



Association between perceived loneliness and Internet use among homeless people

Asociación entre el nivel de soledad percibido y el uso de Internet en las personas sin hogar


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Abstract

This study aimed to identify the association between the level of perceived loneliness and Internet use among homeless people. The sample consisted of 129 homeless people who were assisted at a shelter in Monterrey (Mexico). To measure the variables of the study, a survey with three main sections was conducted: demographic data, use of Internet and information technologies, and perceived levels of emotional and social loneliness. The results showed: (1) their levels of loneliness were above the average reported in studies with other vulnerable populations; (2) 51.9% of participants have used the Internet at some point in time and use it mainly to contact family and friends; (3) there is a nominal difference, although not statistically significant, between the levels of loneliness of those who use the Internet and those who do not. These results suggest that providing Internet access in shelters may positively influence the quality of life of its beneficiaries.

Keywords: Homeless; Shelters; Loneliness; Internet.

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Resumen

El objetivo de este estudio fue explorar la asociación entre los niveles de soledad percibida y el acceso a Internet en personas sin hogar. La muestra estuvo compuesta por un total de 129 personas sin hogar que asistieron a un albergue en Monterrey, México (n=129). Para medir las variables del estudio (uso de Internet y niveles de soledad de las personas sin hogar que asisten a albergues) se administró un cuestionario a cada participante, que contenía tres secciones principales: (1) datos de control; (2) uso de Internet y tecnologías de información; y (3) niveles de soledad social y emocional. Los resultados mostraron que: (1) los niveles de soledad están muy por encima del promedio reportado en estudios con otras poblaciones vulnerables; (2) el 51.9% de los participantes han usado Internet en algún momento y lo usan principalmente para contactar a familiares y amigos; y (3) existe una diferencia nominal, aunque no estadísticamente significativa, entre los niveles de soledad de los que usan Internet y los que no. Los resultados de esta investigación sugieren que proporcionar acceso a Internet en los albergues tiene potencial de impactar positivamente la calidad de vida de sus beneficiarios.

Palabras clave: Personas sin Hogar; Albergue; Soledad; Internet.

Introduction

The need for socialization and the use of tools are two of the fundamental characteristics of human beings. Groups provide protection and tools facilitate the solution of problems. Technological development enabled the daily use of social tools that facilitate interaction among people and access to information. Millions of people around the world use social tools such as Facebook, Twitter, and WhatsApp daily. These tools facilitate communication and access to valuable information for problem solving, learning, and fun.

The appropriate use of these technologies can help the economy and the physical and emotional health of people. However, a significant digital division still exists. A considerable percentage of people does not have access to the Internet and therefore do not have access to such tools.

Vulnerable groups, such as homeless people, are the most susceptible to not having access to the advantages of the Internet and social tools. For homeless people, access to information technologies can make life in society easier. In order to find out if this potential improves people's quality of life, a study is presented to identify a possible association between Internet access and the levels of loneliness perceived by homeless people.

Homeless people

The homeless, those who live without an appropriate infrastructure to spend the night, are a population in circumstances of high vulnerability and social exclusion. According to Rubio (2007), homelessness not only implies residential exclusion, but also focuses on the convivial, relational, family, personal, assistance and cultural levels. It refers to the lack of resources and social participation, as well as the lack of community ties and support networks. In many cases, the contact with family and friends is lost. This problem must be approached from an integral point of view, not only as a lack of material goods (not having a "shelter" or "a house"), but also considering the processes of exclusion and social dissociation.

Regardless of the origin, the race for daily survival leads homeless people to focus on getting food, clothing and hygiene. However, these needs are not enough to explain the shortcomings of this population group, it is necessary to add the deep feelings of loneliness, depression and fear due to social exclusion (Rokach, 2005).

