The Digital Divide, Social Inclusion, and Health Among Persons With Mental Illness in Poland

Ng, Yu-Leung; Chan, Kara; Balwicki, Łukasz; Huxley, Peter J.; Chiu, Marcus Yu-Lung

Published in:
International Journal of Communication

Published: 02/04/2019

Document Version:
Final Published version, also known as Publisher's PDF, Publisher's Final version or Version of Record

Publication details:
Ng, Y-L., Chan, K., Balwicki, Ł., Huxley, P. J., & Chiu, M. Y-L. (2019). The Digital Divide, Social Inclusion, and Health Among Persons With Mental Illness in Poland. *International Journal of Communication*, *13*, 1652-1672. https://ijoc.org/index.php/ijoc/article/view/10584

International Journal of Communication 13(2019), 1652–1672 1932–8036/20190005

The Digital Divide, Social Inclusion, and Health Among Persons With Mental Illness in Poland

YU-LEUNG NG
KARA CHAN
Hong Kong Baptist University, Hong Kong

ŁUKASZ BALWICKI
Medical University of Gdansk, Poland

PETER J. HUXLEY
Bangor University, United Kingdom

MARCUS YU-LUNG CHIU
City University of Hong Kong, Hong Kong

Previous digital divide research has studied the Internet for empowerment of marginalized people such as ethnic and sexual minorities. This study focused on the digital divide among another minority group: persons with mental illness in the community. A nonprobability cross-sectional sampling survey was conducted in Poland. Cluster analysis was conducted to segment persons with mental illness into homogeneous clusters based on their Internet usage activities and motivations. Three clusters were identified: leisure-seeking omnivores (44.4%), gamers (18.8%), and passive selective users (36.9%). Leisure-seeking omnivores scored higher on satisfaction with and perception of opportunities to receive social resources (e.g., family activities, employment, community participation, and health services) than passive selective users. Gamers had better physical and mental health than leisure-seeking omnivores and passive selective users. Younger age and better physical health were the predictors for being leisure-seeking omnivores and gamers, respectively. Future predictions of the changes of clusters and future research directions are discussed.

Keywords: digital divide, online activities, physical and mental health, Poland, social inclusion

Yu-Leung Ng: ngyuleung724@gmail.com; ny1724@hkbu.edu.hk
Kara Chan (corresponding author): karachan@hkbu.edu.hk
Łukasz Balwicki: balwicki@gmail.com
Peter J. Huxley: p.huxley@bangor.ac.uk
Marcus Yu-Lung Chiu: mylchiu@cityu.edu.hk
Date submitted: 2018–09–26

Digital divide is traditionally defined as the gap between those who use the Internet and those who do not, but recent conceptualizations of the digital divide have included access, attitudes, skills, and types of usage (J. E. Katz & Rice, 2002; van Deursen & van Dijk, 2014; Warschauer, 2003). The present study focuses on access to usage of the Internet. Socioeconomically speaking, individuals with low income and education level and groups such as ethnic and sexual minorities are less likely to get access to the Internet (Norris, 2001). Scholars and policymakers acknowledge the potential of Internet usage to improve quality of life, social equality, and empowerment of minorities and marginalized people in society (Mehra, Merkel, & Bishop, 2004). Internet usage can provide marginalized users a channel to get access to various online activities, including entertainment and having fun, acquiring product information and making online purchases, using social networking sites and chatting with friends online, finding online courses and job openings, searching for information and news, and playing online games (van Deursen & van Dijk, 2014). Minorities can live a more meaningful life without feeling socially excluded by using the Internet to engage in these online activities. The ability to access knowledge and engage in various online activities could be critical to social inclusion (Warschauer, 2003).

Previous research on the digital divide and marginalized people studied the Internet for empowerment of ethnic minorities, low-income families, and sexual minority groups (D'Haenens, Koeman, & Saeys, 2007; D'Haenens & Ogan, 2013; Gonzales, 2017; Guttman et al., 2017; Mehra et al., 2004; Mesch, 2012). For example, some studies show that racially marginalized individuals tend to enlarge their social networks online (Gonzales, 2017) and build work-related contacts (Mesch, 2012). Only recently have a few studies considered the Internet as a tool to enhance the quality of life of a group of marginalized people: persons with mental illness (PMI). PMI use the Internet to receive mental health-related information (e.g., Aref-Adib et al., 2016; Kalckreuth, Trefflich, & Rummel-Kluge, 2014; Tang & McKay, 2010); however, this article examines various Internet activities of PMI in Poland and their relationship with social inclusion, satisfaction and perception of opportunities to access different social domains, experience of discrimination, and physical as well as mental health.

PMI use the Internet to obtain information related to mental health. Most PMI use the Internet for reasons such as searching for information on mental disorders, medication, and mental health services, and chatting with other PMI and mental health professionals on platforms (Kalckreuth et al., 2014). Aref-Adib et al. (2016) conducted a qualitative study and found that PMI use the Internet to receive mental health-related information; to read information about their diagnoses, prescribed medication, and medication side-effects; and to make sense of their psychotic experiences. Similarly, Tang and McKay (2010) found that private practice patients frequently seek mental health information such as symptoms, diagnoses, treatments, and side effects from the Internet. They share and discuss the findings of their Internet searches with their psychiatrist. Their decision to take medication is affected by the information they find on the Internet. These studies examine mental health informational use of the Internet, but ignore other Internet usages. However, some other Internet usages are more (or less) beneficial for minority and marginalized users, including mental health services users. Different types of Internet usage may provide more resources and opportunities in social interaction, leisure, work, and study. There is a lack of inquiry into general Internet use among mental health services users. This study attempts to fill the gap.

Theoretical Background

Classification of Internet Usage

The uses and gratifications theory suggests that media exposure and selection fulfill individuals' social and psychological needs for gratification (E. Katz, Blumler, & Gurevitch, 1973, 1974). This approach explains that people are active and goal-oriented Internet users; they select different Internet activities to fulfill their motives (Ruggiero, 2000). For example, people use the Internet to have fun and find information for amusement to satisfy their leisure motivation, to learn new things on the Internet to fulfill their personal development motives, and to connect with social media friends to satisfy their need to belong (van Deursen & van Dijk, 2014). Thus, a classification of Internet usage types generated from the most common contemporary Internet activities is supported by the uses and gratifications theory.

Previous studies have clustered Internet users into groups by their Internet activities in various ways such as chatting with friends, playing games, and buying products online (e.g., Brandtzæg, 2010; Brandtzæg, Heim, & Karahasanović, 2011; Egea, Menendez, & Gonzalez, 2007). For instance, Egea et al. (2007) conducted a cluster analysis and identified five types of Internet users in Europe: 44% non-Internet users who seldom use the Internet, 19% followers who frequently use government services but do not shop on the Internet, 19% advanced users who frequently use the Internet for various online activities, 16% laggards who occasionally use online government services and rarely use the Internet for their own purposes, and only 2% confused and adverse users who have difficulties using the Internet. Later, Brandtzæg et al. (2011) described five similar types of Internet users: 42% nonusers who use the Internet on a nonregular basis; 18% sporadic users who are occasional Internet services users; 18% instrumental users who use the Internet for goal-oriented purposes; 12% advanced users who are frequent Internet users; and 10% entertainment users who use the Internet to watch drama, listen to music, and play games. The classification of different types of Internet user provides comprehensive characterization of variations in complicated online behavior (Johnson & Kulpa, 2007).

