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Exploring the Mediating Role of Theory of Planned Behavior (TPB) Components in Facilitating Health Behavior Change: A Comprehensive Conceptual Framework

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Abstract: Health behavior, specifically physical health, is the main factor contributing to absenteeism and presenteeism of workers that affect an organization's profitability. Based on the AIA Validity Survey report from 2017 until 2023, two main factors contributed to productivity loss: unhealthy diet and physical inactivity. As the banking sector strives to be sustainable and competitive, the employees need to improve their performance by increasing their commitment at work this situation has led to a more competitive environment for the banking sector, and the workers tend to experience fatigue as the work involves long working hours, inappropriate reward system, and lack of job autonomy; besides, the role conflict had increased tension, stress, and pressure due to the nature of heavy workload and the need of adaptation towards strict time limits. A study that is based on theory is more relevant to changing individual behavior. Thus, this study aims to identify the mediating role of the theory of planned behavior (TPB) component to understand the determinants related to HBCI among workers in the banking sector. This study will highlight the proposed framework that can be tested for future research in this study.

Keywords: *Theory of Planned Behavior, Health Behavior Change, Banking Sector, Conceptual Research.*

1. Introduction

Nowadays, the development of countries' economies basically is based on the banking sector that manages funds and financial investments (Ahmad, Naveed, Ahmad, & Butt, 2020). According to Mohd Hasan, Jie, and Bidin (2018), banks as financial institutions serve as the backbone of a nation's economy which will have a direct impact on the development of the country; particularly in the present time, the banking sector is involved in every segment of our daily life. The Malaysian banking system, which comprises commercial banks, investment banks (previously known as merchant banks), Islamic banks, and foreign banks, is the major institutional source of credit to the economic sector (Bank Negara Malaysia, 2019).

As the banking sector strives to be sustainable and competitive, employees need to improve their performance by increasing their commitment at work (Husin, Lukito, Amali, & Che Rusuli, 2019). This situation has led to a more competitive environment for the banking sector, and the workers tend to experience fatigue as the work involves long working hours, inappropriate reward system, and lack of job autonomy; besides, the role conflict has increased tension, stress, and pressure due to the nature of heavy workload and the need of adaptation towards strict time limits (Ravesangar & Muthuveloo, 2019). The nature of the bank work and working environment can have negative impacts on the health of the bankers. This scenario has led to the importance of work-life balance, and these WLB conditions have been identified as the key risk factors for poor health (Lunau, Bambra, Eikemo, Wel, & Dragano, 2014). Lunau et al. (2014) indicate that a poor work-life balance is associated with poor health behavior. The health of workers is rapidly becoming a key business factor from both cost and an asset perspective as workers with poor health take up to nine times more sick leave than their healthy colleagues, and healthy workers are almost three times more productive than workers with poor health (Turner & Lingard, 2016).

The inception and quick growth of the health behavior change area is a response to the urgent need to understand the complexity behind individuals' decisions and engagement in behaviors that affect their health and well-being (Teixeira & Marques, 2017). Numerous interventions to change health behavior have been reported in the literature, as outlined in the reviews of health behavior. The use of health behavior modification interventions in research and practices has risen over the last few decades worldwide to emphasize health promotion, preventative medicine, and the need for a reduction in health disparities (Dale, Brassington, & King,

2014). However, these interventions have produced only small effects and small positive effects; if maintained, they have the potential to impact long-term health outcomes (Conner & Norman, 2017).

Therefore, this study aims to identify the mediating role of the theory of planned behavior (TPB) component to understand the determinants related to HBCI among workers in the banking sector by using theories to help the organizations elaborate on intervention plans that promote and achieve health promotion, including minimizing absenteeism and presenteeism rate and productivity loss.

Health Behaviour Change Intention (HBCI): Health behavior, specifically physical health, is the main factor contributing to the absenteeism and presenteeism of workers that affect an organization's profitability. AIA Validity Survey report year 2017 until 2023, two main factors contributed to productivity loss which are unhealthy diet and physical inactivity. Thus, the health behavior in this study compromises eating habits and physical activities which are described further in the next subsection.

There has been a strong interest in understanding people's eating habits as diet plays an important role in people's health. Eating habits play a very important role in determining one's health status and the morbidity level of the disease occurring in a population because food will impact our well-being (Mohamad Kasim et al., 2018). Time constraints, unhealthy snacking, the convenience of high-calorie food, stress, high prices of healthy food, and easy access to junk food are common barriers to healthy eating (Sogari, Velez-Argumendo, Gomez, & Mora, 2018). In addition, higher income levels and busy lifestyles among the working population imply that Malaysians can afford to eat out and may have less time to prepare their meals, thus resorting to buying ready-made or instant food that is potentially harmful to health (Mohd-Any, Mahdzan, & Siang Cher, 2014). The lack of time and motivation and spending time with family and other social networks are influencing one's eating behaviors.

