

# Chapter 15

## Sport and Wellness Technology to Promote Physical Activity of Teenagers: An Intervention Study

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### ABSTRACT

*Life-long physical activity patterns are established during teenage years, so promoting physical activity is important. Sport and wellness technology has potential for promoting physical activity. Yet, research concerning its use among teenage populations is sparse. This intervention study investigated whether using a sport and wellness technology application could affect teenagers' physical activity intention, its antecedents, and the effects of these antecedents on intention. The study uses the theory of planned behavior (TPB) combined with self-efficacy as a theoretical model. The results showed no statistically significant difference between the intervention and control group in terms of the means and variances of the four constructs (attitude, subjective norm, self-efficacy, and intention) in the theoretical model. However, there was a statistically significant difference in the effect of self-efficacy on intention in the intervention group. Using sport and wellness technology in physical activity interventions among teenagers has potential and further research is warranted.*

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## INTRODUCTION

According to the World Health Organization, over 80% of the world's adolescent population is not physically active enough. What makes the situation even worse is the steadily decreasing trend of physical activity and the increasing trend of sedentary behavior of this population (Brodersen et al., 2007; World Health Organization, 2018; Knell et al., 2019). Today's teenagers live in an environment that offers them an increasing number of options for sedentary leisure activities as well as an increasing number of barriers to physical activity.

Health related behavioral patterns concerning, for example, physical activity, sleep, and nutrition are being established during the teenage years, and these learned patterns are usually maintained throughout life (Kumar et al., 2015). Thus, promoting healthy behaviors, such as physical activity, during the teenage years has an important impact on the overall life quality of a person. Enabling exercise participation and promoting physical activity has the ability to foster personal competence and improvement. This, in turn, will help teenagers to achieve personal goals regarding their physical activity intentions and is important for the formation and maintenance of long-term health behaviors (Hagger et al., 2001). Research has also shown that physical activity during this age can boost academic achievement (Kari et al., 2017) and have far-reaching consequences for life-long educational (Kari et al., 2017) and labor-market outcomes (Kari et al., 2016).

Today, technology plays a major role in teenagers' lives because many of them are constantly online and use various applications and devices on a daily basis. It is reasonable to also consider using technology in health and physical activity promotion and interventions. For example, the role of sport and wellness technology devices and applications in health promotion could be highlighted more. Typically, sport and wellness technology applications and devices, such as wearable devices, have been designed for adults who are already physically active and want to maintain their active lifestyle or improve their performance level (Carrino et al., 2014). Teenagers associate the need of wearable sport and wellness technology devices with serious goals and a strong aim for achieving them (Carrion et al., 2015).

There is a gap in research related to teenagers and their use of internet, mobile applications, and wearable fitness devices for health-related purposes (Wartella et al., 2016). There are few wearables created especially for teenagers, and they have mainly focused on game related elements and connectivity (Carrion et al., 2015). Understanding the effects sport and wellness technology has on teenagers is relevant for sport technology companies in being able to create products and services that not only attract this target group but are also effective and useful.

The use of interactive technology might increase the appeal of physical activity promotion interventions (Direito et al., 2015). However, there is a lack of empirical evidence supporting the effectiveness of these targeted health behavior interventions and research on how sport and wellness technology can stimulate health behavior change in younger populations (Masteller et al., 2017). When designing intervention programs, understanding what motivates young people to participate in physical activity is essential (Dos Santos et al., 2016). The focus should be on strategies that include psychosocial issues, sport competence, and physical self-worth (Masteller et al., 2017).

This paper reports the findings from a five-week-long intervention study that was conducted in order to increase the knowledge about sport and wellness technology and its effects on the physical activity of teenagers. More specifically, drawing from IS and exercise psychology perspectives, the aim was to find out whether the use of a sport and wellness technology application could affect the physical activity intentions of teenagers, its antecedents, as well as the effects of these antecedents on intention by

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