#GetFit : examining the roles of online health information behaviors and eHealth literacy on Filipinos' dietary and fitness behaviors

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**#GETFIT: EXAMINING THE ROLES OF
ONLINE HEALTH INFORMATION BEHAVIORS
AND EHEALTH LITERACY
ON FILIPINOS' DIETARY AND FITNESS BEHAVIORS**

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ABSTRACT

Objectives: In current society, there has been a shift in the healthcare landscape as digital revolution propels the use of Internet-based technologies for health communication. In the Philippines, Internet use for health has recently become more prevalent with the salience of online content related to well-balanced diet and physical exercise. While previous studies have mainly investigated the combined influence of traditional, mediated, and online information sources on health, this study exclusively focused on web-based sources to provide an overall look at the extent of influence of online sources. Specifically, it examined the influence of online health information behaviors (active and passive OHIBs) and eHealth literacy on one's performance of dietary and exercise behaviors.

Methods: Utilizing an expanded model of the Theory of Planned Behavior (TPB), a panel survey was conducted among Filipino young adults aged 18-29 years old. The sample (N=352) was drawn from a university population in the Philippines. Path analysis was used to examine the direct and indirect effects between variables.

Results: While passive OHIB occurred more frequently than active OHIB, only active OHIB significantly predicted intention for both health behaviors. Attitudes, subjective norms, and perceived behavioral control mediated the effects of active OHIB on intention. eHealth literacy also influenced one's intention to physically exercise, but only when mediated by subjective norms. Consistent with TPB's main assertion, intention led to action for both health behaviors.

Conclusion: Findings suggest that online media use corresponds to health behavior only to the extent that there is a deliberate search for health information. The mediation effects of subjective norms also reflect how health-related online contents influence perceptions of normative behaviors, which consequently lead to the performance of exercise behavior. The findings also present a gap between knowledge and behavior as eHealth literacy did not completely translate to health behaviors, despite the relatively high eHealth literacy scores of the study participants. Overall, the study's extension of the TPB model increased the variance explained for healthy eating and physical exercising behaviors. This provides empirical evidence that supports the pathway of relationship among online information, psychosocial predictors, and behaviors.

Keywords: online health information behavior, eHealth literacy, theory of planned behavior, dietary habits, physical exercising

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CHAPTER 1: INTRODUCTION

In the current society, there has been a shift in the healthcare landscape as digital revolution propels the use of Internet-based technologies for health communication. While traditional health communication involves a one-way flow of information from experts to the public (Eysenbach, 2008a), the present information environment is moving towards an increased public use of the Internet to search for, create, and disseminate health-related information (Rutsaert et al., 2013). The use of online platforms transcends the limited scope of traditional media where disseminated health information only reaches a fraction of the general audience (Eysenbach, 2008a). With the Internet's expansive scope and provision of easy access to a wide variety of health-related information, individuals are now increasingly gaining control over their health as they use the Internet to seek health care advice and services (Eysenbach, 2000; Eysenbach, Powell, Kuss, & Sa, 2002). All these benefits have consequently made the Internet one of the most used sources of health information today (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005; Simou, 2015).

Recently, Internet use for health has also been prevalent in the Philippines. Specifically, there is an increased salience of online content related to well-balanced diet and physical exercise. This trend is largely generated by local fitness gyms and healthy food products and delivery services which heavily rely on online word-of-mouth (WOM) marketing. For instance, many local celebrities, who have millions of social media followers and whose posts garner thousands of likes and comments daily, often use their accounts to post about their healthy eating habits and exercise routines. This practice has also urged social media's version of 'brand fan club' (Rutsaert et al., 2013) where users broadcast their own practice of similar health behaviors in order to join the fitness trend.

While the average connection speed in the Philippines at 5.5 Mbps is not yet within the global range of 7.2 Mbps, there is an upward trajectory when it comes to the pervasiveness of Internet connectivity and smartphone ownership. Based on the global survey conducted by Pew Research Center (2015), the Philippines has undergone a statistically significant change in Internet usage, increasing by 6% from 2013 to 2015. Likewise, in 2017, it had an impressive 509%-year growth rate in broadband adoption (Akmai, 2017), even ranking first for its most prevalent use of online social networking sites (We Are Social, 2017). Also, just a year earlier, the country became the fastest-growing smartphone market in Southeast Asia with its 20% year-over-year growth (Umali, 2016). This growth is expected to continue as smartphone subscriptions in the Philippines is forecasted to more than double by year 2021 (Ericsson Mobility Report, 2016). Hence, while Internet speed in the country is not yet up to par with global standards, its current structural developments have placed it in a prime position for vast Internet use. Also, as reflected by the prevalence of diet- and fitness-related content posted online, the use of the Internet for health communication is already apparent in the Philippines.

Studies have shown that Internet use for health-related communication encourages healthy eating practices and physical activity (Plotnikoff, McCargar, Wilson, & Loucaides, 2005; Tate, Wing, & Winett, 2001). Given that eating a well-balanced diet and being physically active help reduce chronic illnesses (Wirt & Collins, 2009; Bonevski, Guillaumier, Paul, & Walsh, 2014), the importance of focusing on these health behaviors is emphasized. This is especially relevant in the Philippines where chronic diseases such as heart disease, stroke, and diabetes are the top causes of death (Department of Health Philippines, 2013; World Health Organization, 2015). While official Philippine health organizations do promote dietary

and fitness behaviors among Filipinos, they mostly only target children and seniors (Department of Health Philippines, 2016). This presents a missed opportunity to promote healthy behaviors among young adults as they have more independence when it comes to their food choices and exercise habits. Also, owing to their diminished need for physical activity and higher dependence on cheap and energy-dense food supply, young adults are deemed the most vulnerable to chronic illnesses (Strong, Parks, Anderson, Winett, & Davy, 2008). Thus, while young adults are not the unhealthiest among all age groups, they should still be targeted consciously and actively to prevent the decline of their dietary and exercise habits.

Another reason to focus on this group is because they are the most active online users (Lenhart, Purcell, Smith, & Zickuhr, 2010), and the most likely to own a smartphone and use social media (Pew Research Center, 2015). The same pattern can be expected in the Philippines where individuals aged 18-34 were found to be more likely Internet and smartphone users than those whose ages are older (Pew Research Center, 2016). Given the country's lack of public health interventions directed at young adults, they could increase their reliance on other media sources for health information, particularly on the vastly accessible Internet. This presents an opportune moment to examine whether the increased availability of online health content, specifically those that are related to diet and fitness, does influence the performance of health behaviors. This study addresses this query by investigating young adults' eating and exercise behaviors in the Philippines.

This study, likewise, addresses a gap in literature as it exclusively focused on online sources. Several scholars have asserted that health information delivered through online means fills the information void that affects users' health-related decisions and behaviors (Dutta-Bergman, 2004a; Dutta-Bergman, 2004b; Morahan-

Martin, 2004). This contribution of online health information to one's overall health emphasizes the importance of using web-based sources for health-related purposes. Despite the stark importance of online sources, however, research on the impact of information sources on health behaviors have mostly been done in the context of combined traditional, mediated, and online sources (Chaudhuri, Le, White, Thompson, & Demiris, 2013; Harada, Shibata, Lee, Oka, & Nakamura, 2016; Islam et al., 2016). While this study recognizes that other sources of information are also available to individuals, the isolated influence of online information on health behavior lacks thorough investigation. This study's emphasis on online media is guided by the Displacement Theory which proposes that an introduction of new media takes away the time previously allotted for another media channel (McCombs, 1972). In particular, this study maintains that the other types of information sources were replaced by online media. Although there were some studies that dealt with health-related content found in online platforms, they mostly focused on one particular media channel at a time (Greene, Choudhry, Kilabuk, & Shrank, 2011; Scanfeld, D., Scanfeld, V., & Larson, 2010). Thus, by taking into account a wide array of web-based channels, this study offers an overall look at the extent of influence of online sources on health.

Also, this study expands the extant literature on online health information by investigating the total information behavior of individuals. Existing literature in this area has been limited to the extent that they have mainly focused on active information search. Most studies did not consider one's incidental exposure to online content, which together with actively sought information, make up an individual's overall online media environment. Although some studies have touched on the influence of both information behaviors (Kelly et al., 2010; Niederdeppe et al., 2007), research of

this nature has yet to include online interactive platforms in their investigation. Given the increasing use of online media that allow for such interactive exchanges, there is a rising need to examine both the active search for and passive exposure to health information within these platforms.

In addition to online health information behaviors (OHIB), this study also examined another factor considered to be an important determinant of health behaviors and outcomes – eHealth literacy. eHealth literacy has been most notably defined by Norman and Skinner (2006a, para. 6) as “the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem.” In order to positively impact health, therefore, some degree of competency is required to properly use online health information, be it actively or passively acquired. While a handful of studies have already established the association between eHealth literacy and online health information-seeking (Chang et al., 2015; Neter & Brainin, 2012; Sheng & Simpson, 2013), very little research has been done that accounted for the relationship between eHealth literacy and the role Internet plays when online health information is acquired in a less purposive way. This study addresses this research deficit by examining the correlation between eHealth literacy and both active and passive information behaviors.

Also, with the prevalence of online health information, questions are raised as to whether factors related to such information influence health behaviors. This study, thus, investigates how OHIB and eHealth literacy relate to one’s engagement in health behaviors. The relationship of these factors to both dietary and fitness behaviors has not yet been fully explored in the context of interactive online platforms. Given the recent surge of diet- and fitness-related content on social media, there is a call for a

more thorough investigation of the role these two factors play in the performance of these health behaviors.

To fully understand the factors influencing one's engagement in health behaviors, this study also examined individual and social motivations. Generally, the performance of behaviors is motivated by one's personal predisposition and consideration of the social environment he is in. Several studies have highlighted the ability of psychosocial factors to predict the performance of health behaviors, particularly healthy eating and physical exercising (Backman, Haddad, Lee, Johnston, & Hodgkin, 2002; Chan & Tsang, 2011; Dowd, 2016; Hagger, Chatzisarantis, & Harris, 2006). To examine the influence of these behavioral predictors, this study adopted the Theory of Planned Behavior (TPB, Ajzen, 1985) as its theoretical framework. TPB posits that psychosocial factors such as attitude, subjective norm, and perceived behavioral control (PBC) influence behavior, and their relationships are mediated by behavioral intention. This study utilizes an expanded model of the theory such that it investigated whether these three factors mediate the influence of OHIB and eHealth literacy on the health behavior. Principally, this research focuses on exploring these three overarching research questions:

RQ1: What is the relationship among eHealth literacy, active online health information behavior, and passive online health information behavior?

RQ2: What is the influence of eHealth literacy, active online health information behavior, and passive online health information behavior on health behaviors?

RQ3: Which psychosocial factors mediate the relationships between these information-related factors and health behavior?

This study addresses these research questions and this paper is presented as follows: Chapter 2 describes the health behaviors focused on in this study, along with the exploration of the factors that affect their performance. The theoretical framework used in this study is also discussed, and a review of existing literature is presented in support of the proposed hypotheses. These are followed by the study methodology in Chapter 3, which details the sampling frame, recruitment and data collection processes, instrumentation, and analysis procedures. The study results are then presented in Chapter 4, reiterating which hypotheses are supported by the findings drawn from the analysis. Chapter 5 follows with a discussion of the results that links existing literature to current study findings. Lastly, a conclusion is presented in Chapter 6, along with the statement of the study's limitations and recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

As the use of the Internet for health communication has become more prevalent, this study investigated three online information-related factors shown to be associated with behavioral engagement: eHealth literacy, active OHIB, and passive OHIB. A comprehensive overview of the context where this study was focused on is presented in this chapter to provide a better understanding of the rationale behind this investigation. Firstly, the importance of focusing on dietary and fitness behaviors is detailed, followed by a description of the current landscape of online health communication. The main factors considered in this study are then exhaustively defined, and their associations with each other and to the performance of behaviors accordingly presented to derive hypotheses. The theoretical framework that guided this study is also discussed, particularly detailing how the theoretical pathways were adopted and extended. The sections below present these contents accordingly:

Dietary and Fitness Behaviors

Poor diet and physical inactivity have been linked to a variety of health diseases. In particular, either or both of these behaviors have been found to cause long-term illnesses such as obesity, cardiovascular disease, and diabetes, thereby decreasing quality of life (Centers for Disease Control, 2003). While obesity is not a major health concern in the Philippines, cardiovascular disease and diabetes attributed to at least 200,000 deaths in 2012 (Department of Health Philippines, 2013). Fortunately, with proper diet and regular exercise, these illnesses can be controlled or prevented. Given their potential health benefits, interventions promoting nutrition and fitness have been widely developed and spread. Consequently, substantial amount of research has also been done to evaluate the efficacy of these health programs.

