Original Article

The feasibility of an internet-based intervention for Chinese people with mental illness: A survey of willingness and attitude

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A R T I C L E   I N F O

A B S T R A C T

Background: The easy accessibility, increasing usage, and low cost of internet make it a desirable way of providing health information and delivering interventions for health consumers. Studies in other countries have verified and confirmed the effectiveness of internet-based interventions among people with mental health problems. Similar programs have yet to commence in China.

Purpose: This study investigated the willingness for, and attitude toward internet-based intervention in Chinese mental health service users and explored the feasibility of such an intervention.

Methods: A cross-sectional survey utilizing a self-developed questionnaire was administered to 186 mental health service users in Beijing, between April and May 2011.

Results: Most participants held a positive attitude toward online information and expressed interest in getting assistance from the internet. Some advice and suggestions were provided such as more ways of getting assistance, setting up more professional websites, increasing interaction, as well as having government funding and guidance.

Conclusion: Internet-based programs are feasible and applicable, and worth implementing with Chinese people with mental illness.

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1.   Introduction

Recently in China increased attention has been focused on mental health problems [1]. In other countries, where mental health services are more advanced, internet-based intervention programs have been explored and manifested positive effects on patient education and self-management [2]. However, no such attempt has been initiated for Chinese mental health service users. In order to lay the foundation for future internet interventions with Chinese mental health consumers, this study set out examine the attitudes toward, and willingness to use such interventions.

2.   Background

Mental health problems are on the increase in China, causing demands on service providers and budgets. According to the latest nationwide epidemiological survey, the adjusted one-month prevalence of mental disorders in China was 17.5% [3]. Considering the huge population base of 1.34 billion, this is of great concern. It is estimated that there are eight million adults with psychiatric disabilities causing heavy burdens for families and society [1]. However, because of fear, stigma or economic disadvantage, many are neither identified nor treated properly [4].

Increasingly the internet is exerting its influence on people worldwide, and has radically affected and changed our daily lives [5]. According to the China Internet Network Information Center, up to the end of July 2011 there were 485 million internet users in mainland China [5]. As many as 36.2% of the population have their own access to the internet and even in remote villages, more than 131 million were net users.

The internet has the potential to support patients' needs for information and thereby increase empowerment. It has also become a useful and essential resource for patients' education. The low threshold of acceptability, the reduction of fear and stigma, and its flexibility provides patients with more choices and control over their illness making it an appropriate and ideal way to provide interventions such as education and self-management programmes [2].

Studies have already validated the positive effect of the internet in alleviating illness. For instance, Hoek et al. [6] conducted a study to test the effect of internet-based, self-help, problem-solving therapy in preventing depression and anxiety among adolescents. Participants received support from professionals through email for five weeks and then were followed up. The results confirmed its effectiveness in relieving patients' symptoms up to twelve months after the intervention. In Canada, Cunningham et al. [7] also verified the positive effects of an internet-based intervention among alcohol abusers. After screening via the internet, the respondents' weekly drinking consumption decreased by 30%. In Finland, Koivunen et al. [8] applied an internet-based portal for patients with schizophrenia, where patients could exchange and communicate with each other, share their experiences and get professional help. The evaluation showed that this portal was user-friendly and welcomed both by the patients and nursing staff. In addition, the internet-based intervention also manifested its effectiveness in reducing suicidal thoughts among patients [9]. In a recent systematic review, it was concluded that internet-based interventions could promote health behavior change among patients and more investment in such deliveries, was encouraged [10].

In China, internet programmes have been developed and are considered as an efficient, cost-effective and convenient way for patient education for some disorders. For example, Huang et al. [11] tested and verified the effect of an internet support program on uncertainty in illness of breast cancer patients after surgery. Through the twelve-week intervention, abundant information, assistance through multi-disciplinary cooperation and real-time interaction were provided for the participants. Results showed that, it was an effective approach in reducing uncertainty in illness for breast cancer survivors. In another study, internet-based intervention also manifested its usefulness in patients with nasopharyngeal carcinoma [12].

