Scoping Review: Incorporating Wearable Fitness Tracker with Sport Events

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Wearable Fitness tracker (WTF) have increased in popularity among adults in the U.S. (Lipman, 2014) along with the rise of the offering of running events across the USA (Anderesen, 2019). Many health studies have used self-determination theory (SDT) to demonstrate the role of WFT in an individual’s continuous exercise (Zuckerman & Gal-Oz, 2014; Burke et al., 2012). However, maintaining an individual’s engagement in physical activity still remains questionable. While engaging in participatory sports, various types of psychosocial factors may interfere with an individual’s inherent desire to exercise in a consistent manner (Sawrikar & Muir, 2010).

Studies in multiple domains like health and information technology suggested that gamification can be applied as an intervention tool to maintain or increase individual’s engagement levels in physical activity (Patel et al., 2017; Burbach et al., 2019). Deterding et al. (2011) defined gamification as an implementation of the game design in a non-game context. Although a concept of gamification has been applied in many sport-related areas (e.g., Wii, wearable, fitness application), only a few sport literature have recognized the role of gamification within the sport consumer context (Hallmann & Giel, 2018; Tu et al., 2018). Our review explores the effect of gamification and WFT on sport-related behaviors and well-being with the aim to understand and delineate any factors that could enhance participation and well-being.

This study applies the five stages of the scoping review process as suggested by Arksey and O’Malley (2005). In the first stage, the researcher identifies the research question: what do we know from the extant literature that practically measures the effect of gamification and WFT on the psychological and physical well-being of a sport-related population? Second, using a keyword search (gamification and fitness tracker or activity tracker or wearable device or smart watch and physical activity or exercise or sport or fitness), we identified relevant studies in 1) 27 electronic databases (e.g., Ebsco, ScienceDirect, MEDLINE) 2) reference lists, and 3) hand-searching of key journals. The database search yielded 601 articles and 10 articles matched the criteria. After the database search, the reference lists from identified articles were examined for additional information. The reference lists search and hand-searching method yielded two and one article respectively. During this process, the inclusion criteria used to screen were: 1) the papers in multiple domains focused on the effect of gamification on individual attitudes or behaviors; 2) the papers provided empirical evidence regarding the impacts and outcomes of WFT using gamification strategies; 3) the papers examined individuals using wristband type WFT and 4) the population of the study is either non-patient or those have general health issues related to physical inactivity (e.g., obesity).

Some preliminary results show that gamification in physical activity can be classified as 1) needs based (e.g., goal setting and progress), social based (e.g., cooperation and competition), and rewards based (e.g., badges and points). These elements mediate the effect of sport involvement on exercise engagement and sport event participation that may ultimately increase an individual well-being. The full analysis will be presented during the conference.