Generally, studies that looked at the efficacy of nutrition and fitness interventions found beneficial effects. For instance, studies that looked at the effects of combined dietary and physical activity interventions on obese children found a decrease in their body weight, BMI, and body fat percentage, as well as an increase in their physical activities (Mary, Jagadesh, & Vijayaraghavan, 2017; Nemet et al., 2005). Likewise, for studies that evaluated the efficacy of similar interventions on children of normal weight, positive results were found such as improved physical fitness and nutrition knowledge (Berger-Jenkins et al., 2014; El Rayess et al., 2017). Similar effects were also observed for studies that focused on either nutrition or physical activity interventions. In particular, intervention participants experienced an increase in their physical activity and intake of healthy foods (Larsen et al., 2017; Wilson et al., 2005).

In addition to these physiological benefits, the performance of both health behaviors was also found to improve one's psychological well-being. For instance, positive changes in body satisfaction and mood were detected after women participated in an intervention that included nutrition education and cognitive-behavioral exercise sessions (Annesi & Whitaker, 2010). Likewise, while the differences were not significant, positive changes were still observed with the participants' body image after they went through a physical activity and nutrition intervention (Gehrman, Hovell, Sallis, & Keating, 2006).

While literature in this area is limited due to its primary focus on children, overweight individuals, or both, these studies highlight the importance of receiving relevant information to improve one's health. As Tardy and Hale (1998) asserted, the acquisition of health information reduces individuals' uncertainty in their health status, as well as lead to their construction of social and personal sense of health. Although

this study no longer delved into the physiological and psychological effects of performing dietary and fitness behaviors, nor did it aim to develop health interventions that promote nutrition and physical exercise, it does emphasize the benefits of obtaining information related to these health behaviors.

The Current Online Health Communication Landscape

Today, with eHealth communication, the promotion of healthcare has become much easier and expansive. This is even more so in this digital age where individuals are equipped with the means to easily access and utilize online technologies. Parallel to this rising use of the Internet is the increasing interest in its use in public health. Among the common research foci on this area is the sociodemographic characteristics of individuals who use the Internet for health information. Generally, studies found that the most frequent seekers of online health information are women (Beaudoin & Hong, 2011; Rahmqvist & Bara, 2007), and individuals who are younger (Pálsdóttir, 2014; Simou, 2015), more educated (Li, Theng, & Foo, 2016; Wangberg, Andreassen, Kummervold, Wynn, & Sørensen, 2009), and have higher socioeconomic background (Cotten & Gupta, 2004; Dart, Gallois, & Yellowlees, 2008). Likewise, the Internet has also been noted as a general source of health information for those who are health conscious, highly motivated in health, health information efficient, and positively oriented in health information (Dutta-Bergman, 2004a; Moorman & Matulich, 1993).

While vast research has already been done on health information-seeking using the Internet, a recent shift in the online health communication landscape warrants a further investigation. This shift is primarily due to the recent technological advancements collectively called social media. Social media is a group of Internet-based applications that provides a platform for the creation and exchange of user-generated content, thereby facilitating social interactions within virtual communities

(Kaplan & Haenlein, 2010; Kietzmann, Hermkens, McCarthy, & Silvestre, 2011).

Through social media, individuals can easily participate in interactive online engagements, transforming passive recipients of information into more active ones. No longer limited to a single role, individuals can now be both consumers and producers of content (Hardey, 2001), thus transcending the traditional one-way flow of information into two-way communication (Rutsaert et al., 2013).

With the proliferation of social media, existing research has also delved into the advantages of using these channels for health communication. Studies have shown that social networking sites acted as avenues for the promotion of health behavior, sharing of social support, and dissemination of health information and advice (Scanfeld et al., 2010; Zhang, He, & Sang, 2013). With its real-time dialogic feature (Chapman, Raymond, & Powell, 2014) and ability to virally spread information (Thackeray, Neiger, Hanson, & McKenzie, 2008), social media has also been found to enhance interactions between health organizations and the public (Moorhead et al., 2013; Neiger, Thackeray, R., Burton, Thackeray, C. R., & Reese, 2013). In particular, these online platforms have been useful in expanding the scope of health information broadcast and in promoting electronic-based health education (Mayer & Harrison, 2012; Merchant, Elmer, & Lurie 2011; Kapp, LeMaster, Lyon, Zhang, & Hosokawa, 2009).

With the affordances of social media that allow individuals to actively search for and personalize health messages, online health information has become increasingly salient (Gray et al., 2005). This holds true in the Philippines where there is prevalence of online content related to healthy eating and physical exercise. Given that exposure to social media marketing programs empowers consumers' health and healthcare-related interactions (Thackeray et al., 2008), the adoption of dietary and

fitness behaviors is more likely. This notion is supported by the Social Learning Theory which claims that behaviors are learned from social influences that convey information through modeling, instruction, and vicarious reinforcement (Bandura, 1971). Exposure to these social influences reflects the nature of many social media sites wherein “friends, family, and peers dominate one’s social network, thereby giving the information provided by these individuals increased exposure” (Rutsaert et al., 2013, p. 87-88). Likewise, Dutta-Bergman (2004a, p. 276) asserted that “the presence of health-oriented individual(s) in one’s social network is likely to trigger the participation in healthful choices.” Frimming, Polsgrove, and Bower (2011) confirmed this assertion as they found that long-term social media use increased awareness of fitness needs, as well as provided individuals with opportunities to learn workout routines from their peers.

While this research is mainly driven by the communication shift brought about by the prevalent use of social media, the scope of this study is not limited to this platform alone as it acknowledges that health information can come from a combination of multiple online sources (van der Vaart, Drossaert, de Heus, Taal, & van de Laar, 2013). This study, thus, investigated the holistic role of online platforms, in particular, the influence of online information-related factors on dietary and fitness behaviors. The emphasis on these factors was guided by the assertions of two models commonly used in health communication studies – Information-Motivation-Behavioral skills (IMB) model and Knowledge, Attitude, and Practice (KAP) model. The IMB model asserts that individuals are likely to perform a desired behavior provided that they are well-informed, motivated to act, and have the requisite behavioral skills for effective action (Fisher, W. A. & Fisher, J. D., 1992). The model also specifies that personal and social motivations are critical influences on the

performance of a health-related behavior (Fisher, W. A., Fisher, J. D., & Harman, 2003). The KAP model, meanwhile, proposes that an individual's consumption of relevant information, along with the alignment of his attitude towards a behavior, prompt the execution of said behavior (Allport, 1935). Knowledge was, likewise, linked to one's competencies in accessing, understanding, appraising, and applying health-related information (Sørensen et al., 2012). With these assertions in mind, this study regarded the two main factors considered in this study – online health information behaviors and eHealth literacy – as representing the information and knowledge aspects of both models. These two variables are discussed in detail below.

eHealth Literacy

For the past years, as the use of online communication technologies continues to increase, studies on eHealth literacy have also become more prevalent. Being a relatively new concept, a number of research have commonly focused on the refinement of its definition. While Norman and Skinner's (2006a) definition of eHealth literacy has been the most widely used among studies, other scholars have also provided their take on the concept. Chan and Kaufman (2011, p. 2), for instance, focused more on the digital skills involved as they described eHealth literacy as "a set of skills and knowledge that are essential for productive interactions with technology-based health tools." Eng (2002, p. 267), likewise, had a similar emphasis, describing the concept as "the use of emerging information and communication technology, especially the Internet, to improve or enable health and health care." Gilstad (2014, p. 69), on the other hand, gave a more comprehensive scope, taking into consideration the context that the individual is in. In particular, she redefined eHealth literacy as the "ability to identify and define a health problem, to communicate, seek, understand, appraise and apply eHealth information and welfare technologies in the cultural, social

and situational frame and to use the knowledge critically in order to solve the health problem.” As these definitions demonstrate, eHealth literacy involves a variety of competencies that enable individuals to access, comprehend, and apply health-related information available online.

To offer a breakdown and explanation of these competencies, Norman and Skinner (2006a) developed a conceptual model for eHealth literacy. The model suggests that eHealth literacy is comprised of six core literacy skills: Traditional literacy, information literacy, media literacy, health literacy, computer literacy, and scientific literacy. Briefly, traditional literacy involves basic reading and writing skills, information literacy enlists the execution of search strategies and the comprehension of how information is organized, media literacy are cognitive skills that contextualize information within the media realm, health literacy is comprised of the skills needed to engage in and apply healthcare, computer literacy pertains to the ability to appropriately use information technology, and scientific literacy is the understanding of the systematic creation of knowledge. According to the model, the combination of all these literacies account for the individual’s capacity to become eHealth literate, which corresponds to the overall ability required to derive benefits from online health content.

In addition to the research done on the components that make up eHealth literacy, a number of studies have also focused on the sociodemographic characteristics of eHealth literate individuals. Generally, it was found that younger age, higher education, and more active consumption of online information are associated with eHealth literacy (Knapp, Madden, Wang, Sloyer, & Shenkman, 2011; Neter & Brainin, 2012; Tennant et al., 2015). While the discrepancy among people’s digital access has dwindled over the years with the proliferation of online

technologies, a new form of inequality has emerged due to the disparity in eHealth literacy levels. To address this concern, Chan and Kaufman (2011) proposed a theoretical and methodological framework to systematically map skill sets that lead to the successful performance of eHealth tasks. They suggested that by characterizing the complexity of eHealth tasks and understanding the necessary competencies required to address them, the development of solution strategies can be better informed. This study adopts the same assertions as it acknowledges the importance of eHealth literacy. Given the current digital environment where unlimited banks of information are accessible with just a few keystrokes, being eHealth literate has become even more necessary.

Online Health Information Behaviors (OHIBs)

With the increased use of the Internet for health communication purposes, there has been a concerted effort to examine how health-related information is acquired. Information, in its simplest form, is defined as “stimuli from a person’s environment that contribute to his or her knowledge or beliefs” (Brashers, Goldsmith, & Hsieh, 2002, p. 259). Beyond this, information also plays a significant role in the assessment, maintenance, and change of behaviors (Ferguson & Bargh, 2004). Given such influence, information related to health has increasingly garnered research attention over the years. While research on information management has traditionally focused on active seeking, more recent studies indicate that the passive receipt of information is also an important element of one’s total information behavior.

The concept of information behavior was most notably introduced by Wilson (2000, p. 49), who defined it as “the totality of human behavior in relation to sources and channels of information, including both active and passive information seeking, and information use.” Prior to this concept, McQuail (1987) noted that for media

studies, effects are conceptualized as changes resulting from both intentional and unintentional media influences. This suggests that media studies investigating the effects of online health information should not be restricted to campaign-driven messages only. Instead, all health-related messages, including those which were created and acquired less deliberately, should also be examined.

Health information sources, likewise, are oftentimes classified as either active or passive communication channels. Television and radio were consistently identified as passive information sources, while the Internet was considered an active source (Carlsson, 2000; Dutta-Bergman, 2004a). With the prevalence of the Internet, however, online information-seeking has come to involve not just active strategies but passive ones, as well, as “the role of the information gatherer becomes one of observer rather than participant” (Ramirez, Jr., Walther, Burgoon, Sunnafrank, 2002, p. 221). Moreover, as sources of online health information extend from official authorities to the general public, individuals are increasingly presented with opportunities for the passive receipt of health information. This is true as non-official agents, such as family and friends, increasingly make use of the online environment to lend credibility and offer guidance towards health information (Eysenbach, 2008a). Social media, in particular, has become a common informal venue for people to report their personal experiences, ask questions, and receive feedback regarding their health (Greene et al., 2011). Also, with social media, users are able to see the online activities of their peers or of others they share an online connection with, consequently leading to an automated selection of information they are increasingly exposed to (Eysenbach, 2008b; Rutsaert et al., 2013). Thus, while some individuals actively seek out health information on the Internet, a considerable amount of health-related content may also be passively encountered and absorbed during the general use of online sources.

In a number of studies, active and passive information-seeking were more commonly referred to as information-seeking and information-scanning, respectively. Information-seeking is the explicit search for information, while information-scanning is described as the attention given to information encountered during one's day-to-day information flow (Hull, Lee, & Hornik, 2007; Shim, Kelly, & Hornik, 2006). In terms of health, information-seeking was defined as the purposive acquisition of information from selected channels to guide one's health-related decisions and behaviors (Johnson & Meischke, 1993; Wei, 2014). Niederdeppe et al. (2007, p. 154), on the other hand, described information-scanning in the health context as "information acquisition that occurs within routine patterns of exposure to mediated and interpersonal sources." Although these two means of acquiring information share some common aspects, this research distinguished one from the other as studies have shown differences when engaging in these two types of information behaviors. For instance, in a survey of a nationally representative sample of American adults, Kelly et al. (2010) found that less active seeking and more scanning occurred when the Internet was used as an information source for cancer-related content. Similar results were found in a study using qualitative approach, with interview participants reportedly using a greater variety of information sources for scanning than for seeking (Niederdeppe et al., 2007).

In line with these studies, this research maintained the same conceptualization, with online health information acquisition divided into two different behaviors. However, while this study employed the aforementioned definitions for each type of information behavior, it adopted the terms active and passive online health information behavior to remain consistent with Wilson's (2000) definition of the concept. Examined in an online context, it is asserted that health information acquired through

both behaviors encourage healthy lifestyle practices. In particular, this study focused on the influence of both online health information behaviors on individuals' adoption of dietary and fitness behaviors.

