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A Conceptual Framework of Factors Influencing Prevention-Related Practice Behaviors towards Non- Communicable Diseases (NCDs) of Low-Income Workers

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Abstract

This article proposes a conceptual framework of factors influencing prevention-related practice behaviors towards non-communicable diseases (NCDs) of low-income workers. The author adopted the Social-Ecological Model as a potential predictor of practice behaviors of employees related to the prevention of NCD. This article found five factors which are intrapersonal factor, interpersonal factor, organizational factor, community factor and societal factor and attitude as a mediating variables. This article suggests that these factors to be considered in future theoretical framework development on preventive practices towards NCD among low-income workers.

Keywords: Prevention-Related Practice Behaviors Factors, NCDs, Low-Income Workers.

Introduction

Health is an element that cannot be separated from the development of a country. Although Malaysia has developed and grown rapidly, health and the process of modernisation should go hand in hand without affecting or having a side effect on the well-being and prosperity of the people. Nevertheless, the impact of accelerated industrial development and urbanisation in recent decades has changed the pattern of employment, social and lifestyle have affected the health resulting in increased rate of chronic diseases. This trend led to morbidity and mortality in Malaysia. The non-communicable diseases (NCDs) also known as chronic diseases is one of the leading causes of death among adults in Malaysia, which has resulted in high emotional and financial stress on individuals,

families and countries. Moreover, this impact is felt especially by low-income residents to manage treatment, care and health with limited sources of income.

Past studies have revealed that the low-income group is more likely to engage in unhealthy behaviours, lack of social protection and lack of access to good healthcare, exposing them to high risk of NCDs, disability and death (Stringhini et al., 2017; Rockefeller Institute, 2013; Wilkinson, 2007). In addition, low-income workers also face dangers both in the workplace and in their communities. Grosch, Alterman, Petersen and Murphy (1988) explained that compared to other workers, low-income workers face more dangerous physical and psychosocial workplace exposure and less access to health promotion programs at their workplace. For a large number of low-income workers, employment is the only major source of income for them, which causes all decisions on personal and family health to depend on the source, influencing them not to take any leave from work when sick due to fear of losing wages that can affect occupational health and productivity (Robert Wood Johnson Foundation Commission to Build a Healthier America, 2009).

In Malaysia, it has been shown that the population of this country is composed of (B40), (M40) and (T20) groups, which each represents the lowest 40%, middle 40% and the highest income group 20% (Mansor, Kassim & Jawi, 2020; Iordanides et al., 2014). Therefore, the low-income workforce forms a large part of the workforce in the country, which plays an important role in helping the management to streamline daily tasks and improve the quality of their services to achieve the development and economic agenda of the country. Nevertheless, studies have found that low-income workers have been exposed to NCDs such as cardiovascular disease, obesity and mental illness (Othman et al., 2020; Chan et al. 2019; Fiidow, Huda & Salmiah, 2016; Eng, Moy & Bulgiba, 2016; Sherina et al., 2011). This may be because the work environment has an influence on their behaviour and health outcomes.

In response to these issues, prevention-related practice behaviors play an important role for maintaining health and quality of life. This is in line with the 2030 agenda for Sustainable Development Goals (SDGs) especially on cores such as poverty (SDG1), health & well-being (SDG3) as well as education (SDG4) for a sustainable development. Hence, this study aims to develop a conceptual framework on the determinants of preventive-related practice health behaviors among the low-income workers in the Malaysian.

Literature Review

Prevention-related Practice Behaviors

According to Lee, Park and Lee (2020), behavioural practices have a positive effect on an individual's physical health or ability to recover from illness. Van et al. (2007) and Twardella et al. (2006) reported that those with heart disease and stroke are more likely to quit smoking as well as improve exercise for health to reduce the risk of diseases. Meanwhile, individuals diagnosed with serious health conditions are more likely to behave to quit smoking than those who have not been diagnosed with the disease (Keenan, 2009).