On the other hand, physical activity is a global term and an expression used to identify body movements using human energy (Yildizhan & Aggon, 2020). Previous studies found that a lack of physical activity (PA) is a major predictor of some chronic diseases, including obesity and cardiovascular disease. (Lau et al., 2019; Cheah & Poh, 2014). The advantages of regular PA include risk reduction of cardiovascular events, obesity, hypertension and diabetes mellitus, as well as improvement in blood lipid profile, risk of cancer, and many more (Yildizhan & Aggon, 2020). The number of people engaging in physical exercise has been decreasing, and this behavior is linked with non-communicable chronic diseases such as diabetes, hypertension, and many more (Rodrigues, Teixeira, Cid, & Monteiro, 2019). The findings of the Fourth National Health and Morbidity Survey revealed that 35.2% of the adults aged 18 years or older in Malaysia were not physically active, and the work setting is believed to be the best place for distributing information on physical activity because most adults spend their time in buildings and the sites around buildings (Huei Phing, Abu Saad, Nisak, & Mohd Nasir, 2017).

Relative Advantage (RA): Rogers (1962) defined relative advantage as the extent to which customers observe a new product or service as enhanced than its substitute. Meanwhile, the relative advantage is also known as the additional potential of the value or benefit anticipated from the innovation relative to the current practices, making it more rapidly diffused (Cain & Mittman, 2002). Besides that, the relative advantage is the perceived benefit and has been consistently identified as a predictor of attitude and intention (Abdul Aziz, 2020). Relative advantage is defined as the degree to which an innovation produces benefits that outperform those of its predecessor (Ajzen, 1991). Relative advantage may incorporate factors such as economic benefits, satisfaction, image enhancement, and convenience (Kianpour et al., 2017). There are also empirical studies that support this relationship. Taylor and Todd (1995) used relative advantage as a part of their research model to predict the attitude and the results indicated that relative advantage explained about 76% of the variance in attitude. Besides, relative advantage has significant effects on the intention to use Internet banking (Tan & Teo, 2000). Abdul Aziz (2020) found a significant influence of relative advantage towards the implementations of e-commerce among SMEs. Furthermore, the findings also revealed that relative advantage has a direct and significant effect on physicians' attitudes to using and accepting electronic medical records (Abdekhoda, Ahmadi, Dehnad, Noruzi, & Gohari, 2016). The empirical results confirmed that relative advantages influenced the attitude of consumers to return end-of-life (EOL) products for reuse, repair, and recycling to the producers

(Kianpour et al., 2017). In this study, the operational definition of relative advantage refers to advantages associated with HBCI.

Co-worker Influence (CWI): Co-worker is defined as employees with the people they interact with, and they can influence and be influenced by others regardless of whether they perform the same job or not (Quist, Christensen, Garneiro, Hansen, & Bjorner, 2014). Co-workers influence the working environment, and this influence will affect employees' attitudes at work, which is an important source of employee support in service organizations (Avci, 2017). Research also reveals that social links influence one's weight and the goal of losing weight, revealing that social norms may be the origin of behavioral clustering within groups (Quist et al., 2014). According to Allard, et.al (2011), there are relationship between work environment and health behavior that results from physical activity, weight change, and smoking behavior as colleagues may influence personal behavior and behavior change both directly and indirectly. The workplace is an ideal setting for the promotion of a healthy lifestyle because it provides easy access to large groups of people where workers interact with co-workers, clients, and customers; this setting can potentially influence the beliefs and behavior of workers (Quist et al., 2014). Sandu, Chereches, Baba, Revnic, and Mocean (2018) indicate that friends and colleagues are the most important influences for one's physical activity practice. Moreover, Berry, Blonquist, Pozzar, & Nayak (2018) reported that co-workers can influence one's health decision-making. The social support among participants was lower than anticipated, resulting in minimal co-workers' encouragement on behavior-changing diets and physical activities among nurses (Torquati, Kolbe-Alexander, Pavey, & Leveritt, 2018). In addition, subjective norms from co-workers moderated the effect of group-related attitudes on the intention to join alcohol-related social gatherings (Park & Lee, 2019). According to Amuneke-Nze, Bamgbade, and Barner (2018), participants stated that their co-workers opposed their healthy habits, specifically their eating habits in the workplace. Moreover, single women were more influenced by the subjective norm, including their mothers, siblings, friends, and co-workers who are experienced in breastfeeding than those with no breastfeeding experiences (Jang, Lee, & Mo, 2017). Burke, Dailey, & Zhu (2017) stated that the perceived social influence from co-workers had a direct effect on one's health behaviors through the social support of co-workers and their organizational socialization.

Facilitating Conditions (FC): Palau-Saumell et al. (2019) stated that higher facilitating conditions are expected to lead to higher intentions to use or do something. Facilitating conditions are largely determined by indicators such as PBC and compatibility (Onaolapo & Oyewole, 2018). Facilitating conditions refer to the degree to which an individual believes that an organizational or technical infrastructure supports the use of the systems (Venkatesh, Morris, Davis, & Davis, 2003). Facilitating conditions are factors in an environment that make it possible to use the resources (Ghalandari, 2012). Levac et al. (2016) revealed that facilitating conditions is related to virtual reality (VR) therapy in stroke rehabilitation. Furthermore, the facilitating condition was positively related to the behavioral intention to use fitness apps to become physically active (Yang & Koenigstorfer, 2021). However, Zahid and Din (2019) found that facilitating conditions have an insignificant influence on the PBC in the intention to adopt e-government services in Pakistan. In addition, Fauzi, Tan, Thurasamy, and Ojo (2019) indicated that the facilitating condition is significant but has a negative relationship with knowledge-sharing intentions. Wibowo and Sabari (2023) found that facilitating conditions is positively significant to behavioral intention and linkage with behavior.