The Associations Between eHealth Literacy, Active OHIB, and Passive OHIB

Existing literature on eHealth literacy and both active and passive online health information behaviors reiterates the common factor they all share – online health information. This factor links the three together such that while OHIB pertains to the acquisition of online health information, eHealth literacy involves the competencies required to appropriately employ them. A number of studies have demonstrated the positive relationship among the three variables. Neter and Brainin (2012), for instance, found that eHealth literate individuals, compared with their less literate counterparts, consumed online information more actively and utilized more information search strategies. Similarly, high levels of eHealth literacy were found to be associated with heightened online health information-seeking behavior (Sheng & Simpson, 2013) and a greater variety of acquired online health-related content (Mitsutake, Shibata, Ishii, Okazaki, & Oka, 2011). This positive relationship between eHealth literacy and online health information-seeking also applies across individuals. As shown in a study conducted among adolescents and their parents, it was found that higher levels of parental eHealth literacy were associated with an increase in parental online health information-seeking and adolescent eHealth literacy. Concurrently, an increase in adolescent online health information-seeking was associated with higher adolescent eHealth literacy and parental online health information-seeking (Chang et al., 2015). Guided by these research findings, this study hypothesized the following:

H1a: eHealth literacy is positively correlated with active online health information behavior.

While existing studies mostly focused on the association between eHealth literacy and active OHIB, this study proposes that the same positive relationship exists between eHealth literacy and passive OHIB. For one, exposure to a health website was found to be associated with higher eHealth literacy scores (Ghaddar, Valerio, Garcia, & Hansen, 2012). Also, given that eHealth literate individuals evaluate information more carefully than those who are less literate (Neter & Brainin, 2012), this study speculates that eHealth literate individuals similarly apply their stringent evaluation criteria to online health information they acquire in a less purposive way. Hence, the following relationship is proposed:

H1b: eHealth literacy is positively correlated passive online health information behavior.

Also, while it has been argued that actively sought and passively received information make up an individual's overall information behavior, several studies still considered each information behavior distinct from the other. For instance, for information concerning various health behaviors such as dieting, exercising, and health screening, it was found that scanning from media sources, which included the Internet, was more common than seeking (Kelly et al., 2010; Tan, Mello, & Hornik, 2012). Similarly, Niederdeppe et al. (2007) found that while seeking cancer-related information happens less frequently than scanning, it generally occurs among those who are also information scanners. In consideration of these findings, this study investigated the two information behaviors separately. It also followed the assertion that even if information-scanning and seeking differ in prevalence, they occur together. Hence, this study assumes a positive correlation between the two OHIBs:

H1c: Active online health information behavior is positively correlated with passive online health information behavior.

The Adoption of the Theory of Planned Behavior: An Extended Model

In order to comprehensively understand one's engagement in dietary and fitness behaviors, this study adopted the assertions of the Theory of Planned Behavior (TPB, Ajzen, 1985). TPB posits that intention, which is the individual's motivation to engage in a behavior, is the most immediate determinant of behavior. Intention, in turn, mediates the effects of attitude, subjective norm, and perceived behavioral control (PBC) on a behavior. In brief, attitude refers to one's positive or negative disposition towards a behavior, thereby reflecting his or her beliefs about the consequences of performing that behavior; subjective norm, meanwhile, involves one's evaluation of his or her significant others' likely approval or disapproval of a behavior, thus reflecting his or her beliefs about others' normative expectations; PBC, on the other hand, is concerned with one's assessment of his or her abilities in carrying out a behavior, accordingly reflecting perceptions of ease or difficulty in performing the behavior (Ajzen & Fishbein, 1980; Giles, McClenahan, Cairns, & Mallet, 2004).

It should be noted that while previous research on eHealth literacy and OHIB have used other theories, their focus has been different from this study's. For example, existing research on eHealth literacy mostly used learning theories as they focused on the development and evaluation of eHealth literacy interventions. While learning theories such as Social Interdependence Theory (SIT; Johnson, D. W. & Johnson, R. T., 2005) and Cognitive Theory of Multimedia Learning (CTML; Mayer, 2002) were helpful in guiding the interventions, a systematic review conducted by Watkins and Xie (2014) found that these theories were unable to align the study results with the predicted outcomes. Similarly, for OHIB, the majority of related studies focused on the use of media channels for health information-seeking. These studies, thus, mostly adopted theories that relate to media use, such as Uses and Gratification (U&G; Rubin,

2002), Technology Acceptance Model (TAM; Davis, 1989), and Media System Dependency (MSD; Ball-Rokeach, 1998). While a systematic review of studies that used these theories demonstrated large effect sizes (Marton & Choo, 2012), their focus has been on the use of media sources for health information. Given that this study's emphasis is on health outcomes, the use of a behavioral theory is more appropriate.

TPB is a well-established behavior model that has been adopted to predict and explain a wide range of health behaviors, which include diet (Backman et al., 2002; Chan & Tsang, 2011; Hewitt & Stephens, 2007), exercise (Hagger, Chatzisarantis, & Biddle, 2002a; Hagger et al., 2006; Hausenblas, Carron, & Mack, 1997), health screening (Bish, Sutton, & Golombok, 2000; Rutter, 2000), and smoking (Smith, Bean, Mitchell, Speizer, & Fries, 2007). While other well-known behavior models, such as Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975), Health Belief Model (HBM; Rosenstock, 1974), and Social Cognitive Theory (SCT; Bandura, 1986), also exhibited predictive validity, meta-analyses and comparison studies showed that TPB accounted for more variance in predicting intention and behavior (Bish et al., 2000; Gerend & Shepherd, 2012; Hagger, Chatzisarantis, & Biddle, 2002b; Webb, Joseph, Yardley, & Michie, 2010). Moreover, in a meta-analysis study conducted by McEachan, Conner, Taylor, and Lawton (2011), it was found that the efficacy of TPB is dependent on the behavior type. Specifically, among other health behaviors, physical activity and diet behaviors were better predicted by TPB. Given the focus of this study on these two health behaviors, TPB is shown as the most suitable theoretical framework to use.

Moreover, this study's adoption of TPB as theoretical framework is in line with the assertions of the IMB and KAP models. In particular, the links between information-related factors and the individuals' attitudes, personal and social

motivations, and behavioral skills, all of which were cited by both models as predictors of behaviors. Also, according to Fulham and Mullan (2011, p. 925), the central premise of TPB is that “humans are essentially rational decision makers, utilizing all available information before making decisions and taking action.” Given this conceptual link among information-related variables, psychosocial predictors, and behavior, this study adopted an extended model of TPB that accounts for all these factors.

This addition of external factors into the TPB model is a practice that several studies have already done. In fact, the extension of the TPB model has improved its overall predictive ability, as shown by the addition of past behavior (Hagger et al., 2002b), self-identity (Pelling & White, 2009), perceived usefulness (Pavlou & Fygenson, 2006), and perceived credibility (Lu et al., 2010). In line with these findings, this study also extended the TPB model by adding in eHealth literacy, active OHIB, and passive OHIB. Previous studies have already empirically proven this theoretical pathway by demonstrating the relationships of these factors with the intention to perform health behaviors. For example, Britt, Collins, Wilson, Linnemeier, and Englebert (2015) found that eHealth literacy is associated with the intent to have HPV vaccination. Likewise, Hull, Lee, and Hornik (2007) found that both information seeking and scanning were associated with the intention to engage in cancer preventive and screening behaviors.

Vast research has also demonstrated the associations of these information-related variables with behavior. eHealth literacy, for instance, was found to be associated with colorectal cancer screening (Mitsutake, Shibata, Ishii, & Oka, 2012), infection prevention (Kim & Lee, 2015), physical exercise, and eating a balanced diet (Mitsutake, Shibata, Ishii, & Oka, 2016). Likewise, with OHIB, a study among

pregnant women showed that almost all the participants used the Internet for health information, half of whom reported a decrease in their intake of sweetened beverages and fatty foods, and an increase in their participation in physical activities and consumption of fruits and vegetables (Huberty, Dinkel, Beets, & Coleman, 2013). Several studies also found that information-seeking and scanning using various sources, including the Internet, were positively associated with different health behaviors. Kelly et al., (2010), for instance, found that information-seeking was associated with prevention behaviors (dieting, fruit and vegetable consumption, and exercising) and screening test behaviors (prostate-specific antigen, colonoscopy, and mammogram). Exposure to scanned information was also correlated with exercising, fruit and vegetable consumption, diet, prostate screening, and colonoscopy (Kelly, Niederdeppe, & Hornik, 2009; Kelly et al., 2010). Similarly, when it came to decisions regarding cancer prevention and screening, Niederdeppe et al. (2007) found that individuals were influenced by information they acquired through information-seeking, and to a lesser degree, scanning. Applying these established associations on this study's target health behaviors, and following TPB's assertion that intention leads to behavior, the following hypotheses are proposed:

H2a: eHealth literacy is positively associated with the intention to engage in dietary and fitness behaviors.

H2b: Active online health information behavior is positively associated with the intention to engage in dietary and fitness behaviors.

H2c: Passive online health information behavior is positively associated with the intention to engage in dietary and fitness behaviors.

Mediation Effects of Attitudes, Subjective Norms, and Perceived Behavioral Control

Meanwhile, to account for the psychosocial predictors of TPB, this study investigated the mediating roles of attitudes, subjective norms, and PBC in the relationship between the three information-related variables and the intention to perform dietary and fitness behaviors. Fishbein and Yzer (2003) asserted that psychological variables contribute to behavioral intentions only to the extent that they are mediated by attitudes, norms, and PBC. These mediation effects have been hypothesized to occur when external concepts are introduced into the TPB model (Ajzen, 1985; Rhodes & Courneya, 2003). Studies have empirically demonstrated these effects, as shown by how TPB predictors mediated the effects of sociodemographic variables on homeless people's participation in service programmes (Christian, Armitage, & Abrams, 2007); as well as the effects of consumers' environmental concern on their intention to adopt hybrid electric vehicles (Wang, Fan, Zhao, Yang, & Fu, 2016).

Similar to this study's aims, previous research has also examined how TPB predictors mediated the effects of eHealth literacy and OHIB on health behaviors. Hull, Lee, and Hornik (2007), for instance, found that attitudes, subjective norm, and PBC mediated the effects of information gained from one's total media environment (seeking and scanning behaviors) on cancer preventive and screening intentions. Likewise, though to a lesser extent, Britt et al. (2015) found that PBC mediated the relationship between eHealth literacy and the intention to get HPV vaccination.

In addition to the findings of these previous studies, Yoo and Robbins (2008) also asserted that the predictive strength of TPB predictors varies across behaviors, situations, or user groups. This suggests that each predictor needs to be examined individually. For example, attitudes and PBC were identified as the most significant

predictors of healthy eating intentions among Hong Kong students (Chan & Tsang, 2011), Danish adolescents (Grønhøj, Bech-Larsen, Chan, & Tsang, 2013), and Appalachian teens (Wu et al., 2009), whereas subjective norms were the strongest behavioral predictor among Native American boys (Fila & Smith, 2006). Likewise, for physical exercise, attitude and PBC served as the best predictors of intention among British women (Biddle, Goudas, & Page, 1994), while subjective norm and PBC were the most significant driver among Canadian children of Asian and Caucasian ethnicities (Rhodes, Macdonald, & McKay, 2006). While these studies exhibit the predictive relationships between TPB predictors and health behaviors, they also highlight how each relationship has varying strengths. Such relationships and differences are expected to occur in other populations, such as the Philippines, and this study investigated them accordingly. With these considerations in mind, this study proposed the following hypotheses:

H3a: The effects of eHealth literacy on the intention to engage in dietary and fitness behaviors are mediated by 1) attitudes, 2) subjective norms, and 3) PBC.

H3b: The effects of active online health information behavior on the intention to engage in dietary and fitness behaviors are mediated by 1) attitudes, 2) subjective norms, and 3) PBC.

H3c: The effects of passive online health information behavior on the intention to engage in dietary and fitness behaviors are mediated by 1) attitudes, 2) subjective norms, and 3) PBC.

Following TPB's main assertion that intention is the most immediate determinant of behavior, this study also examined this relation. While several studies have already demonstrated how intention predicts behavior (Pavlou & Fygenon,

2006; Pelling & White, 2009), a meta-analysis of behavioral studies concluded that there are inconsistencies between the two primarily due to “intenders who failed to enact their intentions” (Sheeran, 2002, p. 7). While this study does not question the sequential relationship of intention to behavior, it does seek to ascertain the extent to which dietary and fitness intentions were translated into actions. As such, the following hypothesis is proposed:

H4: The intention to engage in dietary and fitness behaviors is positively associated with dietary and fitness behaviors.

