

SPIRITUAL INTELLIGENCE ON HEALTH BEHAVIOURS AMONG MALAYSIAN UNIVERSITY STUDENTS IN A MALAYSIAN PUBLIC UNIVERSITY: THE MEDIATING ROLE OF SELF EFFICACY

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Abstract

University students experience a substantial amount of change where they progress from the highly controlled setting of school to the self-motivated environment of the university. Many changes which involve social, financial, and environment elements, can be a burden to the students putting them at risk in negative health behaviours. Negative health behaviours among university students are a cause for concern since they have a tendency to be carried into adulthood, which may cause the emergence of chronic disease at a younger age. Spiritual intelligence together with self-efficacy is seen to promote better health behaviour. Therefore, the purpose of the study was to investigate the relationship between spiritual intelligence and self-efficacy on health behaviours among university students in Universiti Putra Malaysia, Malaysia. A correlational study was conducted on 400 undergraduate university students living on campus and were chosen through stratified random sampling technique using closed ended questionnaires (The Spiritual Self-Report Inventory, General Self Efficacy Scale and a modified version of Health Style Questionnaire). Pearson correlation and structural equation modelling were used to explore association between these aspects. Spiritual intelligence, self-efficacy and health behaviour were significantly correlated. Self-efficacy showed a partial mediation effect towards the relationship between spiritual intelligence and promoting health behaviour ($p=0.000$). Thus, an association was found between spiritual intelligence with health behaviour, and self-efficacy with health behaviour. It is interpreted that spiritual intelligence can boost positive health behaviour and it is associated with self-efficacy relevantly gives benefit to health behaviour. Such data have important implications for both health practice and policy, especially in the context of higher education institutions.

Keywords: Spiritual intelligence, self-efficacy, health behaviour, undergraduates

Introduction

Health behavior has been recognized as an important determinant of health status (Wang, Xing & Wu, 2012). Perhaps 60% of a person's health status is dependent on one's health behavior or lifestyle (WHO, 2004). Many studies have proposed that healthy behaviors reduce morbidity and mortality rates (Hu et al., 2011; Reddy et al., 2012). Moreover, healthy living habits or behaviors seen in early childhood or youth would be adopted later in the adulthood (Lansberg et al., 2010). Even though bad habits such as unhealthy behaviors are hard to change, if the detection is done early in the schooling years until early adulthood, it is still possible to have the habits or behaviors changed (Epton et al., 2013; Friedman et al., 2008). Thus, youth and school children should be educated about the importance of health lifestyle and behaviors (Roxana et al., 2014; Phongsavan et al., 2005) so that a healthy and responsible generation can be produced.

Health risk behaviors are detrimental actions that increases rates of morbidity and mortality (Shin & Kang, 2013; Spring et al., 2012). At least five categories of behaviors have been consistently found to correlate with high morbidity and mortality, which are; (1) consuming high calorie diet, high fat, high sodium and low in nutrients (Pokhrel et al., 2013; Mente et al., 2009), (2) inactive physically and sedentary (Roxana et al., 2013; Fogelholm, 2010), (3) cigarette smoking (Khan et al., 2015; Caldeira et al., 2012), (4) substance abuse such as consuming alcohol and drugs (Guerra de Andrade et al., 2012; Quinn & Fromme, 2011) and (5) risky sexual behaviors engagement (Poscia et al., 2015; Caico, 2014). Conversely, health promoting or protective behaviours are linked with actions that reduce disease susceptibility and facilitate health restoration (Spring et al., 2012) which are (1) physically active (Deliens et al., 2015), (2) eating fruits and vegetables (Plotnikoff et al., 2015) and (3) adherence with prescribed medication (Rickles et al., 2012).

There are a number of existing theories related to health behaviour and most of them have similar predictions. For instance, the Health Belief Model (Becker, 1974) and Protection Motivation Theory (Maddux & Rogers, 1983) have highlighted the role of belief in determining health behaviours and attitudes. According to Flay & Petraitis (1994; 2002), most theories differ from one another based on the emphasized factors and also on the causes and effects similarities among relevant variables or factors. Theory of Triadic Influence (TTI), which is adopted for this study, is a theory which integrates a macro level of influence on health behaviors. In the context of the organization, this theory coherently elaborates on one's health behaviour and also, acts as a guide on changes in health behaviour (Flay, 2012). The TTI unifies multiple theories into a single framework where independent variables are organized in three streams of influence and four levels of causation. The three streams of influence represent characteristics of one's biology and personality that influence self-efficacy (i.e., the intrapersonal stream), interpersonal characteristics that influence behavioural norms (i.e., the social situation/context stream), and broader cultural environmental factors that influence attitudes toward a behaviour (i.e., the sociocultural stream). Moreover, the four levels of causation range from ultimate causes (which an individual has the least control over), to distal influences, to proximal predictors, to immediate precursors (which an individual

has the most control over) (Bavarian, 2014). Hence, TTI was used as the variables of this study suits the component of the theory selected.