2. Theory of Planned Behavior (TPB)

Azjen (1991) established the theory of planned behavior (TPB) to identify people's willingness to act. Three antecedents of TPB consist of attitude, subjective norm, and perceived behavioral control (PBC). TPB is an extension of TRA with the addition of perceived behavior control as a variable for predicting intentions and behavior. Perceived behavioral control (PBC) is the extent to which a person feels he or she can enact the behavior. PBC refers to one's perception of control over the behavior and is assumed to reflect the obstacles that one encountered in past behavioral performances. With the inclusion of this new factor, Ajzen's TPB proposes that PBC influences behavior directly (Ajzen, 1991). The intentions to perform different behaviors can be predicted from the attitudes towards the behavior, subjective norms, and PBC. These intentions, together with perceptions of behavioral control, account for the considerable variance in the actual behavior. The combination of strong empirical support and widespread applicability has contributed to the popularity of the TPB. The TPB proposes that a person's intention is the most proximal determinant of one's behavior.

Overall, the attitude towards a behavior, subjective norm, and perception of behavioral control can lead to the formation of a behavioral intention. Given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises. Thus, the intention is assumed to be the immediate antecedent of behavior.

Mediating Role of TPB

Mediational design plays a vital role in social science and business research and is often referred to as 'vital to theory development', 'important to the scientific status of the field', and an 'indispensable tool' to develop a higher logical understanding of the components which meddled the relationship between the exogenous and endogenous factors (Memon, Cheah, Ramayah, Ting, & Chuah, 2018). Mediating analysis was used to validate the role of mediating variables as an intermediary between the relationships of the independent and dependent variables. This analysis considers the presence of an intermediate variable or mechanism that transmits the effect of an antecedent's variable to an outcome (Aguinis, Edwards & Bradley, 2017). Henseler et al. (2009) stated that intermediate analysis or mediating analysis is among the most important measurements in studying the direct and indirect relationships in the structural model. Both of these relationships can be checked by running intermediate or simplified analysis (Baron & Kenny, 1986; Preacher & Hayes, 2008). Thus, mediation analysis was performed in this study to test the mediating effect of TPB in the relationship between decomposed variables with (HBCI). This study used the mediating analysis by Hair et al. (2014) as it is believed that significant direct relationships may not be identified due to the small sample size or other extraneous factors. This statement is supported by Zhao, Lynch, and Chen (2010) that the direct effect does not have to be significant to analyze the mediating effect. Among the key requirements for testing the intermediary is ensuring that the effect of the indirect relationship is significant. When it is significant, there is a mediating variable within the relationship between the independent and dependent variables.

Attitude: The TPB defines an attitude towards behavior as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991). Generally, the more encouraging the attitude toward the behavior, the stronger the individual's intention to perform the behavior (Ajzen, 1991). Attitude is the first conscious impression formed from being exposed to a specific stimulus, and this attitude categorizes the stimulus and evaluates it as positive or negative (Saboia, Pisco Almeida, Sousa, & Pernencar, 2020). A person's belief about the probability or consequences of the behavior and his or her assessment of the consequences are suggested to form his or her attitude towards the behavior (Ajzen, 1991). In addition, Cassoff, Gruber, Sadikaj, Rushani, and Knauper (2014) revealed that few factors determine higher intentions to change behavior including positive attitude, social influence as well as self-efficacy. Attitude has been widely applied with other factors to predict health behavior change. Despite the direct effects of attitude, it has a mediating role between two relationships. Cognitive and affective dimensions have significant direct effects on attitude, suggesting a mediated relationship (Yuen, Chua, Wang, Ma, & Li, 2020).

Homer (1990) stated that the mediating role of attitude towards an advertisement provides the best fit of data. In terms of the intention and behavior to adopt e-learning, Altawallbeh, Soon, Thiam, and Alshourah (2015) revealed that attitude mediates the relationship between perceived usefulness and perceived ease of use. In addition, the mediating role of brand attitude has a larger impact on the purchase intention of small and medium enterprises (SMEs) than larger firms (Kang & Park, 2018). Furthermore, based on Wardana, et.al (2020), the relationship between entrepreneurship education and the self-efficacy of students' entrepreneurial mindset is mediated by entrepreneurial attitude. The results revealed that attitude significantly mediates the impact of perceived usefulness, perceived ease of use, social influence, peer influence, and self-esteem on the intention to adopt online learning (Singh & Tewari, 2021). To understand the preference for local food, Skallerud and Wien (2019) stated that local patriotism has a direct effect on consumer preferences, and it is not mediated by attitudes toward eating local food. Ates, Ozdenk, and Caliskan (2021) in their studies revealed that the mediating role of attitude and intention in understanding science teachers' healthy eating behavior is supported. A previous study by Alam and Rashid (2012) reported that relative advantage has a better relationship with the mediating variable, attitude when compared with intention use as the dependent variable. For information quality, the attitude variable mediated the relationship between the influence of consumer knowledge and the intention to purchase green products (Wulandari, Rahyuda, & Yasa, 2015). Similarly, the indirect effect of green knowledge was positive and significant for the green purchase intention for green purchase attitude, subjective norm, and PBC (Salimi, 2019).

