Journal of Medical Systems (2019) 43: 277
https://doi.org/10.1007/s10916-019-1393-3

MOBILE & WIRELESS HEALTH

Exploratory Study of Psychosocial Therapies with Text Messages to Mobile Phones in Groups of Vulnerable Immigrant Women

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Received: 24 May 2019 / Accepted: 14 June 2019 / Published online: 6 July 2019

Abstract

Various experimental studies on psychosocial therapy have been carried out through text messages with groups of people suffering from depression, anxiety, alcoholism, addictions, etc., but without distinguishing between men and women or highly vulnerable groups such as immigrants. We present an exploratory study of a mobile communication system which intends to improve the mental, physical and social health of a group of vulnerable immigrant women in Spain ($n = 71$), distinguishing between an intervention group and a non-equivalent control group. We sent automatic text messages (SMS) to the mobile phones of an intervention group formed by immigrant women who used the social services ($n = 44$). During a 26-day intervention period, the women received 4 daily automatic text messages on their phones, at a predetermined time. We measured mood and depression symptoms at the beginning and end of the intervention, and analysed the qualitative data to determine the acceptance level of a remote message program. The mood and depression symptoms were measured with the personal health questionnaire-9 (PHQ-9) and were significantly better in the intervention group; they evolved from an initial 9.4 (DS = 6.4, range 1–25) to a 5.0 score at the end of the message period (DS = 4.8); with a significant difference (t (44) = 2.01, $p = 7.80$). Most women stated that the messages had improved their mood (86.3%), which made them feel more connected to their social environment (65.9%) and that they would like to continue receiving more messages (86.6%).

Keywords Psychosocial therapy · Woman · Text messages · Mobile phones · E-health

Introduction

Mobile phones and text messages are one of the most commonly used communication methods [11]. In 2017 there were 96.8 mobile phone subscriptions per 100 inhabitants worldwide; there were more mobile phones than people in developed countries (120.6 per 100 inhabitants) and almost one telephone per inhabitant in developing countries (91.8 per 100 inhabitants) [13]. Mobile phones are quickly spreading around the world and have the potential of becoming a universal communication tool between people. Despite this, there is a Gender Gap. According to a study developed by the GSMA Foundation in 2015, more than 1.700 million women around the world, particularly those living in low and middle-income countries, did not own a mobile phone; and, in average, a woman is 14% less likely to own a mobile phone than a man, which creates a gender gap with 200 million fewer women without a mobile phone, when compared to men [10].

In 2014, Alves de Sousa studied the resilience of immigrant women in Spain and noted that these women were forced to adapt to a new social context, being mostly poor, engaged in informal jobs and experiencing social inclusion problems; he also observed that, in immigrant families, women were those who came to the social services when faced with any risks or vulnerable economic situations; frequently, these women suffered from mental health or social relationship issues [4]. We must bear in mind that this type of excluded population is

This article is part of the Topical Collection on *Mobile & Wireless Health*

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poorly represented in research addressing technology, mobile communication and health [20].

Mobile phones and interactive communication can be used by psychotherapists to improve the daily behaviour of people [5]. They can produce detailed data that help diagnose, treat, prevent or rehabilitate socially excluded people. Objective data can be collected with mobile phones and used in psychological and social studies [1], as well as a working tool of the psychosocial therapist [8]. The technological advances of mobile communications applied to psychosocial therapies facilitate the provision of social and health services to people of limited economic resources, geographically isolated, or with difficult access to face-to-face public services [3].

Studies on mental health therapies have been carried out using text messages on different patients: with depression, anxiety, alcoholism, addictions, etc. [2] [6] [14] [18]; in common, there is the belief that the purpose of text messaging is to increase the effectiveness of therapy, improve self-awareness and help the patient progress. In these studies, text messages were sent from mobile phones to advise, educate, remember, prevent or obtain information about treatments, without differentiating men from women or highly vulnerable groups, such as immigrant women, whose mental health is characterized by suffering and limited social relations in their host countries [12]. This excluded population is thus underrepresented in technology, mobile communication and health related research [3].

