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Food Security in Nutritional Habits among Married People Using the Extended Theory of Planned Behavior in Peninsular Malaysia

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Abstract

Food security is essential for maintaining optimal nutritional habits, which involve both the quantity and quality of food consumed. Nutritional habits is one of the components in healthy lifestyle behaviour which described the nutritious food meets the dietary needs and food preferences for an active and healthy life. There has been little study into nutritional habits among married people. This study investigates the relationship between various factors—healthy lifestyle attitude (HLA), subjective norm (SN), perceived behavioural control (PBC), perceived severity (PSS), perceived benefits (PBE), and perceived barriers (PBA)—and the adoption of nutritional habits among married individuals in Peninsular Malaysia. It also explores the mediating effect of healthy lifestyle intention (HLI) on these relationships, aiming to identify the most influential factor. Data were collected from 409 married participants across four states using self-administered questionnaires and a multistage sampling technique. The results indicate that PBC, PSS, and PBA significantly correlate with nutritional habits, confirming several hypotheses. Additionally, both HLA and PBC strongly influence HLI, which in turn is positively related to nutritional habits. This research enhances the understanding of the factors influencing nutritional habits among married couples and provides valuable insights into improving dietary practices in this demographic.

Keywords: Nutritional Habits, Healthy Lifestyle Attitude, Subjective Norm, Perceived Behavioural Control, Healthy Lifestyle Intention.

Introduction

The world faces a major challenge to achieve food security. In the context of the recent food price crises, the importance of food security in various facets of society has been emphasized.

Although food security is essential to ensure adequate nutrition and prevent hunger, the concepts of food security, optimal nutrition and lack of hunger and undernutrition are interlinked but not synonymous. Figure 1 illustrates the distinctions and overlaps between hunger, food insecurity, nutrition insecurity and undernutrition.

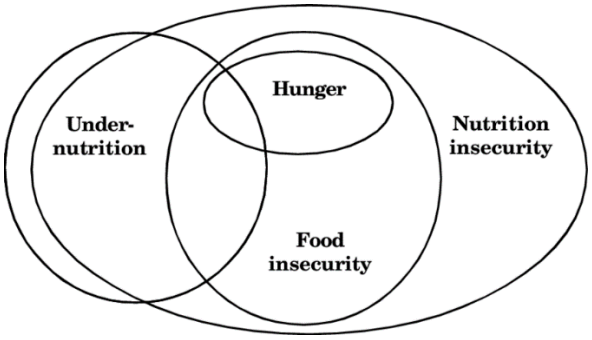

Figure 1: Distinctions and overlaps between hunger, food insecurity, nutrition insecurity and undernutrition. Source: Benson (2004).

Food security is defined as existing when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (WHO, 2015). Food security is necessary to maintain an optimal nutritional status, and core to its definition is the requirement for nutritious food, which refers not only to sufficient quantities of food (in terms of calories), but also to sufficient quality (in terms of variety and micronutrient content). The absence of any component of the above, including cultural acceptability of food, and stability of food availability, access or utilization results in food security (Practical, 2008).

The report from The State of Food Security and Nutrition in the World (2024) highlights that access to adequate food remains elusive for billions. In 2023, around 2.33 billion people globally faced moderate or severe food insecurity, a number that has not changed significantly since the sharp upturn in 2020, amid the COVID-19 pandemic (Spring, Garthwaite & Fisher, 2022). Among those, over 864 million people experienced severe food insecurity, going without food for an entire day or more at times. This number has remained stubbornly high since 2020 and while Latin America shows improvement, broader challenges persist, especially in Africa where 58 percent of the population is moderately or severely food insecure (Frayne, Pendleton, Crush et al., 2010).

The lack of economic access to healthy diets also remains a critical issue, affecting over one-third of the global population. With new food price data and methodological improvements, the publication reveals that over 2.8 billion people were unable to afford a healthy diet in 2022 (WHO, 2022). This disparity is most pronounced in low-income countries, where 71.5 percent of the population cannot afford a healthy diet, compared to 6.3 percent in high-income countries. Notably, the number dropped below pre-pandemic levels in Asia and in Northern America and Europe, while it increased substantially in Africa (Bardosh, 2023).

