a more targeted group that could show better results than a generalized intervention program

Introduction

The prevalence of obesity in the United States has steadily increased over the past two decades. Obesity is measured through Body Mass Index (BMI), a simple, inexpensive screening tool to estimate body fatness. Type 2 diabetes, hypertension, cardiovascular disease, depression, lower quality of life, disability, and possibly a shorter life span often accompany obesity (CDC, 2020).

The rise in obesity prevalence has spread across all industries and occupations (Jackson et al., 2016). They listed several obesity problems, including reduced productivity, missed work due to health problems, or health impairments throughout the workday. Nutrition status of food given at the job, amount of time sitting down during the day, time of shifts (e.g., working nights), and stress accumulated through work tasks all correlated with overweight and obesity. Additionally, the low-income level was a characteristic of obesity because it limited the opportunity to buy healthy food items (Yamada et al., 2001).

Occupational wellness promotion programs introduced at workplaces nationwide aid workers in carrying out healthy behavior changes, such as increasing physical activity and fruit and vegetable intake and decreasing body weight, fat intake, cholesterol, and blood pressure.

Terrell in 2015 examined aspects of the social-ecological theory at play in a workplace intervention program in 2015, revealing that the decision to participate (intrapersonal), support of other co-workers (interpersonal), and worksite hosting the program (institutional) were the main focus of program implementation. Success of worksite wellness programs rely on the application of theories and models such as the Social Cognitive Theory, Health Belief Model (HBM), and Transtheoretical Model.

The objective of this paper is to apply constructs of the Health Belief Model, Social Cognitive Theory, and Transtheoretical model to physical activity in a workplace setting, which will allow researchers and practitioners to utilize this knowledge for constructing their own health promotion intervention programs pertaining to physical activity and employee wellness.

Methods for Selecting Articles

A literature search was applied in order to select articles referenced in this paper. Educational databases such as *EBSCO*, and web-based *Google Scholar* were utilized. Search terms included "worksite wellness", "employee wellness", "Worksite wellness and Transtheoretical Model","Health Belief Model and worksite wellness", "employee wellness and Social Cognitive Theory", "worksite wellness and Social Cognitive Theory", and "theory application in employee wellness programs." Studies had to mention and include an application of the health belief model, social-ecological model, or transtheoretical model in order to be considered. All studies had to have taken place between 2000-present. All studies had to have been conducted on participants that were considered employees of any organization or company. Table 1 provides details about the theories in this report. Appendix A consists of a list of all the studies utilized along with detailed descriptions.

Table 1. Summary of Articles Reviewed by Theory

Theories	# of studies
Health belief Model	**4**
Social Cognitive Theory	**4**
Transtheoretical Model	**4**

Note: A description of each study is in Appendix A.

Appendix A. Summary of Theory-based Articles Reviewed

#	(Authors, Year)	Purpose	Sample	Design	Theory/ Constructs	Results/ Conclusions
1	(Abood, Black, & Feral, 2003)	To evaluate the efficacy of a worksite-tailored nutrition education program for university staff employees	28 randomly assigned to receive 8 1-hour weekly nutrition education sessions, 25 in the control group	Quasi-experimental (ex post facto)	Health Belief Model	Treatment group reduced intake of total calories, fat, saturated fat, and cholesterol intake. Perceive benefits of nutrition practices and education improved among the treatment group
2	(Amaya & Petosa, 2012)	To increase exercise adherence among insufficiently active adult employees	127 employees who did not meet current American College of Sports Medicine (ACSM) recommendations for exercise.	Quasi-experimental using pre-test and post-test samples	Social Cognitive Theory	There was not a significant difference in exercise self-efficacy between treatment and control group. There was a significant difference between exercise intensity (moderate vs. vigorous), and self-regulation. Family and support groups

