

Virtual Cycling For Promoting a Healthy Lifestyle

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Abstract.

The pandemic era has brought a rapid change in the human health lifestyle. Considering the importance of a healthy lifestyle, many companies have started to promote indoor exercises to encourage a healthy lifestyle. Recently, virtual cycling is one of the popular virtual sports in Asia, European Countries, and the USA. This paper presents the evaluation of virtual cycling for promoting a healthy lifestyle. This paper aims to share a virtual cycling exercise's strengths and challenges based on empirical studies. Document analysis was done on the existing empirical studies from the online journal and news papers articles. The finding suggests that virtual cycling is healthy, fun, and a low-impact virtual form of virtual exercise that becomes a lifestyle. Some recommendation was suggested for the development of virtual cycling for the sustainable health community.

Keywords: Virtual Cycling, healthy, lifestyle

1. INTRODUCTION

In a pandemic era, outdoor sports becomes limited. However, we need to be physically active to avoid serious illnesses such as heart disease, mental illness, diabetes, and cancer. Cycling is a healthy, low-impact exercise. People from young children to older adults can enjoy cycling. Cycling is favorable because cycling is fun, cheap and good for the environment. Based on a survey by The Institute for Transportation and Development Policy (ITDP), cycling has increased by 10 times or an increase of 1,000 percent during the Jakarta PSBB if it is compared to October 2019.

During times of pandemics, cycling virtually become a new lifestyle for people. Sports which is part of sport tourism are widely held in various regions. Virtual peer, virtual environment, virtual and augmented reality technology and gamification is widely used to promote virtual physical activity in the digital era (4-7). A literature review reveals that Technological user interventions are more effective than non-technology interventions in promoting a healthy lifestyle. (8). A study from IJsselsteijn et al reports an experiment on the consequences of

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immersion and coaching by a virtual agent on motivation and the sense of presence of participants cycling on a stationary home exercise bike is described in the current paper. A basic experimental design for two-by-two subjects was used in which participants were presented with a virtual racetrack with two immersion levels (high vs. low) and two virtual coach levels (with vs. without). The results show a clear positive effect of immersion on motivation as well as on motivation. The presence and impact of the virtual coach on the perceived dimensions of intrinsic motivation for control and pressure/tension. The presence of the virtual coach also decreased the adverse effects associated with VEs.

Technological developments have changed human interaction with the physical and virtual environment (9). Traditionally, people did a physical activity in real environments. However, technology can help people perform physical activity in different environments (i.e., real, mixed reality, or virtual environments) (9). Virtual reality (VR) technology or virtual platforms promotes physical activity (7, 10). Along with the development of VR and technology, the word virtual is gaining popularity. Virtual bicycle is a good example. The increasing popularity of virtual cycling in recent years grows fast (11). However, few studies discuss virtual cycling in terms of the strength and the weaknesses. Therefore, this paper would examine the strength and the weaknesses of virtual cycling and the possible development of the virtual cycling.

II. METHOD

This study describes the use of virtual cycling to promote healthy lifestyle. This study used a qualitative document analysis or content analysis, Meta-Analysis is research from main data that performs systematic and empirical descriptive data [13]. This study aims to investigate the use of virtual cycling to promote healthy lifestyle qualitatively. In this study, researchers collected documents as data to be processed from articles or journals. This data collection focuses on research journals, articles, books and news papers. The collected data was then sorted based the year of publication.

III. RESULT AND DISCUSSION

Virtual cycling programs are not restricted only to one software. There are some application that can be used to do a virtual cycling. For those who like to bike and like to exercise at home, the Zwift app is probably the most popular right now. Zwift app can make a pact with friends, participate in races, participate in structured programs, or just take a leisurely roundabout in the virtual worlds in it. The Zwift app is much like playing online multiplayer bike games or simulating bikes controlled by real bikes. A bike rider can cycle and run on bicycle paths in other parts of the world according to the original atmosphere, including the profile or

road contours and views, so that a bike rider can feel the sensation of cycling in England or Italy from inside the house. There is also an artificial area (virtual world) for world exploration. A bike rider can choose to ride / run alone, in groups or private groups (friends), and can communicate with each other (chat). Training, racing, or just for fitness features can be selected according to the target.