Similarly, new estimates of adult obesity show a steady increase over the last decade, from 12.1 percent (2012) to 15.8 percent (2022). Projections indicate that by 2030, the world will have more than 1.2 billion obese adults (Ahmed & Konje, 2023). The double burden of malnutrition – the co-existence of undernutrition together with overweight and obesity – has

also surged globally across all age groups. Thinness and underweight have declined in the last two decades, while obesity has risen sharply. These trends underscore the complex challenges of malnutrition in all its forms and the urgent need for targeted interventions as the world is not on track to reach any of the seven global nutrition targets by 2030, the five agencies indicate (Muda, Sundaram & Gen, 2019).

Food insecurity and malnutrition are worsening due to a combination of factors, including persisting food price inflation that continues to erode economic gains for many people in many countries. Major drivers like conflict, climate change, and economic downturns are becoming more frequent and severe (Devlin & Hendrix, 2014). These issues, along with underlying factors such as unaffordable healthy diets, unhealthy food environments and persistent inequality, are now coinciding simultaneously, amplifying their individual effects.
Malaysia is no exception to the growing threat of rising food insecurity. In the 2022 Global Hunger Index, Malaysia scored moderately for hunger, with a small increase in the hunger index from 10.9 in 2014 to 12.5 in 2022 (GHI, 2022), likely corresponding to a rise in food insecurity because of the pandemic. Data from the Malaysian Adult Nutrition Survey 2014 showed that up to 25% of the population faced insufficient food quantity and variety at that time, with a higher prevalence observed among low-income households (33%–39%) (NHMS, 2014). In this survey, up to 22% of respondents reported ever having to reduce their meal size or skip a meal due to financial constraints in the past year, whilst 21% of respondents reported ever having to feed their children with less food variety (NHMS, 2014). This prevalence is likely higher in 2022, as evidenced by the increase in stunting and wasting among children in Malaysia, by 4% and 2% respectively, since 2014 (GHI, 2022). If Malaysia is unable to ensure equitable access to affordable and nutritious food, it is anticipated that the food security gap will reach 40% over the next 40 years (Ahmed, Al-Amin et al., 2016).

Another alarming food trend is the increase in demand for sugar and sweeteners, where supply of these items increased by 24% between 1980 and 2014. Furthermore, the recent National Health and Morbidity Survey (NHMS) indicated that up to 95% of adults do not consume adequate amounts of fruits and vegetables in their diet (Ministry of Health Malaysia, 2020). Limited availability and affordability of sufficient, nutritious food may be leading to unhealthy eating habits, as cheaper, more enticing, ultra-processed foods become more accessible. Food insecurity and the lack of access to affordable nutritious food are associated with increased risk for multiple chronic health conditions such as diabetes, obesity, heart disease, mental health disorders and other chronic diseases.

The study aimed (1) to examine the mediating effect of healthy lifestyle intention on the relationship between selected factors (HLA, SN, PBC, PSS, PBE and PBA) and nutritional habits and (2) to identify the most dominant factor influencing the nutritional habits.

Nutritional Habits Among Married People

Nutritional habits play a crucial role in the overall health and well-being of individuals, particularly among married couples. As partners often share meals and make dietary choices together, their eating behaviors can significantly influence one another (Almoraie, Alothmani, Alomari & Al-Amoudi, 2024). This dynamic underscore the importance of understanding how various factors, such as lifestyle attitudes and social norms, affect the nutritional choices

made within a marriage. For many couples, the goal of maintaining a balanced diet can be challenging, especially in the face of busy schedules and the demands of family life.

Research indicates that married individuals may experience unique barriers to healthy eating, including limited time for meal preparation and competing food preferences. These challenges can lead to reliance on convenience foods that may lack essential nutrients (Fanzo, McLaren, Bellow & Carducci, 2023). Moreover, the influence of family traditions and cultural practices often shapes food choices, which can either promote or hinder nutritional quality. Therefore, exploring how these factors interact within the context of marriage is vital for developing effective strategies to enhance nutritional habits.