Quality of life is explained from different theoretical-methodological models, and two trends stand out, one is objective and the other is subjective (García-Viniegras, 2005). In the first case, quality of life is measured by a series of objective external variables related to health, sociodemographic characteristics, education and the economy: nutrition, health services, life expectancy, infant mortality, access to schooling, illiteracy rate, *per capita* income, gross national product and crime rate, among others. On the other hand, in the subjective trend, quality of life is measured by the subject's perception of the situation.

There is a vast scientific literature on objective variables such as physical health, substance abuse and mental health problems in homeless people, and only some studies focused on the subjective dimension of quality of life. Objective indicators of quality of life (income, health or employment) often do not provide enough explanations for individuals' experiences and their ability to respond to abrupt changes and negative life circumstances (Hubley et al., 2014).

The World Health Organization (WHO) defines quality of life as "an individual's perception of their position in life in the context of the culture and value system in which they live in relation to their goals, expectations, standards and concerns" (Botero de Mejía; Pico Merchán, 2007, p. 12). This definition of quality of life emphasizes the subjective nature of life and highlights the factors that potentially explain the discrepancies between an objective assessment of an individual's life circumstances and self-assessment.

Social and emotional loneliness

The level of perceived loneliness is one of the main indicators of social welfare and quality of life from its subjective dimension (De Jong Gierveld, 1987).

It reflects an individual assessment of social participation or isolation. According to Perlman and Peplau (1981), loneliness is the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively. For De Jong Gierveld and Van Tilburg (2006), loneliness is an expression of negative feelings of missing relationships and occurs individuals of all ages. However, many factors can make a person feel lonely while another may feel sufficiently integrated in a situation. This is because loneliness is a subjective and negative experience (De Jong Gierveld; Keating; Fast, 2015).

According to the review of Jong Gierveld and Van Tilburg (2006), the presence or absence of an intimate partner, the strength and functioning of family relationships, personality characteristics, sex and health are among the determinants of perceived loneliness. Other studies suggest the influence of demographic variables such as age, economic and social circumstances, housing conditions and the quality of interpersonal relationships (De Jong Gierveld, 1987; Victor et al., 2005).

Weiss (1973) makes a distinction between social loneliness and emotional loneliness. Emotional loneliness refers to the absence of an intimate or close relationship with emotional attachment, for example, a best friend. Solitude refers to the absence of larger contact groups or a committed social network (friends, partners, neighbors). A divorced person may experience emotional loneliness and a teenager who moves to another city may experience social loneliness, for example.

Previous research suggests that homeless people tend to have a low perceived quality of life compared to the rest of the population (Hubley et al., 2014). Considering that the level of perceived loneliness is one of the main indicators of subjective quality of life (De Jong Gierveld; Van Tilburg, 2006), we can deduce that homeless people tend to perceive higher levels of loneliness.

D'Amore et al. (2001) reported that homeless people have much higher trends towards perceived social isolation compared to those living in a house, 81% versus 11%. In this study, the concept of social isolation was defined as the absence of significant

social contacts with other people who are not homeless for one week.

Use of information technology

The new information and communication technologies can break the barriers of time and space (Pi; Chou; Liao, 2013), which are attributes of the feeling of isolation. However, the fast progress of the technological media has also caused greater concern about what could mean a growing digital gap separating less favored populations, such as the homeless people (Malgesini; González, 2005).

According to Eyrich-Garg and Rice (2012), one of the most common stereotypes associated with homeless people is that they do not have access to information technology. It is assumed that, even if they could gain access, these individuals do not have the necessary skills to use the resource. However, the scientific literature focusing on Internet use has identified that both adults and adolescents in these populations use the Internet in libraries, shelters, social service agencies and mobile phones (Eyrich-Garg, 2010; Redpath et al., 2006). The literature review by Eyrich-Garg and Rice (2012) indicates that Internet use among homeless people in developed countries is between 19% and 47% of adults and between 84% and 93% of adolescents. One of the main Internet access channels for this group is the mobile phone (Rhoades et al., 2017). However, studies also identify the difficulties of this group in taking full advantage of technology, mainly because they do not have someone to explain or show them everything that devices can do (Neale; Stevenson, 2014).

