Pokémon GO: Healthy or Harmful?

In July 2016, Niantic released the mobile application game Pokémon GO. The game allows players to search for Pokémon, fictional animals derived from the internationally recognized Pokémon franchise. The game uses geolocation to create augmented reality (gaming components incorporated into real-life surroundings) gaming scenarios for players. The game requires players to move (walk, bike, drive, etc.) to capture free-roaming Pokémon, which are creatures that the player captures and trains to fight other such creatures, and includes walking designated distances (2 km, 5 km, or 10 km) to “hatch” Pokémon eggs. Within three months of its release in July 2016, the game was downloaded more than 550 million times and has made more than $470 million in sales.1 Although the peak of the game happened during its first month, Pokémon GO is still downloaded more than 700,000 times each day worldwide.1

With the advent of millions of players participating in this new style of video game, there have been numerous media stories about public health problems and benefits associated with the game. To better understand the actual health behaviors of Pokémon GO players, we conducted a local convenience sample survey of 662 adult players who were intercepted in a variety of public locations while playing the game during the last two weeks of July 2016.

POTENTIAL HARMs
A quick Internet search will uncover numerous news reports depicting driving, biking, or walking accidents associated with playing Pokémon GO. Other stories depict players trespassing or placing themselves in dangerous environments or situations so they can catch more Pokémon. Although Pokémon GO stories were prevalent in the media, only one research study2 has been published on the game. This study found that more than 100,000 Twitter tweets over a 10-day period depicted distracted driving while playing Pokémon GO. Among these were tweets about 14 traffic accidents caused by the distracted drivers.

Our findings support this research by showing the proportion of players who actually engage in these sorts of behaviors. More than a quarter of players reported being likely or very likely to play the game while driving (27%), biking (43%), walking (without paying attention; 32%), and sacrificing sleep to play greater amounts of the game (38%). Significant differences in risky behaviors were seen by gender and age. Men were more likely to play while driving or biking, play in areas where they do not feel safe, and enter private property to catch Pokémon. Players who were aged 24 years or younger were also more likely to engage in these risky behaviors than were their older counterparts (Table 1).

POTENTIAL BENEFITS
Not all reports have focused on the dangers associated with this game. There are plenty of news stories and online media outlets touting Pokémon GO’s role in increased socialization and increased visits to public parks, museums, and historical sites. Perhaps the most common are stories describing increased physical activity. One internal study3 conducted at Microsoft found evidence of this phenomenon. They examined data from wearable sensors and user Internet searches and concluded that Pokémon GO players had significant increases in physical activity levels compared with activity before playing the game. The results of our investigation also found major gains in reported physical activity. Participants were asked how many days per week they engaged in 30 or more minutes of physical activity before downloading Pokémon GO and then after starting to play it. There was a significant increase in the percentage of participants who engaged in the recommended amount of physical activity (150 or more weekly minutes; \( \chi^2 = 78.3; df = 1; P < .01 \)). Before downloading the game, only 31% of the respondents met the recommended activity levels, whereas 75% of them met the levels after starting the game.

IMPLICATIONS FOR PUBLIC HEALTH
The vast majority of information about Pokémon GO is related to the anecdotal outcomes associated with both positive and negative health behaviors. News stories have reported car crashes, pedestrian injuries, trespassing, and muggings associated with playing Pokémon GO. Cases of such magnitude are gaining the attention of the medical community as well. An article in Oxford Medical Case Reports4 describes two trauma cases associated with the game in which the authors state that augmented reality games, along with texting while driving or biking, are “becoming the No. 1 cause for accidents. It’s right up there with drunk driving.”5 Pediatricians are also seeing injuries as a result of Pokémon GO and warn against the risks that are evident with augmented reality gaming.6 However, it is important to also consider the potential health benefits associated with this style of gaming. It is evident that players are engaging in significantly more physical activities while playing Pokémon GO.

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activity than they had before playing the game. Previous research has publicized the potential benefits of video games, and augmented reality games may just provide an opportunity to increase physical activity and potentially decrease obesity levels.

Public health professionals need to acknowledge the various ways innovative gaming technologies such as augmented reality can affect the health of a population. On the positive side, there is strong interest among youths and adults to get out from behind a console gaming device and participate in gaming through augmented reality approaches to combat epidemics such as obesity.

However, the negative aspects are potentially life threatening. The use of augmented reality gaming apps increases the potential risk of user injury by increasing distracted driving, biking, walking, and so on. Health communication messaging and other strategies will need to be developed to expand on the traditional work aimed at reducing texting and driving or distracted driving. The new wave of augmented reality offers different incentives to users from those of texting and driving or distracted driving. Potential changes in technology in vehicles may be necessary to help deter users from playing while driving. With telephones merging the virtual world into people’s real worlds, it will likely increase the need for safety measures on multiple platforms.

Just as laws regarding seatbelt use in the 1980s saved thousands of lives, new technologies will be needed to reduce the likelihood of injuries and deaths that result from distracted driving. We are already seeing cars that provide warnings when drifting from the lane and those that automatically brake when approaching another car too quickly. These safety features may actually lure drivers into a false sense of security and make them feel that playing augmented reality games while driving is less risky. Education and policy efforts will be critical to limit the morbidity and mortality associated with this new wave of gaming.

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V. R. Wagner-Greene conceptualized the editorial. A. J. Wotring and T. Castor collected the data. J. A. Dake conducted the data analyses. All authors contributed to the instrument development, writing, editing, and reviewing.

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HUMAN PARTICIPANT PROTECTION
This research was reviewed and approved as exempt by the University of Toledo institutional review board (SBE IRB # 201562). All participants received an explanation and a hard copy of informed consent before starting the survey.

REFERENCES