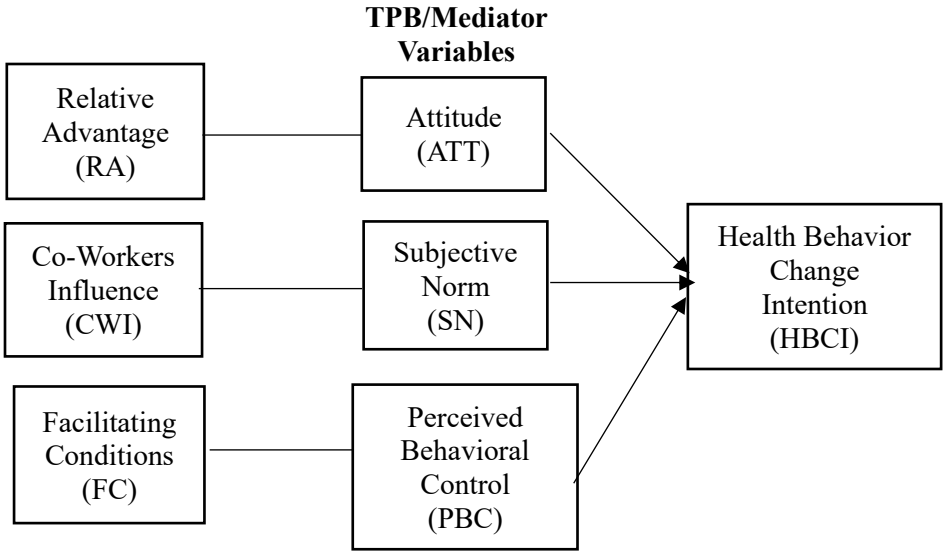
Subjective Norm: Subjective norm is the perception that significant others think that one should or should not perform the behavior in question (Albarracín et al., 2001; Fishbein & Ajzen, 1975). In other words, Gopi & Ramayah (2007) stated that subjective norms deal with the influence of social environment or social pressure on individuals and behavioral intention. Subjective norm is also the perceived social pressure on an individual to perform or not to perform certain behaviors (Al Mamun, Hayat, & Zainol, 2020). The role of social becomes more important when the motivation to comply with the pressure is greater (Mathieson, 1991). It has two components that work with interaction: beliefs about how someone important to the person would like them to behave. In addition, subjective norm specifies what the significant others expect the decision maker to perform and to what extent the decision maker wants to follow others' expectations (Penz & Hofmann, 2021). However, the predictive value of subjective norms on behavioral intention was significantly lower among those aged 60 years and above (Stehr, Lanfer, & Rossman, 2021). Despite the significant influence of subjective norm as a direct relationship, a few studies revealed that subjective norm plays a vital role as a mediator between behavior intention and behavior change. Sandve and Ogaard (2014) explored the relationship between perceived ethical obligation and subjective norm as well as their simultaneous influence on CSR-related choices and found the mediating effect of subjective norm on perceived ethical obligation. Moreover, Huang and Wang (2018) stated that subjective norm plays a mediating role in the relationship between conspicuous consumption and purchase intention. Hossain (2019) revealed that subjective norm plays a mediating role in the relationship between uses and gratification (UGT) and social networking sites (SNS) usage intention. The subjective norm mediates the relationship between travellers' mindsets and attitudes; however, the subjective norm does not mediate the relationship between travellers' mindsets and PBC (Japutra, Loureiro, Molinillo, & Ekinci, 2019). Additionally, there is a mediation effect of subjective norm and dependency intention in the relationship between parental phubbing and students' mobile phone dependency behaviors (Liu et al., 2019).

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Perceived Behavioral Control: Ajzen (1991) described perceived behavioral control as "the perceived ease or difficulty of performing the behavior" and "is assumed to reflect experience as well as anticipated impediments and consequences". Ajzen (2002) described perceived behavioral control as similar to the notion by Wood and Bandura (1989) on perceived self-efficacy, which is concerned with how well people's behavior is strongly influenced by their confidence in their ability to perform a particular behavior. The theory of planned behavior (TPB) was derived from the theory of reasoned action (TRA) which assumed that most humans' social behaviors are under volitional control and can be predicted from the intentions alone (Ajzen, 2002). Perceived behavioral control (PBC) is one's perceived self-efficacy in their belief in being able to act (Bae & Choi, 2021). In addition, PBC is also the belief that an individual has the capacities, faculties, abilities, and resources to engage in the target behavior (Chaba, d'Arripe-Longueville, Lentillon-Kaestner, & Scoffier-Meriaux, 2019). According to Al Mamun et al. (2020), PBC is an individual's understanding of the ease or difficulty associated with the performance of a behavior. PBC reflects the beliefs that an individual has and their ability to exercise control over behavior (Liou & Kulik, 2020). According to TPB, PBC is affected by the practical barriers of behavioral change, such as lack of available facilities, poor transportation, and challenges with attendance due to work-life demand (Turner, Rodriguez, Bobadilla, Hernandez & Yin, 2020). Besides the positive direct impact of PBC on intention behavior, a study revealed that PBC mediates the relationship between internet self-efficacy and perceived accessibility with the behavioral intention to adopt e-learning among university instructors in Jordan (Altawallbeh et al., 2015). The results indicated that entrepreneurial self-efficacy has significant direct effects on entrepreneurial intention through the PBC for the entrepreneurial variable (Seif & Fathi, 2015). According to Courneya, Bobick, and Schinke (1999), the relation between personality and exercise behavior was partially mediated by PBC. Furthermore, PBC has a mediation association between parental nurturance and healthy sleep intention (Lao, Tao, & Wu, 2016). PBC also partially mediated the influence of personality towards physical activities among postgraduate students studying at a large UK University (McEachan, Sutton, & Myers, 2010).