In addition to external influences, the psychological aspects of marriage also play a role in shaping dietary behaviours. Partners often negotiate their food choices, and supportive attitudes toward healthy eating can encourage better nutritional habits (Perry, Ciciurkaite, Brady & Garcia, 2016). Factors such as perceived behavioural control and the intention to lead a healthy lifestyle can significantly impact dietary decisions. By fostering an environment that prioritizes nutritious food and encourages open communication about dietary preferences, couples can work together to improve their nutritional habits, ultimately benefiting their long-term health.

Programs to Promote Nutritional Habits in Malaysia

Malaysia has various initiatives to encourage healthy eating habits or nutritional habits, including the National strategy of Action for Nutrition of Malaysia (NPANM) which is a comprehensive strategy for improving Malaysians' nutritional health by addressing nutritional deficiencies and diet-related disorders. The current plan, NPANM III, 2016-2025, was prepared with participation from all food and nutrition sector stakeholders (Ministry of Health Malaysia, 2016).

Other than that, Nutrition Month Malaysia (NMM) is a non-profit organisation that promotes healthy living and nutritional habits. The NMM was established in 2002 by the Nutrition Society of Malaysia, the Malaysian Dietitians' Association, and the Malaysian Association for the Study of Obesity (Tee, 2011). Every year, the organisation issues a handbook filled with healthy eating tips. The NMM 2016 kicked off with the launch of the 5-day Food-Fit-Fun Fair, an educational and interactive fair which hosted many different interactive booths with themes such as ‘Energise your Day with Breakfast’, ‘Reduce Cholesterol for A Healthy Heart’, ‘Caring for your Digestive Health’, ‘Balance your Gut Bacteria for Good Immune System’, ‘Go Whole Grains’, ‘Milk is Nutritious and Delicious’ and ‘Go Light when you Grab A Bite’. Visitors also enjoyed and appreciated the free interactive sessions they had with nutritionists, dietitians, and physical activity experts. The highlight of NMM this year was the series of healthy cooking demonstrations by chefs and nutritionists. The kids also had a lot of fun cultivating their culinary curiosity at the cooking workshop session for kids. For fitness enthusiasts, they too had an amazing time dancing at the zumba session led by the lively and energetic professional instructor.

Other programs and initiatives that related to nutrition in Malaysia included Malaysian Recommended Nutrient Intake which mean a set of recommended nutrient intake levels (NCCFN, 2017). The estimation of nutrient intake is an essential component of monitoring

nutritional status. It identifies groups which are nutritionally at risk due to insufficient or excessive intake of specific nutrients. In addition, it helps planners to target, plan and evaluate nutrition intervention programmes, and, to establish dietary recommendations, food regulations and nutrition policies (Gibney & Sandström, 2001). In Malaysia, the Ministry of Health carried out the Malaysian Adult Nutrition Survey (MANS), a cross-sectional survey that was conducted for the first time in 2003 on a representative sample of the Malaysian adult population. This survey allowed researchers to estimate the nutrient intake (Mirnalini, Zalilah et al., 2008), meal patterns (Wan Abdul Manan, Firdaus et al., 2012), nutritional status (Azmi, Junidah, Mariam et al., 2009), physical activity (Poh, Safiah, Tahir et al., 2010), and use of dietary supplements (Sien, Sahril et al. 2014). MANS also provided data for the food consumption database (Mohd Zaki, Rasidi et al., 2018).

Theoretical Background and Hypothesis Testing

The Theory of Planned Behaviour (TPB) is a psychological framework that explains how individual intentions influence behaviours. It posits that three key components shape intentions: attitudes, which reflect personal evaluations of the behaviour; subjective norms, which pertain to perceived social pressures; and perceived behavioural control (PBC), which relates to an individual's belief in their ability to perform the behaviour (Ajzen, 2011). Together, these components predict the likelihood of engaging in a specific behaviour, such as adopting healthy dietary habits.