The most common searches on the Internet made by homeless people are employment and shelter, social services, and entertainment (Eyrich-Garg; Rice, 2012; Rice; Barman-Adhikari, 2014). In addition, there are mentions of other searches, such as sexual partners and drugs (Young; Rice, 2011).

Methodology

In order to determine any association between homeless people's use of the Internet and their levels of perceived loneliness, a mainly quantitative

investigation was designed with an exploratory scope. Three questions were answered to achieve this objective: (1) What is the level of loneliness perceived by homeless people?; (2) What are the patterns of Internet use among homeless people?; and (3) Is there any statistically significant difference between the levels of loneliness perceived by homeless people who are Internet users and those who are not?

Participants

The sample is composed of 129 participants (n=129) who attended a public shelter in Monterrey (Nuevo Leon, Mexico) during the months of February and March 2015. The shelter is sponsored by the General Directorate of Family Development (DIF) and receives legal age men and women.

Table 1 shows the socio-demographic composition of the study group (n=129). For comparison purposes, the characteristics disaggregation of the 1,264 beneficiaries who used the shelter facilities during the year prior to the survey is also incorporated. This information comes from the shelter's access register and the detail are in the last column of Table 1.

Table 1 – Sample description

	Study on loneliness (n=129)		Total occupation in 2014
	n	%	%
Sex			
Male	124	96.1%	98.7%
Female	5	3.9%	1.3%
Age group (years)			
Young Adult ("35)	32	24.8%	26%
Mature Adult (Between 35 and 60)	87	67.4%	67.4%
Old Adult ("60)	10	7.8%	6.6%
Health condition			
Healthy	96	74.4%	85%
Sick	33	25.6%	15%

continued...

Table 1 – Continuation

	Study on loneliness (n=129)		Total occupation in 2014
	n	%	%
Source of money			
Yes	57	44.2%	54.7%
No	72	55.8%	45.3%
Origin			
Local	28	21.7%	17%
Foreign	101	78.3%	83%

The general profile of the homeless person who uses the shelter, the participants in the study and the volume of visitors, is composed mainly of men (96.1%); mature adults, between 35 and 60 years old (67.4%); healthy people (74.4%) and foreigners (78.3%), that is, people from other cities than those that make up the metropolitan area of Monterrey. In terms of the presence or absence of a source of money, such as informal occupations, the proportions are more stable. The average age was 45 years.

Measuring instruments

To measure the key variables of the study (Internet use and levels of loneliness of homeless people who attend shelters) a printed questionnaire was prepared and applied individually to each participant. This questionnaire contained three main sections: (1) control data (sex, age, origin, economic activity, health condition); (2) use of the Internet and information technologies (mobile phones, Internet, social networks); and (3) levels of social and emotional loneliness. This last section is based on De Jong Gierveld loneliness scale (De Jong Gierveld; Kamphuis, 1985).

De Jong Gierveld loneliness scale has proven to be an academically rigorous tool for distinguishing between the different causes of loneliness. It was originally developed in the Netherlands for use in large surveys. However, it can also be adapted very successfully for the evaluation of smaller

interventions and measurement activities (De Jong Gierveld; Van Tilburg, 2006).

The scale has 11 items. Each item has three alternatives (yes, more or less, no). Some questions have positive text and others negative text. In a negative question, the alternatives “yes” and “more or less” assign one point on the loneliness scale. One point is also assigned if “no” and “more or less” alternatives are marked on positive questions. Therefore, the answer varies from 1=no; 2=more or less; 3=yes. According to the recommendations of the original authors of the scale, for the calculation of scores, the answers should be dichotomized by assigning one point to the answers “more or less” or “no” for items 1, 4, 7, 8 and 11 (negatives), while for the remaining items one point is assigned if the answer is “more or less” or “yes.”