As this chapter highlighted, engaging in dietary and fitness behaviors yields benefits that are not only physiological but also psychological. Given the use of interactive technologies for the promotion of these health behaviors, today’s online environment has become a hub for information that is related to healthy eating and physical exercising. With the increasing prevalence of these online health content, a closer inspection of the factors that may influence information acquisition and application is necessary. Among these factors are eHealth literacy, active OHIB, and passive OHIB – concepts that have been previously linked to other health-related behaviors. As this study’s focus is on behaviors, the Theory of Planned Behavior was adopted to explain the mechanisms that drive an individual to engage in action. Moreover, the value of adding external concepts into the original TPB model has prompted an extension of the model to include eHealth literacy, active OHIB, and passive OHIB as predictors of behaviors. Likewise, as with other studies that used TPB as their theoretical framework, the mediating roles of attitudes, subjective norms, and PBC were examined in this study. Figure 1 provides the study’s proposed pathway of relationships.

Figure 1. Proposed pathway of relationships

CHAPTER 3: METHODOLOGY

Participants and Setting

To investigate the influence of eHealth literacy, Active OHIB, Passive OHIB, and TPB predictors on an individual's dietary and fitness behaviors, this study surveyed Filipinos aged 18-29 years old. This age range covers the young adult age group, and individuals within this age range are also the most frequent users of social networking sites (Duggan & Brenner, 2013). In the Philippines, in particular, 20-29 year olds are the most active users of social media (We Are Social, 2016). To account for this group, this study recruited participants from the University of the Philippines. Like in other countries, there is no age limit to university admissions in the Philippines. While many Filipinos attend tertiary institutions directly after high school, which is around 16-17 years old, they do not represent the age range of all university students. Some secondary school graduates delay their start in the university, and a number of Bachelor's degree holders also return later in life to pursue higher education or enroll in post-baccalaureate programs. This broadens the age range of university students and consequently allowed the study to recruit older individuals.

In the National Capital Region, where the University of the Philippines is located, 32.95% of the 16-24-year-old population attends college and post-graduate education (Philippine Statistics Authority, 2005). A similar age profile can also be observed among different countries where students attending graduate school are still within the young adult age range. For example, in the Philippines, the average age of students taking their Master's degree is 27.2 years old (Ateneo de Manila University, 2007); in the US, the average age of graduate students is 32.4 years old (Bell, 2009); whereas for Canada, the median age for university students is 24.8 (Dale, 2010). In

consideration of these statistics, this study recruited participants attending undergraduate and graduate programs in the University of the Philippines.

As one of the country's state universities, the University of the Philippines caters to a diverse group of students from different cultural and socio-economic backgrounds. It is located in the capital city of Manila, which provides a suitable locale of study due to the area's wide connectivity to the Internet. Moreover, the Commission on Higher Education (CHED) requires state universities to provide their students general access to the Internet, thus making the University an ideal sampling pool for eligible study participants.

Sampling Strategy

This study sought out Filipinos between 18-29 years old, have regular access to the Internet, and are current students of the University of the Philippines. The target sample size for this study was computed using the Qualtrics sample size calculator. With 95% confidence interval, 5% margin of error, 0.5 standard deviation, and a university population of 26,084 (UP Statistics, 2013), a total of 400 students was targeted for this study.

Previous literature has shown that certain demographic characteristics, namely gender, age, and SEC, were associated with eHealth literacy and OHIB. To avoid basing the sampling proportion on these already established predictors, this study alternatively employed quota sampling according to the four academic clusters of the university: Science and Technology (ST), Social Sciences and Law (SSL), Arts and Letters (AL), and Management and Economics (ME). Basing the sampling proportion on these subgroups ensured that a university-wide recruitment was conducted, thus resulting to a more random selection of study participants. The proportions of these subgroups in the university population were calculated and applied in the sampling

process. Although the study was not able to reach the target number of respondents per cluster, the order of the percentage of valid responses was consistent with that of the target sample. The breakdown of the sampling is shown in Table 1.

Recruitment

From week 1 of January 2017, the researcher sent invitation letters to the administrative staff and faculty members of the University of the Philippines. In this initial communication, the researcher explained the purpose of the study and sought consent for the administration of the survey. Upon the approval of the Institutional Review Board (IRB) in February 2017, sign-up sheets were disseminated to the students of teachers who consented to the recruitment request of the researcher. Both hardcopy and online versions of the sign-up sheet were provided upon the request of the teacher. Interested students were asked to provide their email addresses when they sign up either online or through the sign-up sheet distributed in class. 19 classes with around 30 students each were recruited for this study. The link to the online sign-up sheet was also shared in class to encourage word-of-mouth invites. A total of 677 students signed up, 349 from the 19 classes and 328 from the word-of-mouth invites. The grouping of the academic clusters is less known to the students so they were instead asked to indicate their degree program when they sign up. The researcher then categorized the students accordingly and the breakdown of target participants per cluster was computed based on the available sampling proportions (UP Statistics, 2013). Afterwards, eligible students were sent a notification email containing their survey code and the link to the online survey. The survey code was used to identify the subgroup of the participants, as well as track response time. The first wave of responses was received during the third week of February, and the recruitment of participants ensued until the second week of March. All 677 students who signed up

were sent an invite to do the survey, but only 352 successfully completed the survey. This resulted to a 52% response rate. The breakdown of the recruited participants and completed surveys is shown in Table 1.

Table 1. Breakdown of the quota sampling

Academic Clusters	Target N (%)	Recruited N (%)	Valid Responses N (%)
AL	67 (16.75)	136 (20.09)	62 (17.61)
ME	47 (11.75)	90 (13.29)	53 (15.06)
ST	158 (39.5)	315 (46.53)	158 (44.89)
SSL	128 (32)	136 (20.09)	79 (22.44)
Total	400 (100)	677 (100)	352 (100)

Data Collection

A two-part survey was conducted for this study. The first part assessed behavioral intention, while the second part accounted for the self-reported behavior of the participants. The first part was conducted online and took approximately 15-20 minutes to complete. The follow-up survey was conducted either online or through pen & paper, and it took around two minutes to complete. The follow-up survey was intended to be administered two weeks after the completion of the first part, and the participants were sent two reminder emails prior to their scheduled follow-up survey. To avoid high attrition rate, the follow-up survey was supposed to be conducted in person at the same time the incentives were to be given. However, requests from participants who were not able to make it to their scheduled follow-up survey resulted in an online version of the survey. Table 2 details the median split of the two modes of survey administration. The average response time for the follow-up survey was 16 days.

Table 2. Median split of the follow-up survey

	Paper & Pen Survey (N=190)		Online Survey (N=162)	
	Eating behavior	Exercise behavior	Eating behavior	Exercise behavior
Mean	2.33	2.04	2.35	2.04
Median	2.00	2.00	2.00	2.00
SD	0.59	0.70	0.64	0.72
Variance	0.35	0.50	0.40	0.52
p<.001				

For both surveys, the participant was requested to read and sign on an informed consent form that prefaced the survey questionnaire. This form described the purpose of the study, the duration of the survey, and the participants' right to voluntarily withdraw from the study at any time. In the absence of a centralized ethics review committee for behavioral research in the Philippines, the informed consent process conformed to the international standards where participants were explained their rights and assured of confidentiality and anonymity. Both surveys were administered in English and each participant received an incentive of \$5 (PhP150) for completing the survey. The data collection period ran from February to March 2017.

Instrumentation

Each survey consisted of two sections, one for healthy eating and another for physical exercising. The following section details the items used to measure each variable:

eHealth Literacy

The participant's eHealth literacy level was measured using eight items on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The items were adopted from Norman and Skinner (2006b) who created the eHealth literacy scale (eHEALS) that specifically measured people's capabilities in finding, analyzing, and using online health information. The eight items used to measure eHealth literacy level are: (1) I know how to find helpful health resources on the

Internet, (2) I know how to use the Internet to answer my questions about health, (3) I know what health resources are available on the Internet, (4) I know where to find helpful health resources on the Internet, (5) I know how to use the health information I find on the Internet to help me, (6) I have the skills I need to evaluate the health resources I find on the Internet, (7) I can tell the difference between high quality health resources and low quality health resources on the Internet, and (8) I feel confident in using information from the Internet to make decisions about my health. Similar to previous studies that utilized the same measurements (Koo, Norman, & Chang, 2012; Mitsutake et al., 2011; Soellner, Huber, & Reder, 2014), the scale demonstrated good internal consistency for the current study (Cronbach's $\alpha=.86$).

Active Online Health Information Behavior

To measure active OHIB, ten items on a five-point Likert scale ranging from 1 (never) to 5 (always) were utilized. Participants were asked to indicate the frequency with which they have searched for health information using these online platforms: (1) Online search engines (e.g., Google, Yahoo), (2) Websites (e.g., health.com, fitness.gov), (3) Social media (e.g., Facebook, Instagram, youtube), (4) Online forums (e.g., healthboards.com, healthunlocked.com), (5) Blogs (e.g., marksdailyapple.com, sproutedkitchen.com), (6) Electronic mail (e.g., Google mail, Yahoo mail), and (7) Instant messaging (e.g., WhatsApp, Google chat). The statement participants considered before answering these items was "Think about your Internet activities for the past month. How often did you SEARCH FOR information that is related to healthy eating using the following online sources?" Meanwhile, to account for the two-way communication afforded for by the new media platform, the following items were employed using the same scale used in the first seven items: (8) Create online content about healthy eating (e.g., blog entries, post photos or videos), (9) Share

through online means healthy eating content created by other people (e.g., share links through Facebook or Twitter), and (10) Respond to online content about healthy eating (e.g., comment on or like posts on Facebook). These items were adopted and slightly modified from studies that measured health information-seeking behavior (Beaudoin & Hong, 2011; Pagani, Hofacker & Goldsmith, 2011; Pálsdóttir, 2014). The same set of questions were used to measure the participants' online health information behavior for physical exercising, with the term "healthy eating" replaced by "physical exercise," and the examples given for websites, online forums, and blogs changed accordingly. Also, the definitions of healthy eating and physical exercising were provided at the beginning of the survey to ensure consistency in understanding the health behavior referred to. Healthy eating was defined as the consumption of food low in saturated fat and cholesterol, and with the inclusion of a variety of fruits, vegetables, and grains (U.S. Department of Health and Human Services, 1996); while physical exercising was defined as the participation in physical activity that is planned, structured, and repetitive with a final or an intermediate objective of improving or maintaining physical fitness (Caspersen, Powell, & Christenson, 1985). The scale showed good internal consistency for this study (Cronbach's $\alpha = .83$ for healthy eating | $.87$ for exercising).

Passive Online Health Information Behavior

The participants' passive OHIB was measured using seven items on a five-point Likert scale that ranged from 1 (never) to 5 (always). Similar with active OHIB, the participants were asked to indicate the frequency with which they have seen health information in the following online platforms: (1) Online search engines (e.g., Google, Yahoo), (2) Websites, (3) Social media (e.g., Facebook, Instagram, youtube), (4) Forums, (5) Blogs, (6) Electronic mail (e.g., Google mail, Yahoo mail), and (7) Instant

messaging (e.g., WhatsApp, Google chat). The measurement items were introduced by this statement, “Think about your Internet activities for the past month. How often did you SEE BY CHANCE, information that is related to healthy eating on the following online platforms?” As with active OHIB, the same set of questions were used to measure passive OHIB for physical exercising. These items were modified versions of the scales used to measure information scanning behavior (Hull et al., 2007; Kelly et al., 2010). The current scale showed good internal consistency (Cronbach’s alpha = .81 for healthy eating | .84 for exercising).

Studies have shown that active and passive OHIBs could occur using electronic mail when it is used as an online communication channel with other people. For example, Baker, Wagner, Singer, and Bundorf (2003) found that electronic mail is used to contact a physician or other healthcare professionals for health information. Likewise, in a study across 14 European countries, there were reports of an increase in having sent or received an email within the healthcare context (Newhouse, Lupiáñez-Villanueva, Codagnone, & Atherton, 2015).

Healthy Eating and Physical Exercising Attitudes

Healthy eating and physical exercising attitudes were measured using 10 items on a five-point semantic differential scale. The participants were asked what they think of healthy eating and physical exercising, separately. For each health behavior, the following items were utilized: (1) Useless-Useful, (2) Foolish-Wise, (3) Harmful-Beneficial, (4) Unenjoyable-Enjoyable, (5) Boring-Interesting, (6) Stressful-Relaxing, (7) Undesirable-Desirable, (8) Bad-Good, (9) Not important-Important, and (10) Unpleasant-Pleasant. Earlier studies on various health behaviors demonstrated the reliability of these measurement items (Armitage & Conner, 1999; Chan & Tsang, 2011; Rhodes & Courneya, 2003; Rhodes et al., 2006). The scale showed good

internal consistency for this study (Cronbach's $\alpha = .88$ for healthy eating | $.91$ for exercising).