Two theoretical propositions derive from the above section: (a) An individual's Internet usage is represented by a list of Internet activities including leisure, shopping and government services, social networking, study, career, information and news reception, and gaming; and (b) offline activities vary across a set of Internet usages. Using these two propositions as the conceptual base of this study, we sought to construct a typology of Internet usage activities and Internet use motivations (van Deursen & van Dijk, 2014) showing a classification of Internet users who share similarities (within a group) or differences (among groups) in their Internet usages and motivations. Using this approach, we intended to clarify the theoretical relationships between different categories of Internet usages.

From the Digital Divide to Social Inclusion in Poland

In Poland, it was found that 23.4% of the 6 million adult population are diagnosed as having at least one mental disorder according to the 10th revision of the *International Statistical Classification of Diseases and Related Health Problems* and the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (Kiejna et al., 2015). The most common disorders are associated with taking substances (12.8%), including alcohol abuse and dependence (11.9%) and drug abuse and addiction (1.4%). Another group of disorders are

neurotic disorders, among which the most common are specific phobias (4.3%) and social phobia (1.8%). The main forms of specialist care for persons with mental illness in Poland are outpatient and inpatient services. Mental health outpatient clinics provide the most common form of outpatient care and are available in almost all districts of the country (Commissioner for Human Rights, 2014). Use of these services is legally easier and does not require a referral from a primary care physician. Daily care wards provide treatment and rehabilitation for eight to 10 hours a day, five days a week, usually in the place of residence, thus maintaining family and social bonds. In 2011, inpatient psychiatric care used more than 24,600 beds, of which more than half (56%) were located in psychiatric facilities and 24% were in units in general hospitals (Commissioner for Human Rights, 2014).

In Poland, health-related Internet use has increased significantly and has become an important source of health information, overtaking traditional media. Three national surveys conducted in 2005, 2007, and 2012 showed that Internet use of Polish adult citizens for health-related purposes, such as talking to health practitioners, engaging in self-help groups, and ordering medicines, increased from 41.7% in 2005 to 66.7% in 2012 (Bujnowska-Fedak, 2015). There is no published study in Poland that has investigated the characteristics of Internet use among persons with mental health issues. As 10% of Polish citizens have at least one type of neurotic disorder (Kiejna et al., 2015), understanding how PMI living in the community use the Internet to form social capital and inclusion should be of wide interest.

Social capital has been considered a key factor in moving minorities over the digital divide to digital and offline inclusion (D'Haenens et al., 2007; Giglou, Ogan, & D'Haenens, 2018). According to Putnam's (2000) definition, *social capital* refers to the social networks and norms of reciprocity and trustworthiness that establish from the connections among other people. Maintaining close relationships with family members and close friends is called *bonding social capital*, and forming relationships with other people who can provide opportunities for work or other resources and supports is known as *bridging social capital*. However, Putnam's definition of social capital focuses only on interpersonal relationships as a social resource and ignores other aspects of social resources.

Bourdieu's (1986) definition of social capital is more comprehensive and is the most appropriate in this research context. Bourdieu defined social capital not only as an interpersonal connection or network that is similar to a resource that can provide emotional support or monetary benefits through cooperation, trust, and reciprocity (Putnam, 2000), or investment in social relations with anticipated returns in the future (Lin, 2001). Instead, Bourdieu argues that social capital encompasses capital in all its forms including economic, cultural, and social resources. A real-life example is that if a person interacts with other people in a community, the person should have a higher chance to learn new skills and knowledge and get financial support when he or she is in need. In this way, social capital or *social inclusion* can be formed by capturing the opportunities and perceived satisfaction of various life domains including family and social relationships, leisure activities, housing, work, education, health care, and safety (Huxley et al., 2012). That is, people can gain social resources, feel satisfied, and perceive as being included by society via not only social relationships, but also various life domains. According to the definition of the World Bank (2013), social inclusion means everyone should have equal opportunities to contribute to society and receive its rewards. In particular, people with mental health illness, who are a minority group in society, need to have full capability to engage and be included in various social domains (Balwicki, Chan, Huxley, & Chiu, 2018; Chan, Chiu, Evans, Huxley, & Ng, 2016;

Huxley et al., 2012). PMI should perceive that they have the opportunities for housing, education, work, health care, and involvement with community groups.

Research Questions

Following van Deursen and van Dijk (2014), the present study was guided by the uses and gratifications theory and literature on the digital divide to examine the similarities and differences of clusters of Polish PMI characteristics based on their Internet activities. As sociodemographic factors such as age and income appear to explain individual variations in Internet usages (Friemel, 2016; van Deursen & van Dijk, 2014), we investigated the patterns of various Internet activities and compared the clusters we generated on their demographic characteristics. Finally, we attempted to understand the digital divide among PMI in Poland from their health conditions and degrees of social inclusion. The following research questions were generated:

RQ1: *What are the different clusters of users among Polish PMI with regard to their Internet usage activities and Internet use motivations?*

RQ2: *How do clusters of Internet users differ in sociodemographic characteristics and levels of health and social inclusion?*

RQ3: *Do health, social inclusion, and demographic factors predict clusters of users?*

Method

Participants

Participants were 180 users of an outpatient psychiatry clinic at a major hospital in a Polish city (women = 53.3%; M_{Age} = 41.9 years, SD_{Age} = 14.9, range = 18–76 years). All participants were born in Poland (except one). Nearly half (45%) were engaged in the workforce, whereas others were unemployed because of long-term health issues, retirement, or full-time study. One fifth (18%) did not receive any source of income. Half (52%) had postsecondary or above education. The majority had been living 29 (1st quartile) to 54 (3rd quartile) years (Mdn_{Year} = 39 years, M_{Year} = 41.7, SD_{Year} = 15.1) in their surveyed area. Nearly all (91%) were living in permanent residential flats or houses.

The current study is a case of small-sample research. Small-sample research can be innovative and critical because it asks questions concerning health conditions in vulnerable and underrepresented populations (Etz & Arroyo, 2015). PMI in Poland who are marginalized are by definition small in number compared with the normal population. Thus, they are difficult to recruit in large numbers. The small sample size in this study can also be attributed to vulnerable and small populations of PMI in Poland, small numbers of potential respondents in towns, and financial and time constraints. Although the sample size of this study was small (N = 180), it was adequate to detect a medium effect for analysis of variance (ANOVA), f = .25, based on number of group = 3, at $\alpha = .05$, $1 - \beta = .80$, required sample size = 159 (G*Power 3.1; Faul, Erdfelder, Buchner, & Lang, 2009).