The available literature highlights experimental research works or case results from a clinical social work perspective. North American studies carried out by López in 2014 are of great interest. This author has developed a great volume of research on the use of Internet in psychosocial therapies [16] [17]. His investigation works were based in real and concrete case studies.15 therapists were offered a website specifically designed to provide behavioural therapy to their patients; they could access specific videos, audio files, texts and recordings; subsequently, the participating therapists were asked to answer a series of questions concerning the experience, which lasted seven months. This study reported that therapists were already using video, teleconferencing, instant messaging and e-mail with their patients in general, but came to understand that Internet-based communication was particularly effective when treating vulnerable and marginalized populations; however, when this was not the case, therapists believed in face-to-face contact with the patient only.

We carried out an exploratory study of psychosocial therapy involving text messaging to the mobile phones of immigrant women in Spain. The objectives of our study were as follows: (1) design and test a remote psychosocial therapy system that could improve personal health via text messaging; (2) reflect about the usability and feasibility of mobile phones in psychosocial therapies; (3) formulate questions for future research.

Methods

We have carried out an exploratory study involving a group of immigrant women who used the social services. We decided to adopt text messages as a psychotherapeutic tool to improve the mental, physical and social health of immigrant women living in Spain, in 6 municipalities around Santiago de Compostela. All of them owned a mobile phone and were able to read, understand and work with text messages in Spanish.

Procedure

A total of 76 cases were randomly identified from the records of immigrant women claiming social assistance and exclusion problems. Before the research began, an interview was carried out with each woman and the characteristics of the study were explained. The meeting was arranged by telephone. All women were interested in participating, except in one case. Each of the 75 women who gave their consent received a psychological and social diagnosis, through questions regarding concerns, health, medical treatments, social and family relationships, professional activities, economics and physical activity; the duration of the interview was different in each case, but the average was 30 min. The diagnosis was complemented with information gathered from official records. These interviews took us 4 months and were carried out individually and privately, in municipal social service offices closest to the homes of each woman.

All women were contacted and asked to freely choose between the intervention and the control group; this choice was made after they were informed that the intervention group included a face-to-face therapy session and text messages ($n = 46$); and the non-equivalent control group included a face-to-face therapy session but no text messages ($n = 29$). We were unable to find a substantiated reason to explain the disparity in size between the two groups ($n = 46$ and $n = 29$). However, to avoid the impact of this difference we follow the methodology for the design of a quasi-experimental research [12]. It is possible that this disparity is related to the fact that the women of the intervention group had been residing in Spain for an average of 12 years and those of the control group for 8 years and did not feel comfortable enough to read the messages in Spanish. We did not find differences between women from Spanish-speaking countries (Latin America) and those with a mother tongue that was not Spanish.

All women ($n = 75$) received a face-to-face cognitive-behavioural therapy session; a personal health questionnaire identified 4 optimal cases, (PHQ9 = 0), 2 in the intervention group and 2 in the control group, who were excluded from the experiment. The final group was left with 71 women.

The therapeutic care period lasted 26 days ($n = 71$). We had telephone contact with each woman at the beginning of the investigation, after 14 days and at the end. The goal was to build an environment of trust. We dedicated an average time of telephone contact of 15 min to each woman ($n = 71$); an average time of 5 min for 3 telephone contacts.

We informed them that we were not going to engage in dialogues via text messaging and that our goal was to follow up and offer advice, in order to improve their physical, mental and social health. They were also informed that there were no reception costs involved and that the cost of the replies would be returned when the experiment ended.

The text messages were sent through a telephone operator in an SMS format, avoiding the Internet. This ensured that they received our messages regardless of having an Internet connection. We observed that women used Internet connections occasionally in free Wi-Fi spots.

For a period of 26 days, we sent 4 daily text messages to their personal mobile phones, in the following hours: 09:00 AM, 13:00 PM, 17:00 PM and 21:00 PM; to define the length and the daily schedule of the messages we used previous experiences developed with women victims of gender violence and long-term unemployed women as a guide [9].

We developed 4 message banks focused on: thinking, health, physical activity and social relationships; such as: "Certain thoughts are not healthy and contaminate our minds. Identify them and put them aside"; "How many pleasant activities have you engaged in today?"; "Maintaining a social life can make us feel better or worse. Try to identify the people that make you feel better"; "What did you do today to take care of your health and well-being?". In total, each woman received 104 text messages. We sent messages inquiring, advising and guiding on daily life habits, in order to develop positive and healthy behaviours as opposed to those we identified as negative. These messages were developed from the previous personal diagnoses, and tried to establish systematization [19].