Fig.1. a Zwift bike rider

RGT Cycling (Road Grand Tours) positions itself as a prime candidate for the Zwift shift. RGT Cycling can make all roads in the world into a virtual routes. Moreover, RGT cycling is free of charge. The drawing may not be realistic, but the curves and tilt variations can all be simulated. Strava is another free apps that can be used to cycle virtually.



Fig.2. RGT Cycling application

Strava has a feature to measure how far someone ride. A bike rider can follow other friends and see how they exercise. Then, a bike rider can make a leaderboard together to compete with who the most active is biking among other participants. In general, there are three key steps in the virtual cycling program namely choosing a cycling or racing activity; cycling and documenting activities and uploading the results to the organizer through the online portal [12]. The specifics and methods of each virtual cycling program, however are distinct.

Some organizers have a web-based forum for the sending of virtual cycling results, where participants can submit their results. A real-time platform is created by some virtual cycling activities where participants can collect their total distance or cycling time on the mobile app. In addition, some platforms allow respondents to view peer outcomes (15,16). The ultimate aim of virtual cycling is to meet a goal based on distance (e.g. 100 km per month) or time (e.g. 8 hours per month) (13). Some organizers of virtual cycling offer prizes for achievement, such as badges, tokens, or running shirts (17). Some of the exercises are free. Others are compensated by charities or corporate organisations for (18).

A recent intervention in terms of the process appears to be the interactive cycling software. It shares, however, some of the common features of other interventions or processes. Digital cycling, for example allows people to push themselves and uses an online platform to document running events. Evidence supports the beneficial impact on health outcomes by using a mix of behavioral challenges and PA tracers (19). Participants are advised to ride by the interactive cycling program. In a real or virtual world, or a mixture of real and virtual environments, participants may perform real activities. For example, while viewing a video clip on a mobile device that shows a first-person view of an exciting environment for 1 hour, participants may go cycling. In the operation, the virtual cycling program sets objectives. Objectives may either be distance-based or time-based (13).

The goal of the program is practically transparent and can be understood before the program begins. For non-profit purposes, many projects that are essentially run are set up, while some are commercial programs. For virtual cycling, such as cycling for charity, this aim may be an objective (18). Some interactive cycling programs have rewards or opportunities to complete activities (17). One successful behavior improvement strategy is the setting of goals (20). Using online channels, virtual cycling programs run with internet access (i.e., websites, mobile applications, and social media). The online database is a method for documenting and tracking the activities of participants. Self-monitoring is a part of self-regulation, and may facilitate behavioral improvement of each a bike rider (21,22). Using Global Positioning System (GPS) monitoring through a smartphone or wearable device, pedometer, or accelerometer, participants can monitor their activities. Participants may otherwise monitor their activity distance and activity time on the site manually. Some virtual cycling programs allow participants to track their own activities as well as their peers' activities.

There are some advantages of the virtual cycling in promoting healthy lifestyle. Via cycling practices, virtual cycling programs will encourage Physical Activity. Cycling is a dynamic activity and easy (23 - 25). Some health hazards, such as waist size, body weight, the possibility of noncommunicable diseases (PTM) and premature death, can be minimized through cycling (25 - 27). In

addition, cycling will help mental wellbeing (28, 29). While further intervention studies are required to develop a strong knowledge base on cycling's health benefits, the evidence available supports the existing efforts to encourage cycling as a significant contributor to improving the health of the population. The reliability of this evidence is high for the benefits of exercise, moderate for the benefits of cardiovascular risk factors, and current evidence supports current efforts to encourage cycling as a significant contributor to improving population health.

Most significantly, programs for virtual cycling can deliver guided and versatile activities. Participants, for example, will ride at the right time in the neighbourhood of their choosing. Based on their objectives, participants can select the required virtual cycling program. The goal-setting mechanism encourages individuals to change their actions or lifestyle to become healthier. Digital cycling programs can play the role of a coach and can endorse SMART (Specific, Measurable, Achievable, Results Based, Timely) objectives (31). SMART objectives can be an efficient method to enhance physical fitness (32). Virtual cycling software can teach cycling, record distance or time measured), include a range of programs for various people (achievable), set objective results (focus on results), and set a specific timeline (on time).