University students represent a vast component of the youth population (Wang, Xing & Wu, 2013) where most face a new environment of freedom or independence from their parents (Pullman et al, 2009). They are navigators in the difficult waters that separate adolescence from adulthood as they start to take more responsibility for their daily lives and develop life skills that are vital as any academic coursework. Hence, health promoting behaviors such as proper nutrition or dietary practices, and physical activities are important to combat multiple stressors that will be part of the students' lives in the campus (Roxana et al., 2014).

Spiritual intelligence (SI) is an ability that includes the true meaning in various issues of life, namely the ability to deploy behavior and one's life in a more meaningful context for oneself and also others (Zohar & Marshall, 2000). In other words, SI is related to the belief of contact with the creator (Hablum minallah) and also the means of the highest intelligence (Zohar & Marshall, 2000). A high capacity of SI can improve well-being in which one can deal with stress efficiently and orderly (Koshravi & Nikmanesh, 2014; Santrock, 2002). Moreover, researchers from Moalemi (2015) and Cotton et al. (2005) found that students who have high SI were less risky in terms of mental disorders such as depression and practice fewer negative health behaviors such as smoking and drinking. Thus, SI should also be given attention to curb negative health behaviors among university students.

Self-efficacy refers to a person's belief in his/her ability to organize and execute a required course of action to achieve a desired result (Bandura, 1997). Self-efficacy has been found to be related to academic achievement, behaviors and attitudes (Faulkner & Reeves, 2009; Chatzisarantis & Biddle, 2001; Boorooah & Kotoki, 2017; Salami, 2010; Salami & Ogundokun, 2009). It is expected that self-efficacy will be related to students' health behaviors. However, there is a lack of research that examined the self-efficacy of college students in relation to their health behaviors. Self-efficacy determines an individual's resiliency to adversity and his/her vulnerability to stress (Bandura, Caprara, Barbaranelli, Gerbino & Pastorelli, 2003). General self-efficacy aims at a broad and stable sense of personal competence to deal effectively with a variety of stressful situations (Adeyemo, 2008; Schwarzer & Fuchs, 2009). Perhaps for an individual who has low spiritual intelligence, having high self-efficacy will help him/her in displaying appropriate health behaviors. There is currently little information available on SI/SE associations, and the possibility that SE mediates the effect of SI on health behavior. Hence, it is relevant to have a study to investigate if these relationships in promoting health behaviors among university students. Hence, this study aims to investigate the relationship of spiritual intelligence and self-efficacy on health behaviors. In addition, the influence of self-efficacy (SE) as the mediator between spiritual intelligence (SI) on health behaviors (HB) among university students in a public university in Malaysia has also been investigated.

Methodology

This study is a quantitative correlational research. Written self-assessed survey questionnaires were the main data collection method. Participants were recruited from 17 dormitories of a Malaysian public university. 400 students participated by using proportionate stratified random sampling technique. There were three main instruments used in the study which were Spiritual Self-Report Inventory (SISRI), General Self Efficacy Scale (GSES) and Health Behaviour Questionnaire (HBQ) (a modified version of Health Style Questionnaire).

The Spiritual Self-Report Inventory (SISRI) was adopted as developed by King and DeCicco (2009) that assessed spiritual intelligence based on four subscales which are critical existential thinking (CET; 7 items), personal meaning production (PMP; 5 items), transcendental awareness (TA; 7 items), and conscious state expansion (CSE; 5 items). The 24 items with 5-point Likert scale ranges from 0=not at all true of me, 1=not very true of me, 2=somewhat true of me, 3=very true of me, and 4 = completely true of me. The Cronbach alpha reported by King (2008) was 0.95 while this study attained 0.91.

Generalized Self-Efficacy Scale (GSES) was developed by Schwarzer and Jerusalem (1995). The GSES is a 10-item scale that assessed self-efficacy based on personality disposition. It is measured on a 4-point Likert scale ranging from 1= Not at all true to 4= Exactly true. The Cronbach's alpha coefficient of GSES range from .75 to .90 for many studies. This study was at 0.88.

Lastly, Health Behaviour Questionnaire (HBQ) was adapted from Lifestyle Self-Test, Department of Health and Human Services, U.S. Public Service. There are 32 items with five constructs which are: 1) smoking, 2) nutrition/eating habits, 3) physical activity, 4) alcohol and drugs, 5) stress management and safety, which had been evaluated with 5-point Likert scale ranging from 0=almost never, 1=rarely, 2=sometimes, 4=often, and 5=almost always. This study gained Cronbach alpha of .91 which fall in an acceptable range, while many previous studies has reported reliability range in between .78 to .95.