There are no existing nationally representative data that measure the types of Internet usages and subjective opportunities of social inclusion. Thus, we adopted a nonprobability cross-sectional sampling method. One of the authors recruited the participants through his professional network. Probability sampling was not a feasible choice, as there is no sampling frame for mental health services users in Poland. Participants recruited in this study are not likely the same population of PMI in Poland. As a result, the generalizability of the findings cannot be guaranteed.

Procedure

We received ethical approval from the local ethics committee in Poland and the Committee on the Use of Human and Animal Subjects in Teaching and Research at Hong Kong Baptist University. Participants were recruited who had been diagnosed as having severe mental health problems such as schizophrenia, depression, bipolar disorder, and anxiety disorder; had received mental health treatment for more than six weeks; and were older than 18 years of age. The survey interviews were possible, as the participants' problems had been stabilized. We also set up a contingency plan to help participants if they experienced negative emotion during the interviews. None of them needed such help.

A female native medical doctor resident in psychiatry conducted face-to-face individual interviews in Polish. A pilot test of three PMI showed that none of them had difficulty understanding and answering the questions. Participants signed an informed consent statement before the interviews. Participants did not receive any payment. Participation was voluntary. Approximately 50 individuals refused to participate in the study because signing a consent statement with a personal identity elicited their suspicions about the anonymity of the study. All interviews were conducted at the premises of an outpatient clinic in June and July 2017. The interviews lasted between 30 and 45 minutes.

Measures

Internet Usage Activities

We adopted and revised van Deursen and van Dijk's (2014) Internet usage activities scale to measure the extent to which participants use the Internet for different online activities. Participants were asked, by using a 5-point scale ranging from 1 (*never*) to 5 (*every day*), the frequency they participated in leisure (3 items: free surfing, downloading music or videos, and hobby, $\alpha = .72$), commercial transaction (3 items: shopping or ordering products, using e-government services, and getting information about products and services, $\alpha = .66$), social interaction (4 items: using e-mails, using social network sites, sharing photos or videos, and chatting on Skype or similar platforms, $\alpha = .71$), study (1 item: finding or studying online courses and training), career (1 item: finding jobs or applying for jobs), information (1 item: searching information), news (1 item: getting news), and gaming (1 item: playing online games).

Internet Use Motivations

Motivations for the use of the Internet (van Deursen & van Dijk, 2014) were assessed by asking participants to rate their reasons for accessing the Internet on a scale from 1 (*strongly disagree*) to 5 (*strongly*

agree). We included eight items and conceptualized and operationalized two types of Internet use motivation. The first one was leisure motivation. Items included "I use the Internet for (1) having fun, (2) relaxing, (3) participating in chat sessions, (4) keeping contacts with friends, and (5) buying things" (α = .80). The second one was improvement motivation: "I use the Internet for (1) learning new things, (2) improving my prospect in work, and (3) getting information" (α = .69).

Subjective Opportunities

We adopted subjective opportunities measurements from a well-constructed Social and Community Opportunities Profile–Poland version (SCOPE–P; Balwicki et al., 2018). Eight domains of inclusion and one of general social inclusion were covered, including (1) leisure and participation, (2) housing and accommodation, (3) work, (4) financial situation, (5) safety, (6) education, (7) health, and (8) family and social relationships. Satisfaction with opportunities was assessed by asking to what extent they rate the opportunity to access each social domain, on a scale from 1 (*extremely restricted opportunities*) to 7 (*plenty of opportunities*). Cronbach's alpha of satisfaction with opportunities was .80. Perceived opportunities was measured by asking how they feel about the opportunity to access domain on a scale from 1 (*terrible*) to 5 (*delighted*). Cronbach's alpha of perceived opportunities was .60. Overall social inclusion was measured by a single item: the extent to which participants feel that they are included in society on a scale from 1 (*terrible*) to 7 (*delighted*).

Everyday Discrimination and Health

Participants were asked to answer the Everyday Discrimination Scale (Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005) with nine items ranging from 1 (*never*) to 6 (*almost every day*). An example item is "You are threatened or harassed." Cronbach's alpha was .89. We adopted the second version of the 12-item Short Form Health Survey to assess physical and mental health (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). Physical health included physical functioning, role-physical, bodily pain, and general health; mental health involved vitality, social functioning, role-emotional, and mental health. An example of an item for physical health assessment was "In general, would you say your health is . . . ?" from 1 (*poor*) to 5 (*excellent*), and for mental health assessment, "Have you felt calm and peaceful?" from 1 (*none of the time*) to 5 (*all of the time*). A previous study demonstrated that the Short Form Health Survey is valid and reliable in European countries, including Poland (De Smedt et al., 2013).

Results

Cluster Analysis

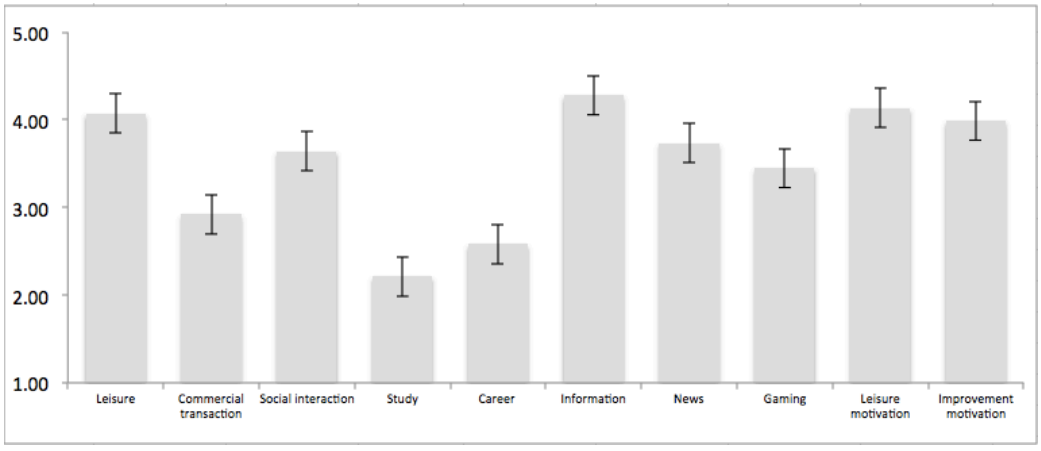
To examine the different clusters of users among Polish PMI with regard to their Internet usage activities and Internet use motivations (RQ1), we conducted cluster analysis to segment PMI into homogeneous clusters based on the eight Internet usage activities and two Internet use motivations. We used Ward's (1963) hierarchical clustering method to capture the cluster solution and centroid estimates. This method produces group clusters maintaining the distances within the clusters as small as possible. Alternative analyses with three to seven clusters were conducted by using this method. Among the five results of Ward's hierarchical

clustering, we selected a three-cluster solution because of theoretical and conceptual considerations and its interpretable and stable results.

