Computers in Human Behavior 60 (2016) 483–491

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Internet use and leisure time physical activity of adults – A nationwide survey

Sima Zach [a, *], Sabina Lissitsa [b]

[a] Zinman College of Physical Education and Sport Sciences at the Wingate Institute, Netanya, Israel
[b] School of Communication, Ariel University, Ariel, Israel

ARTICLE INFO

Article history:
Received 5 November 2015
Received in revised form
14 January 2016
Accepted 19 February 2016
Available online xxx

Keywords:
Internet use
Digital uses
Physical activity patterns
The theory of planned behavior
The HAPA model

ABSTRACT

We examined the relationships between physical activity and Internet use habits, using the Theory of Planned Behavior (TPB) and the Health Action Process Approach (HAPA) model as a framework. The purpose was to examine how Internet access, digital use, and time spent online correlate with the odds of engaging in three types of PA: strenuous, moderate, and muscle-strengthening Data relied on the Annual Social Survey conducted by Israel's Central Bureau of Statistics in 2010, with 6035 participants aged 20–65. Logistic regressions revealed that the odds of engaging versus not engaging in three types of physical activity were higher among Internet users compared to non-users. The odds of engaging versus not engaging in strenuous physical activity were higher among those who used the Internet for studying, social media, and downloading; in strengthening muscles were higher among those who used the Internet for seeking information and social media; and in moderate physical activity were higher among those who used the Internet for studying, compared to non-users. We suggest that the measured digital uses represent intention and action plans similar in their determinants to being physically active. Health care decision makers should increase availability of information on the Internet regarding a healthy lifestyle, concentrating on leisure-time physical activity habits.

1. Introduction

Computers and the Internet have become an integral part of leisure time (Kerner, Kalinski, & Kurrant, 2001). Today there are more than three billion Internet users worldwide (*World Internet Users and Population Stats,* 2015), with an increasing number of Internet users who spend a great deal of time and engage in diverse activities online (e.g., Beutel et al., 2011; Zhou, Fong, & Tan, 2014). Since leisure is a key life domain and a core ingredient for overall well-being (e.g., Leung & Lee, 2005; Newman, Tay, & Diener, 2014), investigating Internet Use and its relationships with other leisure and/or life components is imperative.

Studies have demonstrated both the opportunities/benefits and hazards/disadvantages of Internet use. For example, Rojas and Puig-i-Abril (2009) maintained that the Internet provides almost unlimited opportunities as an essential resource of information on education, business, shopping, traveling, and health-care issues. The Internet offers users great opportunities and resources for promoting their careers, work, education, and social status (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Hargittai & Hinnant, 2008; Kim & Kim, 2001; Mossberger, Tolbert, & Stansbury, 2003; Van Dijk, 2005; Zillien & Hargittai, 2009), and enhancing income and social mobility (Lissitsa, 2015), all of which correlate positively with individual well-being. The appropriate use of the Internet in areas such as online news, online forums, and online counseling, etc., can help to promote self-efficacy, psychological empowerment, lifelong learning, and a higher quality of life (Fowler, Gentry, & Reisenwitz, 2015; Hu & Leung, 2003; Leung, 2010; Lissitsa & Chachashvili-Bolotin, 2016).

On the other hand, research has indicated that many users of the Internet have neglected areas of importance in their lives, leading to detrimental effects such as academic problems, dysfunctional personal relationships, financial difficulties, work-related problems, and physical risk factors such as sleep deprivation and lack of exercise (e.g., Busch & Leeuw, 2014; Casale, Lecchi, & Fioravanti, 2015; Huan, Ang, & Chye, 2014; Koronczai et al., 2013). Since Internet activities are largely performed in solitude and displace potentially more interactive social activities, people who spend

* Corresponding author. The Zinman College of Physical Education and Sport Sciences, Wingate Institute, 42902, Netanya, Israel.
E-mail address: simaz@wincol.ac.il (S. Zach).

http://dx.doi.org/10.1016/j.chb.2016.02.077
0747-5632/

large amounts of time on the Internet may end up feeling socially isolated, causing a decline in mood (Sagioglou & Greitemeyer, 2014) and low life satisfaction (Kim, LaRose, & Peng, 2009; Stepanikova, Nie, & He, 2010). Moreover, researchers have reported compulsive Internet use (e.g., Muusses, Finkenauer, Kerkhof, & Billedo, 2014), which reflects an Internet addiction (Cheng & Li, 2014), problematic or pathological Internet use (Caplan, 2002; Davis, 2001; Morahan-Martin & Schumacher, 2000), and Internet dependence (Wang, 2001). The Internet might also create addictive behavior (e.g., gambling, online gaming, pornography) and thus be detrimental to mental health (Banjanin, Banjanin, Dimitrijevic, & Pantic, 2015; Li & Chung, 2006).

The current study seeks to examine whether Internet use, various digital uses, and time spent online correlate with participation in physical activity, based on the Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Health Action Process Approach (HAPA) model (Schwarzer, 2008; Sniehotta, Scholtz, & Schwarzer, 2005).