The final score obtained is a value between 0 (no solitude) and 11 (extreme solitude). On the recommendation of the authors, the questionnaire does not mention the term solitude directly.

Table 2 shows the translation of the scale from Dutch to Spanish proposed by Buz, Urchaga and Polo (2014), which was used as a basis for this research. This study, in addition to having employed bilingual translators of Spanish and Dutch, was also validated by psychologists who are experts in the study subject. The Spanish version retains the original 11 items with the same scoring system and response format. When the instrument was administered, it was done in person with the respondents, in order to record the responses reliably.

Table 2 – Items of De Jong Gierveld Loneliness Scale

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- 1 – You always have someone to talk about your daily problems (-)
 - 2 – You miss having a good friend. (+)
 - 3 – You feel emptiness around you. (+)
 - 4 – You have enough people you can contact in case of need. (-)
 - 5 – You miss other people’s company. (+)
 - 6 – You think your circle of friends is too limited. (+)
 - 7 – You have many people you can trust completely. (-)
 - 8 – You have enough close friends. (-)
 - 9 – You miss having people around you. (+)
 - 10 – You often feel abandoned. (+)
 - 11 – You can trust your friends whenever you need to. (-)
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Source: Based on Spanish translation suggested by Buz et al. (2014)

Note: The sign + suggests that an affirmative answer to the question implies a higher level of loneliness and the sign - indicates the opposite.

Procedure

The selection of the sample was non-probabilistic and by convenience, since all the attendants of the shelter who wished to participate voluntarily were included; the participants were previously informed about the characteristics of the study, obtaining the informed consent form. A total of 140 surveys were conducted, 11 were discarded due to the absence of any reagent.

To implement the surveys, the shelter was visited for two months on alternate days. The facility receives people every day of the year. However, the rate of return is high, which means that the number of new beneficiaries, compared to the previous day, is low. This happens because, as a matter of policy, each beneficiary may receive food and lodging support for a maximum of 90 consecutive days. Finally, since some participants had difficulty reading and/or writing, a member of the research team facilitated the process by reading the questions and writing down their answers. This situation gave the study participants the opportunity to discuss other issues with the interviewer, recognizing the need to be connected to other people. When a person is responsible for conducting the questionnaire, it helps reduce communication errors as much as possible. It should be noted that the questionnaires were administered individually and with the reading of the questions.

Results

In order to facilitate the reading, the results are presented using the three research questions.

What is the level of loneliness perceived by homeless people?

The participants in the study obtained an average score (M) of 7.12, with a standard deviation of 2.57. This score places the group in the category of moderate, close to severe loneliness (8.0), according to the levels suggested by De Jong Gierveld and Van Tilburg (1999). Table 3 contains the average scores segregated according to the demographic characteristics of the sample.

The last column presents the result of the unifactorial ANOVA, showing that the age group and health status report significant differences in the loneliness score of their respective categories. Mature adults have a relatively lower level of loneliness than young and old adults. Sick patients, on the other hand, show higher scores than their healthy counterparts.

Table 3 – Average loneliness score

	n	Average	DT	F
Total	n=129	7.12	2.57	
Sex				0.38
Male	124	7.10	2.59	
Female	5	7.80	2.28	
Age group				3.44*
Young Adult	32	7.88	2.52	
Mature Adult	87	6.82	2.57	
Old Adult	10	7.40	2.46	
Health condition				5.50*
Healthy	96	6.89	2.57	
Sick	33	7.82	2.48	
Source of money				0.05
Yes	57	7.14	2.39	
No	72	7.11	2.72	
Origin				1.80
Local	28	6.79	2.49	
Foreign	101	7.22	2.87	

*: p"0.05.

What are the patterns of Internet use among homeless people?

The section of the survey aimed to understand the use of Internet and information technology focuses on knowing: (1) the possession of a smartphone; (2) the experience as an Internet user; (3) the applications used; and (4) the purposes of use.