An objectively calculated Physical Activity is proposed by the virtual cycling software. In real-world environments, participants in virtual cycling may record their Physical Activity using a mobile device or personal wearable device (38 - 41). Each participant's actual or final time findings are tracked. Some virtual cycling programs build social networking networks that allow peer outcomes to be shared by participants on the network. This program can be useful in producing the Köhler effect, which is a reaction in a group in which the closeness of the more competent partners appears to be more driven by weaker participants. Studies show that the Köhler effect will improve Physical Activity time spent and motivation in online fitness teams or activities with current and superior partners.

Instead of the benefit, there are some challenges in applying virtual cycling. Participating without planning and thinking about health problems in a virtual cycling program can lead to adverse events. Nevertheless, proper preparation will reduce the risk of injury (48, 49). In particular virtual cycling programs that require participants to carry mobile devices for activity tracking and monitoring may cause disturbances during activity (50, 51). While SMART targets can be set by virtual cycling interventions, it can be difficult. For certain participants, general messages (e.g. 100 km in 3 months) can be a challenging task. Detailed information, including findings and habits, is required to guide participants in defining goals (52, 53). Another issue is that certain virtual managed programs need participation payments.

Public awareness of a healthy lifestyle is increasing. A survey from an insurance company and research institute shows that 73% of Indonesians place personal health as the number one issue in their life. While virtual run programs can reach a large population, it takes superior technology to implement and engage in remotely executed programs. The software for virtual cycling requires the computer to record the operation. Such tools may be GPS-based, web-based, wireless, or wired. The link to the platform may either be wireless (e.g. Bluetooth) or wired (eg. (e.g., using a physical cable to transfer data). Most significantly, to upload activity records, the process requires an internet connection.

Cycling seems to be a trend in people's lifestyle to stay healthy, which is needed to increase immunity. In response to this, the Indonesian Ministry of Transportation held a National Road Safety Week (PNKJ) 2020 with the theme Voices of Safety which was implemented virtually which also became a further momentum after the Ministry of Transportation issued the Minister of Transportation Regulation No. 59 of 2020 concerning Cyclist Safety on the Road, which can be a guide for cyclists and other stakeholders to keep cycling safely and safely. The Bicycle Friendly Environment Program gave the provision of 50 (fifty) units of bicycle parking facilities to government agencies, schools, places of worship, and public places symbolically handed over to the Coordinating Ministry for Maritime Affairs and Investment, DKI Jakarta Provincial Transportation Agency, Pasar Railway Station. Sunday, and SDN Batu Ampar II, East Jakarta. This activity is an alternative for people to keep active in sports during a pandemic. With the Virtual Fun Bike, participants do not need to pack a bicycle to prevent the risk of Covid-19 transmission. Moreover, increased cardiovascular performance, increased muscle strength and endurance, improved joint stability, decreased levels of stress, improved posture and coordination, stronger bones, decreased body fat levels, disease prevention or control, and decreased anxiety and depression are the health benefits of daily cycling.

The virtual cycling organizer must provide the relevant details to the participants, including the individual's acceptable level of physical activity, how to avoid injury, and any special measures to be taken. Besides, before running the virtual software, a personal health check must be carried out. Participants must be aware of their state of health and ability to take part in any virtual cycling program. The organizer of the virtual activity must have a user-friendly platform for (e.g. web-based platform, mobile application). The virtual organizer supports a wide variety of devices, such as a network that can be connected online or offline in real time to any mobile device or wearable device. It is then possible for participants to move their notes to the platform.

IV. CONCLUSION

One of the easiest ways to reduce the risk of health issues associated with a sedentary lifestyle is to ride bicycle daily. Although cycling provides a great aerobic workout, the inclusion of virtual technology offers pure relief from stress through escapism. Virtual cycling is good for those who want to raise their energy levels, minimize their stress levels and strengthen their posture. It is possible to customize virtual cycle workouts to individuals of all ages and levels of fitness. Despite of the benefit, virtual cycling brought some challenges in terms of goal determination and internet disturbances.

Future research should focus on the impact of virtualized programs on health outcomes, implementation, and pragmatic checks of virtual processes. Based on the limited evidence, the reasons and potential for using virtual programs to promote Physical Activities are still debated. A virtual cycling program may offer several potential advantages. Besides, challenges and recommendations are addressed.

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