At present, internet-based education or interventions have yet to be developed and tested amongst patients with mental illness in China. In view of the surge of mental illness and the future threat to the health care system, and given the success overseas and use in other disorders, there is a pressing need to determine the inclination for patients to turn to online help, and their willingness and attitude with regard to such a delivery.

3.   Method

A questionnaire was developed and administered to a convenience sample of participants recruited from seven adult wards (three female and four male) in a psychiatric hospital in Beijing. This hospital is a university-affiliated mental health institution that provides services for a population of approximately 15,400,000 inhabitants in the Beijing area [13]. People with the diagnosis of mental illness and who were able to read and write were invited to participate in the study.

3.1.   Instrument

The instrument was based on the Internet Behavior Questionnaire for Adolescents and consisted of three parts [14]. Part one sought general information on the participants such as gender, age, and education level. Part two examined the availability of internet and online behaviors such as, the time spend on the internet weekly, their usual behaviors and the personal impact of the internet. Part three investigated their attitude toward online information and their willingness to gain online support. The questions included their willingness and preferred ways of getting mental health related information online and the source of information which they trust. At the end of the questionnaire an open ended question sought suggestions and advice on internet-based patient education.

3.2.   Ethical considerations

The study was approved by the Human Research and Ethics Committee of the School of Nursing, Peking Union Medical

College. Information was provided and written consent was obtained from each participant.

3.3.   Data collection

Data were collected from April to May 2011. After acquiring informed consent, the questionnaire, which took approximately 15 min to complete, was distributed to the participants. No sensitive personal information such as name or diagnosis was included in the questionnaire.

3.4.   Data analysis

Descriptive statistics were used to analyze the quantitative data using SPSS 16.0 (SPSS Inc., Chicago, IL, USA) for Windows. Theme analysis was applied to the qualitative answers from the last question.

4.   Results

4.1.   Participant characteristics

Two hundred questionnaires were issued and 191 returned (response rate 95.5%). After excluding incomplete questionnaires 186 (97.4%) were included in the final analysis. Of these, 120 (64.5%) were male, and 66 (35.5%) were female. The mean age was 28.49 ($SD = 9.42$, Range 16—74) with 66 (35.5%) having finished high school education and 89 (47.8%) had a bachelor degree or higher.

4.2.   Computer and internet usage

This question revealed that 154 (82.8%) of the participants had access to the internet and the majority (140, 75.3%) used the network at home (Table 1). About half (92, 49.5%) had used the internet for more than five years and more than a quarter (48, 25.8%) surfed online every day. In terms of frequency, 153 (82.3%) went online more than occasionally (3—5 times per week) and approximately half (89, 47.8%) spent more than three hours every day on the internet.

With regard to the various reasons for surfing online, the majority (117, 62.9%) cited entertainment as the main reason for using the internet, followed by job demands (81, 43.5%) and seeking information/knowledge (72, 38.7%). Just over three quarters (141, 75.8%) of the participants had an email address and one third (54, 29%) logged in frequently to check their email. The number of participants who owned tools for chatting such as QQ, MSN, and Skype, was 156 (83.9%) and more than half (104, 55.9%) often chatted online. In general, most (154, 82.8%) admitted that the internet has exerted its impact on them to a certain extent and 17 (9.1%) regarded it as an essential and indispensable part of their lives without which they could not live.

4.3.   Internet for health education

The questions on attitude and willingness toward receiving illness related information help on line, revealed that though some (13, 7%) of the participants expressed their doubt about online information, the majority (173, 93%) trusted the

Table 1 — Current computer usage (n = 186).

Item	Number	F(%)
The availability of internet		
Yes	154	82.8
No	32	17.2
Place of use		
Home	140	75.3
Place of work	16	8.6
Internet bar	30	16.1
Time since going online		
<1 year	28	15.1
1—3 years	34	18.3
4—5 years	32	17.2
>5 years	92	49.5
Frequency of surfing (weekly)		
<3 times	33	17.7
3—5 times	47	25.3
6—7 times	58	31.2
>7times/everyday	48	25.8
Time spent online everyday		
<1 h	34	18.3
1—2 h	63	33.9
3—4 h	57	30.6
5—6 h	11	5.9
>6 h	21	11.3
Have email address?		
Yes	141	75.8
No	45	24.2
Have chat tools?		
Yes	156	83.9
No	30	16.1
Impact by internet		
Little/Minor	32	17.2
To some extent	86	46.2
To a large extent	51	27.4
Dependence	17	9.1

Table 2 — Attitudes and willingness toward the internet (n = 186).