We found that 38.8% of participants reported having a smartphone. In addition, a little more

than half of the respondents reported having used the Internet at some moment in their lives (51.9%). The distribution of this value according to the demographic characteristics of the sample is shown in Table 4. In nominal terms, the segment most familiar with the Internet is young adults, 68.8% reported having used it.

Table 4 – Internet use by demographic segment

	Internet Use			
	Yes		No	
	n	%	n	%
Total	67	51.9%	62	48.1%
Sex				
Male	66	53.2%	58	46.8%
Female	1	20%	4	80%
Age group				
Young Adult	22	68.8%	10	31.3%
Mature Adult	39	44.8%	48	55.2%
Old Adult	6	60%	4	40%
Health condition				
Healthy	51	53.1%	45	46.9%
Sick	16	48.5%	17	51.5%
Source of money				
Yes	33	57.9%	24	42.1%
No	34	47.2%	38	52.8%
Origin				
Local	11	39.3%	17	60.7%
Foreign	56	55.4%	45	44.6%

Within the group of 67 individuals who had already used the Internet, 29 used it for the last time on that same day (43.3%), 20 in the last week (29.9%), 11 in the last month (16.4%) and 7 in the last year (10.4%). When asked spontaneously about the applications used, 17 subjects mentioned Facebook (25.4%); 8, e-mail (11.9%); 5, WhatsApp (7.5%); 2, YouTube (3%); and 1, Twitter (1.5%).

Regarding the analysis of these results by sex, since it is not homogeneous because there is a

predominance of male subjects, it is important to not generalize the conclusions. The same is true in other groups, but in the factor “source of money,” more homogeneity was found in the sample size.

Those who have used the Internet were asked to spontaneously express in an open question the purposes of their connection, while those who had not used it were asked to express the potential purposes of using the Internet if they had the opportunity. To analyze the data collected, Lincoln and Guba’s (1985) method of constant comparison was applied. This method does not have predefined themes or categories. From the same data, theoretical categories derived from an inductive reasoning process emerge.

A total of 168 phrases were defined as the basic units of analysis. Each phrase or unit of analysis was then compared with the other phrases to define categories. When a unit was similar to one that had already been categorized, it was placed in the same group. When the unit compared was different from all the units already compared, a new category was generated. After obtaining enough categorized cases, the characteristics contained in the units located in each category were reported, the categories were characterized. Finally, each one was reviewed to ensure its consistency and make any corresponding adjustments. Once the units were grouped, the topics were named.

Table 5 contains the result of the content analysis, expressed as the number of units for each topic in the use categories and the total percentage of subjects who mention them. Four main purposes of Internet use were identified. These purposes are shown below with their respective examples: (1) communicate with family or friends, *I’d try to contact my two kids. I was deported from the United States and haven’t seen them for years* (Interviewed 84); (2) to find work, *I contacted a master builder to get a job* (Interviewed 66); (3) learn, *I would like to use the Internet to continue my studies* (Interviewed 49); and (4) to be entertained, *I like to listen to music* (Interviewed 56). However, since some other minor recurrence issues also emerged, it is not intended to state that all of the reference population’s Internet usage purposes are limited to these four

categories, but to point out that they were the most representative of the exercise.

Table 5 – Purpose for using the Internet

Used the Internet		Communicating with family and friends	Finding a job	Entertainment	Education
Yes	n	40	21	19	13
	%	64.1%	33.3%	30.8%	20.5%
No	n	37	15	15	9
	%	54.8%	22.6%	22.6%	12.9%
Total	n	77	36	34	21
	%	59.3%	27.7%	26.5%	16.6%

Is there any statistically significant difference between the levels of loneliness perceived by homeless people who are Internet users and those who are not?

Finally, the analysis is completed with linear regression to determine how far demographic characteristics and past Internet use may be predictive of the loneliness score reported by study participants. The categories were coded as dummy variables in terms of 0 and 1, 0 is the reference baseline from which the additive effect of the other category is determined. For example, if the male sex is coded as 1 and the female sex as 0, the regression coefficient represents the difference in male and female loneliness scores, everything else being constant.