Subjective Norms (Injunctive and Descriptive)

While TPB defined subjective norms as injunctive norms – one's normative beliefs toward the performance of a certain behavior – this study included descriptive norms, as well. Descriptive norms are perceptions of significant others' own attitudes and behaviors, and meta-analysis showed that their inclusion increases the predictive power of the TPB model (Rivis & Sheeran, 2003a). Several studies have considered them alongside injunctive norms and found them to be better predictors of behavioral intention (Forward, 2009; Heath & Gifford, 2002; Norman, Clark, & Walker, 2005). As such, this study included both types of norms in the overall assessment of subjective norms. Using a five-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree), the concept was measured with the following items: (1) My family thinks I should eat healthy, (2) My friends think I should eat healthy, (3) My peers think I should eat healthy, (4) The TV programs I watch think I should eat healthy, (5) The magazines I read think I should eat healthy, (6) The online media I follow think I should eat healthy, (7) Most of my family members eat healthy, (8) Most of my friends eat healthy, (9) Most of my peers eat healthy, (10) Most TV personalities eat healthy, (11) Most people featured in magazines eat healthy, and (12) Most online media personalities eat healthy. The behavior referred to in each item was accordingly changed to physical exercising when it came to measuring the subjective norm for that behavior. Items 5, 6, 10, 11, and 12 were developed by the researcher to account for other media, while previous studies have already shown the reliability of the remaining items (Chan & Tsang, 2011; Rhodes & Courneya, 2003; Rhodes et al., 2006). The current scale showed acceptable internal consistency (Cronbach's α

= .75 for healthy eating | .83 for exercising).

Perceived Behavioral Control (PBC)

For each health behavior, PBC was measured by seven items on a five-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). These items were: (1) I am confident that I am able to eat healthy regularly, (2) I am confident that I am able to overcome obstacles that prevent me from eating healthy regularly, (3) I believe I have the ability to eat healthy regularly, (4) It is entirely up to me whether or not I eat healthy regularly, (5) I have personal control over eating healthy regularly, (6) I have enough discipline to eat healthy regularly, (7) It is easy for me to eat healthy regularly, and (8) I could eat healthy regularly if I wanted to. As with subjective norms, the behavior referred to in each item was accordingly changed to physical exercising to measure the PBC for that behavior. Earlier studies on health behaviors demonstrated the reliability of these items (Blue, Wilbur & Marston-Scott, 2001; Chan & Tsang, 2011; Rhodes & Courneya, 2003; Rhodes et al., 2006). The scale showed good internal consistency for this study (Cronbach's alpha = .81 for healthy eating | .89 for exercising).

Healthy Eating and Physical Exercising Intention

Healthy eating and physical exercising intention was measured by two items on a five-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). The following items were used: (1) I intend to eat healthy over the next two weeks, and (2) I plan to eat healthy over the next two weeks. Meanwhile, to measure the frequency of intention, the following item was used: "Over the next two weeks, how often do you intend to eat healthy food?" A four-point Likert scale that ranged from 1 (never), 2 (1-3 days a week), 3 (4-6 days a week), and 4 (Everyday) was used for this item. The health behavior referred to in these items were later changed to

physical exercising to measure intention for that behavior. Likewise, the time frame to measure frequency of intention to physically exercise was changed from “days” to “times” (i.e., 1-3 times a week). These items were adopted from studies that looked at dietary and fitness behaviors (Armitage & Conner, 1999; Luszczynska, Tryburcy, & Schwarzer, 2007; Rhodes et al., 2006). The current scale showed good internal consistency for this study (Cronbach’s alpha = .85 for healthy eating | .88 for exercising).

Healthy Eating and Physical Exercising Behavior

Healthy eating behavior was measured by a question on a four-point scale that ranged from 1 (never), 2 (1-3 days a week), 3 (4-6 days a week), and 4 (Everyday). Meanwhile, to measure physical exercising behavior, the time frame of this scale was changed from “days” to “times” (i.e., 1-3 times a week). The participants were asked to indicate how often they ate healthy food and physically exercised for the past two weeks. These items were adopted from Luszczynska et al. (2007).

Prior to the administration of the survey in the University of the Philippines, a pretest among 15 Filipinos within the target age range was conducted in Singapore. This allowed for an extensive review of the survey questionnaire, with changes made accordingly based on the pretest results.

Data Analysis Procedure

Path analysis techniques were used to examine the direct and indirect effects between variables. Cook and Campbell (1979, p. 307) suggested the use of this technique when “theoretical, empirical, and commonsense knowledge of a problem” provide a justifiable mapping of the latent variables and their probable causal links. Given that the hypothesized relationships have strong theoretical and empirical support, this study made use of this procedure.

The path model tested the following relationships: the correlation among eHealth literacy and both OHIBs; the influence of eHealth literacy and both OHIBs on behavioral intention and the TPB predictors; the influence of the TPB predictors on behavioral intention; the influence of behavioral intention on actual behavior; and the mediating effects of the TPB predictors on the relationship between the independent variables (eHealth literacy, active OHIB, and passive OHIB) and dependent variables (dietary and fitness intention). Multiple regression analysis was used to test the study hypotheses.

Meanwhile, in order to test for mediation, this study made use of the model set forth by Baron and Kenny (1986). This model requires the fulfilment of the following steps: 1) the causal variables are correlated with the outcome variable; 2) the causal variables are correlated with the mediators; 3) the mediators are associated with the outcome variable; and 4) the observed relationship between the causal variables and outcome variable, when controlling for mediation, becomes non-significant. If all of the four steps are met, there is complete mediation; whereas if only the first three steps are met, partial mediation is achieved. Also, in consideration of the previously demonstrated relationships of eHealth literacy and OHIBs with gender, age, and SEC, these demographic variables were controlled for in the analyses. IBM SPSS Amos 24 was used to run the statistical tests.

CHAPTER 4: RESULTS

The aim of this study was to examine how information-related factors such as eHealth literacy, active OHIB, and passive OHIB influence young adults' engagement in dietary and fitness behaviors. Aside from their proposed correlation with each other, it was also hypothesized that these factors influence behavior through intention and through the mediation of the three TPB predictors, namely attitudes, subjective norms, and PBC. This section details the descriptive statistics of this study, followed by the outcomes of the hypotheses testing.

Descriptive statistics

The mean age of the study participants was 19.99 years old, and 68.5% (n = 241) were females. Among those who indicated their monthly household income, including those who refused to divulge such information, 23.6% (n = 83) earns under PhP 40,000. Table 3 presents the demographic characteristics of the participants.

Table 3. Demographic profile of the survey participants

Demographics (N=352)	n (%)
Age	
18-21	298 (84.7)
22-25	47 (13.4)
26-29	7 (2.0)
Mean	19.99
SD	1.99
Gender	
Male	111 (31.5)
Female	241 (68.5)
SEC	
Under PhP 40,000	83 (23.6)
PhP 40,000 - 59,999	46 (13.1)
PhP 60,000 - 99,999	40 (11.4)
PhP 100,000 - 249,999	44 (12.5)
PhP 250,000 and over	46 (13.1)
I don't know/Refuse to divulge	93 (26.4)

On a five-point scale, a mean score of 3.67 ($SD = 0.62$) for eHealth literacy suggests that the students were moderately confident in their ability to seek, assess, and apply online health information. The mean for active and passive OHIBs, on the other hand, was relatively low for both health behaviors, implying that the participants rarely sought out and were seldom exposed to online information on healthy eating and physical exercise. For both behaviors, however, more passive OHIB was reported than active OHIB. The mean scores were between 2.04 ($SD = 0.64$) to 2.08 ($SD = 0.72$) for active OHIB, and 2.48 ($SD = 0.73$) to 2.54 ($SD = 0.66$) for passive OHIB. This indicates that the participants unintentionally encountered online health content more frequently than they purposely sought them out.

Meanwhile, mean scores for attitude towards healthy eating and physical exercising were high at 4.09 ($SD = 0.60$) and 4.35 ($SD = 0.65$), respectively. These figures demonstrate a positive attitude towards both health behaviors, with physical exercise scoring slightly higher than healthy eating. Subjective norms and PBC were also moderately high for both health behaviors, with mean scores ranging from 3.40 ($SD = 0.46$) to 3.60 ($SD = 0.55$) for norms, and 3.22 ($SD = 0.67$) to 3.44 ($SD = 0.80$) for PBC. This suggests that participants have fairly high positive normative beliefs and notions of personal ability to perform these behaviors. Likewise, mean scores for behavioral intention were moderately high with 3.24 ($SD = 0.80$) for healthy eating and 3.28 ($SD = 0.90$) for physical exercise, indicating that the participants were highly motivated to engage in these health behaviors. These scores, however, were higher compared to actual behavior, which only got a mean score of 2.34 ($SD = 0.60$) for healthy eating and 2.04 ($SD = 0.60$) for physical exercising. Table 4 details the mean scores and standard deviations for both behaviors

Table 4. Mean Scores and Standard Deviations of Study Variables (Healthy Eating and Physical Exercising)

	Healthy Eating		Physical Exercising	
	Mean	SD	Mean	SD
eHealth Lit	3.67	0.62	3.67	0.62
Active OHIB	2.04	0.64	2.08	0.72
Passive OHIB	2.54	0.66	2.48	0.73
Attitude	4.09	0.60	4.35	0.65
Subj Norms	3.40	0.46	3.60	0.55
PBC	3.22	0.67	3.44	0.80
Intention	3.24	0.80	3.28	0.90
Behavior	2.34	0.61	2.04	0.71

p<.001

Hypotheses testing

Correlation and regression analyses were conducted to test for hypotheses. The pathways of results for healthy eating and physical exercising are presented in Figures 2 and 3, respectively. The significant relationships are highlighted in bold lines.

Figure 2. Pathway Coefficients for the Healthy Eating Model

Figure 3. Pathway Coefficients for the Physical Exercising Model

For healthy eating behavior, correlation results show that eHealth literacy, active OHIB, and passive OHIB were significantly associated with each other (Table 5). However, for physical exercising, only the correlation between active and passive OHIB was statistically significant (Table 6). For both behaviors, the correlation between active and passive OHIB exhibited relatively high values ($\rho = 0.54$ for healthy eating; $\rho = 0.70$ for physical exercising). They are, however, still within the 0.80 maximum limit set for correlation coefficients (Garson, 2012), so no multicollinearity problems were encountered in this study. Based on these results, H1a, H1b, and H1c were fully supported for healthy eating, but only H1c was supported for physical exercising.

Table 5. Correlations of Study Variables (Healthy Eating)

	eHealth Literacy	Active OHIB	Passive OHIB	Attitude	Subj Norms	PBC	Intention	Behavior
eHealth Lit	-							
Active OHIB	0.24**	-						
Passive OHIB	0.18**	0.54**	-					
Attitude	0.10	0.20**	0.16**	-				
Subj Norms	0.20**	0.18**	0.35**	0.17**	-			
PBC	0.14**	0.24**	0.16**	0.26**	0.19**	-		
Intention	0.15**	0.30**	0.24**	0.36**	0.18**	0.36**	-	
Behavior	0.04	0.22**	0.16**	0.30**	0.13*	0.37**	0.42**	-

*p < 0.05, **p < 0.01

Table 6. Correlations of Study Variables (Physical Exercising)

	eHealth Literacy	Active OHIB	Passive OHIB	Attitude	Subj Norms	PBC	Intention	Behavior
eHealth Lit	-							
Active OHIB	0.10	-						
Passive OHIB	0.10	0.70**	-					
Attitude	0.11*	0.33**	0.28**	-				
Subj Norms	0.08	0.36**	0.38**	0.31**	-			
PBC	0.15**	0.42**	0.25**	0.38**	0.27**	-		
Intention	0.15**	0.47**	0.30**	0.37**	0.30**	0.55**	-	
Behavior	0.05	0.28**	0.15**	0.23**	0.14*	0.47**	0.52**	-

*p < 0.05, **p < 0.01

Meanwhile, to test for H2, multiple regression analyses were conducted to estimate the relationship between the three information-related factors and behavioral intention. In order to fully assess the extent of influence of the independent variables, this study controlled for gender, age, and SEC. Results show that Active OHIB was the only statistically significant predictor of the intention to eat healthy ($\beta = 0.14$, $t = 2.46$, $p = 0.01$) and physically exercise ($\beta = 0.28$, $t = 4.33$, $p = 0.001$). Contrary to the other hypothesized relationships, neither eHealth literacy nor passive OHIB predicted one's intention to engage in either health behavior. Thus, only H2b was supported. The regression results for both behavioral intentions are presented in Table 7.