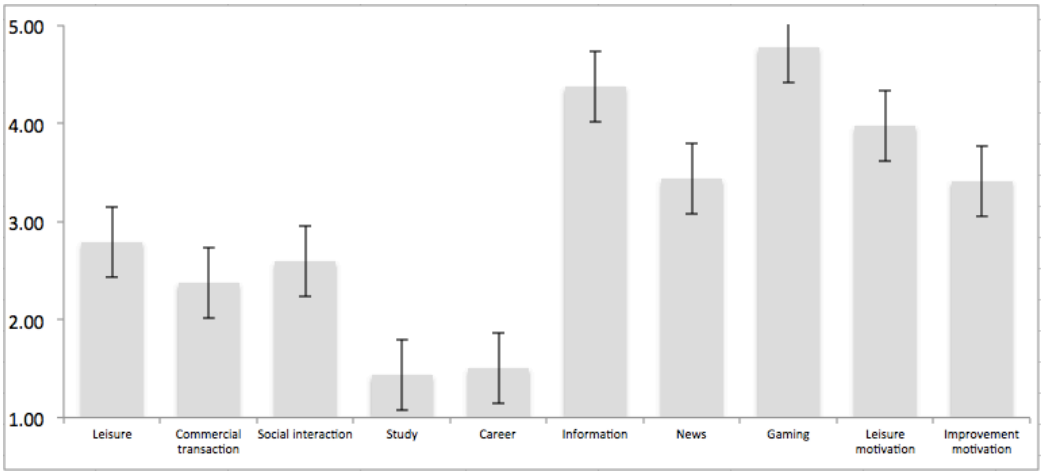
We tested the internal validity, the adequacy of the classification, and the stability of the three clusters. The results of ANOVA indicated that there were significant group differences among the three clusters, showing high internal validity. Discriminant analysis showed that 91.3% of the cases were correctly classified, which indicated that the three clusters were significantly different. To examine the stability of the cluster results, we randomly split the sample in half and separately conducted the same discriminant analysis on each half. The results showed that the first half and second half correctly classified 96.2% and 86.4% of the cases, respectively, showing the validity, adequacy, and stability of the classification.

The three psychographic clusters were labeled as leisure-seeking omnivores, gamers, and passive selective users (see Figure 1). One-way ANOVAs were conducted to examine whether the three clusters differed in Internet usage activities, Internet use motivations, satisfaction with opportunities, perceived opportunities, everyday discrimination, social inclusion, and physical and mental health. We then performed a post hoc Tukey–Kramer test for honestly significant differences. Cluster differences in means were identified by the subscripts. Chi-square tests were conducted to test the cluster difference in demographic factors.

a) Leisure-seeking omnivores



b) Gamers



c) Passive selective users

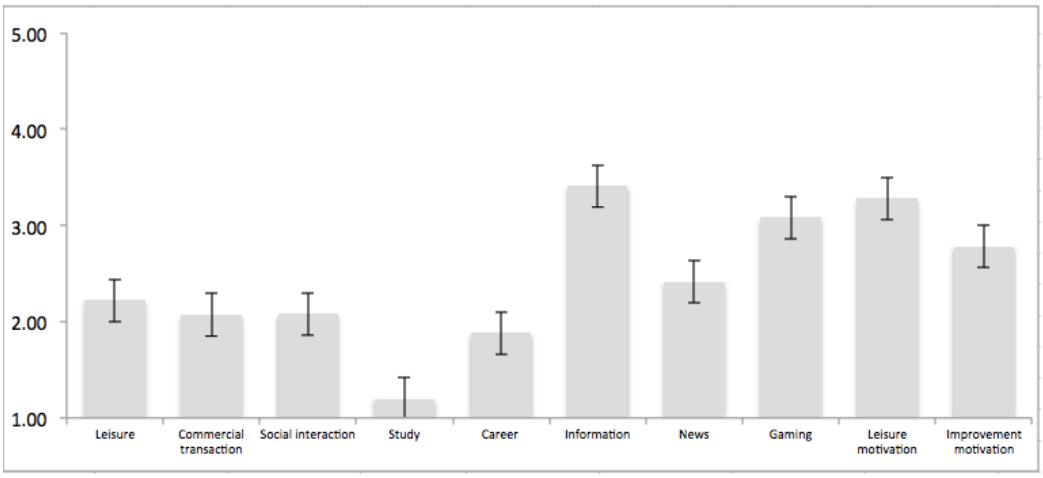


Figure 1. Mean scores of the three clusters on the Internet usage activities and Internet use motivations.

Table 1 shows the means, standard deviations, and effect sizes (η^2) of the Internet usage activities and Internet use motivations among the three segments of users. Leisure-seeking omnivores were more likely to have online leisure activities than gamers, followed by passive selective users. Similarly, leisure-seeking omnivores interacted with others on the Internet more often than gamers, followed by passive selective users. For accessing the Internet for commercial transaction, study, and career purposes, leisure-seeking omnivores were the more frequent users than gamers and passive selective users. Both gamers and leisure-seeking omnivores were more likely to search for information and read news on the Internet than passive selective users. Gamers scored higher for online gaming than leisure-seeking omnivores and

passive selective users. We found similar patterns in the two Internet use motivations. Leisure-seeking omnivores and gamers were more likely to score higher on leisure motivation than passive selective users. Leisure-seeking omnivores scored the highest on improvement motivation, followed by gamers, and last by passive selective users.

Table 1. Internet Usage Activities and Internet Use Motivations Among the Three Clusters.

Variable	Leisure-seeking omnivores *M* (*SD*)	Gamers *M* (*SD*)	Passive selective users *M* (*SD*)	*F*(2, 157)	η^2
N	71	30	59		
Internet usage activities					
Leisure	4.07 (0.73)$_a$	2.79 (0.60)$_b$	2.22 (0.69)$_c$	118.30***	.60
Commercial transaction	2.92 (0.64)$_a$	2.37 (0.55)$_b$	2.07 (0.71)$_b$	28.13***	.26
Social interaction	3.64 (0.76)$_a$	2.59 (0.64)$_b$	2.08 (0.67)$_c$	80.84***	.51
Study	2.21 (1.11)$_a$	1.43 (0.63)$_b$	1.20 (0.45)$_b$	25.43***	.24
Career	2.58 (0.94)$_a$	1.50 (0.57)$_b$	1.88 (1.02)$_b$	17.83***	.19
Information	4.28 (0.76)$_a$	4.37 (0.67)$_a$	3.41 (0.77)$_b$	27.19***	.26
News	3.73 (1.16)$_a$	3.43 (1.01)$_a$	2.41(1.10)$_b$	23.87***	.23
Gaming	3.45 (1.42)$_b$	4.77 (0.43)$_a$	3.08 (1.32)$_b$	18.35***	.19
Internet use motivations					
Leisure motivation	4.13 (0.65)$_a$	3.97 (0.63)$_a$	3.28 (0.73)$_b$	26.16***	.25
Improvement motivation	3.99 (0.54)$_a$	3.41 (0.96)$_b$	2.78 (0.76)$_c$	46.09***	.37

Note. Means in the same row that do not share subscripts differ at the $p < .05$ level of confidence in the Tukey–Kramer test for honestly significant differences. The results of cluster analysis included only 160 participants because of missing data.
*$p < .05$. **$p < .01$. ***$p < .001$. a > b > c.