Table 6 shows the results of the regression. For the correct execution of the regression technique, we corroborated that the data did not deviate significantly from the assumptions of multivariate normality and homoscedasticity. In addition, since the variables were binary coded predictors, it was not necessary to adjust the original scale to build the regression model. Young adults (< 35) are prone to a higher level of loneliness than mature adults (between 35 and 60). Similarly, subjects who report being ill have a higher level of loneliness than healthy people. Having used the Internet in the past is associated with a lower level of loneliness, but this difference was not statistically significant.

Table 6 – Prediction of loneliness score from a linear regression analysis with dummy variables

	B	Standard error	T	Sig.
Constant	8.285	0.618	13.42	0.000
Sex				
Male	0.720	1.160	0.62	0.539
Age group				
Mature adult	-1.404	0.541	-2.59	0.011
Old Adult	-0.718	0.942	-0.76	0.447
Health status				
Sick	1.228	0.524	2.35	0.021
Source of money				
Yes	-0.103	0.460	-0.22	0.822
Origin				
Local	-0.748	0.557	-1.34	0.182
Internet				
Yes	-0.564	0.463	-1.22	0.226

Note: R²=0.0934; R² (adjusted)=0.0409.

Discussion and conclusions

Considering that the objective of the research involved analyzing (1) levels of perceived loneliness; (2) patterns of use of information technologies; and (3) a possible relationship between levels of loneliness and Internet use patterns; the structure of the discussion is articulated in terms of these three contexts.

Levels of perceived loneliness

The participants in the study obtained an average loneliness score of 7.12. Although no other previous studies applying the De Jong Gierveld scale to homeless people were detected, studies on loneliness in older adults are a relevant reference point for comparison.

Older adults are a vulnerable segment (Yang; Victor, 2011), and they have been the focus of multiple studies using the same scale. These studies

reported loneliness scores between 2 and 4 (Buz et al., 2014; Sanchez; De Jong Gierveld; Buz, 2012; Scharf; De Jong Gierveid, 2008). The only case where loneliness levels were higher than those found in this study (7.12) is the 7.98 that reached older adults diagnosed with depression by Raut et al. (2014).

To complete the comparison of the level of perceived loneliness, the Table 7 incorporates the distribution of the loneliness score according to four categories: (1) no loneliness (0-2); (2) moderate

loneliness (3-8); (3) severe loneliness (9-10); and (4) very severe loneliness (11). The first line, MTY (Monterrey) homeless people, shows the results of this study. While the other sections contain the scores of different interest groups within the older population of the Netherlands (De Jong Gierveld; Van Tilburg, 1999). Overall, the balance of the comparison is unfavorable for the homeless people and seems to confirm that they are a group with high levels of perceived loneliness.

Table 7 – Percentage distribution of loneliness categories by reference group

Loneliness category	No loneliness (0-2)	Moderate loneliness (3-8)	Severe loneliness (9-10)	Very severe loneliness (11)
MTY Homeless people	5	60	29	6
All (weighted data)	62	35	2	1
All (unweighted data)	59	38	2	1
Lives with partner	68	30	2	0
Lives alone: single	43	53	3	1
Lives alone: divorced	46	44	8	2
Lives alone: widowed	40	55	4	1
Lives with somebody, but without a partner	53	43	3	1

Patterns of use of information technologies

According to Rhoades et al. (2017), most homeless people in the United States have a mobile phone (94%), more than half of these being smart devices. Despite this, in this study only 38.8% had a personal means of connecting to the Internet. This wide gap may be associated with the fact that people in developed countries have greater access to technology than those in developing countries, and these differences may persist among different socioeconomic groups.

No previous studies were identified about the patterns of Internet use among homeless people in developing economies. Nor do we consider it is appropriate to compare directly the rates of

use of studies that refer to developed countries, because the initial concepts of use and access may vary according to the design of each study. However, a higher use between younger users is a common finding identified across previous studies (Rhoades et al., 2017).