2. Literature review

2.1. Internet use

A digital divide is created between those who have access to information and communication technologies and know how to utilize them, and those who do not (Compaine, 2001; Zhou et al., 2014). Today it is customary to separate the digital divide into two levels of inequality: The first distinguishes between those who are connected and those who are not; the second pertains to the surfing patterns used by those connected to the Internet, including measurements of different types of digital uses (DiMaggio & Hargittai, 2001; Hargittai, 2003).

Different patterns of Internet use influence the life chances of users: the more capital they can accumulate using the Internet, the more they can benefit from web use (Zillien & Hargittai, 2009). Some Internet usage activities offer more benefits and advantages to users, offering them greater opportunities and resources for advancing their careers, work, education, and social status (*capital-enhancing uses*) than other uses intended for momentary consumption or entertainment *(recreational)* (DiMaggio et al., 2004; Hargittai & Hinnant, 2008; Kim & Kim, 2001; Mossberger et al., 2003; Van Dijk, 2005; Zillien & Hargittai, 2009).

In the current study, we investigate both types of digital uses. The first type includes human capital-enhancing and social capital-enhancing forms of Internet use (Lissitsa & Chachachvili-Bolotin, 2016). Human capital-enhancing uses refer to Internet surfing for beneficial purposes, including seeking health information, researching products, investigating current events, etc (Hargittai & Hinnant, 2008; Hassani, 2006). Social capital-enhancing forms of Internet use refer to the ability to communicate with other people by e-mail and social media. The social media create a platform for communications among a dynamic consortium of people utilizing social network sites, forums, discussion groups, and blogs in a manner that enables individuals with a common interest to interact continually, and which promotes different types of benefits (Boyd & Ellison, 2007; Haenlein & Kaplan, 2010). The second type is recreational activities, such as browsing for fun, playing games, messaging, downloading music, or gambling online (Hargittai, 2010; Howard, Rainie, & Jones, 2001; Jones & Fox, 2009). Most researchers agree that capital-enhancing uses are more likely to promote beneficial consequences, i.e., they are more likely to increase the user's political knowledge, participation in various activities, life chances, and health-care promotion (Clark, 2003; Hargittai & Hinnant, 2008; Rahim, Pawanteh, & Salman, 2011; Warschauer, 2003).

One of the Internet contexts regarding the health domain that has not been researched is the relationships between both types of digital uses and physical activity habits. This is the preview of the current research.

2.2. Theoretical background

In the current study we examine the relationships between physical activity patterns and Internet use habits, using the Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Health Action Process Approach (HAPA) model (Schwarzer, 2008; Sniehotta et al., 2005) as a conceptual framework. According to the TPB, *intention* leads to volitional behavior, and is affected by three determinants: First, attitude toward the behavior; second, subjective norms – the individual's perception of social pressure concerning how to behave; and third, perceived behavioral control – how the individual perceives his/her ability to perform, considering the difficulties and barriers (Ajzen, 1991). However, human beings do not always behave in accordance with their intentions (Luszczynska, Schwarzer, Lippke, & Mazurkiewicz, 2011).

Therefore, the HAPA model adds post-intentional factors that mediate between intention and behavior, such as perceived self-efficacy and strategic planning (e.g., Armitage, 2004; Sniehotta et al., 2005). According to this model, *planning* is not merely expanding intentions, but also includes situational indicators and a series of actions, which increase the probability and speed of implementation. Additionally, in order to attain behavioral habits once an action has been performed, *maintenance* is needed for their continuation. Since intentions are not enough, strategies and self-regulatory skills are required. The role of the post-intentional stage of the model is for action planning and recovering self-efficacy, and for enhancing the belief that one can succeed in carrying on the same activity in the future.

Following the line of these theories, as well as of findings regarding the relationships between accessibility, implementation, sport facilities, and the Internet (Cook et al., 2014; Riiser et al., 2014; respectively), we claim that people with intentions to be physically active, and that have an access to sport facilities, acquire a variety of digital uses that not only will assist them in implementing their intentions, but will also help them to persist with the plans that they have developed and attain patterns of behavior that include physical activity. People use self-studying, for example, to acquire knowledge; they seek information and download files with programs and explanations regarding the type, level, duration, intensity, and other aspects of physical activity to develop a suitable personal plan, tailored to their overall health condition and the importance they place on a healthy way of life (Wendel-Vos, Schuit, Tijhuis, & Kromhout, 2004). Another example commonly used is the social media, where they can share knowledge in discussion groups, and get and give feedback, encouragement, and advice concerning physical activity.

A large number of studies have demonstrated that intention predicts motivational behavior for exercising (e.g., Hartmann, Dohle, & Siegrist, 2015; Schüler, Wegner, & Knechtle, 2014; Zach et al., in press). The question of whether such relationships also are found in Internet users and their relationships with physical activity is very intriguing and important, due to the sedentary nature of Internet use as well as the relationship between physical inactivity and related risks for a variety of health problems. Since people use the Internet from different motives, for different purposes, and in different ways (Selwyn, Gorard, & Furlong, 2005; Spittaels & De Bourdeaudhuij, 2007), we believe that different types of digital uses will correlate with other leisure activities, particularly with physical activity.