Table 7. Regression of eHealth Literacy, Active OHIB, Passive OHIB, Attitude, Subjective Norms, and PBC on Behavioral Intention

	B	S.E.	β	t	p
Healthy eating					
eHealth Lit	0.02	0.02	0.05	1.00	0.32
Active OHIB	0.05	0.02	0.14**	2.46	0.01
Passive OHIB	0.03	0.03	0.05	0.84	0.40
Attitude	0.10	0.02	0.25***	5.11	0.001
Subj Norms	0.02	0.02	0.05	0.88	0.38
PBC	0.11	0.02	0.26***	5.23	0.001
R ² =.24					
Physical exercise					
eHealth Lit	0.04	0.02	0.06	1.49	0.14
Active OHIB	0.10	0.02	0.28***	4.33	0.001
Passive OHIB	-0.03	0.03	-0.06	-1.05	0.30
Attitude	0.05	0.02	0.13**	2.89	0.004
Subj Norms	0.03	0.02	0.07	1.58	0.11
PBC	0.17	0.02	0.40***	8.34	0.001
R ² =.39					

To test the mediation effects for H3, this study first examined whether the relationships between the three independent variables and the TPB predictors were statistically significant. Regression results show that for healthy eating, active OHIB significantly predicted both attitude ($\beta = 0.14$, $t = 2.23$, $p = 0.03$) and PBC ($\beta = 0.21$, $t = 3.35$, $p = 0.001$); whereas eHealth literacy ($\beta = 0.14$, $t = 2.78$, $p = 0.01$) and passive OHIB ($\beta = 0.36$, $t = 6.04$, $p = 0.001$) influenced subjective norm (Table 8). Meanwhile, for physical exercising, active OHIB significantly influenced all three TPB predictors. Its strongest influence is on PBC ($\beta = 0.47$, $t = 7.18$, $p = 0.001$), followed by attitude ($\beta = 0.25$, $t = 3.59$, $p = 0.001$) and subjective norm ($\beta = 0.19$, $t = 2.85$, $p = 0.004$). Passive OHIB also predicted subjective norms ($\beta = 0.25$, $t = 3.59$, $p = 0.001$), while eHealth literacy did not yield significant influence on any of the TPB predictors (Table 9).

Table 8. Regression of eHealth Literacy, Active OHIB, and Passive OHIB on Attitude, Subjective Norm, and PBC (Healthy Eating)

	B	S.E.	β	t	p	R ²
On Attitude						
eHealth Lit	0.05	0.07	0.04	0.82	0.41	0.06
Active OHIB	0.13	0.06	0.14*	2.23	0.03	
Passive OHIB	0.10	0.08	0.07	1.21	0.23	
On Subj Norms						
eHealth Lit	0.16	0.06	0.14**	2.78	0.01	0.15
Active OHIB	-0.04	0.05	-0.05	-0.77	0.44	
Passive OHIB	0.42	0.07	0.36***	6.04	0.001	
On PBC						
eHealth Lit	0.08	0.06	0.07	1.35	0.18	0.09
Active OHIB	0.17	0.05	0.21***	3.35	0.001	
Passive OHIB	0.05	0.07	0.05	0.74	0.46	

Table 9. Regression of eHealth Literacy, Active OHIB, and Passive OHIB on Attitude, Subjective Norm, and PBC (Physical Exercising)

	B	S.E.	β	t	p	R ²
On Attitude						
eHealth Lit	0.08	0.07	0.07	1.31	0.19	0.12
Active OHIB	0.23	0.06	0.25***	3.59	0.001	
Passive OHIB	0.12	0.09	0.09	1.31	0.19	
On Subj Norms						
eHealth Lit	0.04	0.07	0.03	0.61	0.54	0.18
Active OHIB	0.18	0.06	0.19**	2.85	0.004	
Passive OHIB	0.32	0.09	0.25***	3.59	0.001	
On PBC						
eHealth Lit	0.11	0.06	0.08	1.75	0.08	0.23
Active OHIB	0.42	0.06	0.47***	7.18	0.001	
Passive OHIB	-0.10	0.08	-0.08	-1.27	0.20	

Also, in accordance with the test of mediation, this study looked at whether the proposed mediators were associated with behavioral intention. Consistent with the proposed pathway of the TPB model, regression results show that attitude and PBC significantly predicted both behavioral intentions. Attitude was a stronger predictor for healthy eating intention ($\beta = 0.25$, $t = 5.11$, $p = 0.001$ vs. $\beta = 0.13$, $t = 2.89$, $p = 0.004$), whereas PBC was a stronger predictor for physical exercising intention ($\beta = 0.40$, $t = 8.34$, $p = 0.001$ vs. $\beta = 0.26$, $t = 5.23$, $p = 0.001$). Subjective norm, meanwhile, did not

act as a predictor for either health behavior. Taken altogether, eHealth literacy, active OHIB, passive OHIB, and the three TPB predictors accounted for 24% explained variance for healthy eating intention, and 39% for physical exercising intention (Table 7).

In terms of path coefficients from the independent variables, only active OHIB and eHealth literacy were found to have a statistically significant total effect on behavioral intention. For healthy eating behavior, the total effect was significant at $p = 0.005$, 95% CI [0.12, 0.33], with behavioral intention increasing by 0.23 for every one standard deviation increase in active OHIB. Similarly, for physical exercising, active OHIB had a stronger total effect at $p = 0.004$, 95% CI [0.40, 0.63], with intention increasing by 0.52 standard deviations for every one-point increase in active OHIB. The total effect of eHealth literacy was also significant at $p = 0.03$, 95% CI [0.02, 0.21], with a 0.11 increase for every one standard deviation increase in eHealth literacy. Meanwhile, accounting for the indirect effects of the mediators, only the path coefficient from active OHIB to behavioral intention was statistically significant. The indirect effect was significant for both healthy eating ($\beta = .09$, $p = 0.004$, 95% CI [0.03, 0.15]) and physical exercising ($\beta = 0.24$, $p = .006$, 95% CI [0.15, 0.31]). Table 10 presents the total, direct, and indirect effects in the path analysis.

Table 10. Total, Direct, and Indirect Effects on Intention to Eat Healthy and Physically Exercise

	Total effects	Direct effects	Indirect effects
On intention to eat healthy			
eHealth Literacy	0.09	0.05	0.04
Active OHIB	0.23**	0.14**	0.09**
Passive OHIB	0.10	0.05	0.05
On intention to exercise			
eHealth Literacy	0.11*	0.06	0.04
Active OHIB	0.52**	0.28***	0.24**
Passive OHIB	-0.07	-0.06	-0.004

In order to assess the influence of each mediator, this study tested the regression pathway of each TPB predictor. Consistent with the results of the indirect effects analysis, the relationship between active OHIB and behavioral intention was significantly mediated for both health behaviors. Results show that the mediation effects were higher for physical exercising than healthy eating among all the mediators: attitudes ($\beta = 0.45$, $t = 6.90$, $p = 0.001$ vs. $\beta = 0.18$, $t = 3.13$, $p = 0.002$), subjective norm ($\beta = 0.48$, $t = 7.29$, $p = 0.001$ vs. $\beta = 0.23$, $t = 3.80$, $p = 0.001$), and PBC ($\beta = 0.31$, $t = 4.74$, $p = 0.001$ vs. $\beta = 0.16$, $t = 2.73$, $p = 0.006$). It should also be noted that the influence of eHealth literacy on one's intention to physically exercise only became significant when it was mediated by subjective norms. This influence was reflected on the significant total effects of eHealth literacy on physical exercise intention. The detailed effects of the mediators are shown in Table 11 for healthy eating and Table 12 for physical exercising. These findings show that H3b was fully supported, as well as H3a but only to a certain extent.

Table 11. Mediation Effects of Attitude, Subjective Norm, and PBC on Intention to Eat Healthy

	B	S.E.	β	t value	p	R ²
Mediated by Attitude						
eHealth literacy	0.03	0.02	0.07	1.41	0.16	0.20
Active OHIB	0.07	0.02	0.18**	3.13	0.002	
Passive OHIB	0.04	0.03	0.07	1.25	0.21	
Mediated by Subj Norm						
eHealth literacy	0.03	0.03	0.07	1.29	0.20	0.13
Active OHIB	0.09	0.02	0.23***	3.80	0.001	
Passive OHIB	0.03	0.03	0.05	0.86	0.39	
Mediated by PBC						
eHealth literacy	0.03	0.02	0.06	1.23	0.22	0.20
Active OHIB	0.06	0.02	0.16**	2.73	0.006	
Passive OHIB	0.04	0.03	0.08	1.40	0.16	

Table 12. Mediation Effects of Attitude, Subjective Norm, and PBC on Intention to Physically Exercise

	B	S.E.	β	t value	p	R ²
Mediated by Attitude						
eHealth literacy	0.05	0.03	0.09	1.95	0.05	0.29
Active OHIB	0.17	0.02	0.45***	6.90	0.001	
Passive OHIB	-0.05	0.03	-0.09	-1.39	0.16	
Mediated by Subj Norm						
eHealth literacy	0.06	0.03	0.10*	2.16	0.03	0.28
Active OHIB	0.18	0.03	0.48***	7.29	0.001	
Passive OHIB	-0.05	0.04	-0.10	-1.54	0.12	
Mediated by PBC						
eHealth literacy	0.04	0.02	0.08	1.62	0.11	0.39
Active OHIB	0.11	0.02	0.31***	4.74	0.001	
Passive OHIB	-0.02	0.03	-0.10	-0.49	0.63	

Lastly, to test for H4, the proposed pathway to behavior was tested based on the influence of intention. Consistent with the TPB model, intention significantly predicted the performance of both healthy eating ($\beta = 0.40$, $t = 7.87$, $R^2 = 0.20$, $p = 0.001$) and physical exercising ($\beta = 0.49$, $t = 9.47$, $R^2 = 0.28$, $p = 0.001$) behaviors. Hence, H4 was supported. Tables 13 presents the breakdown of the regression results on healthy eating and physical exercising behaviors.

Table 13. Regression of eHealth Literacy, Active OHIB, Passive OHIB, and Intention on Behavior (Healthy Eating and Physical Exercising)

	B	S.E.	β	t	p	R ²
Healthy Eating						
Intention	0.10	0.01	0.40***	7.87	0.001	0.20
Physical Exercise						
Intention	0.13	0.01	0.49***	9.47	0.001	0.28

In addition, the variance explained for healthy eating intention increased from 18% to 24%, and physical exercising intention from 29% to 39%. Table 14 details the exclusive effects of the TPB predictors on the intention to eat healthy and physically exercise.

Table 14. Effects of Attitude, Subjective Norms, and PBC on Behavioral Intention

	B	S.E.	β	t	p	R ²
On healthy eating						
Attitude	0.11	0.02	0.27***	5.61	0.001	0.18
Subj Norms	0.04	0.02	0.09	1.80	0.72	
PBC	0.13	0.02	0.30***	6.07	0.001	
On physical exercising						
Attitude	0.07	0.02	0.13***	3.66	0.001	0.29
Subj Norms	0.05	0.02	0.07**	2.88	0.004	
PBC	0.20	0.02	0.40***	10.97	0.001	

CHAPTER 5: DISCUSSION

As the abundance of available online health information channels continues to increase, the primary objective of this paper is to assess whether eHealth literacy, active OHIB, and passive OHIB influence the diet and fitness behaviors of Filipino young adults. Results from this study show that eHealth literacy is related to both active and passive OHIBs. This implies that an individual's intentional or unintentional acquisition of online health information is correlated with his perceived ability to seek, understand, and appraise such information to solve health problems. This finding is consistent with existing research that similarly focused on the relationship between eHealth literacy and information behaviors. In particular, previous studies found that eHealth literacy was associated with heightened online health information seeking (Chang et al., 2015; Sheng & Simpson, 2013) and more active consumption of online health information (Neter & Brainin, 2012). Ghaddar et al. (2012), likewise, found that higher eHealth literacy scores were associated with the exposure to and awareness of an online health information source. Results from this study demonstrate that even if information behavior is investigated exclusively in the online context, it still yielded similar results as these studies which looked at the combined influence of traditional, mediated, and online health information sources (Ghaddar et al., 2012; Neter & Brainin, 2012).

This relation between eHealth literacy and OHIBs, however, was significant for healthy eating behavior only, and not for physical exercising. This could be a result of this study's different approach as it considered specific health behaviors in its measurement of both OHIBs. This is unlike previous studies that examined OHIB in terms of seeking and scanning general health information (Chang et al., 2015; Ghaddar et al., 2012). This study, thus, shows that when the relationship of eHealth literacy and

OHIBs is examined, their correlation may vary according to the health behavior under investigation.

Meanwhile both OHIBs were found to be correlated with each other, with passive OHIB occurring more frequently than active OHIB for both health behaviors. This finding is consistent with previous studies which also found associations between information seeking and scanning, with scanning similarly occurring more commonly than seeking (Niederdeppe et al. 2007; Tan et al., 2012). As with these earlier studies, results from the current study indicate that the participants more frequently acquired online health content by chance than on purpose. This suggests that exposure to information does lead to awareness, which consequently highlights the potential use of social media as channels of health-related information. Given the amount of time people spend on social media, the appearance of health promoting information on these platforms can have valuable effects.

However, despite this promising use of social media to promote awareness of health behaviors, only active OHIB significantly influenced the participants' intention to engage in both health behaviors. This suggests that while the availability of online information on diet and fitness is evident in this study, only the individual's intentional use of the Internet to seek such information led to behavioral engagement. These findings are consistent with previous studies which found that when it comes to performing health behaviors, individuals were influenced by information they acquired through information-seeking (Kelly et al., 2010; Niederdeppe et al., 2007).