The results of this study are consistent with previous research when comparing the purposes of Internet use (Eyrich-Garg; Rice, 2012; Rice; Barman-Adhikari, 2014). There is also nominal agreement in the order of the categories with the study by Pollio et al. (2013), where 56% of the participants stated that the use of the technologies was for communication purposes, 46% reported uses associated with employment, 36% mentioned entertainment activities and 22% spoke about educational purposes.

Relationship between levels of loneliness and Internet use patterns

According to Stepanikova, Nie and He (2010), the relationship between a subject's psychological well-being and the Internet use can be either positive or negative, depending on how the Internet influences the social processes that contribute to mental health. If Internet use facilitates coordination of social activities and efficiency of daily tasks, as argued by Robinson et al. (2000), then stress can be reduced and social support increased. On the other hand, non-functional use of the Internet can lead to states of anxiety, depression and addiction in people of all ages (Odaci; Kalkan, 2010; Torrente et al., 2014).

With respect to loneliness, the works identified consistently point to a positive association between the level of loneliness and time spent on the Internet, social networks and digital addictions (Amichai-Hamburger; Ben-Artzi, 2003; Pittmana; Reich, 2016; Ryan; Xenos, 2011; Stepanikova et al., 2010). Amichai-Hamburger and Ben-Artzi (2003) distinguish two possible hypotheses: (1) Internet use produces loneliness; and (2) those who are prone to loneliness spend more time using the Internet. The results of the latter research support the second option. The studies by Yang (2016) and Pittmana and Reich (2016) found that increased publishing activity and interaction on social networks can reduce the level of loneliness, while systematic comparison behaviors increase the perception of loneliness.

This research found a nominal, but not statistically significant, difference between the perceived levels of loneliness of homeless people who reported Internet use and those who did not. There is a natural difficulty in comparing results reported by the general population with respect to a highly vulnerable group such as the homeless people, especially considering the high level of their loneliness.

Therapeutic potential using information technologies

Numerous research projects address the potential of new information and communication technologies to improve the quality of life of homeless people.

Proposals for intervention range from recovery addicted people (Neale; Stevenson, 2014), access to medical services and information (Eyrich-Garg, 2010; McInnes; Li; Hogan, 2013), improvement in social, community and emotional relationships (Rice; Milburn; Monro, 2011).

In Mexico, there are both public and private shelters that provide support to this vulnerable group. These shelters provide access to accommodation, food, health care and psychological support. However, in many cases, Internet access is still not considered a basic service, unlike in other countries. The results of this research suggest that providing Internet access in shelters may have a positive impact on the quality of life of its beneficiaries for two reasons: (1) because it was found that the main purpose of using these technologies is to establish communication with family and friends; and (2) because, although in this study the use of the Internet did not make a statistically significant difference in the perceived levels of loneliness, in this case, access to the Internet was not accompanied by educational and psychological support to take better advantage of the technology.

Limitations and future studies

The results of this study should be interpreted according to its limitations. Firstly, the sample of 129 subjects is not sufficiently large, especially if significant conclusions are needed about underrepresented segments, such as women or older adults. Although these are subjects with a relevant profile, due to their ecological validity, it would be convenient to carry out future studies with more extensive measurements. The opportunity to incorporate more detailed variables into the predictive model of the level of loneliness, such as frequency and intensity of use depending on the purposes for connecting, seems to be evident. Regardless of the limitations, this is an exploratory study that aims to broaden the discussion about the potential of new technologies to promote the inclusion of a socially marginalized group.

An important area of opportunity arises in the field of experimental interventions. It could be evaluated if the systematic and longitudinal use of

the Internet and social networks, accompanied by psychological and educational support, can improve the psychological well-being of this population. The high level of perceived loneliness, reported in this study, is a major justification for this effort.

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