We used the automatic text messaging system of the University of California - Berkeley (www.healthysms.org); which has been used in a California hospital with small groups of people undergoing psychological treatment [3] and with groups of long-term unemployed women in Santiago de Compostela [20].

We used an automatic system to detect key words in response messages, in order to prevent suicidal or violent behaviours. No incidents took place. We had an intervention protocol that alerted the municipal social services and prompted them to act.

Measures

We used two questionnaires and two indicators. On the one hand, we used a Personal Health Questionnaire (PHQ9) that allowed us to understand the mood and depression symptoms at the beginning and end of the intervention period (26 days). The PHQ9 questionnaire is a widely validated instrument [15] with questions about the patient's experience in the last 2 weeks. The questions are about the level of interest in doing things, feeling depressed, difficulty sleeping, energy levels, eating habits, self-perception, ability to concentrate and suicidal thoughts. Scores of 5 represent a mild depression and scores over 5 and up to 15 signal moderate depression.

On the other hand, we used a Final Questionnaire on Text Messages (FQTM) as a validated instrument [3]; we asked questions concerning the positive and the negative aspects, the effectiveness, their opinion on the number of messages received, the changes experienced in their daily lives and their interest in continuing to receive messages. We also used the number of answered messages and personal compliance to the medication prescribed by the doctor as an indicator.

Participants

In terms of social characteristics (see Table 1), the women ($n = 71$) had in common a situation of immigration in Spain, had an average of 9.1 years of residence, used municipal social services (100%). They were in average 39.1 years old (SD = 10.71, range = 19–65) and had 2.0 children (SD = 1.32, range: 0–6). They formed a heterogeneous group; with cases of prostitution ($n = 3$), drug addiction ($n = 1$), gender violence (36.6%, $n = 26$). They originated from 12 different nationalities, mainly from Latin America, especially the Dominican Republic, Brazil, Venezuela and Colombia, and to a lesser extent Portugal, Italy, Romania, Hungary, Russia and Morocco. They displayed mental problems (23.9%, $n = 17$). They came mostly from urban backgrounds (67.6%, $n = 48$)). As to their educational level 47.9% ($n = 34$) attended the primary level, 33.4% ($n = 23$) the secondary level, 11.2% ($n = 8$) had university/higher studies and only 8.4% ($n = 6$) had not studied at all. The majority were divorced or separated women (41.4%, $n = 30$), 32.8% (n = 23) single women and 25.7% ($n = 18$) married women. We were able to confirm that the situation of vulnerability was directly related to unstable work situations and low economic resources. It is important to note that the majority (84.5%, $n = 60$) were employed in low-skilled jobs, sometimes informal and without any legal recognition, including elderly or disabled care, housekeeping, catering or commerce. In general, they faced legal issues when trying to obtain equivalence for educational degrees completed in their countries of origin, in Spain. In some cases their families were not reunited, with children in their home countries ($n = 4$), and some were political exiles ($n = 3$). The majority had relationship problems and experienced social isolation outside the family (83.1%, $n = 59$).

Table 1 Characteristics of the participating immigrant women ($n = 71$)

	Intervention Group ($n = 44$)	Control Group ($n = 27$)	Total (n = 71)
Average age (years)	39,8	38,0	38,9
Average number of children	2,1	2,0	2,0
Children over 18	40,9% (n = 18)	29,6% (n = 8)	36,6% (n = 26)
Different nationalities	12	11	12
Gender violence[1]	36,4% ($n = 16$)	37,0% ($n = 10$)	36,6% ($n = 26$)
Residence in Spain (years)	9,9	7,7	9,1
Drug addiction (cases)	0	1	1
Prostitution (cases)	2	1	3
Urban residence[2]	56,8% ($n = 25$)	85,1% ($n = 23$)	67,6% ($n = 48$)
Married	22,7% ($n = 10$)	29,6% ($n = 8$)	25,7% ($n = 18$)
Separated or divorced	45,4% ($n = 20$)	37,0% (n = 10)	41,4% ($n = 30$))
Single	31,8% ($n = 14$)	33,3% ($n = 9$)	32,8% ($n = 23$)
Psychological/psychiatric treatment	27,3% ($n = 12$)	18,5% ($n = 5$)	23,9% ($n = 17$)
Primary studies	56,8% (n = 25)	31,0% (n = 9)	47,9% ($n = 34$)
Secondary studies	27,3% ($n = 12$)	40,7% ($n = 11$)	33,4% (n = 23)
Higher studies	6,8% (n = 3)	18,5% ($n = 5$)	11,2% (n = 8)

