



Published in final edited form as:

*Psychiatry Res.* 2016 December 30; 246: 848–849. doi:10.1016/j.psychres.2016.10.038.

## New game software (Pokémon Go) may help youth with severe social withdrawal, hikikomori

**Masaru Tateno, Norbert Skokauskas, Takahiro A. Kato, Alan R. Teo, and Anthony P.S. Guerrero**

Tokiwa Child Development Center, Tokiwa Hospital, Sapporo, Japan; Department of Neuropsychiatry, Sapporo Medical University, School of Medicine, Sapporo, Japan; Centre for Child and Adolescent Mental Health and Child Protection Faculty of Medicine, Trondheim, Norway; Department of Neuropsychiatry, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan; Brain Research Unit, Innovation Center for Medical Redox Navigation, Kyushu University, Fukuoka, Japan; Center to Improve Veteran Involvement in Care (CIVIC), VA Portland Health Care System, Portland, USA; Department of Psychiatry, School of Medicine, Oregon Health & Science University, Portland, USA; School of Public Health, Oregon Health & Science University and Portland State University, Portland, USA; Department of Psychiatry, Child and Adolescent Psychiatry Division, University of Hawai'i John A. Burns School of Medicine, Honolulu, HI, USA

---

Pokémon (a shortened version of “Pocket Monsters”) is a Japanese media franchise founded in 1995. Pokémon Go is game software specially designed for iOS and Android devices (smartphones). It was released in the USA on July 6th, 2016, in Germany one week later, in other European countries subsequently, and in Japan on July 22nd. To enjoy Pokémon Go, players are requested to go out to find Pokémon characters in the virtual world, which is precisely synchronized with the real world using smartphone cameras and maps. Unlike other video games that keep players in front of monitors or motionless while holding portable game-players or otherwise shut in their own rooms, Pokémon Go forces its players to go out and share - with other anonymous players – information about spots (PokeStops) that harbor characters.

Pokémon is not a stranger to medicine and healthcare. About two decades ago, Pokémon attracted the attention of thousands of Japanese clinicians after an outbreak of photosensitive epilepsy among children who watched Pokémon on TV and who were exposed to continuous flashing lights in the program on December 16, 1997 (Furusho et al., 2002). According to a report by a group of pediatric neurologists, about 750 of these children were brought to medical institutes because of dizziness, nausea, headache, and, in serious cases, seizures.

In Japan, there has been an unsolved and chronic problem of severe social withdrawal, called hikikomori, which typically begins in childhood as school refusal and which persists into adulthood (Tateno et al., 2012). In this context, school refusal is defined as a protracted

---

\*Corresponding author at: Tokiwa Child Development Center, Tokiwa Hospital, Tokiwa 3-1-6-1, Minami-ku, Sapporo 005-0853, Japan.

school absence (without documented need to receive medical care), typically more than 30 days per year, caused by psychological factors such as fear, anxiety, and sense of refusal. A nationwide survey conducted by the Ministry of Education, Culture, Sports, Science and Technology in 2015 reported that the rate of school refusal was 2.76% among junior high school students in Japan. Continuous avoidance of social situations in school may result in severe social withdrawal, named hikikomori, in adulthood. Individuals with hikikomori become recluses in their own homes or even in their own rooms for several years. A nationwide survey estimated that the total number of hikikomori in Japan is about 230,000 (Koyama et al., 2010). With widespread availability of the internet, and with a growing incidence of internet addiction, many Japanese youth stay in their homes for a long time.

Recently, the mass media has reported “a pandemic” of Pokémon Go: all over the world, youth are hanging about on the street and in the parks with a smartphone in their hands. On the one hand, there have been numerous internet reports of Pokémon Go gamers sustaining injuries as they have ventured into their surroundings in a distracted state, but on the other hand, there are also reports of gamers becoming less sedentary and having improvements in depression and anxiety through promoted physical activity (McCartney, 2016).

On the day of Pokémon Go release, one-time Japanese Prime Minister Mr. Taro Aso said to mass media that “overseas reports show that people whose social withdrawal had been unable to be cured by psychiatrists started to leave the house to play with Pokémon Go” (Anonymous, 2016). While Mr. Aso was not speaking as a medical authority, it is interesting to note that in the first author’s practice in Japan, even within the first few days of Pokémon Go’s release, there have been youth with hikikomori now able to leave their homes apparently as a result of playing Pokémon Go.

Pokémon Go players are motivated to collect characters in order to complete the Pokémon dictionary and to attain a higher playing level. We hypothesize that, similarly to a token economy system for youth with Attention-deficit Hyperactivity Disorder (ADHD), collecting Pokémon and completing the dictionary can provide a sense of accomplishment and enhanced self-esteem.

It is impossible to accurately estimate the number of Pokémon Go players among those with hikikomori, but it appears that at least for some cases, Pokémon Go will be the first step towards getting out of their rooms. Even though Pokémon Go is more likely to attract players already familiar with Pokémon, it is noted that even elderly players who are relatively unfamiliar with Pokémon are catching on to the game while playing Pokémon Go with their grandchildren. Of interest, some nursing homes have recently begun to provide elderly residents with physical rehabilitation facilitated by TV games that simulate table tennis, bowling, drum competitions or dancing matches. Pokémon Go is designed to be user-friendly, such that with a simple flick of a finger, even mobile game novices can collect balls and throw them to catch Pokémon on the screen.

It is critically important to pay careful attention to the dark side and potential serious risks of game software (McCartney, 2016). However, we believe that Pokémon Go and other, similarly designed games, should be further studied for their potential role as an adjunct to

conventional psychiatric interventions aimed to reintegrate individuals with hikikomori into society. Furthermore, while there are several hikikomori support centers in each prefecture in Japan, these centers in and of themselves have not, in their current form, been compelling enough to bring all youth with hikikomori out of their rooms. We suggest that setting up PokeStops at hikikomori support centers may attract individuals with hikikomori to catch Pokémon and communicate with others.

## References

- Anonymous. Japanese fans flock to Pokemon Go, police concerned about accidents. Japan Today Editorial Office; Tokyo: 2016.
- Furusho J, Suzuki M, Tazaki I, Satoh H, Yamaguchi K, Iikura Y, Kumagai K, Kubagawa T, Hara T. A comparison survey of seizures and other symptoms of Pokemon phenomenon. *Pediatr Neurol.* 2002; 27(5):350–355. [PubMed: 12504202]
- Koyama A, Miyake Y, Kawakami N, Tsuchiya M, Tachimori H, Takeshima T, World Mental Health Japan Survey, G. Lifetime prevalence, psychiatric comorbidity and demographic correlates of “hikikomori” in a community population in Japan. *Psychiatry Res.* 2010; 176(1):69–74. [PubMed: 20074814]
- McCartney M. Margaret McCartney: game on for Pokemon Go. *BMJ.* 2016; 354:i4306. [PubMed: 27510374]
- Tateno M, Park TW, Kato TA, Umene-Nakano W, Saito T. Hikikomori as a possible clinical term in psychiatry: a questionnaire survey. *BMC Psychiatry.* 2012; 12:169. [PubMed: 23061675]