The Health Belief Model (HBM) complements the TPB by focusing on individual perceptions of health risks and benefits (Rosenstock, 1974). It suggests that health behaviours are influenced by perceptions of susceptibility to health issues, severity of those issues, benefits of taking action, and barriers to action. The HBM emphasizes the motivational aspects of health beliefs, making it particularly relevant for understanding behaviours related to health promotion and disease prevention.

An extended version of the TPB incorporates elements from the HBM to provide a more comprehensive understanding of health-related behaviours (Taylor, Bury, Campling et al., 2006). By integrating constructs such as perceived severity and perceived benefits from the HBM with the TPB's focus on attitudes and social influences, researchers can better understand the complex motivations behind behaviours like nutrition and exercise. This integrated approach allows for a more nuanced examination of how beliefs, intentions, and perceived control interact to influence health behaviours.

Selected Factors and Healthy Lifestyle Intention (HLI)

The selected factors which influenced the nutritional habits in this study was selected from TPB and HBM components. Healthy lifestyle intention (HLI) in this study act as a mediator between selected factors and nutritional habits. The factors included Healthy lifestyle attitude (HLA), Subjective norms (SN), Perceived behavioural control (PBC), Perceived severity (PSS), Perceived Benefits (PBE) and Perceived Barriers (PBA).

Healthy lifestyle attitude (HLA) significantly influences healthy lifestyle intention (HLI). HLA encompasses an individual's beliefs, values, and motivations regarding health and wellness, which directly shape their intention to engage in healthy behaviours (Siti Maryam, Haslinda et al., 2023). When individuals possess a positive HLA, they are more likely to set specific goals

related to their health, such as adopting a balanced diet or increasing physical activity. This intention is crucial for translating positive attitudes into actionable steps. Essentially, a strong and supportive healthy lifestyle attitude fosters a greater commitment to pursuing and maintaining healthy lifestyle intentions, ultimately leading to improved health outcomes.

Subjective norms (SN) play a significant role in shaping healthy lifestyle intention (HLI). SN reflect the social pressures individuals perceive regarding their health behaviours, influenced by the beliefs and expectations of family, friends, and communities. When individuals feel that their social environment supports and values healthy behaviours, they are more likely to form strong intentions to adopt and maintain those behaviours (Kelder, Hoelscher & Perry, 2015). Positive subjective norms can encourage individuals to set goals for healthier eating, exercise, and other lifestyle choices. Conversely, negative or conflicting norms can diminish motivation and hinder the formation of healthy lifestyle intentions. Thus, fostering supportive social environments is essential for promoting strong healthy lifestyle intentions.

Perceived behavioural control (PBC) has a strong relationship with healthy lifestyle intention (HLI). PBC reflects an individual's belief in their ability to perform specific health-related behaviours, such as maintaining a balanced diet or exercising regularly. When individuals feel confident in their capacity to manage their health choices, they are more likely to form strong intentions to engage in those behaviours (Sniehotta, Scholz & Schwarzer, 2005). High PBC can motivate individuals to set realistic health goals and persist in their efforts, even when faced with challenges. Conversely, low PBC may lead to doubt and reduced motivation, hindering the formation of healthy lifestyle intentions. Thus, enhancing perceived behavioural control—through education, skill-building, and support—can significantly improve individuals' intentions to adopt and maintain healthy lifestyles.

Perceived benefits (PBE) play a crucial role in shaping healthy lifestyle intention (HLI). When individuals recognize the positive outcomes associated with adopting healthy behaviours—such as improved physical health, increased energy, and enhanced mental well-being—they are more likely to intend to engage in those behaviours (Teyhen, Robbins & Ryan, 2018). This awareness of benefits acts as a motivational factor, encouraging individuals to set specific health goals and commit to actions that promote a healthier lifestyle. For instance, if a person believes that eating nutritious foods will lead to weight loss or better overall health, they are more inclined to develop intentions to make healthier dietary choices. Conversely, a lack of understanding of these benefits can weaken the intention to adopt healthier habits (Sniehotta, Scholz & Schwarzer, 2005). Therefore, effectively communicating the advantages of healthy living is essential for fostering strong healthy lifestyle intentions.