3. Conceptual Framework

Figure 1: Proposed Conceptual Framework



Based on the above conceptual framework for this study (refer to Figure 1), there are three independent variables which are relative advantage (RA), co-worker influence (CWI), and Facilitating Conditions (FC). There are also mediating variables that consist of TPB components which consist of Attitude (ATT), Subjective Norm (SN), and Perceived Behavioural Control (PBC). In this study, health behavior change intentions (HBCI) act as a dependent variable. For this study, there will be three hypotheses that can be tested for the indirect effect of the model. Table 1 shows the three hypotheses.

Table 1: Mediation Construct in the Model

Hypotheses		Hypotheses
H1	RA-ATT-HBCI	Relative advantage has a significant influence on attitudes towards HBCI among workers in the banking sector.
H2	CW-SN-HBCI	Co-worker has a significant influence on subjective norms towards HBCI among workers in the banking sector.
H3	FC-PBC-HBCI	Facilitating conditions has a significant influence on PBC towards the HBCI among workers in the banking sector.

4. Methodology

This study is expected to describe the factors that influence health behavior change intention (HBCI) among workers in the banking sector. To analyze the relationship between variables this study uses a quantitative approach through a survey using a questionnaire conducted on workers between 20 and 54 years old within the Malaysian banking sector (headquarters and branches) in Selangor with two specific conditions (physically inactive, and unhealthy food consumption. To be achieved, this study aims to use PLS-SEM for measurement and structural model evaluation following Hair et al. (2011) as a better means of exploratory study (Reinartz, Haenlein & Henseler, 2009) as recently gained increasing popularity in individual and service study areas (Hair et al., 2019).

5. Conclusion

The conceptual framework presented in this paper represents a comprehensive and holistic to addressing HBCI among workers in the banking sector. By using a well-known TPB component as a mediating factor between RA, CWI, and FC towards HBCI. The conceptual framework outlined in this study emphasizes the importance

of factors that can predict HBCI among workers in the banking sector. This study will be useful in providing guidelines to employers or organizations in identifying critical characteristics affecting workers' intentions toward health behavior change. A good understanding of these antecedents is essential to designing effective intervention programs. Then, organizations can provide suitable programs for the workers' health behavior change. Several approaches can be taken to help workplaces become healthier and improve the sustainability of work by adding health-promoting activities to improve health.

By promoting workers' health behavior change, this study provides the banking sector with the best insights and strategies to improve productivity and overall workers' well-being. Employers can understand the health of their workers as well as the effectiveness of their current health strategies. Organizations can develop, implement, and customize workplace interventions to meet their workers' needs. Workers feel more comfortable and valued when they know that the programs are designed with their needs in mind.

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References

Abdekhoda, M., Ahmadi, M., Dehnad, A., Noruzi, A., & Gohari, M. (2016). Applying Electronic Medical Records in Health Care. *Applied Clinical Informatics*, 341-354.

Abdul Aziz, A. (2020). Do New Technology Characteristics Influence Intention to Adopt Manufacturing Companies in Malaysia? *Proceeding of the First ASEAN Business, Environment, and Technology Symposium* (pp. 30-35). Atlantis Press SARL.

Aguinis, H., Edwards, J. R., & Bradley, K. J. (2017). Improving our understanding of moderation and mediation in strategic management research. Organizational Research Methods, 20(4), 665–685. https://doi.org/10.1177/1094428115627498.

Ahmad, N., Naveed, A., Ahmad, S., & Butt, I. (2020). Banking sector performance, profitability, and efficiency: a citation-based systematic literature review. *Journal of Economic Surveys*, *34*(1), 185-218.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 179-211.

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. Journal of Applied Social Psychology, 32(4), 665–683. https://doi.org/10.1111/j.1559-1816.2002.tb00236.x

Al Mamun, A., Hayat, N., & Zainol, N. (2020). Healthy eating determinants: A study among Malaysian young adults. *Foods*, 1-18.

Alam, S., & Rashid, M. (2012). Intention to use renewable energy: Mediating role of attitude. Energy Research Journal, 3, (2), 37-44.

Albarracin, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. *Psychological bulletin*, *127*(1), 142.

Allard, K., Thomsen, J., Mikkelsen, S., Rugulies, R., Mors, O., Kaegaard, A., . . . Andersen, J. (2011). Effects of psychosocial work factors on lifestyle changes. *Journal of Occupational Environment*, 1364-1371.

Altawallbeh, M., Soon, F., Thiam, W., & Alshourah, S. (2015). The mediating role of attitude, subjective norm and perceived behavioral control in the relationships between their respective salient beliefs and behavioral intention to adopt e-learning among instructors in Jordanian Universities. *Journal of Education and Practices*, 152-160.

Amuneke-Nze, C., Bamgbade, B., & Barner, J. (2018). An Investigation of Health Management Perceptions and Wellness Behaviors in African American Males in Central Texas. American Journal of Men's Health, 13(1), 1-16.

Ates, H., Ozdenk, G., & Caliskan, C. (2021). Determinants of science teachers' healthy eating behaviors: combining health belief model and theory of planned behavior. Journal of Baltic Science Education, 573-589.