Item	Number	F(%)
The trust of online information		
Yes	173	93.0
No	13	7.0
The willingness to obtain help from the internet		
Yes	127	68.3
Not Sure	45	24.2
No	14	7.5
Present source of illness-related information		
Doctors/Professionals	126	67.7
Internet/Website	79	42.5
Families/Friends	63	33.9
What can be trusted online?		
Portal	129	69.4
Professional website	88	47.3
Blog	54	29.0
Forum	32	17.2
The preferred way of getting help from the internet		
Information from professional portal/website	102	54.8
Through email	45	24.2
Forum/Blog	39	21.0

interface (Table 2). More than two thirds (127, 68.3%) expressed their interest in getting online help. Despite the fact that doctors were the main source of health information (126, 67.7%), the internet was exerting its influence as evidenced by the 79 (42.5%) who already gained health related knowledge from the internet. This percentage was higher than that of families, friends and relatives (63, 33.9%).

The professional portal and website were the main source of assistance that participants trusted with 129 (69.4%) and 88 (47.3%) responding respectively. Information from online forums and personal blogs were considered less credible (31, 16.7% & 54, 29% respectively).

For preferred ways of getting online help, more than half (102, 54.8%) regarded health related knowledge from professional websites or portals as their favorite choice followed by the sending of related information to their email address.

4.4. Suggestions and advice

Seventy-two (38.7%) participants responded to the open-ended question with their opinions, suggestions and advice on internet-based intervention in the future. Among them, 31 (43.1%) regarded the internet as an ideal way to get help and that it deserved focus, funding and support by the authorities. Five (6.9%) advised that the contents of such websites need to be plentiful and enriched. Twelve (16.7%) supported the establishment of more professional websites or portals. Fourteen (19.4%) proposed specific recommendations such as developing online chats (4, 5.6%), email (2, 2.8%), and video (2, 5.6%). Other comments included two (2.8%) who favored looking for information through search engines, two (2.8%) who recommended the strengthening of interaction and two (2.8%) who urged the convenience and ease of its accessibility to increase its acceptability.

Another seven (9.7%) participants advised that such information should be specifically disease or health related rather than general or superficial and three (4.2%) emphasized the importance of credibility, privacy and supervision and recommended that relevant authorities should shoulder the responsibility for supervising such web sites and portals to enhance credibility and guarantee personal privacy.

5. Discussion

5.1. Study limitations

Several limitations are worth considering. Firstly, there were more male than female participants (64.5% vs. 35.5%), which could be associated with the sampling of units because three of these units were exclusively for females patients compared with four for male, and this bias of gender distribution may have influenced the results. Secondly demographic data collection was limited and some further questions on their interests and personal lives may have provided useful data for comparison. Also some clinical data such as diagnosis might have enhanced the meaning of some responses, allowing for analysis of the differences in attitude and willingness among different diagnostic groups. Finally, and interestingly the age of the participants was younger than anticipated and this

limits the generalizability of results to older and younger age groups. Although, if there is a developing trend toward younger people with mental illness being hospitalized, this is a very important issue for further research.

The main finding of this survey is that the internet is increasingly influencing the lives of people with mental health problems. The majority of the participants showed interest in getting help from the internet which reinforced the feasibility of utilizing online patient education. Further, some useful suggestions and advice were received which should be taken into consideration before launching such programs. This added some cultural validity for its use in a Chinese context.

5.2. Impact on people with mental health problems

Among these relatively young participants, most have owned their own equipment for going online for several years. This situation is in accordance with the present status of internet usage among the Chinese population. According to the latest survey from the China Internet Network Information Center (2011), the popularity of the internet is growing rapidly, with about 458 million people in China currently having access [5]. Net users aged between 20 and 29 accounted for 30.8% of the total and formed the largest online group [5]. These findings suggested the availability and popularity of internet among mental health service users is higher than the general population.