Perceived barriers (PBA) have a significant impact on healthy lifestyle intention (HLI). When individuals identify obstacles that may hinder their ability to adopt healthy behaviors—such as lack of time, financial constraints, or limited access to resources—they may be less likely to form strong intentions to engage in those behaviors. High perceived barriers can lead to feelings of frustration or helplessness, reducing motivation and commitment to pursue a healthier lifestyle (Sebire, Toumpakari et al., 2018). Conversely, when individuals perceive fewer barriers or feel that they can effectively overcome challenges, they are more likely to develop positive intentions toward healthy living. Addressing and mitigating these perceived

barriers through education, support, and practical strategies can enhance HLI, making it easier for individuals to commit to and maintain healthier lifestyle choices.

H1a: There is a positive relationship between healthy lifestyle attitude (HLA) and healthy lifestyle intention (HLI)

H1b: There is a positive relationship between subjective norm (SN) and healthy lifestyle intention (HLI).

H1c: There is a positive relationship between perceived behavioural control (PBC) and healthy lifestyle intention (HLI).

H1d: There is a positive relationship between perceived severity (PSS) and healthy lifestyle intention.

H1e: There is a positive relationship between perceived benefits (PBE) and healthy lifestyle intention.

H1f: There is a positive relationship between perceived barriers (PBA) and healthy lifestyle intention.

Healthy Lifestyle Intention (HLI) and Nutritional Habits (NH)

The relationship between Healthy Lifestyle Intention (HLI) and Nutritional Habits (NH) is a vital aspect of health behaviour change. HLI reflects an individual's commitment and motivation to engage in health-promoting behaviours, which includes making conscious dietary choices (Liu, Huang et al., 2024). When individuals have strong intentions to lead a healthy lifestyle, they are more likely to prioritize and implement nutritious eating habits in their daily lives.

A well-formed HLI often translates into specific actions, such as planning meals, choosing whole foods, and avoiding processed items. This intention serves as a guiding force that encourages individuals to adopt behaviours aligned with their health goals (Hatzikiriakidis, Ayton et al., 2023). Conversely, weak intentions can lead to inconsistent or unhealthy dietary choices, as individuals may lack the motivation to prioritize nutrition.

Moreover, HLI can be influenced by various factors, such as awareness of the benefits of healthy eating, social support, and perceived behavioural control. Thus, fostering strong healthy lifestyle intentions is essential for promoting and sustaining positive nutritional habits, ultimately contributing to better health outcomes (Story, Kaphingst et al., 2008).

H2: There is a positive relationship between healthy lifestyle intention and nutritional habits.

Healthy Lifestyle Intention (HLI) as Mediator

Healthy Lifestyle Intention (HLI) can serve as a crucial mediator between selected factors in the Theory of Planned Behaviour (TPB) and nutritional habits (NH). In the TPB framework, key components such as attitudes, subjective norms, and perceived behavioural control influence intentions, which in turn impact to the actual behaviours. Healthy lifestyle attitudes toward health and nutrition can enhance HLI, leading individuals to adopt healthier eating habits (Saadati, Kordbageri et al., 2024). For example, if someone believes that nutritious food significantly benefits their health, this belief strengthens their intention to eat well.

Subjective norms or social pressures or expectations can also affect HLI. When individuals feel that their social circles value healthy eating, this can bolster their intention to follow suit, translating into improved nutritional habits (Brouwer & Mosack, 2015) . High levels of

perceived behavioural control empower individuals to feel capable of making healthy choices. This confidence enhances HLI, making it more likely that they will engage in positive nutritional behaviours.