Avci, N. (2017). The Relationship between Coworker Supports, Quality of Work Life and Wellbeing: An Empirical Study of Hotel Employees. *International Journal of Management Economics and Business*, 577-599.

Bae, Y., & Choi, J. (2021). Consumer acceptance of edible insect foods: an application of the extended theory of planned behavior. *Nutrition Research and Practice*, 122-135.

Bank Negara Malaysia (2019). *List of Licensed Financial Institutions*. Retrieved from https://www.bnm.gov.my/home.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Berry, D., Blonquist, T., Pozzar, R., & Nayak, M. (2018). Understanding health decision making: An exploration of homophily. Social Science & Medicine, 118-124.

Burke, T., Dailey, S., & Zhu, Y. (2017). Let's work out: Communication in workplace wellness programs. International Journal of Workplace Health Management, 10(2), 100-115.

Cain, M., & Mittman, R. (2002). *Diffusion of Innovation in Health Care.* California: Institute for the future.

Cassoff, J., Gruber, R., Sadikaj, G., Rushani, F., & Knauper, B. (2014). What motivational and awareness variables are associated with adolescents' intentions to go to bed earlier? Curr Psychol, 113-129.

Chaba, L., d'Arripe-Longueville, F., Lentillon-Kaestner, V., & Scoffier-Meriaux, S. (2019). Drive for muscularity behaviors in male bodybuilders: a trans-contextual model of motivation. *Journal of Eating Disorders*, 1-11.

Cheah, Y., & Poh, B. (2014). The Determinants of Participation in Physical Activity in Malaysia. *Osong Public Health Res Perspect*, 20-27.

Conner, M., & Norman, P. (2017). Health Behaviour: Current Issues and Challenges. *Psychology & Health*, 895-906.

Courneya, K. S., Bobick, T. M., & Schinke, R. J. (1999). Does the theory of planned behavior mediate the relation between personality and exercise behavior? Basic and Applied Social Psychology, 21(4), 317–324. https://doi.org/10.1207/15324839951036335.

Dale, H., Brassington, L., & King, K. (2014). The impact of healthy lifestyle interventions on mental health and wellbeing: a systematic review. *Mental Health Journal*, 1-26.

Fauzi, M., Tan, C., Thurasamy, R., & Ojo, A. (2019). Evaluating academics' knowledge sharing intentions in Malaysian public universities. Malaysian Journal of Library & Information Science, 24(1), 124-143.

Fishbein, M. & Ajzen, Icek. (1975). Belief, attitude, intention and behavior: An introduction to theory and research.

Ghalandari, K. (2012). The Effect of Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions on Acceptance of E-Banking Services in Iran: the Moderating Role of Age and Gender.

Gopi, M. and Ramayah, T. (2007). Applicability of theory of planned behavior in predicting intention to trade online: Some evidence from a developing country. International Journal of Emerging Markets, Vol. 2 No. 4, pp. 348-360. https://doi.org/10.1108/17468800710824509

Hair Jr, J., Sarstedt, M., Hopkins, L. and G. Kuppelwieser, V. (2014). Partial least squares structural equation modelling (PLS-SEM): An emerging tool in business research, European Business Review, 26(2), 106-121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-152.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM, European Business Review, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hasan, N. A. M., Jiea, C. T., & Bidin, R. (2018). Job satisfaction among bank employees: An investigation of public banking institution in Malaysia. *Jurnal Kemanusiaan*, *16*(1), 33-39.

Henseler, J., Ringle, C.M. and Sinkovics, R.R. (2009). The use of partial least squares path modelling in international marketing, Sinkovics, R.R. and Ghauri, P.N. (Ed.) New Challenges to International Marketing (Advances in International Marketing, Vol. 20), Emerald Group Publishing Limited, Leeds, pp. 277-319. https://doi.org/10.1108/S1474-7979(2009)0000020014.

Homer, P. (1990). The mediating role of attitude toward the Ad: some additional evidence. Journal of Marketing Research, 78-86.

Hossain, M. (2019). Effects of uses and gratifications on social media use: The Facebook case with multiple mediator analysis. PSU Research View, 16-28.

Huang, Z., & Wang, C. (2018). Conspicuous consumption in an emerging market: the case of Chinese migrant workers. Journal of Business Research, 366-373.

Huei Phing, C., Abu Saad, H., Nisak, B., & Mohd Nasir. (2017). Effectiveness of physical activity intervention among government employees with metabolic syndrome. *Journal of Exercise Science & Fitness*, 55-62.

Husin, N., Lukito, H., Amali, H., & Che Rusuli, M. (2019). Malaysian Bankers' Quality of Life: Are they contented? *Sci.Int. (Lahore), 31(2)*, 233-236.

Jang, M., Lee, S.-M., & Mo, K. (2017). Belief factors associated with breastfeeding intentions of single women: Based on the theory of planned behavior. *Journal of Nutrition and Health, 50(3)*, 284-293.

Japutra, A., Loureiro, S., Molinillo, S., & Ekinci, Y. (2019). Travelers' mindsets and theory of planned behavior. *Tourism Management Perspectives,* 193-196.

Kang, M., & Park, B. (2018). Sustainable corporate social media marketing based on message structural features: firm size plays a significant role as a mediator. *Sustainability*, 1-14.

