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Brief Report

Pokémon Go: digital health interventions to reduce cardiovascular risk

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Abstract Physical activity is associated with a lower risk of coronary heart disease/cardiovascular disease mortality, and current guidelines recommend physical activity for primary prevention in healthy individuals and secondary prevention in patients with coronary heart disease/cardiovascular disease. Over the last decade, playing classic video games has become one of the most popular leisure activities in the world, but is associated with a sedentary lifestyle. In the new era of rapidly evolving augmented reality technology, Pokémon Go, a well-known augmented reality game, may promote physical activity and prevent cardiovascular disease risks – that is, diabetes, obesity, and hypertension. Pokémon Go makes players willing to be physically active for regular and long periods of time. We report on an assessment of regular walking and playing Pokémon Go by performing data mining in Twitter.

Keywords: Pokémon Go; exercise; social media; physical activity; data mining

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Methods

Twitter (https://twitter.com/) postings containing the terms "Pokémon" and "walking", "walks", "walk", "walked", "kilometer", "kilometers", "km", "mile", or "miles" (n = 10,007) were obtained between August 1 and September 10, 2016. Data mining was performed with R version 3.2.3 and Python version 3.4.2. All analyses relied on public, anonymised data and adhered to the terms and conditions, terms of use, and privacy policies of Twitter. No exact tweets are included in this report.

Results

Our study showed that 12% of tweets indicated that they walked between 2 and 35 miles a day playing Pokémon Go, suggesting that they were walking at least 30 minute a day, which met the current guideline recommendation; 3% of tweets indicated that they walked between 50 and 150 miles a week; 16% mentioned that they walked daily or regularly, but did not mention how far they walked a day; and 7% of tweets indicated that they walked between 7.5 and 145 miles, but did not mention the duration. The remainder included unclear, advertised, unrelated, emotional, perspective, or positive feedbacks.

Discussion

Physical activity is an independent and cardioprotective action associated with reduced overall cardiovascular disease morbidity and mortality. Current guidelines consistently recommend at least 40 minute of moderate-intensity physical activity – that is, brisk walking – for three to four times a week, as a measure to reduce low-density lipoprotein cholesterol and non-high-density lipoprotein cholesterol in healthy individual and secondary prevention in patients with coronary heart disease/cardiovascular disease.[1,2] The intensity of physical activity is usually categorised as low, medium, or high and objectively

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quantified by the metabolic equivalent of tasks. An intensity of less than three metabolic equivalent of tasks represents light activity, between three and six metabolic equivalent of tasks – that is, brisk walking – represents moderate activity, significantly associated with a reduction in coronary heart disease/cardiovascular disease mortality, and greater than six metabolic equivalent of tasks represents vigorous physical exertion.[3]

A recent meta-analysis of 33 studies showed that individuals who engaged in the equivalent of 150 minute a week of moderate-intensity physical activity had a 14% lower coronary heart disease risk compared with individuals reporting no leisure-time physical activity.[4] Our results showed that Pokémon Go players walked >30 minute a day, and some players reported subsequent weight loss: "This weight loss program really works", "I've been using this along with Pokémon Go the past few months. Lost 50 lbs!", and "lost 15 lbs playing Pokémon Go".

In conclusion, augmented reality games such as Pokémon Go may enhance physical activity and perhaps reduce CVD risks. The present study, however, was cross-sectional in nature; therefore, it remains unclear whether Pokémon Go changed habitual physical activity levels in individuals who posted the tweets, and whether their activity behaviour would differ from a non-playing control group. In addition, we do not know whether potential changes in physical activity remain over time. Other upcoming augmented reality games should learn lessons from Pokémon Go and improve strategy to benefit players' health and improve physical activity awareness and adherence. Well-designed game mechanics with augmented reality technology along with future research to prevent CVD are still needed.

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Conflicts of Interest

None.

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