In another study by Yamada, Hapsari and Matsuo (2020) reported that behaviours toward NCD prevention such as eating behaviour, physical activity, sleep and health check-ups had a significant correlation with physical health status ($p < 0.05$). This is also supported by Ozminkowski et al. (2006) where healthy behaviours such as a rich diet of fruits and vegetables and regular physical activity can prevent or delay the onset and progression of chronic diseases. In addition, a study on health information seeking behaviour among urban and rural Malay population showed that the majority of respondents tend to seek medical treatment by seeing a doctor (Rani et al., 2019). Similarly, in another study by Amal, Parameswarthy, Tee, Gurpreet and Karuthan (2006) found that the Malay (65.8%), India (61.2%) and Chinese (45.8%) population use the services of government health facilities for medical treatment and their diseases.

Socio-Ecological Model (SEM) of Health Behaviours

Several previous studies have emphasised the importance of social and environmental determinants of behaviour as well as healthy health outcomes (Croezen, Picavet, Haveman-Nies, Verschuren, De Groot & Van't Veer, 2012; Carlson et al., 2012; White, Philogene, Fine, & Sinha, 2009; Popkin, 2009; Shaikh, Yaroch, Nebeling, Yeh, & Resnicow, 2008; Wendel-Vos, Droomers, Kremers, Brug & Van Lenthe, 2007; Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Kahn, et al., 2002; Eyster, Brownson, Donatelle, King, Brown & Sallis, 1999). Krishnan et al. (2015) also supported that the assess on social, cultural and behavioural factors may influence NCD control. According to Baron et al. (2014) argued that social-ecological models are able to provide a good understanding in comprehending the influences that can affect health outcomes to reduce health inequality among low-income workers.

Thus, this paper adopted the Social-Ecological Model of Health Behaviour by McLeroy et al. (1988) related to health behaviours and health promotion. It consists of five sources of influence from various levels including intrapersonal factor, interpersonal factor, organisational factor, community factor and societal factor. According to Centre for Diseases Control (2002), SEM model is a comprehensive model that integrates various levels of interrelated influences (dynamic transactions) within the scope of human environmental life in helping to determine one's health behaviour. In light of these studies, theories such as the SEM can be potentially used as a framework guide in explaining NCD prevention behaviour among low-income workers.

Potential of Factors to Prevent Chronic Diseases

Intrapersonal Factor

Intrapersonal factors represent knowledge, attitudes, personality, beliefs and skills (Golden & Earp, 2012; McLeroy et al., 1988). Based on this view, only the relevant intrapersonal factors (i.e., knowledge) from the McLeroy's model of SEM (1988) was incorporated in this research framework.

Knowledge

Knowledge is the foundation of the human thoughts (Fiesbein & Ajzen, 1975). It serves as the core on determining attitudes, intentions and behaviours (Mahmud & Siarap, 2013). This is supported by Mahadevan (2009) and Valente et al. (1998) stated that if one's knowledge is increased, that knowledge will be the impetus for a change of attitude. Past studies have shown a significant

relationship between knowledge, environment, attitudes and awareness on diabetes (Latif, Hamid & Abidin, 2018). Ithnin et al. (2019) also reported a good result on knowledge (81.2%) among the adult population in the urban area of Negeri Sembilan. Thus, it can be stated that knowledge of health helps empowering individuals for improving healthcare and disease prevention.