Of the 400 questionnaires, 400 were returned and all were properly filled and used for data analysis. The data was collected within six weeks and the questionnaires were completed anonymously with some additional information regarding gender, age, races, department, and current year of study. IBM Statistical Package for Social Science Statistics (version 20.0) and IBM Statistical Package for Social Science Amos (version 22.0) were used for data analysis. Correlation analysis between SI, SE and HB, the mediating effect of SE towards the relationship between SI and HB was also analyzed using structural equation modeling (SEM) in AMOS (using Bootstrap analysis).

Research Findings

Based on the mean value of the constructs, characteristics of the university students at Universti Putra Malaysia that reside in the dormitory are as follows: Malays at 88.6%

and Chinese are 4.7%, with Indians at about 2.6% and others at 4.1%. Mean age is 21.3 years, with males at 50.1% and females at 49.9%.

Relationship between spiritual intelligence, self-efficacy and health behavior.

Pearson product moment correlation analysis was used to attain the relationship between variables. Based on table 1, all the variables are positively correlated. Spiritual intelligence significantly correlates with self-efficacy ($r = .442, p = <.001$) and health behavior ($r = .363, p = <.001$). Self-efficacy also significantly correlated with health behavior ($r = .395, p = <.001$). Therefore, those three variables are suitable for testing in the mediation model.

Table 1: Pearson product moment correlations on spiritual intelligence, self-efficacy and health behavior

Variable	<i>r</i>	<i>p</i>
Spiritual intelligence –self-efficacy	.442*	.000
Self-efficacy-health behavior	.395*	.000
Spiritual intelligence-health behavior	.363*	.000

Notes: * = $p < .001$ (2-tailed)

Mediating effect of self-efficacy toward the relationship between spiritual intelligence and health behaviour.

Table 2 shows the direct effect of spiritual intelligence on health behavior without mediator variable. The result shows that there was significant relationship between spiritual intelligence and health behaviour with $\beta = .363, p < .001$. The results indicated that as spiritual intelligence increases by 1 standard deviation, health behaviour will increase by .363.

Table 2: Results of Direct Model between SI and HB

Path	Beta	SE	C.R.	P.Value
SI→ HB	.363	.046	5.454	***

Notes: SI = Spiritual Intelligence; HB = Health Behaviour; *** = $p < .001$

Next, the results in table 3 indicate the direct effect of spiritual intelligence on health behaviour with mediator variable as illustrated in figure 1. The results show that the direct effect of spiritual intelligence to health behaviour was significant with $\beta = .234, p < .001$. It indicated that when spiritual intelligence increased by 1 standard deviation, health behaviour will increase by .234. On the other hand, spiritual intelligence had significant direct effect to self-efficacy with $\beta = .442, p < .001$. It can be indicated that as spiritual intelligence increased by 1 standard deviation, self-efficacy will increase by .442. Lastly, self-efficacy direct effect toward health behaviour was also significant with $\beta = .292, p < .001$. It shows that when self-efficacy increases by 1 standard deviation, health behaviour will increase by .292.

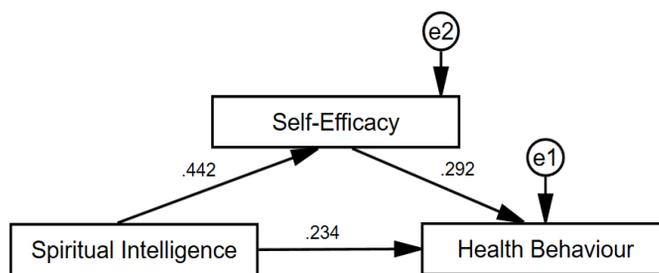


Figure 1: Full mediation model of spiritual intelligence, self-efficacy and health behavior.

Table 3: Results of Bootstrap Analysis

Paths	Beta	<i>p</i>	LB	UB
Direct Model				
SI→HB	.363	.000		
Mediation Model				
SI →HB	.234	.000		
Std. Indirect Effect (SIE)				
SI →SE → HB	.129	.000	.087	.181

Notes: SI = Spiritual Intelligence; SE = Self-Efficacy; HB = Health Behaviour; LB: Lower Bound; UB: Upper Bound *** = $p < .001$

As the mediator variable was placed in the model (refer to Figure 1), the direct effect estimate was decreased from $\beta = .363$ to $\beta = .234$ and the results remain significant at $p = <.001$. This finding demonstrated that self-efficacy was partially mediated relationship between spiritual intelligence and health behaviour. Moreover, from the bootstrapping method, this result was also obtained as applied to test the significance of the mediation model. 5000 samples were requested for bootstrapping; a bias-corrected and accelerated confidence interval (CI) was set to 95% CI. The results shown in Table 3 indicated that self-efficacy had significant mediation effect with lower bound = .087 and upper bound = .181, with $p < .001$. As shown in the table, the placement of ‘zero’ from the standard indirect effect (SIE) component is outside the range of Lower bound and Upper Bound. Therefore, based on the decision criteria, self-efficacy partially mediates the influence of spiritual intelligence on health behavior.