[1] Gender violence in any moment of their lives

[2] Urban residencies located in municipalities with over 100 inhabitants/Km^2

Social characteristics were equal between the intervention group ($n = 44$) and the control group ($n = 27$), except for the number of women with children over 18 years of age, where significant differences were detected. These were higher in the intervention group, 40.9%, which can relate to a higher average age of 1.8 years. There was also a higher prevalence of separated or divorced women in the intervention group (45.4%), undergoing psychological/psychiatric treatment (27.3%) and with primary studies (56.8%).

The group of women participants was characterized by a high adherence to the medication prescribed by their doctor. As to the medication intake in the whole group ($n = 71$), a high prevalence of women taking medication in the last month stood out, 83.8% ($n = 57$) of the total number of women who responded ($n = 68$); 16.2% ($n = 11$) did not take and 4.2% did not answer ($n = 3$ of n = 71)). The medication intake frequency, according to medical prescription, was very high, as 83.8% said they always took their medication. However, when asked how many times they forgot to take the medication, 68.5% replied never, 14.0% once and 17.5% twice or more.

As shown in Table 2, the general patterns of compliance are met in the intervention ($n = 44$) and control ($n = 27$) groups. The only significant difference was a higher prevalence of women who forgot or decided not to take the medication in the intervention group, when compared with the control group; 14.7% ($n = 5$) versus 0.0% ($n = 0$) of cases who forgot to take one or more medication several weeks or almost every day; and 11.8% (n = 4) versus 4.3% ($n = 1$) of women who decided not to take the medication several weeks or almost every day.

Ethical considerations

The procedure complied with the guidelines laid out by the Bioethics Committee of the University of Santiago de Compostela, Chair José Manuel Cifuentes, and the Committee for the Protection of Human Subjects of the University of California – Berkeley, Chair Silvia Bunge, Protocol Number: 2017–12-10597.

Results

All women in the intervention group ($n = 44$) answered the messages or phone calls; 4 women answered phone calls only (9.1%) and 40 answered via text messaging and phone calls (81.8%). The average number of messages answered per woman was 26.4 (SD = 32.64, range = 1–197, IQR was 30 (34–4)). The women who did not answer the messages said they felt insecure, did not know what to say, were very busy working, were caring for their children or found texting costly. We detected 14 cases (35.0%, $n = 40$) that claimed they did not answer due to problems with prepaid phones when the available credit was spent.

Most women said that text messages made them feel more connected with their social environment, answering that they agreed or strongly agreed with this statement (65.9%, $n = 29$). The majority (86.3%, $n = 38$) said they agreed or strongly agreed with the statement that the messages had improved their mood and that they would like to continue receiving these messages (86.6%, $n = 39$), with a frequency and

Table 2 Medication compliance data in the last month

Intervention Group ($n = 44$).					
Medication intake	Does not take		No answer	Answer	
82,9%	17,1%		6,8%	93,2%	
(n = 34)	(n = 7)		(n = 3)	($n = 41$)	
Medication intake frequency according to medical prescription (n = 34)					
Always	Almost always	Most of the times	Half of the times	Almost never	
85,3%	11,7%	0,0%	0,0%	2,9%	
(n = 29)	(n = 4)	(n = 0)	($n = 0$)	(n = 1)	
How many times did you forget to take one or more medication? (n = 34)					
Never	Once	Two or three times	Once a week	Several weeks	Almost every day
61,8%	14,7%	8,8%	0,0%	5,9%	8,8%
($n = 21$)	(n = 5)	(n = 3)	(n = 0)	(n = 2)	(n = 3)
How many times did you decide not to take the medication? (n = 34)					
Never	Once	Two or three times	Once a week	Several weeks	Almost every day
61,8%	14,7%	11,7%	0,0%	5,9%	5,9%
(n = 21)	(n = 5)	(n = 4)	(n = 0)	(n = 2)	(n = 2)
Control group (n = 27).					
Medication intake	Does not take		No answer		Answer
85,2%	14,8%		0,0%		100%
(n = 23)	(n = 4)		(n = 0)		(n = 27)
Medication intake frequency according to medical prescription (n = 23)					
Always	Almost always	Most of the times	Half of the times	Almost never	
91,3%	4,3%	4,3%	0,0%	0,0%	
(n = 21)	(n = 1)	(n = 1)	(n = 0)	(n = 1)	
How many times did you forget to take one or more medication? (n = 23)					
Never	Once	Two or three times	Once a week	Several weeks	Almost every day
78,3%	13,0%	4,3%	0,0%	4,3%	0,0%
(n = 18)	(n = 3)	(n = 1)	(n = 0)	(n = 1)	($n = 0$)
How many times did you decide not to take the medication? (n = 23)					
Never	Once	Two or three times	Once a week	Several weeks	Almost every day
95,6%	0,0%	11,7%	0,0%	0,0%	4,3%
($n = 22$)	(n = 0	(n = 0)	(n = 0)	(n = 0)	(n = 1)