Kianpour, K., Jusoh, A., Mardani, A., Streimikiene, D., Cavallaro, F., Md.Nor, K., & Zavadskas, E. (2017). Factors influencing consumers' intention to return end-of-life electronic products through reverse supply chain management for reuse, repair and recycling. *Sustainability*, 1-23

Lao, H., Tao, V., & Wu, A. (2016). Theory of planned behavior and healthy sleep of college students. *Australian Journal of Psychology*, 20-28.

Lau, X., Wong, Y., Wong, J., Koh, D., Sedek, R., Jamil, A., . . . Poh, B. (2019). Development and Validation of a Physical Activity Educational Module for Overweight and Obese Adolescents: CERGAS Programme. *International Journal of Environmental Research and Public Health*, 1-16.

Levac, D., Glegg, S. M., Sveistrup, H., Colquhoun, H., Miller, P. A., Finestone, H., ... & Velikonja, D. (2016). A knowledge translation intervention to enhance clinical application of a virtual reality system in stroke rehabilitation. *BMC health services research*, *16*, 1-11.

Liou, D., & Kulik, L. (2020). Self-efficacy and psychosocial considerations of obesity risk reduction behaviors in young adult white Americans. *PloS ONE*, 1-12.

Liu, R.-D., Wang, J., Gu, D., Ding, Y., Oei, T., Hong, W., . . . Li, Y.-M. (2019). The effect of parental phubbing on teenagers mobile phone dependency behaviors: The mediation role of subjective norm and dependency intention. *Psychology Research and Behavior Management*, 1059-1069.

Lunau, T., Bambra, C., Eikemo, T., Wel, K. v., & Dragano, N. (2014). A balancing act? Work-life balance, health and well-being in European welfare states. *European Journal of Public Health*, 1-6.

Mathieson, Kieran. (1991). Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior. Information Systems Research. 2. 173-191. 10.1287/isre.2.3.173.

McEachan, R., Sutton, S., & Myers, L. (2010). Mediation of Personality Influences on Physical Activity within the Theory of Planned Behavior. *Journal of Health Psychology,* 15(8), 1170-1180.

Memon, M., Cheah, J.-H., Ramayah, T., Ting, H., & Chuah, F. (2018). Mediation Analysis: Issues and Recommendations. *Journal of Applied Structural Equation Modelling: 2(1)*, 1-10.

Mohamad Kasim, N., Ahmad, M., Baharudin, A., Mahadir Naidu, B., Ying, C., & Aris, T. (2018). Food choices among Malaysian adults: Findings from Malaysian Adults Nutrition Survey (MANS) 2003 and MANS 2014. *Malaysian Journal of Nutrition*, 63-75.

Mohd-Any, A., Mahdzan, N., & Siang Cher, C. (2014). Food choice motives of different ethnicities and the foodie segment in Kuala Lumpur. *British Food Journal*, 1879-1896.

Mohd Hasan, N. A., Jie, C. T., & Bidin, R. (2018). Job satisfaction among bank employees: An investigation of public banking institution in Malaysia. *Jurnal Kemanusiaan*, *16*(1), 33-39.

Onaolapo, S., & Oyewole, O. (2018). Performance expectancy, effort expectancy, and facilitating conditions as factors influencing smartphone use for mobile learning by postgraduate students at the University of Ibadan, Nigeria. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 95-114.

Palau-Saumell, Ramon & Forgas, Santiago & Sánchez-García, Javier & Robres, Emilio. (2019). User Acceptance of Mobile Apps for Restaurants: An Expanded and Extended UTAUT-2. Sustainability. 11. 1210. 10.3390/su11041210.

Park, H., & Lee, D. (2019). Alcohol-related social gatherings with coworkers: Intentions to behave and intention to not behave. *Journal of Pacific Rim Psychology,* 5(2), 53-64.

Penz, E., & Hofmann, E. (2021). What stirs consumers to purchase carbon-friendly food? Investigating the motivational and emotional aspects in three studies. *Sustainability*, 1-18.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Quist, H., Christensen, U., Garneiro, I., Hansen, J., & Bjorner, J. (2014). Do colleagues influence our lifestyle: The matter of smoking, body mass index and leisure-time physical activity? *Preventive Medicine*, 166-170.

Ravesangar, K. ., & Muthuveloo, R. (2019). The Influence Of Intrinsic And Extrinsic Motivating Factors On Work Performance In Banking Sectors In Malaysia: The Mediator Role Of Psychological Ownership. E-Jurnal Penyelidikan Dan Inovasi, 6(2), 51–70. Retrieved from https://ejpi.uis.edu.my/index.php/ejpi/article/view/157

Reinartz, W. & Haenlein, M. & Henseler, J. (2009). An Empirical Comparison of the Efficacy of Covariance-Based and Variance-Based SEM. International Journal of Research in Marketing. 26. 332-344. 10.1016/j.ijresmar.2009.08.001.

Rodrigues, F., Teixeira, D. S., Cid, L. & Monteiro, D. (2019). Promoting Physical Exercise Participation: The Role of Interpersonal Behaviors for Practical Implications. *J. Funct. Morphol. Kinesiol. 4*, 40. https://doi.org/10.3390/jfmk4020040.

Rogers, E.M. (1962) Diffusion of Innovations. Free Press, New York.