						showed no significant difference at the beginning but did at the 3-month mark.
3	Grande, Cieslak, & Silva, (2016)	To assess the change in health behavior following a three-month exercise program based in the workplace	165 employees at a company, in Parana, Brazil, which had never previously ´ had an exercise program in the workplace	Quasi-experimental	Transtheoretical Model	There was a decrease in the number of employees in the pre-contemplation and contemplation stages, and an increase in the number of employees physically active after the intervention
4	(Hadgraft, et al., 2017)	to assess the impact of the intervention on four social-cognitive constructs, and examined whether these constructs mediated intervention effects on workplace sitting time at 3 and 12 months post-baseline	231 office-based workers across 14 government worksites in South Africa	Randomized control trial	Social Cognitive Theory	There were significant effects on perceived behavioural control, barrier self-efficacy and perceived norms in the intervention group. At 12 months, there were significant differences between the intervention and control group in self-efficacy and perceived behavioral control, but not in perceived norms. There

						were no significant effects on knowledge in either group at both points of the study.
5	(Hallam & Petosa, 2004)	to test the ability of a four-session work-site exercise intervention to produce increases in selected social cognitive theory (SCT) variables linked to adult exercise adherence	120 employees who joined the company's on-site fitness center no longer than 30 days before the beginning of the intervention (comparison group) and 60 employees who filled out an enrollment form and met the selection criteria (control)	Randomized control trial	Social Cognitive Theory	The intervention successfully increased the use of self-regulation skills, suggesting that self-regulation mediates exercise behavior. The treatment utilized and maintained self-regulation skill use throughout the 12 months, but the comparison decreased this use.
6	(Mostafavi, & Pirzadeh, 2015)	to determine the PA among employee women in Isfahan University of Medical Sciences based on the transtheoretical model.	convenience sample of 100 women employees at Isfahan University of Medical Sciences	Cross-sectional	Transtheoretical Model	The rates of women in each stage are as follows: 26% pre-contemplation, 22% contemplation, 20% preparation, 13% action, and 19% maintenance.

						Significant differences between consciousness raising, dramatic relief, counter-conditioning, stimulus control, helping relationships, reinforcement management, and self-liberation with stages of change constructs. 68% of participants were inactive, and 32% were active
7	(Person, et al., 2010)	Identify barriers to participating in a 10-week wellness intervention program	481 eligible ARAMARK employees, final sample of 50 participated	Qualitative	Health belief Model	Out of a final sample size of 50, an average of 11 participants attended each class. Three main barriers identified were the time, location, and incentives offered for the class. Health beliefs were reported as not having enough perceived knowledge
8	(Planchard, et al., 2018)	To identify worksite PA barriers and facilitators from the perspective of the	Thirty French employees. 10 employees from a public university,	Qualitative	Transtheoretical Model	86% of the employees reported improved fitness if they were allowed to

		transtheoretical model of change (TTM)	(b) 10 employees from a hospital, and (c) 10 employees from private companies			exercise at their workplace. Psychological factors include awareness of the positive aspects and effects of physical activity. Barriers included the constraints of duties associated with one's job position
9	(Raedeke, & Dlugonski, 2017)	to compare a low versus high theoretical fidelity pedometer intervention applying social-cognitive theory on step counts and self-efficacy.	Fifty-six public university employees. Both groups met for weekly group walks and wore a pedometer. The high theoretical fidelity condition additionally met for a meeting to discuss cognitive-behavioral strategies targeting self-efficacy	Randomized control trial	Social Cognitive Theory	high theoretical fidelity condition increased daily steps by 2,283 from pre-intervention to post intervention, whereas participants in the low fidelity condition demonstrated minimal change during the same time. participants in the high theoretical fidelity condition showed greater improvements in self-efficacy than those in the low theoretical fidelity condition.
10	(Reif, et al., 2020)	To evaluate the effect of a comprehensive workplace wellness program	4834 employees at a large US university. Treatment	Randomized Clinical Trial	Health Belief Model	Participants reported having less of a chance of having a high BMI, high