Earlier research, likewise, found that more frequent use of media sources for health information is associated with higher levels of motivation to engage in healthy behaviors, and consequently, an increased likelihood of performing health behaviors (Moorman & Matulich, 1993). This study's findings support this assertion as

behavioral intention was significantly predicted by active OHIB, a construct gauged by one's search for health information using online sources. It should be noted, however, that the frequency of media use for health information corresponds to behavioral intention only to the extent that there is a deliberate search for health information. This important distinction was made as exposure to unsolicited online health information did not significantly predict behavioral intention. These findings contradict existing research which found that exposure to health information leads to the performance of health behaviors such as cancer screening (Kelly et al., 2009; Kelly et al., 2010). While it was speculated that engagement in health behaviors is also influenced by one's exposure to health content during his general use of online sources, the study results reflect a filtering of information where only those content one would like to attend to is considered. This discrepancy suggests that the increase in one's inclination to perform health behaviors can be predicted by exposure to online health content, but only when they are deemed relevant by the individual. Thus, while previous studies, including the current one, measured passive OHIB with one's exposure to health information from online media sources (Hull et al., 2007; Shim et al., 2006), future research should instead account for the attention paid to this online information.

Also, contrary to existing literature that found associations between eHealth literacy and behavior (Britt et al., 2015; Kim & Lee, 2015; Mitsutake et al., 2016), this study did not yield similar results when predicting intentions to engage in dietary and fitness behaviors. Although the study participants reported moderately high confidence in their ability to seek, assess, and apply online health information, this did not translate to behavioral intention. This suggests that one's knowledge does not necessarily equate to behavioral outcomes, thereby bringing forward a gap in

knowledge and behavior. Previous research has similarly found this inconsistency, with several studies offering the presence of underlying factors such as personal advantages and system barriers as possible causes (Blake, McAuliffe, & Warneken, 2014; Hornik, 1988; Kennedy, Regehr, Rosenfield, Roberts, & Lingard, 2004; Rimal, 2000). Given the same observed discrepancies in this study, further research is needed to examine the mitigating factors that could possibly explain the link between eHealth literacy and one's motivation to engage in health behaviors.

On the other hand, while eHealth literacy was not able to directly predict the intention to perform either health behavior, its influence on one's intention to physically exercise became significant when it was mediated by subjective norms. In a similar study among American young adults, Britt et al. (2015) found that the relationship between eHealth literacy and the intention to get HPV vaccination was mediated by PBC. This discrepancy on which TPB predictor had significant mediation effects underscores Yoo and Robbins' (2008) assertion that the predictive strength of TPB predictors varies across behaviors, situations, or user groups. Given that this study focused on different health behaviors, and employed another group of people geographically and culturally different from Britt et al.'s (2015) study sample, this inconsistency in results is expected.

Also, the influence of subjective norms on the relationship between eHealth literacy and the intention to physically exercise may be explained by the current Philippine online media landscape. With the prevalence of dietary- and fitness-related online content in the Philippines, individuals are more likely provided an image of others' health practices. As individuals with high eHealth literacy are more able to obtain their health information from online outlets as compared to those with low eHealth literacy, eHealth literate people would be more exposed to such online

contents, consequently influencing their perceptions of others' normative expectations of healthy behaviors (Rivis & Sheeran, 2003b). This supports Dutta-Bergman's (2004a) assertion that the presence of health-oriented individuals in one's social network prompts similar engagement in healthy practices. Likewise, in an online context, the implication of this study's finding is consistent with Frimming et al.'s (2011) study where long-term social media use was found to increase individuals' awareness of fitness needs and allowed them to learn workout routines from their peers.

Likewise, the theory's assertion that psychosocial predictors influence behavioral intention was partially supported in this study. In particular, attitude and PBC predicted the intention to engage in dietary and fitness behaviors. These results indicate that the more positively one regards the health behavior, and perceives himself as more able to perform the health behavior, then the more likely he will engage in the behavior. In this study, attitude acted as a stronger predictor for healthy eating and PBC for physical exercising. This indicates that each predictor contributed differently according to the health behavior under consideration. This finding is consistent with other studies which found varying predictive strength of TPB variables on dietary and fitness behaviors. For instance, while attitudes and PBC were similarly the most significant predictors of healthy eating and physical exercise among Hong Kong students (Chan & Tsang, 2011) and British women (Biddle, Goudas, & Page, 1994), it was PBC and subjective norms for Canadian children (Rhodes et al., 2006), and only subjective norms for Native American boys (Fila & Smith, 2006). These widely diverse profiles of study samples demonstrate how the predictive strength of TPB variables varies across groups.

This study also found that the overall indirect effect of the TPB variables on the relationship between active OHIB and behavioral intention was more prominent with physical exercising than with healthy eating. Further breakdown of the mediating effects of the TPB variables showed a similar pattern where the individual influence of attitude, subjective norm, and PBC was stronger for physical exercising. Comparable results were also found for the total and direct effects of active OHIB on intention, demonstrating a stronger impact on fitness behavior than dietary behavior. A possible explanation for this finding is the higher independence afforded to the study participants to physically exercise than to eat healthy. Given that the composition of this study's sample are university students who either still live with their families at home or are staying in university halls, their food choices are somewhat restricted. Also, most of these students, if not all, do not have a steady income yet. This limits their capability to select healthier food options, which are more expensive in the Philippines. Unlike eating healthy, however, doing physical activities is easier and much less costly given the several jogging paths on campus and students' free access to the gymnasium.

While passive OHIB and eHealth literacy did not yield any significant influence on behavioral intention, their inclusion, along with active OHIB, significantly increased the predictive power of the TPB model. Consistent with previous studies that produced better fitting TPB models with the addition of external factors (Hagger et al., 2002b; Lu et al., 2010; Pavlou & Fygenson, 2006; Pelling & White, 2009), this study provided a substantial extension of the model that offers a concrete link between information-related factors, psychosocial predictors, and health behaviors. This study also provided behavioral evidence to support its measurement of behavioral intention. Consistent with the meta-analysis study conducted by Sheeran

(2002), this study similarly found inconsistencies between intention and actual behavior. Specifically, intention was higher compared to actual behavior, indicating that behavioral intention did not equally translate to action. This study, thus, also confirm this gap between the two TPB constructs.

CHAPTER 6: CONCLUSION AND LIMITATIONS

Given the current communication environment, the potential impact of online health information on behavior is immense. This study provided empirical evidence that demonstrated how online health information behaviors, as well the competence involved in evaluating such information, relate to one another; and to some extent, influence behavior directly or through the mediation effects of psychosocial factors. Specifically, this study found that active and passive OHIBs were correlated with each other for dietary and fitness behaviors, while eHealth literacy was associated with the two OHIBs only for dietary behavior. Likewise, while passive OHIB occurred more frequently than active OHIB, only active OHIB significantly predicted intention for both behaviors. Attitudes, subjective norm, and perceived behavioral control (PBC) mediated these relationships. eHealth literacy also influenced one's intention to physically exercise, but only when mediated by subjective norms.

These findings suggest that online media use corresponds to health behavior only to the extent that there is a deliberate search for health information. The significant mediation effects of subjective norms also point to eHealth literate individuals' higher reliance on online sources for health information. Their reliance exposes them to online contents that provide perceptions of normative expectations surrounding engagement in health behaviors, consequently influencing their intention to perform the behavior. Meanwhile, the differences in the relationships among variables based on behavior type emphasize the importance of taking into account the variation that comes with examining information-related factors. As the results garnered from this study demonstrated, behavior type has a strong influence on the outcomes, and must therefore be considered carefully when the proposed relationships are tested. The study findings also present a gap in knowledge and behavior as eHealth

literacy did not completely translate to health practices, despite the relatively high eHealth literacy scores of the study participants. This highlights the importance of determining ways of effective communication such that knowing about a particular health behavior leads to its performance.

Active OHIB, meanwhile, influenced the intention to engage in both health behaviors. This study demonstrated how the prominence of and easy access to online content on healthy eating and physical exercise can be instrumental in promoting such health behaviors. Given that most health information campaigns aim to promote healthier lifestyles, factors that encourage these behavioral changes are essential concerns. Insights obtained from this study contribute to this discussion as it emphasizes the added value of investing resources in online platforms. Future campaigns that seek to encourage people to engage in healthy behaviors can provide easier access to health information by employing social media platforms, QR codes, or chatbots on websites. Likewise, future research can utilize the findings of this study to determine how the use of online channels can target consumers effectively, and whether the informational factors investigated in this study can promote other health practices.

In addition to these practical implications, this study's inclusion of the information-related factors helped to strengthen the predictive power of TPB in the context of dietary and fitness behaviors. The extension of the TPB model provided a concrete link that supported the pathway of relationship between information, psychosocial predictors, and behaviors – associations proposed by both IMB and KAP models. This paves the way for the further investigation of how these information-related variables relate to TPB predictors in other settings, and what mitigating factors possibly contributed to the results that ran contrary to expectations.

This study was limited to the extent that the proposed model was tested to only one university sample, which restricted the generalizability of the results. Also, despite the researcher's attempts to widen the variance of the age of the study sample, recruitment limitations resulted to a mean age more skewed towards the lower end of the young adult spectrum. However, the main objective of the study is to test the path coefficient of the variables in the model, for which it was able to succeed. Having already demonstrated the applicability of this study's model, further research is suggested to test its significance in a non-university population. This study's focus was also limited to factors involving health information from online sources only. As such, non-digital sources were not taken into account, limiting the number of potential respondents to only those who use the Internet. To obtain a better sampling frame, this study collected data from a sample taken from the metropolitan area, thereby increasing the likelihood of garnering respondents who utilize the Internet. Other limitations of this study include its use of self-reported measures and the different modalities used for the first and second part of the survey. While self-reporting is admittedly less valid than behavioral measures, the high reliability and internal consistency of the scales lend strong support to its use for this particular study. Also, the mediation split provided demonstrated that the use of different modalities in the administration of the survey did not significantly affect the study results.

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APPENDICES

Appendix A

Online survey for eHealth literacy and online health information behavior (Part 1).

Informed Consent Form

Purpose of the study:

To understand your health literacy, online health information behavior, and health behaviors.

Eligibility criteria:

To take part in this study, you must:

- a. Be a Filipino
- b. Be between 18-29 years old
- c. Be a current student of the University of the Philippines, Diliman
- d. Have regular access to the Internet

Procedures to be followed:

To achieve the purpose of this study, this research shall make use of survey to gather information. If you consent to participate in this study, kindly fill in the statement of consent below and proceed with the online survey. Upon your completion of the survey, you may collect your incentive (PhP 100.00) from the researcher, Ysa Marie Cayabyab, from 10am-6pm at the lobby of the University of the Philippines' Main Library. A follow-up survey consisting of six (6) main questions will also be conducted during this time, and should you be interested to continue on, an additional incentive (PhP 50.00) will be given for your participation. It is targeted that you answer this follow-up survey at least two weeks after your completion of the online survey. A reminder email will be sent to you and we request that you remember your survey code (the number provided in the email sent to you) when you claim your incentive so that we can keep track of your participation.

Confidentiality:

This survey is anonymous. Your participation will remain confidential, and your identity will not be associated with your responses.

Voluntary withdrawal:

This survey may take approximately 15-20 minutes to complete. Your participation is completely voluntary, and your decision to participate, decline, or withdraw will have no effect on your status or relationship with the University of the Philippines. However, it is much appreciated if you can answer ALL the questions on this survey.

Contact Information:

If you have any questions or concerns about this study, please feel free to contact the Principal Investigator or co-Principal Investigator (contact details below), or the NTU IRB at irb@ntu.edu.sg.

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Statement of consent:

By signing below, I acknowledge that I have read the above information and I am willing to participate in this study.

Name:

Date (Month/Day/Year):

Survey Code (e.g., AL008):

0% 100%

Survey Powered By [Qualtrics](#)

Gender

- ☐ Male
☐ Female

Age

Programme

- ☐ Undergraduate
☐ Graduate

Average household monthly income

- ☐ Under PhP 40,000
☐ PhP 40,000 - 59,999
☐ PhP 60,000 - 99,999
☐ PhP 100,000 - 249,999
☐ PhP 250,000 and over
☐ I don't know/Refuse to divulge

0% 100%

1. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. I know how to find helpful health resources on the Internet.	☐	☐	☐	☐	☐
B. I know how to use the Internet to answer my questions about health.	☐	☐	☐	☐	☐
C. I know what health resources are available on the Internet.	☐	☐	☐	☐	☐
D. I know where to find helpful health resources on the Internet.	☐	☐	☐	☐	☐
E. I know how to use the health information I find on the Internet to help me.	☐	☐	☐	☐	☐
F. I have the skills I need to evaluate the health resources I find on the Internet.	☐	☐	☐	☐	☐
G. I can tell the difference between high quality and low quality health resources on the Internet.	☐	☐	☐	☐	☐
H. I feel confident in using information from the Internet to make decisions about my health.	☐	☐	☐	☐	☐

0% 100%

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For the purpose of this survey, HEALTHY EATING will be referred to as the consumption of food low in saturated fat and cholesterol, and with the inclusion of a variety of fruits, vegetables, and grains.