Cluster Profiles

Leisure-seeking omnivores (44.4%) represented PMI who were active in almost all of the Internet usage activities. Among the three clusters, individuals in this group were the most active users to engage in leisure, commercial transaction, social interaction, study, and career-searching activities online. They had the strongest motivation for self-improvement by using the Internet. The frequencies of Internet usage for searching information, getting news, and satisfying leisure motivation were similar between this group of users and the gamers.

The gamers group (18.8%) was the smallest cluster. These individuals scored the highest on playing online games compared with the other two clusters. The Internet usages for leisure, social interaction, and improvement motivation achievement of this group were in the middle between leisure-seeking omnivores and passive selective users. Gamers and passive selective users consumed similar amounts of time in making commercial transactions, finding jobs, and studying online courses on the Internet.

The passive selective users group (36.9%) consisted of individuals who were inactive in all Internet usage activities. They were passive Internet users who had the lowest frequency in using the Internet for almost all of the activities, including leisure, interacting with others, searching information, getting news, and playing online games, and also had the lowest leisure and improvement motivation levels.

Subjective Opportunities, Everyday Discrimination, Health, and Demographics Among the Clusters

One-way ANOVAs were conducted to answer Research Question 2: How do clusters of Internet users differ in sociodemographic characteristics and levels of health and social inclusion? Leisure-seeking omnivores had higher satisfaction with opportunities and perceived opportunities than passive selective users. We found no difference in social inclusion and everyday discrimination among the three clusters. Gamers had better physical health than both leisure-seeking omnivores and passive selective users. Gamers also had better mental health, followed by leisure-seeking omnivores, and then passive selective users (see Table 2).

Table 2. Subjective Opportunities, Everyday Discrimination, And Health Condition Among the Three Clusters.

Variable	Leisure-seeking omnivores *M* (*SD*)	Gamers *M* (*SD*)	Passive selective users *M* (*SD*)	*F*(2, 157)	η^2
n	71	30	59		
Subjective opportunities					
Satisfaction with opportunities	$4.74\ (0.81)_a$	4.51 (0.73)	$4.41\ (0.78)_b$	3.00	.04
Perceived opportunities	$3.53\ (0.73)_a$	3.39 (0.76)	$3.19\ (0.67)_b$	3.72*	.05
Social inclusion	4.14 (1.58)	4.33 (1.40)	3.83 (1.46)	1.28	.02
Everyday discrimination	2.06 (0.93)	1.84 (0.83)	2.06 (0.92)	0.74	.01
Health condition					
Physical health	$11.99\ (3.14)_b$	$14.45\ (1.76)_a$	$10.67\ (2.93)_b$	17.46***	.18
Mental health	$11.74\ (3.42)_{ab}$	$13.00\ (3.44)_a$	$10.59\ (2.59)_b$	5.92**	.07

Note. Means in the same row that do not share subscripts differ at the $p < .05$ level of confidence in the Tukey–Kramer test for honestly significant differences. The results of cluster analysis included only 160 participants because of missing data.
*$p < .05$. **$p < .01$. ***$p < .001$. a > b.

There were no gender and education differences among the three groups. However, there were significant age group, work status, and income differences among the three types of Internet users. Approximately one fifth (19.7%) of the leisure-seeking omnivores were emerging adults aged 18–24 years and 42.3% were early adults aged 25–34 years. Surprisingly, more than half (63.3%) of gamers were middle adults aged 35–60 years and only 3.3% and 26.7% were emerging adults and early adults, respectively. Similarly, 66.1% and 18.6% of passive selective users were middle and early adults, respectively. Half of the leisure-seeking omnivores and 57.6% of passive selective users did not engage in work, but 70.0% of gamers had a job. The majority of the three groups had income, but nearly all gamers (96.7%) had it (see Table 3).

Table 3. Demographics Among the Three Clusters.

Variable	Leisure-seeking omnivores *M* (*SD*)	Gamers *M* (*SD*)	Passive selective users *M* (*SD*)	*F*(2, 157)	η^2
n	71	30	59		
Age (years)	$33.62\ (11.44)_b$	$42.73\ (12.46)_a$	$44.88\ (13.92)_a$	14.11***	.18
	%	%	%	$\chi^2(df)$	Cramer's *V*
Age group				21.63(6)**	.26
Emerging adults	19.7	3.3	6.8		
Early adults	42.3	26.7	18.6		
Middle adults	35.2	63.3	66.1		
Older adults	2.8	6.7	8.5		
Gender				2.03(2)	.11
Male	57.7	43.3	57.6		
Female	42.3	56.7	42.4		
Engaged in work				6.12(2)*	.20
No	50.0	30.0	57.6		
Yes	50.0	70.0	42.4		
Income				8.10(2)*	.23
No	28.2	3.3	19.3		
Yes	71.8	96.7	80.7		
Education				1.60(2)	.10
Secondary	39.4	50.0	49.2		
Postsecondary	60.6	50.0	50.8		

Note. Means in the same row that do not share subscripts differ at the $p < .05$ level of confidence in the Tukey–Kramer test for honestly significant differences. The results of cluster analysis included only 160 participants because of missing data. Emerging adults = 18–24 years of age. Early adults = 25–34 years of age. Middle adults = 35–60 years of age. Older adults = > 60 years of age.
*$p < .05$. **$p < .01$. ***$p < .001$.

Predicting the Clusters

To test whether health, social inclusion, and demographic factors would predict clusters of users (RQ3), we conducted multinomial logistic regressions to predict the likelihood of a respondent being a leisure-seeking omnivore and a gamer (vs. a passive selective user) from demographic factors including age, gender, work, income, and education, and social inclusion and health factors including satisfaction with opportunities, perceived opportunities, social inclusion, everyday discrimination, and physical as well as mental health (see Table 4). For demographic predictors, age was the only negative predictor in predicting a patient being a leisure-seeking omnivore. Older age reduced the odds of being a leisure-seeking omnivore. Among the social inclusion and health predictors, physical health was the only positive predictor of a PMI being a gamer. Better physical health was associated with 78% higher odds of being a gamer than a passive selective user.

Table 4. Multinomial Logistic Regression Analyses Predicting Leisure-Seeking Omnivores and Gamers Compared With Passive Selective Users.