		on employee health, health beliefs, and medical use after 12 and 24 months.	group n=3300, control group n=1534			cholesterol, high blood pressure, and impaired glucose levels as a result of the intervention
11	(Skaal, & Pengpid, 2012)	to determine the predictive validity and effects of using the TTM to increase PA among HCWs in a public hospital in South Africa.	200 (100 medical and 100 nonmedical staff) randomly selected from a list of staff members obtained from the human resources department. At post-test, only 163 employees (83 medical and 80 nonmedical staff) participated	Quasi-experimental	Transtheoretical Model	Different levels of exposure were produced: (1) pamphlets about physical activity and health, (2) posters (3) a second set of posters and a daily radio program, and (4) a Employee Wellness Awareness Day with a fun-run and aerobic classes.Those who were exposed to more resources increased stages of physical activity, attitude, and knowledge.
12	(Yamamoto, Mizoshita, & Akamatsu, 2012)	To examine the factors associated with the intention to undergo “specific health guidance”	4861 health insurance union members of a company in Japan from August to September 2010	Quantitative	Health Belief Model	Participants reported lack of knowledge and time constraints as reasons they did not seek out health guidance. There was a strong correlation between perceived benefits and

						intention of doing a behavior

Application of the Theory to Health Promotion

This section is divided into three components, one for each theory reviewed. Each paragraph within those will outline how the studies applied theory, as well as any significant results supporting this application. Health Belief Model will explain how each article applies either perceived barriers, perceived benefits, self-efficacy, or cues to action. Social Cognitive Theory will outline self-efficacy and barrier efficacy, self-regulation, and outcome expectancies out of the constructs included in this theory. The Transtheoretical Model will focus on the stages of change as a whole and how they can be applied to interventions successfully.

Health Belief Model

All of the studies regarding the Health Belief Model noted time and location as barriers for a successful intervention, and decreased stress as a benefit. Some researchers have found that there was more participation when interventions were performed during a period where more people were off-duty, such as lunch breaks or time set aside by management. It was also observed that people who worked at locations closer to the intervention taking place were more likely to go, as they would have enough time to return back to work afterwards and not have to leave early. Perceived knowledge was identified as another barrier of participation in employee health intervention programs (Person, et al., (2010). If the participant does not know why they continue to do a behavior and why it could be bad for them, there is no intention of seeking change. They concluded that the correlation between barriers and benefits of a behavior are directly related to intention (Yamamoto, Mizoshita, & Akamatsu (2012). One study by Abood, Black, & Feral (2003) found that increasing knowledge also increased perceived benefits after giving university employees an 8-week nutrition intervention program that consisted of changing health beliefs about dietary habits and nutrition education. It is known that one key point of employing the Health Belief Model in different programs is to ensure there are more benefits to carrying out a new behavior than risks associated with it . For some companies, these benefits may include financial incentives, scheduled wellness activities, and time off for health screenings or assessments (Reif, et al., 2020).

Social Cognitive Theory

Self-regulation, reciprocal determinism, self-efficacy, and collective efficacy were all constructs from the Social Cognitive Theory that were recognized in each of the studies. When employers make general health goals for their businesses, they employ collective efficacy in hopes that each employee will support their peers in reaching the collective goal. In a study of high and low theoretical fidelity of exercise with pedometers, the group with high theoretical fidelity focused on developing self-regulatory skills while also bonding with other members in that group by making a collective goal. The low-fidelity group was asked to make small individual goals- it was found that the high theoretical fidelity group had a higher average of steps counted over time than the low group (Raedeke, & Dlugonski, 2017). Thus, developing self-regulation skills during the intervention would increase the probability of an individual continuing the health behavior

after the program (Hallam & Petosa, 2004). There is a difference between learning through experience and learning through education. While the study by Raedeke, & Dlugonski (2017) used experience as the facilitator for social support, self-regulation, and self-efficacy, other intervention have used a classroom setting to educate people about enhancing these constructs and encouraged them to practice them at home (Amaya & Petosa, 2012). The Socio-Ecological Model is an important tool to utilize, as certain theories should be used for the individual, community, and organizational levels.One study by Hadgraft, et al., (2017) did so by using management emails for the organizational level and health coaching for individuals, as well as standing workstations to decrease time sitting during the day in government employees from 14 different worksite locations in Australia. In employing the Socio-Ecological Model, multiple groups can be targeted to increase self-efficacy through each level.