Interpersonal

Interpersonal relationships can be referred to as close relationships that occur between two or more individuals (Heider 1958). It involves relationships such as family, friends and partners. According to Taechaboonsermsak et al. (2005) stated that social support can influence health-related behaviours. Previous studies have shown that the formal support of companies and tacit support of the family affect employees' health and health (Allen, 2001). Family and community relationships have also influenced jobs where this social support helps motivate employees to adapt to a change in chronic diseases (Vooijs, Leensen, Hoving, Wind & Frings-Dresen, 2017; Kaşıkçı, June & Alberto, 2007). Furthermore, the social support of co-workers and occupational managers contributes to enhancing employee motivation and health by reducing pain stress and job failure (Nilsson, Fitinghoff & Lilja, 2007; Lacaille, Green, Backman & Gignac, 2007; Banks & Lawrence, 2006; Lacaille, Sheps, Spinelli, Chaltmers & Esdaile, 2004; Detaile, Haafkens & Van Dijk, 2003). According to Nilsson, Fitinghoff and Lilja (2007); Banks and Lawrence (2006); Detaile, Haafkens and Van Dijk, (2003), the work culture supported and taken care of by management, and colleagues are able to retain employees. This is because, by fostering trust and mutual support between workers, social support tends to attract employees and motivates employees to become more relaxed, while the support for relationships with subordinates has a subjectively beneficial effect on individuals and well-being (Chou, 2015).

Organizational

Studies demonstrated that at the organizational level, the comfortable nature of the workplace (environment) can increase employees' motivation in performing physical activities, whereas welfare in the workplace influences the behaviour of doing physical activities positively (Mohadis, Ali, & Shahar, 2016). In addition, several studies have also reported that the provision of facilities and accessibility of equipment in the workplace produced the result of weight control reduction among employees (Ball, Timperio, & Crawford, 2006; Cornelisse-Vermaat, Antonides, Van Ophem & Van Den Brink, 2006; Duncan, Spence, & Mummery, 2005; Diane, Ebert, Ngamvitroj, Park, & Kang, 2004). Coats and Lekhi (2008) found that physical and psychological well-being programs can have an impact on productivity, attendance and employee commitment. Meanwhile, studies supported that smoking should not be allowed in malls and workplaces (Hock et al., 2017).

Community

The approach of health programs in a community has been observed able to increase knowledge as well as change the perceptions and attitudes about the awareness of NCD. Bauer, Briss, Goodman and Bowman (2014) supported this by stating that such public programs can provide knowledge and skills especially to those suffering from chronic diseases for managing their health condition better. Meanwhile, Trisnowati, Rodiyah & Marlinawati (2016) asserted that community intervention program strategies are capable of empowering communities to change their behaviour and control NCD risk factors. This is because there are still many people who do not realise that they have NCD

and are at risk of NCD. Therefore, community involvement efforts are an effective strategy to prevent various risk factors at an earlier stage (Jayadipraja, Prasetya, Azlimin & Mando, 2018).

In addition, other roles are played by stakeholders such as religious parties, social service agencies to help community in influencing health behaviour by providing service facilities such as recreational places, public parks, programs as well as welfare and safety centres (Wendel-Vos et al., 2007). In addition, study revealed that the built environment such as walking paths in the neighbourhood was considered to have a value of its own attribute to the population (Owen, Humpel, Leslie, Bauman & Sallis, 2004). Also, the provision of infrastructure facilities such as supermarkets and grocery stores through the sales and promotions of healthy food products in the market encouraged people to adopt a healthy diet (Palmer, Winham, Oberhauser & Litchfield, 2018).

Societal

Roles and support are needed in preventing and controlling NCDs with comprehensive collaboration from government, private, non-governmental organisations (NGOs), community as well as social leaders. In Malaysia, the implementation of the National Strategic Plan for Non-Communicable Diseases (NSP-NCD) 2016-2025 is one of the frameworks of an integrated plan to address NCD risk factors involving joint ventures of all parties including Ministry of Health of Malaysia (MOH), private sectors, NGOs and the public. Studies showed that the government's initiative in reducing the prevalence of smoking through the implementation of increased cigarette tax in 2015 from 42.03% to 49.4% is expected to reduce the prevalence of smoking by 27.5% in 2020 and 54.9% in 2055 (Nor et al., 2018). Also, the National Plan of Action for Nutrition of Malaysia (NPANM) III is one of the programs or initiatives in the NSP-NCD 2016-2025 in implementing the plan or need to prevent and control NCD related to diet as a result of the issue of overweight and obesity in the society (Goh, Azam-Ali, McCullough & Mitra, 2020).