Saboia, I., Pisco Almeida, A., Sousa, P., & Pernencar, C. (2020). Are you ready for the challenge? Social media health challenges for behavior change. *Perspective on Behavior Science*, 543-578.

Salimi, A. R. (2019). Effects of Environmental Concerns and Green Knowledge on Green Product Consumptions With An Emphasis on Mediating Role of Perceived Behavioral Control, Perceived Value, Attitude, and Subjective Norm. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies 10 (5)*, 651-661.

Sandu, P., Chereches, R., Baba, G., Revnic, R., & Mocean, F. (2018). Environmental influences on physical activity: Romanian youths' perspectives. Children and Youth Services Review, 71-79.

Sandve, A. & Øgaard, T. (2014). Exploring the interaction between perceived ethical obligation and subjective norms, and their influence on CSR-related choices. Tourism Management. 42. 177–180. 10.1016/j.tourman.2013.11.013.

Seif, M., & Fathi, R. (2015). The relations of causal model social capitals and social norms, entrepreneurial self-efficacy and academic entrepreneurial intention: The mediating role of attitude toward entrepreneurship and perceived behavioral control. *Higher Education Letter Vol.8 No.31*, 1-15.

Singh, R., & Tewari, A. (2021). Modelling factors affecting online learning adoption: Mediating role of attitude. *International Journal of Education Management,* 35(7), 1405-1420.

Skallerud, K. & Wien, A. (2019). Preference for local food as a matter of helping behavior: Insights from Norway. Journal of Rural Studies. 67. 79-88. 10.1016/j.jrurstud.2019.02.020.

Sogari, G. & Velez-Argumedo, C. & Gómez, M. & Mora, C. (2018). College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. Nutrients. 10. 10.3390/nu10121823.

Stehr, P., Lanfer, H., & Rossman, C. (2021). Beliefs and motivation regarding physical activity among older adults in Germany: results of a qualitative study. *International Journal of Qualitative Studies on Health and Wellbeing*, 1-15.

Tan, M., & Teo, T. (2000). Factors Influencing the Adoption of Internet Banking. *Journal of the Association for Information Systems*, 1-44.

Taylor, S., & Todd, P. (1995). Decomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions. International Journal of Research in Marketing, 137-155.

Teixeira, P., & Marques, M. (2017). Health Behavior Change for Obesity Management. *Obesity Facts*, 666-673.

Torquati, L., Kolbe-Alexander, T., Pavey, T., & Leveritt, M. (2018). Changing diet and physical activity in nurses: A pilot study and process evaluation highlighting challenges in workplace health promotion. *Journal of Nutrition Education and Behaviour,* 50(10), 1015-1025.

Trigueros, R., Aguilar-Parra, JM., Cangas, AJ., Bermejo, R., Ferrandiz, C., López-Liria, R. (2019). Influence of Emotional Intelligence, Motivation and Resilience on Academic Performance and the Adoption of Healthy Lifestyle Habits among Adolescents. Int J Environ Res Public Health. 16(16), 2810. doi: 10.3390/ijerph16162810. PMID: 31394722; PMCID: PMC6719049.

Turner, M., & Lingard, H. (2016). Improving workers' health in project-based work: Job security considerations. *International Journal of Managing Projects in Business*, *9*(3), 606-623.

Turner, B., Rodriguez, N., Bobadilla, R., Hernandez, A., & Yin, Z. (2020). Chronic pain self-management program for low-income patients: themes from a qualitative inquiry. *Pain Medicine*, 1-8.

Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly,* 27(3), 425-478.

Wardana, L., Narmaditya, B., Wibowo, A., Mahendra, A., Wibowo, N., Harwida, G., & Rohman, A. (2020). The impact of entrepreneurship education and students' entrepreneurial mindset: the mediating role of attitude and self-efficacy. *Heliyon*, 1-7.

Wibowo, N. & Sobari, N. (2023). The influence of behavioral intention, facilitating condition, and habit on use behavioral of QRIS: a study on mobile banking services. Gema Wiralodra. 14. 1243-1258. 10.31943/gw.v14i3.482.

Wood, R., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. Journal of Personality and Social Psychology, 56(3), 407–415. https://doi.org/10.1037/0022-3514.56.3.407

Wulandari, A., Rahyuda, I., & Yasa, N. (2015). The role of attitude in mediating consumer knowledge influences the purchase intention of green products. *Jurnal Dinamika Manajemen,* 6(2), 133-144.

Yang, Y., & Koenigstorfer, J. (2021). Determinants of fitness app usage and moderating impacts of education, motivation, and Gamification-related app features on physical activity intentions: Cross-sectional survey study. *Journal of Medical Internet Research,* 23(7), 1-24.

Yıldızhan, Ç. Y. & Aggon, E. (2020). The effects of regular physical activities on subjective well-being levels in women of menopause period. Balneo Research Journal. 11. 224-229. 10.12680/balneo.2020.344.

Yuen, K., Chua, G., Wang, X., Ma, F., & Li, K. (2020). Understanding public acceptance of autonomous vehicles using the theory of planned behavior. *International Journal of Environmental Research and Public Health*, 1-19.

Zahid, H., & Din, B.B. (2019). Determinants of Intention to Adopt E-Government Services in Pakistan: An Imperative for Sustainable Development. *Resources*.

Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. Journal of Consumer Research, 37(2), 197–206. https://doi.org/10.1086/651257.