Intervention Group and Control Group (n = 71)

intensity of 4 or more messages per day (84.1%, $n = 37$). As shown in Table 3, the general assessment of text messages was highly positive. However, in terms of satisfaction, results were lower as to feeling a greater connection with the social environment: 34.1% ($n = 15$) answered those they somewhat disagreed or had a neutral opinion.

All women ($n = 44$) rated their experience with the messages and the proposed therapy. Over the period of 26 days the text message response rate was 25.4% (D.S. = 31.4%, with a range of 1.0% -189.4%). It should be noted that 36 women (81.2%, $n = 44$) said they kept the messages on their mobile phones to read them on other occasions or to use them as a reference in their daily lives.

The correlation between age and number of answered messages was negative, in the sense that older women responded less ($r = -0.38$). We must bear in mind that all the participants had sufficient knowledge at the beginning of the investigation to manage their mobile phone and use the SMS.

Regarding the answers to the Final Questionnaire on Text Messages (FQTM) all women were positive (100%, n = 44). They answered questions about their experience; the questions asked what helped them, what they least enjoyed and what could be improved. Answers were analysed by concepts, using the open coding method of grounded theory [7], an inductive process which allowed us to associate and synthesize the messages into 4 large theme lines: a) Thinking, with comments on improving mood, relaxing, feeling safer, concentrating or reflecting, b) Organization, with references to planning their daily lives, changing habits and attitudes, increasing motivation or doing things for themselves, c) Follow up, feeling advised, supported and improving their family and social relations, d) Healthy habits, with answers on diet

Table 3 Final questionnaire on text messages (FQTM)

Answered questions (n = 44)	Somewhat disagree	Neutral	Agree	Strongly agree
Did the messages make you feel more connected to your social environment?	6,8% (n = 3)	27,3% (n = 12)	25,0% (n = 11)	40,9% (n = 18)
Did the messages improve your mood?	6,8% (n = 3)	6,8% (n = 3)	20,4% (n = 9)	65,9% (n = 29)
	Yes	No		
Would you like to continue receiving the messages?	88,6% (n = 39)	11,4% (n = 5)		
	2 to 3	4 or more		
How many messages would you like to receive per day?	15,9% (n = 7)	84.1% (n = 37)		

improvement, overcoming depression, reducing anxiety, remembering the medication, working out or taking better care of oneself.

As to what they would improve and least liked, in 5 cases the messages were sometimes considered repetitive (11.4%, $n = 44$), in 3 cases more time was needed to respond (6.8%, n = 44), in 2 cases they would like more personalized attention (4.5%, n = 44), in 2 cases they would prefer to talk more face to face (4.5%, n = 44) and one woman asked for more advice and reminders to correct a poor diet. They did not report any inconvenience in terms of time or message content.