In addition, mass media have been proven able to channel and disseminate useful information to the community. Randolph and Viswanath (2004) claimed that the mass media is a recognised channel in the society, which serves as the main source in disseminating information to the public. Several previous studies have demonstrated that the mass media can influence knowledge, attitudes, motivations, self-efficacy as well as beliefs and cognition of health behaviour (Bandura et al., 2000; Rhodes 2016; Wong 2016). Also, finding the information about behaviour through websites is considered important as the latest information channels that can be helpful and reliable (MCMC, 2017). Other studies showed that the use of the Internet provides useful benefits as well as a good attitude towards the search for health information (Ahadzadeh & Sharif, 2017). Also, it has been acknowledged that mass media campaigns including newspapers and other printed materials, radio, television and billboards are the main source of health information at individual level (Randolph et al., 2004). This is also supported by Buller et al. (2011) where newspapers still serve as an important source of information to the public in providing information in the form of public debates on various issues including health such as tobacco control.

Attitude as Mediator

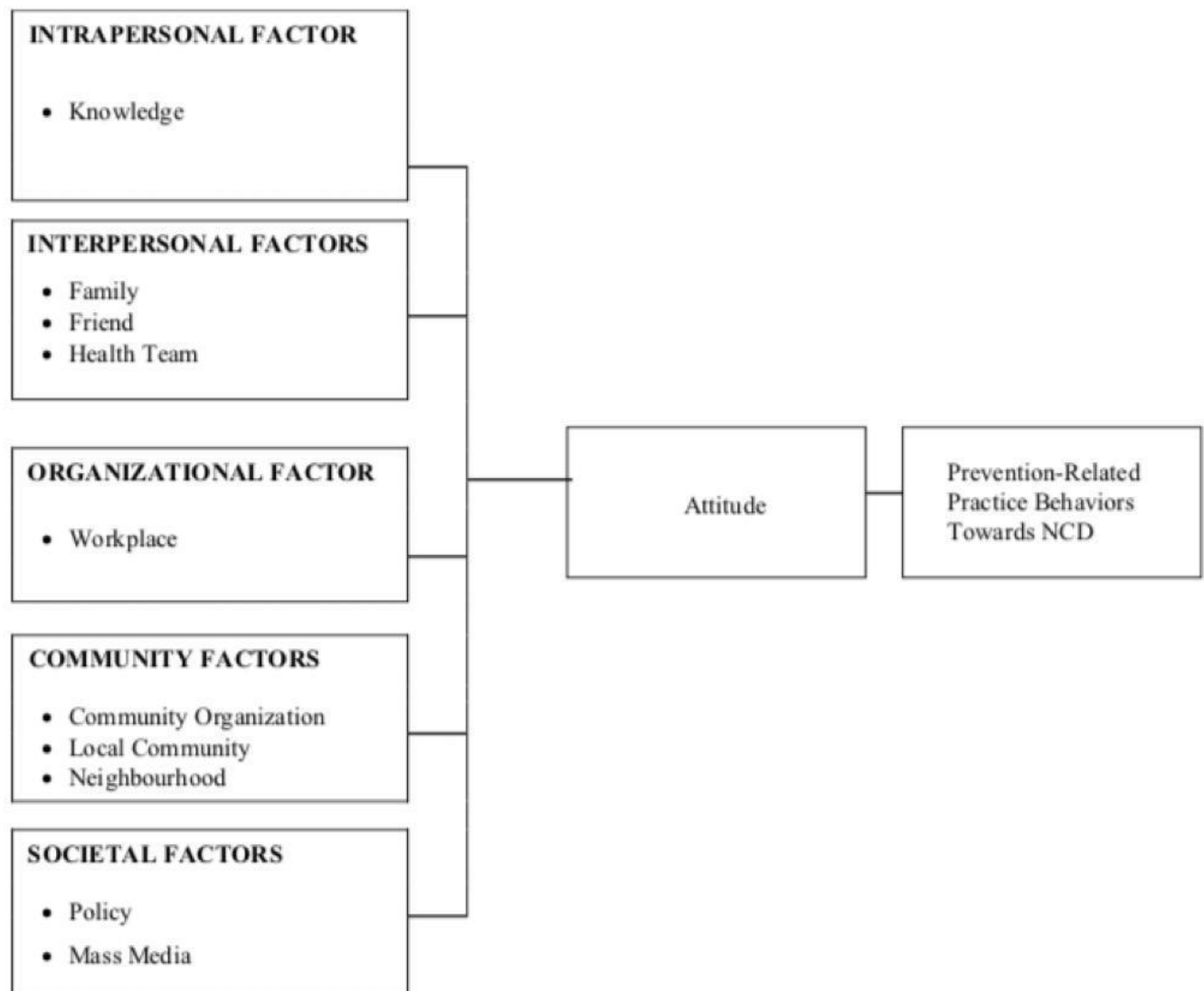
Attitude was chosen as a mediating variable between the independent variables and dependent variable. Attitude has been examined as a motivator for a person to increase their motivation to behave. For example, researcher (e.g., Park, Buist, Tiro, & Taplin, 2008) has reported attitude (believing mammography is beneficial) mediates the relationship between annual household income and mammogram receipt among women. A study involving sample of older adults by (Trigg, Watts, Jones, Tod & Elliman, 2012) found that moderate correlations between attitudes toward psychosocial loss and capacities for activities of daily living upon the quality of life (QOL). Similarly, An et al. (2016) showed that attitude has a positive full mediating effect on the relationship between knowledge of tuberculosis prevention screening and tuberculosis prevention behavior. Meanwhile, the study by Wood et al. (2014) in measuring behavioural intentions and evaluating the mediation of attitude achievement among university staff and students has shown attitude accessibility as an important mediator on the relationship between intention and behavioural measurement. In another study in Thailand, Saengcha, Pattanapongthorn and Jermsittiparsert (2019) examined the influence of attitude mediator between beliefs and intentions on the use of e-health system among health practitioners, showing that beliefs contributed 24.76% variance ($R^2 = 0.2476$) to intentions when the role of attitudes interacted. Thus, based on previous studies, this article revealed that attitude is important as a mediator to improve effective behaviour and disease management.