Transtheoretical Model

Attitudes of adopting or changing a healthy behavior are big predictors of intention in carrying them out. Knowledge of the behavior introduced at varying levels of exposure has been shown to help people move along in the steps of the Transtheoretical model. For example, people exposed to a "fun run" or a wellness awareness day would be more likely to change steps compared to people exposed to just pamphlets about health promotion (Skaal, & Pengpid, 2012). Identifying physical, psychological, and environmental barriers and facilitators are critical in targeting audiences and developing interventions because it shows what needs to be overcome). Psychological barriers such as attitudes toward physical activity at the workplace and heavy workload, environmental barriers such as time to exercise, and physical barriers such physical constraints from the job were listed as barriers in Planchard, et al.'s, (2018) study of 36 employees. Processes of change from the Transtheoretical Model such as consciousness raising and helping relationships were included in the evaluation of cognitive and behavior processes of female employees at Isfahan University. Paying attention to what processes of change are readily available to include in an intervention program helped these women to change from one stage up to the next (Mostafavi, & Pirzadeh, 2015). When utilizing the Transtheoretical Model to analyze physical activity in participants, it was helpful to note that as one group in the action or contemplation stage increased, those in the precontemplation stage decreased. Grande, Cieslak, & Silva, (2016) went so far as to employ an exercise intervention program in the workplace so that study participants could exercise at work, and this was found to be very effective in helping individuals move stages.

Recommendations for Researchers

- **Explain the why.** Research why certain theories and models work best for different health behavior interventions. Using constructs from different theories could help program designers develop an effective intervention
- **Use information about target populations.** Researching demographics of different populations can aid in identifying why barriers and benefits from the Health Belief Model are present in that environment.

Recommendations for Practitioners

- **Focus on the people.** Examine current habits of office employees, and ask them what they desire to change before designing an intervention. Surveying current physical activity habits will be a guide in starting the design process.
- **Start small.** Design interventions that will influence employees to just think about changing their behavior first. Use goals that are easy to reach as examples to motivate subjects. Advertising standing breaks in the office or having set times to do so will act as motivators.
- **Work around barriers.** Surveying perceptions of physical activity will help identify barriers that prevent employees from partaking in it. Interventions should be scheduled around breaks to avoid disrupting work productivity, and should be held in an easily accessible location that employees feel they can participate more frequently. It would also be helpful to try to change perceptions of physical activity as a leisure time activity.

The Big Picture: Macro-level Implications

The theories reviewed in this paper cannot be applied to change macro-level public health problems. The Transtheoretical Model is designed to identify different stages of change in order to tailor an intervention to each stage, this evaluation process cannot be applied to a global population. In the Health Belief Model, identifying barriers/benefits can be approached in a similar manner at the macro level through surveys. Promoting behavior change using cues to action must be approached using different methods (ex. Advice from a primary care physician compared to posters/flyers). The HBM also recognizes different environmental and social barriers that need to be conquered before attempting to change behaviors. Constructs from the Social Cognitive theory have implications on human rights, and environmental/economic/social justice in that they can aid in showcasing the importance of reciprocal determinism and overcoming certain environments to initiate behavior change. An example of this is increasing awareness of a polluted environment in a community, which motivates them to move somewhere with less pollution. When implemented over time, these attempts can also change the outcome expectancies of individuals and give them hope of leading a healthier and more successful life.

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