The results of the Personal Health Questionnaire (PHQ9) at the end of therapy were better in the intervention group than in the control group. In the intervention group (n = 44) they changed from 9.4 (DS = 6.4, range 1–25) to 5.0 at the end of the message period (SD = 4.8); with a significant difference in the paired sample t Test: t (44) = 2.01; $p = 7.80$. In 39 of the cases (88.6%), the PHQ9 decreased and in 5 cases (11.4%) it increased (Fig. 1). On the other hand, in the control group ($n = 27$), where women only received face-to-face care, PHQ9 results were also positive and changed from 4.5 (DS = 3.1, range 1–13) to 3.0 final (DS = 3.3); yet this difference was not significant in the paired sample t Test: t (27) = 2.05; $p = 0.009$; also in the control group, a total of 5 (14.8%) women increased their PHQ9 at the end (Fig. 2). Overall, for the total population of women ($n = 71$), the PHQ9 change was positive, going from an average of 7.5 at the baseline (SD = 5.8, with a range of 1–25) to 4.3 at the end of the texting period (SD = 4.4) and the difference between the two scores was significant in the paired sample t Test: t (71) = 1.99; $p = 5.08$. Only 11 cases (15.5%) increased their PHQ9 at the end of the intervention compared to 60 women who reduced it (84.5%) (Fig. 3).

Discussion

Our results indicate that a diverse group of vulnerable immigrant women, users of the public social services sector in Spain, are receptive to the use of text messages as part of their psychotherapeutic care and social inclusion. SMS and other free Internet based systems can be easily accepted by users and patients of public health and social services, and have the potential to improve results with lower economic costs. We tested this type of intervention in a public sector, within a safe social service network, with a group of vulnerable women suffering from social exclusion and associated with gender violence, prostitution, immigration, mental disorders or others. We must bear in mind that this type of excluded population is underrepresented in technology and health related researches. Thus, our usability and pre-feasibility exploratory study shows that it is worth investing in this type of technology to improve results.

Our experience in this exploratory study with women has provided us with significant lessons to take into account in future works in this area. We have been able to verify that the use messaging technologies and personal mobile telephones are universal among immigrant women who use the social services. Nevertheless, the cost of the answers raises economic problems; texts can be received free of charge but the answers have costs and this is an obstacle that needs to be overcome. In our case study, the women were informed that any answer costs would be undertaken by us. Nowadays, however, the existence of free internet-to-mobile–phone messaging systems, accessible through any open Wi-Fi network, offers a solution; but this can be limiting for people with low economic resources who are forced to look for free Wi-Fi access spots, which requires time and mobility. It was interesting to observe how text messages with key counselling, guidance and follow up helped women manage their moods, as well as organize and plan their daily activities.

Future investigation works should focus more on the evaluation of results, measuring the starting bio-psychosocial symptoms of each immigrant woman and how the operating traits of the system can be of use to them. It will be important to observe the relationships established between text messaging psychotherapies and medication compliance. The psychotherapeutic intervention period lasted 26 days but the question arises as to whether the results are lasting, in what situations and why.