	Leisure-seeking omnivores			Gamers		
Predictor	*B*	*SE*	OR	*B*	*SE*	OR
Intercept	−0.75	2.15	–	−10.20	3.51	–
Age	−0.09	0.02	0.92***	0.00	0.02	1.00
Gender	−0.09	0.45	0.92	0.11	0.59	1.12
Work	0.35	0.53	1.41	0.75	0.68	2.12
Income	−0.06	0.69	0.94	1.31	1.27	3.72
Education	0.84	0.46	2.31	0.11	0.57	1.12
Satisfaction with opportunities	0.51	0.39	1.66	−0.51	0.49	0.60
Perceived opportunities	0.15	0.39	1.16	0.38	0.45	1.46
Social inclusion	0.05	0.16	1.05	0.14	0.23	1.15
Everyday discrimination	−0.04	0.27	0.96	0.33	0.39	1.40
Physical health	0.01	0.10	1.01	0.58	0.15	1.78***
Mental health	0.06	0.09	1.06	0.01	0.11	1.01
Nagelkerke R^2	.48					
Correct classification (%)	63.0					

*p < .05. **p < .01. ***p < .001.

Discussion

This study examined the digital divide among PMI in Poland and the relationship with sociodemographic characteristics, subjective opportunities of social inclusion, and health condition. Whereas digital divide research has changed its focus from inequalities of Internet access to digital usages (van Deursen & van Dijk, 2014), this study used an up-to-date perspective and investigated the patterns of Polish PMI's various Internet activities and usages and the associated degrees of social inclusion and health conditions. The results revealed three groups of Internet users based on their Internet usage activities and Internet use motivations: leisure-seeking omnivores, gamers, and passive selective users. Guided by the uses and gratifications approach (E. Katz et al., 1973), this study demonstrates that the three groups of Polish PMI engage in various Internet activities to satisfy different psychological motives and needs in different patterns (as shown in Figure 1), including leisure, commercial transaction, social interaction, study, career, information, news, and gaming.

Compared with previous user typology that found five user types among people in five European countries (Brandtzæg et al., 2011; Egea et al., 2007), we identified three clusters among PMI in Poland. Despite similarities with previous studies in patterns showing high (or advanced) users or leisure-seeking omnivores who scored high on almost all Internet activates (except gaming), and low (or non-) users or passive selective users who seldom used the Internet, our study also identified an important new group of Internet users: gamers. This finding is important because the segment of gamers is associated with higher scores on physical and mental health than both leisure-seeking omnivores and passive selective users. As recent research has started to investigate the potentials, possibilities, and opportunities to use gaming for the improvement of the quality of life and health of individuals (Jones, Scholes, Johnson, Katsikitis, & Carras,

2014; Turner, Thomas, & Casey, 2016), the present study provides empirical support that gamers are associated with better physical and mental health.

The digital divide is a considerable issue among Polish PMI. PMI who frequently use the Internet to engage in leisure, commercial transactions, social interactions, study, career, information, and news, as well as those who have high motivations for using the Internet to have fun and improve their skills, are more likely to think and feel that they have higher chances to receive social resources and achieve better physical and mental health. However, the digital divide is also a serious problem among them. Approximately 40% of the sample were passive selective users, which indicates that this group lacks the higher level of usage patterns needed for various online activities. This situation reveals a problem because passive selective users reflected lower satisfaction with and perceived opportunities to get access to social resources. Also, passive selective users were associated with poorer physical and mental health condition compared with leisure-seeking omnivores and gamers. The inequalities of social inclusion and health care in the offline world are reflected by the Internet usages, illustrating that Internet usages mirror the social, cultural, and economical interrelationships of inequalities in the real world (Witte & Mannon, 2010).

Internet use provides PMI in Poland the opportunities to more fully participate in society and to reduce exclusion in the world. Our results show that leisure-seeking omnivores who are active users engaging in various online activities including leisure, social interaction, study, career searching, and commercial transaction are more likely to feel that they have the opportunities to access various offline social domains (e.g., leisure, housing, work, safety, education, health, and social relationship) than passive selective users who are inactive online users. The findings are consistent with the previous studies that although there are inequalities in basic Internet access, the features of the online world can offer people with disabilities a medium to surpass the limits of the offline world (Dobransky & Hargittai, 2006, 2016).

We did not compare the Internet access of PMI with persons without mental illness in Poland. Dobransky and Hargittai (2006) found that people with disability (e.g., blind, deaf, limited walking ability) in the United States use the Internet to look for health information, search for information about government services, and play games more frequently than people without disability. Another study conducted in the United States showed that people with disability do not fall behind those without disabilities in participating in online activities including downloading videos, playing games, and commenting, sharing, and posting content after controlling for demographics (Dobransky & Hargittai, 2016). Thus, we predict that PMI and persons without mental illness in Poland should not show a significant difference in various online activities. Future research should conduct a national survey in Poland to compare PMI with those without mental illness in Internet usages and their demographic influences.

The findings of demographic differences among the three Internet user types may support the argument that gaming and health are positively associated. Proportionally, those who are more likely to have a job and income are gamers compared with leisure-seeking omnivores and passive selective users. This result is interesting, and a possible explanation could be that as playing games is associated with better physical and mental health condition, gamers have more chance to engage in work that requires a good condition, and thus generate higher income. Another possibility is that gamers operate in a professional job

context more frequently than the other two clusters of users, providing them with some routine and stability. Future research could test the two hypothetical explanations.

Because of the benefits of participating in various Internet usage activities, it is important to predict the odds of being leisure-seeking omnivores (i.e., high Internet users) and gamers compared with passive selective users (i.e., low Internet users) from sociodemographic factors and social inclusion and health factors. The results of multinomial logistic regression indicate that physical health is the only positive predictor. No other social inclusion and health factors predict the clusters. Patients with better physical health have a higher chance of being a gamer than a passive selective user. Another significant predictor is age. The younger the PMI, the higher the chance they are leisure-seeking omnivores. These findings provide further support to the literature on the positive relationship between gaming and mental health. Future studies should explore the possibility that games on the Internet can be developed to enhance well-being.

Future Predictions

We expect that the penetration of digitalization will be enhanced in the coming years in Poland. Internet usage in searching for health information of Polish adult citizens has increased from 41.7% in 2005 and 53.3% in 2007 to 66.7% in 2012 (Bujnowska-Fedak, 2015). Thus, it is reasonable to predict that the number of leisure-seeking omnivores will increase in the near future. It is expected that PMI in Poland will not only use the Internet to seek mental health-related information, but also engage in various online activities such as relaxation, interpersonal relationship maintenance, and self-improvement. The problem of the digital divide among PMI will be gradually alleviated. Also, their subjective opportunities and health conditions among PMI will improve because our findings show that leisure-seeking omnivores score high on these factors.

We also expect that the mean age of the group of leisure-seeking omnivores will increase. The mean age of leisure-seeking omnivores is the lowest among the three clusters of Internet users in our study: approximately 10 years younger than gamers and passive selective users. Also, younger patients are more likely to use the Internet for various online activities. About 40% and 35% of leisure-seeking omnivores were early and middle adults, respectively, but more than 60% of gamers and 60% of passive selective users were middle adults. However, because of the improvement and increased penetration of media convergence, as well as the reduced cost and user-friendly design of the new technologies, more and more middle aged and older PMI will start to participate in different Internet usages to gain social resources in the future.