Conceptual Framework

Based on the SEM model and empirical evidences obtained from literature reviews, this article attempts to predict several factors and attitude as mediators in influencing NCD disease prevention behaviour among low-income workers.

The framework of this article illustrates the five groups of variables. The group variables are intrapersonal factor, interpersonal factor, organizational factor, community factor and societal factor factors. The intrapersonal factor include knowledge. The interpersonal factors include family, friends and health team. The organizational factor include workplace. The community factors include neighbourhood, local community and community organization. The societal factors include policy and mass media.

This article proposed (i.e., attitude) as a mediating variable for the relationship between the independent variables (i.e., knowledge, family, friends and health team, workplace neighbourhood, local community and community organization policy and mass media) and the dependent variable (i.e., prevention-related practice behaviors). Therefore, this study enhances McLeroy et al.'s (1988) model of SEM by integrating intrapersonal factor, interpersonal factor, organizational factor, community factor, societal factors and attitude as a mediating variable (as shown in Figure 1).

**Figures 1:** Conceptual Framework

Conclusion and Recommendations

Given that NCD at work has a health impact on low-income workers and a financial burden on individuals, families, organization and countries, the need of study in identifying the influence of practice behaviors of employees related to the prevention of NCD should be considered by involving the influence of various factors or multi-dimensional interactions for providing a clearer explanation of the influence of these factors. Therefore, this paper recommended that confirmation on the strength of the proposed relationship prediction between sets of variables should be made in future studies. In addition, this proposed research framework can develop intervention which leads to multi-level suggestions to existing employee health programs especially to low-income workers.

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