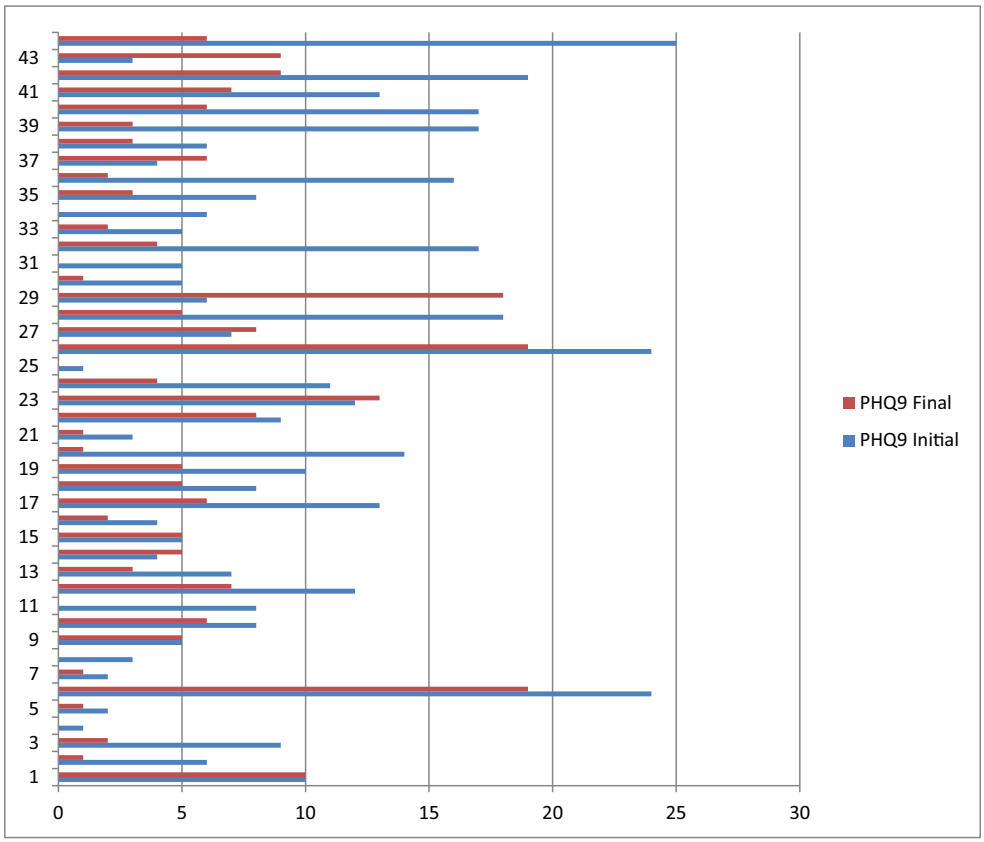

Fig. 1 Initial and final PHQ9 of the intervention group ($n = 44$)

The results obtained allow to observe possible implications and consequences: the interdisciplinary teams of social inclusion must focus on the data provided by the patients to define specific psychotherapeutic objectives; mobile phones can collect daily data on mood, activities, geographical location, thoughts and feelings, social relationships, eating habits, etc., which may be accessed by therapists and users online. Interventions can be

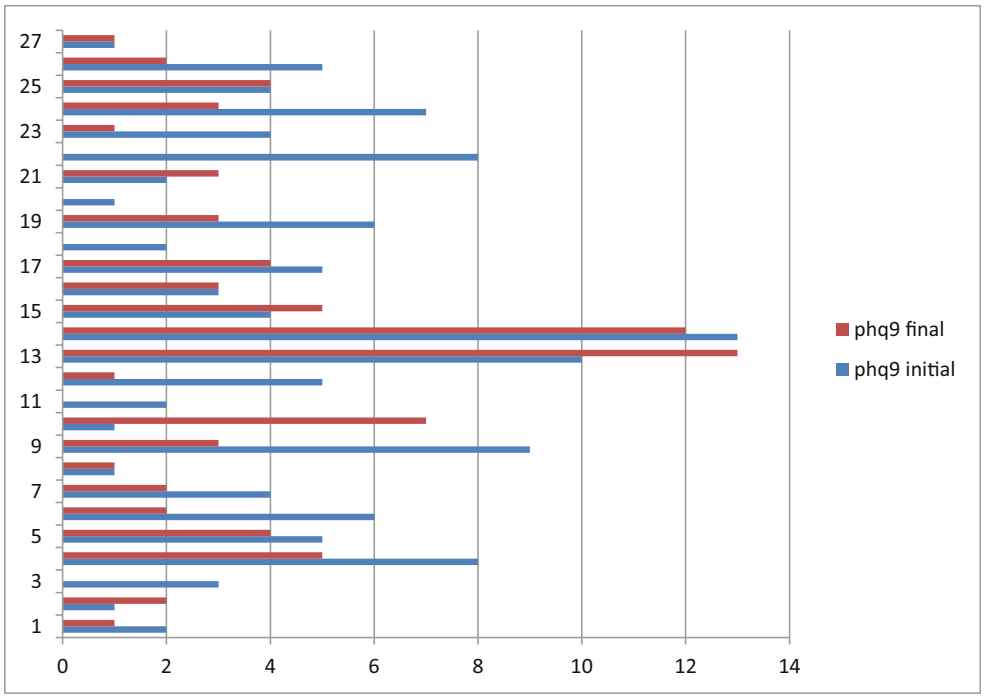

Fig. 2 Initial and final PHQ9 of the control group ($n = 27$)