By mediating these relationships, HLI plays a pivotal role in translating the influences of attitudes, subjective norms, and perceived behavioural control into actionable nutritional habits. Therefore, interventions aimed at improving HLI can effectively bridge the gap between intention and behaviour, promoting better dietary choices and overall health.

H3a: Healthy Lifestyle Intention fully mediates the effects of healthy lifestyle attitude (HLA) and nutritional habits (NH)
H3b: Healthy Lifestyle Intention fully mediates the effects of subjective norms (SN) and nutritional habits (NH)
H3c: Healthy Lifestyle Intention fully mediates the effects of perceived behavioural control (PBC) and nutritional habits (NH)

Healthy Lifestyle Intention (HLI) can act as a mediator between the factors in the Health Belief Model (HBM) and nutritional habits (NH). The HBM posits those individual beliefs about health conditions and the perceived benefits and barriers to taking action influence health behaviours.

Perceived Severity -when individuals recognize their vulnerability to health issues related to poor nutrition and understand the severity of these issues, they are more likely to form intentions to adopt healthier eating habits (Schwarzer, 2008). HLI is influenced by these beliefs, as increased awareness can motivate individuals to take action to avoid negative health outcomes.

Perceived Benefits-if individuals believe that making healthier food choices will lead to positive health outcomes—such as weight loss, improved energy levels, or better overall health—they are more likely to develop strong intentions to change their nutritional habits (Jackson, Lawton, Knapp et al., 2005). HLI serves as a bridge between recognizing these benefits and translating them into action. The presence of perceived barriers can hinder the formation of HLI. If individuals believe that obstacles such as cost, time, or lack of access to healthy foods are significant, this can reduce their intention to engage in healthy eating (Hatzikiriakidis, Ayton et al., 2023). Addressing these barriers and enhancing HLI can facilitate the transition to better nutritional habits.

In summary, HLI mediates the relationship between the constructs of the Health Belief Model and nutritional habits by transforming health beliefs into actionable intentions. By fostering a strong HLI, health interventions can effectively promote better dietary choices and ultimately improve health outcomes.

H3d: Healthy Lifestyle Intention fully mediates the effects of perceived severity (PSS) and nutritional habits (NH)
H3e: Healthy Lifestyle Intention fully mediates the effects of perceived benefits (PBE) and nutritional habits (NH)

H3f: Healthy Lifestyle Intention fully mediates the effects of perceived barriers (PBA) and nutritional habits (NH)

Materials and Methods

Using the digital self-administered electronic questionnaire using Google Form, a survey was conducted in four major geographical areas in Peninsular Malaysia, i.e., Central, Southern, Northern and Eastern region. In total, 384 questionnaires needed to fulfil the minimum of the sample size based on Krejcie & Morgan (1970), 409 were received back within the period of seven weeks. All 409 questionnaire were used for the analysis process. Analysis of Moment Structures (SEM-AMOS) was employed to test the 12 hypotheses of this study, including the mediating effect of healthy lifestyle intention on the relationship between healthy lifestyle attitude, subjective norm, perceived behavioural control, perceived severity, perceived benefits and perceived barriers with nutritional habits. In this study, researcher used a multistage sampling technique to get the respondents among married people in Peninsular Malaysia.

The study analysed the data using descriptive and inferential statistics. To describe the eight constructs, means and standard deviations were used. The structural equation modelling (SEM) approach, which combines individual constructs, the measurement model, and the structural model, was used to investigate the direct and indirect links between constructs within TPB. The sample size of 409 for this study satisfied the threshold for employing SEM, since a minimum of 200 is required for the procedure (Wolf, Harrington, Clark & Miller, 2013).

Findings

The descriptive statistics for all the constructs were analysed. The results show that for the respondents, on average, it was found that healthy lifestyle attitude and perceived benefits are well above average (M = 4.64, SD = .548 and M = 4.576, SD = .579) while other constructs appears to be slightly higher; subjective norm (M = 4.193, SD = .708), perceived behavioural control (M = 4.031, SD = .671) and perceived severity (M = 4.044, SD = .825). A major requirement for SEM is to check for normality by using maximum likelihood estimation techniques (De Carvalho & Chima, 2014). Then, before testing the 13 hypotheses, a normality estimation was analyzed to verify whether normality is met for the data collected or not. The results of this study showed that skewness ranged from -1.756 to .358 and kurtosis ranged from -.168 to 4.050, in which all items were normal.