2. Think about your Internet activities for the past month. How often did you SEARCH FOR information that is related to HEALTHY EATING using the following online sources:

	Never	Rarely	Sometimes	Often	Always
A. Online search engines (e.g., Google, Yahoo)	☐	☐	☐	☐	☐
B. Websites (e.g., health.com, fitness.gov)	☐	☐	☐	☐	☐
C. Social media (e.g., Facebook, Instagram)	☐	☐	☐	☐	☐
D. Online forums (e.g., healthboards.com, healthunlocked.com)	☐	☐	☐	☐	☐
E. Blogs (e.g., marksdailyapple.com, sproutedkitchen.com)	☐	☐	☐	☐	☐
F. Electronic mail (e.g., Google mail, Yahoo mail)	☐	☐	☐	☐	☐
G. Instant messaging (e.g., WhatsApp, Google chat)	☐	☐	☐	☐	☐

For the past month, how often did you...

	Never	Rarely	Sometimes	Often	Always
H. Create online content about healthy eating (e.g., blog entries, post photos or videos)	☐	☐	☐	☐	☐
I. Share through online means healthy eating content created by other people (e.g., share links through Facebook or Twitter)	☐	☐	☐	☐	☐
J. Respond to online content about healthy eating (e.g., comment on or like posts on Facebook)	☐	☐	☐	☐	☐

0% 100%

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3. Think about your Internet activities for the past month. How often did you SEE BY CHANCE, information that is related to HEALTHY EATING on the following online platforms:

	Never	Rarely	Sometimes	Often	Always
A. Online search engines (e.g., Google, Yahoo)	☐	☐	☐	☐	☐
B. Websites	☐	☐	☐	☐	☐
C. Social media (e.g., Facebook, Instagram, youtube)	☐	☐	☐	☐	☐
D. Online forums	☐	☐	☐	☐	☐
E. Blogs	☐	☐	☐	☐	☐
F. Electronic mail (e.g., Google mail, Yahoo mail)	☐	☐	☐	☐	☐
G. Instant messaging (e.g., WhatsApp, Google chat)	☐	☐	☐	☐	☐

0% 100%

<< >>

4. What do you think of HEALTHY EATING?

	1	2	3	4	5	
Useless	☐	☐	☐	☐	☐	Useful
Foolish	☐	☐	☐	☐	☐	Wise
Harmful	☐	☐	☐	☐	☐	Beneficial
Unenjoyable	☐	☐	☐	☐	☐	Enjoyable
Boring	☐	☐	☐	☐	☐	Interesting
Stressful	☐	☐	☐	☐	☐	Relaxing
Undesirable	☐	☐	☐	☐	☐	Desirable
Bad	☐	☐	☐	☐	☐	Good
Not important	☐	☐	☐	☐	☐	Important
Unpleasant	☐	☐	☐	☐	☐	Pleasant

0% 100%

<< >>

5. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. My family thinks I should eat healthy.	☐	☐	☐	☐	☐
B. My friends think I should eat healthy.	☐	☐	☐	☐	☐
C. My peers think I should eat healthy.	☐	☐	☐	☐	☐
D. The TV programs I watch show that I should eat healthy.	☐	☐	☐	☐	☐
E. The magazines I read show that I should eat healthy.	☐	☐	☐	☐	☐
F. The online media I follow show that I should eat healthy.	☐	☐	☐	☐	☐
G. Most of my family members eat healthy.	☐	☐	☐	☐	☐
H. Most of my friends eat healthy.	☐	☐	☐	☐	☐
I. Most of my peers eat healthy.	☐	☐	☐	☐	☐
J. Most TV personalities from the shows I watch eat healthy.	☐	☐	☐	☐	☐
K. Most people featured in the magazines I read eat healthy.	☐	☐	☐	☐	☐
L. Most online media personalities I follow eat healthy.	☐	☐	☐	☐	☐

0% 100%

<< >>

6. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. I am confident that I am able to eat healthy regularly.	☐	☐	☐	☐	☐
B. I am confident that I am able to overcome obstacles that prevent me from eating healthy regularly.	☐	☐	☐	☐	☐
C. I believe I have the ability to eat healthy regularly.	☐	☐	☐	☐	☐
D. It is entirely up to me whether or not I eat healthy regularly.	☐	☐	☐	☐	☐
E. I have personal control over eating healthy regularly.	☐	☐	☐	☐	☐
F. I have enough discipline to eat healthy regularly.	☐	☐	☐	☐	☐
G. It is easy for me to eat healthy regularly.	☐	☐	☐	☐	☐
H. I could eat healthy regularly if I wanted to.	☐	☐	☐	☐	☐

0% 100%

<< >>

7. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. I intend to eat healthy over the next two weeks.	☐	☐	☐	☐	☐
B. I plan to eat healthy over the next two weeks.	☐	☐	☐	☐	☐

Please indicate the frequency of your intention to eat healthy:

	Never	1-3 days a week	4-6 days a week	Everyday
C. Over the next two weeks, how often do you intend to eat healthy food?	☐	☐	☐	☐

0% 100%

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For the purpose of this survey, **PHYSICAL EXERCISING** will be referred to as the participation in physical activity that is planned, structured, and repetitive with a final or an intermediate objective of improving or maintaining physical fitness.

8. Think about your Internet activities for the past month. How often did you SEARCH FOR information that is related to **PHYSICAL EXERCISING** using the following online sources:

	Never	Rarely	Sometimes	Often	Always
A. Online search engines (e.g., Google, Yahoo)	☐	☐	☐	☐	☐
B. Websites (e.g., health.com, fitness.gov)	☐	☐	☐	☐	☐
C. Social media (e.g., Facebook, Instagram)	☐	☐	☐	☐	☐
D. Online forums (e.g., healthboards.com, healthunlocked.com)	☐	☐	☐	☐	☐
E. Blogs (e.g., nerdfitness.com, bornfitness.com)	☐	☐	☐	☐	☐
F. Electronic mail (e.g., Google mail, Yahoo mail)	☐	☐	☐	☐	☐
G. Instant messaging (e.g., WhatsApp, Google chat)	☐	☐	☐	☐	☐

For the past month, how often did you...

	Never	Rarely	Sometimes	Often	Always
H. Create online content about physical exercise (e.g., blog entries, post photos or videos)	☐	☐	☐	☐	☐
I. Share through online means physical exercise content created by other people (e.g., share links through Facebook or Twitter)	☐	☐	☐	☐	☐
J. Respond to online content about physical exercise (e.g., comment on or like posts on Facebook)	☐	☐	☐	☐	☐

0% 100%

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9. Think about your Internet activities for the past month. How often did you SEE BY CHANCE, information that is related to PHYSICAL EXERCISING on the following online platforms:

	Never	Rarely	Sometimes	Often	Always
A. Online search engines (e.g., Google, Yahoo)	☐	☐	☐	☐	☐
B. Websites	☐	☐	☐	☐	☐
C. Social media (e.g., Facebook, Instagram, youtube)	☐	☐	☐	☐	☐
D. Online forums	☐	☐	☐	☐	☐
E. Blogs	☐	☐	☐	☐	☐
F. Electronic mail (e.g., Google mail, Yahoo mail)	☐	☐	☐	☐	☐
G. Instant messaging (e.g., WhatsApp, Google chat)	☐	☐	☐	☐	☐

0% ☐ 100%

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10. What do you think of PHYSICAL EXERCISING?

	1	2	3	4	5	
Useless	☐	☐	☐	☐	☐	Useful
Foolish	☐	☐	☐	☐	☐	Wise
Harmful	☐	☐	☐	☐	☐	Beneficial
Unenjoyable	☐	☐	☐	☐	☐	Enjoyable
Boring	☐	☐	☐	☐	☐	Interesting
Stressful	☐	☐	☐	☐	☐	Relaxing
Undesirable	☐	☐	☐	☐	☐	Desirable
Bad	☐	☐	☐	☐	☐	Good
Not important	☐	☐	☐	☐	☐	Important
Unpleasant	☐	☐	☐	☐	☐	Pleasant

0% ☐ 100%

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11. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. My family thinks I should physically exercise.	☐	☐	☐	☐	☐
B. My friends think I should physically exercise.	☐	☐	☐	☐	☐
C. My peers think I should physically exercise.	☐	☐	☐	☐	☐
D. The TV programs I watch show that I should physically exercise.	☐	☐	☐	☐	☐
E. The magazines I read show that I should physically exercise.	☐	☐	☐	☐	☐
F. The online media I follow show that I should physically exercise.	☐	☐	☐	☐	☐
G. Most of my family members physically exercise.	☐	☐	☐	☐	☐
H. Most of my friends physically exercise.	☐	☐	☐	☐	☐
I. Most of my peers physically exercise.	☐	☐	☐	☐	☐
J. Most TV personalities from the shows I watch physically exercise.	☐	☐	☐	☐	☐
K. Most people featured in the magazines I read physically exercise.	☐	☐	☐	☐	☐
L. Most online media personalities I follow physically exercise.	☐	☐	☐	☐	☐

12. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. I am confident that I am able to physically exercise regularly.	☐	☐	☐	☐	☐
B. I am confident that I am able to overcome obstacles that prevent me from physically exercising regularly.	☐	☐	☐	☐	☐
C. I believe I have the ability to physically exercise regularly.	☐	☐	☐	☐	☐
D. It is entirely up to me whether or not I physically exercise regularly.	☐	☐	☐	☐	☐
E. I have personal control over physically exercising regularly.	☐	☐	☐	☐	☐
F. I have enough discipline to physically exercise regularly.	☐	☐	☐	☐	☐
G. It is easy for me to physically exercise regularly.	☐	☐	☐	☐	☐
H. I could physically exercise regularly if I wanted to.	☐	☐	☐	☐	☐

0% ☐ 100%

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13. Please indicate how much you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A. I intend to physically exercise over the next two weeks.	☐	☐	☐	☐	☐
B. I plan to physically exercise over the next two weeks.	☐	☐	☐	☐	☐

Please indicate the frequency of your intention to physically exercise:

	Never	1-3 times a week	4-6 times a week	Everyday
C. Over the next two weeks, how often do you intend to physically exercise?	☐	☐	☐	☐

0% ☐ 100%

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Thank you very much for your participation!

You may collect your incentive from the researcher, Ysa Marie Cayabyab, from 10am-6pm at the lobby of the University of the Philippines' Main Library.

Kindly click the "Submit" button below to submit your survey responses.

0% ☐ 100%

<< Submit

Appendix B

Follow up survey for eHealth literacy and online health information behavior (Part 2). **Informed Consent Form****Purpose of the study:**

To understand your health literacy, online health information behavior, and health behaviors.

Eligibility criteria:

To take part in this survey, you must:

- a. Have completed the online survey at least two (2) weeks ago
- b. Provide your survey code (the number provided in the email sent to you)

Procedures to be followed:

To achieve the purpose of this study, this research shall conduct a follow-up survey to gather additional information. If you consent to participate in this study, kindly sign your name in the statement of consent below and proceed with the survey. Once you submit your responses, you may then claim your incentive for completing both surveys (PhP 150.00). The researcher will be at the Information Services section (formerly General References) of the Main Library, Mondays to Fridays (10am-6pm), and Saturdays (10am-5pm).

Confidentiality:

This survey is anonymous. Your participation will remain confidential, and your identity will not be associated with your responses.

Voluntary withdrawal:

This survey may take approximately 3-5 minutes to complete. Your participation is completely voluntary, and your decision to participate, decline, or withdraw will have no effect on your status or relationship with the University of the Philippines. However, if you choose to not participate in this survey, kindly personally claim your incentive (PhP 100.00) from the researcher anytime on the schedule indicated in the "Procedures to be followed" above.

Contact information:

If you have any questions or concerns about this study, please feel free to contact the Principal Investigator or co-Principal Investigator (contact details below), or the NTU IRB at irb@ntu.edu.sg.

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Graduate Student/Co-Principal Investigator
#05-10, 31 Nanyang Link, Nanyang Technological University
Tel: (65) 6790-6564
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Statement of consent:

By signing below, I acknowledge that I have read the above information and I am willing to participate in this study.

Name:

Survey code:

For the purpose of this survey, healthy eating will be referred to as the consumption of food low in saturated fat and cholesterol, and with the inclusion of a variety of fruits, vegetables, and grains.

1. For the past two weeks, how often did you eat healthy food?

- ☐ Never
- ☐ 1-3 days a week
- ☐ 4-6 days a week
- ☐ Everyday

For the purpose of this survey, physical exercising will be referred to as the participation in physical activity that is planned, structured, and repetitive with a final or an intermediate objective of improving or maintaining physical fitness.

2. For the past two weeks, how often did you physically exercise?

- ☐ Never
- ☐ 1-3 times a week
- ☐ 4-6 times a week
- ☐ Everyday

Submit