The degree of access and the diversity of usage of the three Internet groups will tend to increase. However, the proportion of increase in terms of different user groups may be different. The proportion of PMI in the passive selective users group is expected to drop (although usage variations will increase), whereas the numbers of leisure-seeking omnivores and gamers will rise, but leisure-seeking omnivores might progress faster than gamers. The reason may be that people choose to use the Internet because it is useful for instrumental and functional reasons, not because the Internet is fun for playing games (Brandtzæg et al., 2011). Given the increase in the frequency and intensity of Internet usage, PMI should have higher

competence and knowledge to develop skills and networks that can increase the chance to get access to more offline social resources in the future.

The number of gamers will grow, but not as much as that of leisure-seeking omnivores. However, gamers scored higher on physical and mental health than passive selective users. Given the positive association between gaming and health shown in the present study, our results suggest that gaming might be a method to improve the physical and mental health of PMI. Having said that, playing an excessive and unhealthy amount of computer games causes negative consequences such as game addiction (e.g., Charlton & Danforth, 2007; Kuss & Griffiths, 2012). Encouraging patients to play an appropriate amount of online games might lead to a positively healthy outcome.

Limitations and Future Directions

This study measured Internet usages by using a self-reported approach. The validity of our findings may be affected because of possible respondent dishonesty or false memory. To solve this problem, after receiving the consent of the participants, future research could study their digital footprints (i.e., records of individuals' behaviors in digital environments including Web browsing logs, media playlists, video and photos logs, and language used in social media or e-mails) to accurately measure the Internet usage activities.

The findings of this study only indicate associations but not causal relationships between Internet usage and health. It is unclear how Internet use is influenced by the extent of recovery. On the one hand, those who recover better and have better mental health enjoy more social usage of Internet. On the other hand, Internet usage could allow PMI to build their own social capital and support networks. Also, it is not clear whether playing games generates better health, or that healthy PMI are more likely to play games. Future studies should conduct experiments to find out the effect of playing games on health and social inclusion.

The Internet user cluster approach describes a heterogeneous set of samples. A user type can change to another cluster, as we discussed in the predictions above. The user clusters are classified to the group that they most closely belong to, but the user type could change because of social and environmental reasons such as technological advancements. For example, if a passive selective user was encouraged by the government or nongovernment organizations to access the Internet to engage in different Internet activities, such as offering Internet usage training and providing financial support, the patient may change from a passive user to an active high user. The patient can then build online social capital and thus generate greater opportunities to gain offline social resources.

This study clustered the patients based on their Internet usage activities and motivations. The Internet is still an influential technology that generates impacts on people's social life and health conditions. However, the use of emerging new technologies such as social media, artificial intelligence, and virtual and augmented reality could also benefit human beings. Investigating the clusters based on the use of these new technologies should be of interest in understanding the digital divide among PMI in the future.

The present study examined the Internet use clusters of PMI in Poland, an eastern European country. Future research could conduct the cluster analysis based on Internet usage in different eastern and western European countries, other Asian countries, and also the United States. Internet usage variations for different clusters can be compared and contrasted among and within different countries.

Conclusion

The purpose of this study was to investigate the Internet usages of persons with mental illness in Poland and the associated offline social inclusion, satisfaction and perception of opportunities to access social domains, and mental and physical health. We conducted a cluster analysis to segment PMI into homogeneous clusters based on their Internet usage activities and motivations. By adopting a nonprobability cross-sectional sampling method to recruit 180 users of an outpatient psychiatry clinic at a major hospital in a Polish city, we identified three psychographic clusters: leisure-seeking omnivores, gamers, and passive selective users.

Following the uses and gratifications approach (E. Katz et al., 1973) and van Deursen and van Dijk's (2014) digital divide research, we found that the three groups of Polish PMI participate in various Internet activities including leisure, commercial transaction, social interaction, study, career, information, news, and gaming. Our findings show that leisure-seeking omnivores who are active users engaging in various online activities are more likely to perceive that they have the opportunities to access various offline social domains than passive selective users.

Gamers have better physical and mental health than the other two groups. Also, better physical health predicts PMI being gamers compared with passive selective users. The positive association between gamers and health indicates that gaming as a method has the potential to improve the quality of life and health of PMI. With regard to the demographics, gamers are more likely to engage in work and almost all have income compared with the other two groups. Leisure-seeking omnivores are younger than the two groups.

We recommend that future studies should conduct a national survey to ensure the generalizability of the results and compare the Internet usages of PMI and persons without mental illness in Poland. Measuring the Internet usages via digital footprints, conducting experimental studies to find out the causal influences, and testing the influences of PMI's use of new media technologies on health and social outcomes are also recommended. This study can help future research to identify Internet usages and the associated social and health conditions among PMI in other countries.

References

Aref-Adib, G., O'Hanlon, P., Fullarton, K., Morant, N., Sommerlad, A., Johnson, S., & Osborn, D. (2016). A qualitative study of online mental health information seeking behaviour by those with psychosis. *BMC Psychiatry, 16*(1), 232. doi:10.1186/s12888-016-0952-0

Balwicki, Ł., Chan, K., Huxley, P. J., & Chiu, M. Y.-L. (2018). Applying SCOPE to measure social inclusion among people with mental illness in Poland. *Journal of Psychosocial Rehabilitation and Mental Health, 5*(1), 89–100. doi:10.1007/s40737-018-0113-5

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood.

Brandtzæg, P. B. (2010). Towards a unified media-user typology (MUT): A meta-analysis and review of the research literature on media-user typologies. *Computers in Human Behavior, 26*(5), 940–956. doi:10.1016/j.chb.2010.02.008

Brandtzæg, P. B., Heim, J., & Karahasanović, A. (2011). Understanding the new digital divide—A typology of Internet users in Europe. *International Journal of Human–Computer Studies, 69*(3), 123–138. doi:10.1016/j.ijhcs.2010.11.004

Bujnowska-Fedak, M. M. (2015). Trends in the use of the Internet for health purposes in Poland. *BMC Public Health, 15*(1), 194. doi:10.1186/s12889-015-1473-3

Chan, K., Chiu, M. Y.-L., Evans, S., Huxley, P. J., & Ng, Y.-L. (2016). Application of SCOPE-C to measure social inclusion among mental health services users in Hong Kong. *Community Mental Health Journal, 52*(8), 1113–1117. doi:10.1007/s10597-015-9907-z

Charlton, J. P., & Danforth, I. D. W. (2007). Distinguishing addiction and high engagement in the context of online game playing. *Computers in Human Behavior, 23*(3), 1531–1548. doi:10.1016/j.chb.2005.07.002

Commissioner for Human Rights. (2014). *Ochrona zdrowia psychicznego w Polsce: Wyzwania, plany, bariery, dobre praktyki* [Mental health care in Poland: Challenges, plans, barriers, good practices]. Warsaw, Poland: Author. Retrieved from https://www.rpo.gov.pl/sites/default/files/Ochrona_zdrowia_psychicznego.pdf