Objective 1: To examine the Mediating Effect of Healthy Lifestyle Intention on the Relationship Between Selected Factors (HLA, SN, PBC, PSS, PBE and PBA) with Nutritional Habits.

The SEM results of the measurement model indicate a good model fit (χ^2 = 1736.094, χ^2/df = 2.195, AGFI = .804, GFI = .828, CFI = .910, RMSEA = .054, TLI = .902, IFI = .911, RMR = .056) with three indices (CFI, TLI and IFI) that go beyond the cutoff value of 0.90. It is considered very good if it is equal to or greater than 0.95, good between 0.9 and 0.95, suffering between 0.8 and 0.9 and bad if it is less than 0.8 (De Carvalho & Chima, 2014). The results not less than 0.8. the RMSEA and RMR value decreases to between 0.03 and 0.08, which is the proposed range of adequate values (Hair, Ringle & Sarstedt, 2013). Since the model has displayed a good fit for the data in this study, the findings of hypothesis testing can now be considered with confidence. In comparison, the mediation model competes with the indirect model, in

which all path coefficients from exogenous factors (HLA, SN, PBC, PSS, PBE and PBA) to NH were constrained to zero; also, the mediation model competes with the direct model, in which all path coefficients from HLI were constrained to zero. The mediation model takes a better fit to the data in comparison to the indirect and direct models, since the values of TLI, CFI, and IFI all exceed 0.80 and the value of RMSEA is less than 0.08.