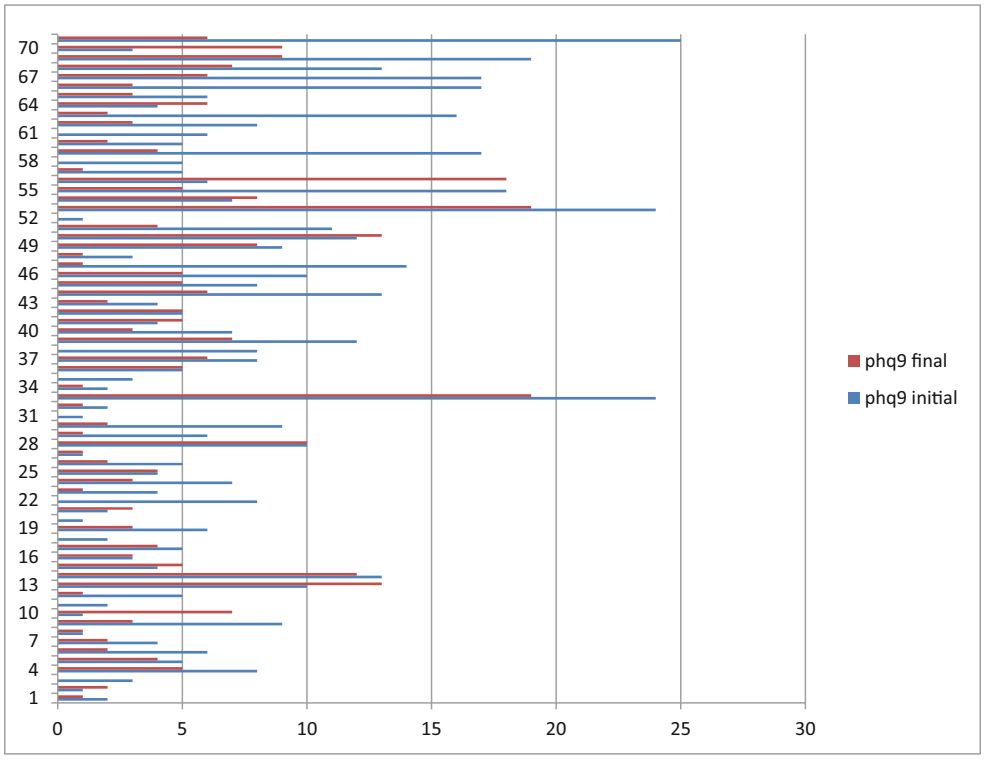

Fig. 3 Initial and final PHQ9 of the total group (n = 71)

inclusive in the sense that they can involve family members or key people in the daily lives of vulnerable women, promoting the understanding of their moods and encouraging their presence. Text messages can increase the compliance of patients to counselling, guidance and tasks assigned in their face-to-face psychotherapeutic sessions. In the present exploratory study, our initial interview with each woman in person, as well as the telephone contact in the beginning, middle and end of the messaging process, was a key element; it allowed us to establish a personal communication channel built on trust, which would not have been possible with text messages only. We spent an average of 30 min in face-to-face interviews and 15 min in telephone calls (3) with each of the women participants.

Our study is limited owing to the small size of its sample. This is a usability and pre-feasibility exploratory study, not a results study. We cannot draw general conclusions based on the responses of such a diverse group of women, particularly where the experienced cognitive and behavioural changes are concerned. New research is needed with more homogeneous groups of immigrant women victims of gender violence, per age groups, per cultural level, per geographic context and per social pathology (drug addiction, prostitution, etc.). However, the positivity of the responses obtained in our exploratory study encourages us to expand and test text messages as an improvement to the standards of therapeutic care and social inclusion in public social services.

Conclusions

Our results show that automatic text messages via mobile phones could be used as tools for psychotherapy and social inclusion of immigrant women. This text messaging system opens the way for personalized attention, counselling, support and guidance for vulnerable populations in general. Using text messaging as part of social and health care services can help maximize the necessary resources in a cost-effective manner. As technology becomes more and more omnipresent, text message interventions can play a role in therapies. Given the accessibility of mobile phones and the relatively low cost of this form of intervention, more people can benefit from social and health interventions that encourage positive changes in their behaviour. We have found that a reasonable combination of text messages, occasional telephone contacts and personal, face-to-face interviews are feasible and accepted amongst users of public social services in Spain. It is important to test whether the use of text messaging technologies with different vulnerable people can improve the outcomes of social and health services. We need more research and studies involving victims of violence of any kind, sexual abuse, people with addictions, mental disorders, with groups of women, men, adolescents, or others.

Acknowledgements This research would not be possible without the support and collaboration of the General Directorate of Social Inclusion of the Xunta de Galicia and the Iberian Association of Systems and Information Technology AISTI.

The costs of this study were covered by the General Directorate of Social Inclusion of the Autonomous Government of Galicia, Spain.

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