De Smedt, D., Clays, E., Doyle, F., Kotseva, K., Prugger, C., Pająk, A., . . . De Bacquer, D. (2013). Validity and reliability of three commonly used quality of life measures in a large European population of coronary heart disease patients. *International Journal of Cardiology, 167*(5), 2294–2299. doi:10.1016/j.ijcard.2012.06.025

D'Haenens, L., Koeman, J., & Saeys, F. (2007). Digital citizenship among ethnic minority youths in the Netherlands and Flanders. *New Media & Society, 9*(2), 278–299. doi:10.1177/1461444807075013

D'Haenens, L., & Ogan, C. (2013). Internet-using children and digital inequality: A comparison between majority and minority Europeans. *Communications—The European Journal of Communication Research, 38*(1), 41–60. doi:10.1515/commun-2013-0003

Dobransky, K., & Hargittai, E. (2006). The disability divide in Internet access and use. *Information, Communication & Society, 9*(3), 313–334. doi:10.1080/13691180600751298

Dobransky, K., & Hargittai, E. (2016). Unrealized potential: Exploring the digital disability divide. *Poetics, 58*(1), 18–28. doi:10.1016/j.poetic.2016.08.003

Egea, J. M. O., Menendez, M. R., & Gonzalez, M. V. R. (2007). Diffusion and usage patterns of Internet services in the European Union. *Information Research, 12*(2). Retrieved from http://www.informationr.net/ir/12-2/paper302.html

Etz, K. E., & Arroyo, J. A. (2015). Small sample research: Considerations beyond statistical power. *Prevention Science, 16*(7), 1033–1036. doi:10.1007/s11121-015-0585-4

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160. doi:10.3758/BRM.41.4.1149

Friemel, T. N. (2016). The digital divide has grown old: Determinants of a digital divide among seniors. *New Media & Society, 18*(2), 313–331. doi:10.1177/1461444814538648

Giglou, R. I., Ogan, C., & D'Haenens, L. (2018). The ties that bind the diaspora to Turkey and Europe during the Gezi protests. *New Media & Society, 20*(3), 937–955. doi:10.1177/1461444816675441

Gonzales, A. L. (2017). Disadvantaged minorities' use of the Internet to expand their social networks. *Communication Research, 44*(4), 467–486. http://doi.org/10.1177/0093650214565925

Guttman, N., Lev, E., Segev, E., Ayecheh, S., Ziv, L., Gadamo, F., . . . Yavetz, G. (2017). "I never thought I could get health information from the Internet!": Unexpected uses of an Internet website designed to enable Ethiopian immigrants with low/no literacy skills to browse health information. *New Media & Society, 20*(7), 2272–2295. doi:10.1177/1461444817712937

Huxley, P., Evans, S., Madge, S., Webber, M., Burchardt, T., McDaid, D., & Knapp, M. (2012). Development of a social inclusion index to capture subjective and objective life domains (Phase II):

Psychometric development study. *Health Technology Assessment, 16*(1), 1–241. doi:10.3310/hta16010

Johnson, G. M., & Kulpa, A. (2007). Dimensions of online behavior: Toward a user typology. *CyberPsychology & Behavior, 10*(6), 773–780. doi:10.1089/cpb.2007.0043

Jones, C. M., Scholes, L., Johnson, D., Katsikitis, M., & Carras, M. C. (2014). Gaming well: Links between videogames and flourishing mental health. *Frontiers in Psychology, 5*(260), 1–8. doi:10.3389/fpsyg.2014.00260

Kalckreuth, S., Trefflich, F., & Rummel-Kluge, C. (2014). Mental health related Internet use among psychiatric patients: A cross-sectional analysis. *BMC Psychiatry, 14*(1), 368. doi:10.1186/s12888-014-0368-7

Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *Public Opinion Quarterly, 37*(4), 509–523. doi:10.1086/268109

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communication: Current perspectives on gratifications research* (pp. 19–32). Beverly Hills, CA: SAGE Publications.

Katz, J. E., & Rice, R. E. (2002). *Social consequences of Internet use: Access, involvement, and interaction*. Cambridge, MA: MIT Press.

Kiejna, A., Piotrowski, P., Adamowski, T., Moskalewicz, J., Wciórka, J., Stokwiszewski, J., . . . Kessler, R. (2015). The prevalence of common mental disorders in the population of adult Poles by sex and age structure—An EZOP Poland study. *Psychiatria Polska, 49*(1), 15–27. doi:10.12740/PP/30811

Krieger, N., Smith, K., Naishadham, D., Hartman, C., & Barbeau, E. M. (2005). Experiences of discrimination: Validity and reliability of a self-report measure for population health research on racism and health. *Social Science & Medicine, 61*(7), 1576–1596. doi:10.1016/j.socscimed.2005.03.006

Kuss, D. J., & Griffiths, M. D. (2012). Internet gaming addiction: A systematic review of empirical research. *International Journal of Mental Health and Addiction, 10*(2), 278–296. doi:10.1007/s11469-011-9318-5

Lin, N. (2001). *Social capital: A theory of social structure and action*. New York, NY: Cambridge University Press.

Mehra, B., Merkel, C., & Bishop, A. P. (2004). The Internet for empowerment of minority and marginalized users. *New Media & Society, 6*(6), 781–802. doi:10.1177/146144804047513

Mesch, G. S. (2012). Minority status and the use of computer-mediated communication. *Communication Research, 39*(3), 317–337. doi:10.1177/0093650211398865

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. Cambridge, UK: Cambridge University Press.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon & Schuster.

Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication and Society, 3*(1), 3–37. doi:10.1207/S15327825MCS0301_02

Tang, L.-P. J., & McKay, D. (2010). Dr Google, MD: A survey of mental health-related Internet use in a private practice sample. *Australasian Psychiatry, 18*(2), 130–133. doi:10.3109/10398560903473645

Turner, W. A., Thomas, B., & Casey, L. M. (2016). Developing games for mental health: A primer. *Professional Psychology: Research and Practice, 47*(3), 242–249. doi:10.1037/pro0000082

van Deursen, A. J., & van Dijk, J. A. (2014). The digital divide shifts to differences in usage. *New Media & Society, 16*(3), 507–526. doi:10.1177/1461444813487959

Ward, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association, 58*(301), 236–244. doi:10.1080/01621459.1963.10500845

Ware, J., Kosinski, M., Turner-Bowker, D., & Gandek, B. (2002). *How to score version 2 of the SF-12® health survey*. Lincoln, RI: QualityMetric Inc.

Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA: MIT Press.

Witte, J. C., & Mannon, S. E. (2010). *The Internet and social inequalities*. New York, NY: Routledge.

World Bank. (2013). *Social development: Sector results profile*. Retrieved from http://www.worldbank.org/en/results/2013/04/14/social-development-results-profile