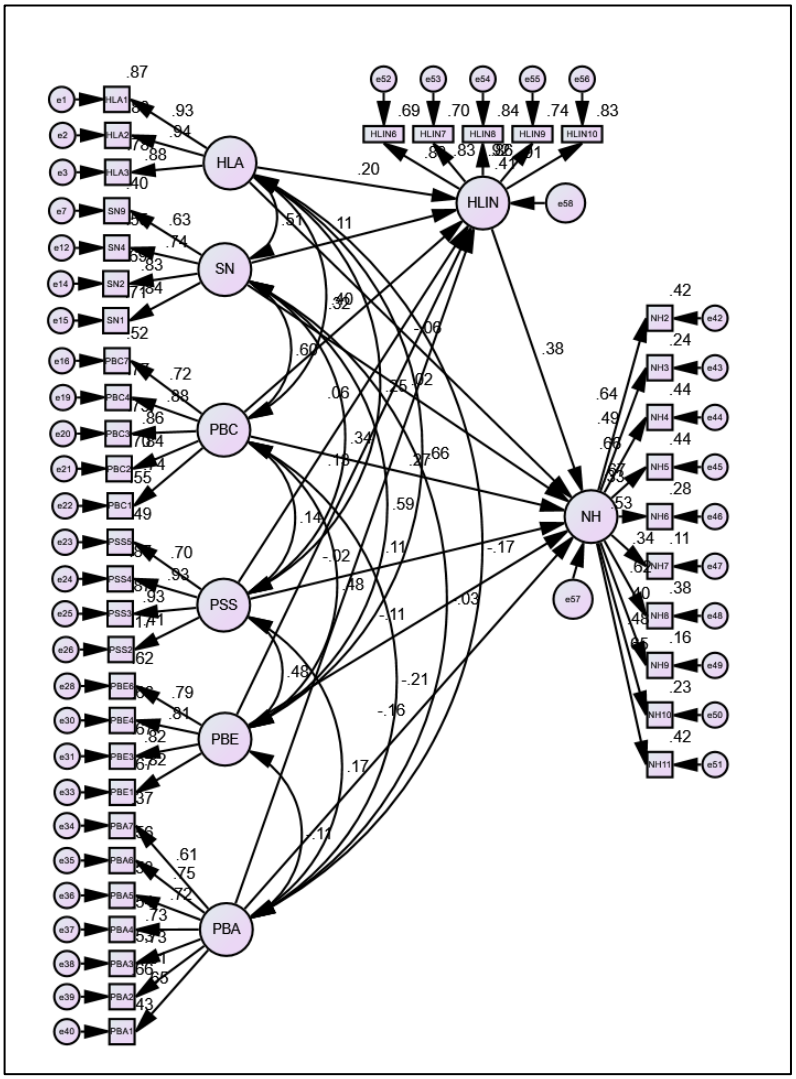

Figure 2: Estimated Path Coefficients of the Mediation Model

Objective 2: To identify the most dominant factor influencing the nutritional habits.

In this research, a multiple linear regression was done to identify the most dominant factor which influencing the nutritional habits of married individuals in Peninsular Malaysia. Looking at the dependent variable, "nutritional habits", the researcher found that there is a significant relationship between this dependent variable and the independent variables (F= 17.066; p= .000 and Adjusted R Square= .191).

Four of the independent variables were found to be significant. They are subjective norm, perceived behavioural control, perceived severity and perceived barriers.

Table 1
Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	11.522	2.972		3.877	.000
Healthy Lifestyle Attitude	.111	.133	.053	.838	.403
Subjective Norm	.125	.063	.115	1.985	.048
Perceived Behavioural Control	.379	.088	.258	4.302	.000
Perceived Severity	.270	.089	.161	3.045	.002
Perceived Benefits	.107	.129	-.054	-.832	.406
Perceived Barriers	.137	.052	.132	2.664	.008

Table 1 shows that shows that 'perceived behavioural control (PBC)' was the most dominant predictor variable influencing the nutritional habits as dependent variable (standard regression coefficient= 0.258). this was followed by 'perceived severity', 'perceived barriers' and 'subjective norm'. there were positive relationships for the four independent variables with the dependent variable. Prior research has found that PBC has a significant positive effect on healthy eating behaviour (Sjoberg, Kim & Reicks, 2004).

Limitations and Recommendations

This study has some limitations which can suggests some recommendations for the future researchers who have interest on this field of study. The current study only used three components from the theory of planned behaviour (TPB). For the future research, the incorporate additional factors from the extended TPB, such as moral norms, past behaviour, or habit formation, to examine their influence on healthy lifestyle intention (HLI) and how they interact with the primary TPB components (attitudes, subjective norms, and perceived behavioural control). The population for the current study was among married people. So, the future research, the diverse population samples can be applied to explore how HLI operates as a mediator in different contexts. This can help identify specific barriers and facilitators that may influence nutritional habits in diverse populations.

Other than that, this research was used a cross-sectional study. The future research can implement longitudinal designs to track changes in HLI, attitudes, subjective norms, and nutritional habits over time. This can provide insights into how stable these constructs are and their effects on long-term dietary behaviours. Other than that, the qualitative research can be used for the future research such as interviews or focus groups, to gain deeper insights into individuals' motivations, challenges, and perceptions regarding their nutritional habits and healthy lifestyle intentions while the intervention studies are recommended to design and evaluate interventions aimed at enhancing HLI. This could involve strategies that improve attitudes towards healthy eating, increase social support, or build perceived behavioural control, followed by assessments of changes in nutritional habits. By addressing these recommendations, researchers can deepen the understanding of how HLI functions as a mediator within the extended TPB framework and its impact on nutritional habits.

Conclusion

This study is crucial because it expands the Theory of Planned Behaviour (TPB) in three components. The TPB was extended by include HBM components (perceived severity, perceived benefits, and perceived barriers). This addition allowed researchers to analyse the nutritional habits of married people. This sort of extended model has been utilised in certain studies on healthy eating behaviour (Jun & Arendt, 2016), but no study on nutritional habits has been undertaken using it to our knowledge. This study emphasises the need of practicing nutritious habits in a healthy lifestyle. Food security is required to achieve good nutritional status.

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