Discussion

The primary aim of this study was to investigate the relationship of spiritual intelligence and self-efficacy with health behaviors. It was found that the independent variables significantly predicted the students’ health behaviors. These findings support the work of previous researchers who found that both cognitive variables (self-efficacy) and spiritual intelligence (cognitive, moral, emotional and interpersonal variables) influenced students’ behavior specifically health behavior. Firstly, students with higher levels of SI tend to have higher levels of self-efficacy ($r=.442$, $p=.000$) and health behavior ($r=.363$, $p=.000$). SI, through its four components, enables students to have control in their actions and invest self to the ultimate goal or life target (King & DeCicco, 2009).

Next, it was found that there was a significant positive moderate correlation between SE and health behavior ($r=.395$, $p=.000$). Association between SE and health behavior have been studied globally even though the numbers are still limited. However, this study indicated that there was an association between those variables. Some previous research has supported the findings in this study. Zlatanovic (2015) found that there was a relationship between SE and health behavior by stating the effect of SE towards mood regulation and health behavior. Moreover, it Li et al. (2009) found that higher level of SE will lead students to have more positive mood, optimistic attitude and lowering negative mood. Self-efficacy beliefs also influence a number of biological processes which in turn influence health and disease. Bandura (1986) has argued that perceived self-efficacy is a crucial determinant of health-related stress reaction, and this general relationship is supported by extensive empirical evidence. It is also found that people with high self-efficacy beliefs respond with more adaptive ways or forms of coping when an illness is experienced; for instance, higher self-efficacy is associated with greater ability to withstand pain, as well as with frequent and successful in coping strategies directed to problem solving (instead of using the mechanism of escaping) (Trouillet et al., 2009). Hence, individuals with higher SE will in turn have better health behavior.

Third, a partial mediating effect was seen for SE and the relationship between SI and HB. Self-efficacy helps university students to conduct extraordinary tasks (Soleimani & Howeida, 2013). Thus, self-efficacy is one of the factors affecting good health behaviour that determines the extent to which the students spend their time on conducting their tasks, resist against the problems, and show reflexivity in various situations. In fact, self-efficacy is a critical factor in the success or failure in one's life (Bagheri et al., 2013). Students with low self-efficacy feel that they do not have control over their life and therefore feel helpless and incapable of facing various problems and if their primary solutions are ineffective in dealing with the problems, they immediately lose control in their health behaviours (Fritzsche & Parrish, 2005). Bandura (1981) stated that a sense of self-efficacy can play an important role in a person's perspective on the objectives, tasks and challenges (Cain et al., 2008).

SI is fundamental to health behavior as it centers on inner resources of a person, and manifests in various ways such as positive self-concepts, higher moral character and personal transcendence (King & DeCicco, 2009). Therefore, spirituality is critical among university students as it was found that higher level of SI can promote healthy behavior. This means that high SI individuals did not only increase their spiritual health but also in health behavior. Hence, it is important for spirituality programs should be implemented in the higher institutions' curriculum. Furthermore, this study also found that SI was positively correlated with SE. Higher level of SI elevated SE score thus led to better skills in coping with stressors and likely to take problems that occur as a challenge to succeed. A large body of research has shown that enhancing self-efficacy beliefs is crucial in coping strategies where indirectly influence in promoting healthy behaviors such as good stress management (stress response and coping), low in addictive behaviors, reducing sexual risk behavior, low in smoking cessation, alertness in nutrition and weight control, adherence to medication requirements and suggested treatment or rehabilitation, regular physical exercise, healthy decision making and choices of healthy

lifestyle, health-protective behavior, and disease detection behaviors such as breast self-examinations (Zlatovic, 2015).

This study has certain limitations. The study was conducted in a public university in Selangor. Many other public university were not included; hence, the results might not be completely generalizable.

In conclusion, this study has several implications for the theory and practice of health behavior. First, SI was seen to have great significant influence on health behavior among university students. Second, through this study, SI was also seen to have a great significant influence in promoting self-efficacy among university students. Third, self-efficacy was determined as a valid and viable construct into health behavior literature, where it is shown from the study that SE has a significant influence on health behavior. Finally, SE was also seen from this study to partially mediate the relationship between SI and health behavior. Hence, this study makes recommendations about the changes that are needed in the higher institution's curriculum in terms of implementing programs that uphold spirituality and self-efficacy on university student's daily life. Future research is needed to assess risky health behaviors in order to clarify the role of spiritual intelligence and self-efficacy in avoiding negative health behaviors.

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