Some interesting characteristics of the sample emerged that are likely to enhance their adaptability to internet usage. Firstly, the age of the participants was relatively young and therefore it would be expected that as younger people are often curious about innovations they should hold positive attitudes toward new technologies such as the internet. Secondly, most (155, 83.3%) had graduated from high school at least, which suggests an ability to understand and utilize information technology. Thirdly, as sufferers of mental health problems, this population may tend toward social withdrawal and avoid contact with other people because of shame, stigma, fear of discrimination and other problems with communication [15,16]. With telecommunication through the internet such as email and Skype this group of people may well be advantaged by the lack of face-to-face interaction and appreciate the opportunity to communicate in a less threatening way, and indeed develop friendships and gain support from peers.

Although the majority of the respondents used the internet for entertainment, a large number used it to acquire knowledge. Most went online frequently and for a relatively long time. This suggests that there is a there is a large group of computer literate people, with mental health disorders, who would be able to benefit from an online program.

5.3. Attitude toward getting help

Most patients involved expressed their trust in health information obtained online and the majority showed their interests and willingness for getting professional help through the network. As a relatively new method of providing assistance the internet is attractive for this sample of people who suffer from mental illness and were, on average, aged

between 20 an30. For these people it was easy to use, time-saving and available at any time which endowed it many advantages [2].

Three quarters (141, 75.8%) of the participants had an email address which indicated that most were able to receive individualized health information with ease. Studies have confirmed the benefit of email communication between doctors and patients as a means of augmenting communication. In Hoek's [6] study, the intervention for adolescents suffering depression and anxiety was delivered through email and proved to be a valid and helpful way to enhance their self-help and problem-solving abilities. The latest systematic review also confirmed the effectiveness of networked communication intervention such as email in helping young patients with mental health disorders [17]. Given the computer literacy of people in China, and their willingness and adaptability toward the internet, an intervention through personal email should be equally as valuable as for those in overseas studies, and is worthy of further research.

Most patients chose the professional portal or website as their favored interface, and these need to be professional and authoritative to be credible, attractive and believable. Koivunen et al. [8] evaluated the effect of a web-based portal for patients with schizophrenia and found it was highly welcomed by the users. In China, a few hospitals have already opened health information sections in their website portals and it seems that this should be encouraged and strengthened, and expanded to include mental health/illness material.

5.4. Recommendations and suggestions

Participants' opinions and advice, toward utilizing the internet for patients with mental illness, proved useful for future research and clinical application. Advice focused on multiplying and enriching the methods such as through the use of search engines, chat tools and videos. Some of these means have already been tested and deserve further exploration. For example, Levine et al. [18] demonstrated that the person-centered message from a web-based diabetes management system can improve patient monitoring of blood glucose levels among diabetes patients and therefore deemed that communication plays a critical role in such an intervention. Hark et al. [19] also confirmed that internet self-help forums were useful for patients with schizophrenia because they offer an opportunity for disclosure of personal experience, provide information and encourage emotional interactions such as expression of empathy, gratitude or friendship.

Participants also stressed the importance of up to date information, and the need to increase and strengthen interaction sections on these portals. The nature of current information technology is such that these requirements are easily met [20]. The delivery of health information through the internet overcomes many time barriers that previously existed. It is available at all times, can be updated easily and regularly, also, being accessible by wireless and cable enhances personal mobility and the likelihood of interaction.

Privacy was a concern of many participants. This issue should be taken into consideration and needs to be incorporated into the system in such a way that consumers feel they can trust the exchange of personal material, and remain anonymous throughout the interaction. The protection and guarantee of clients' privacy should be stressed and kept in mind by professionals when delivering interventions. [21]

Participants also recommended that professional portals should be funded, guided and administered by relevant authorities. Under the guidance and help of such departments, standards, reliability, validity and a healthy development of websites can be secured. At present, such a system does not exist in China, and this issue of regulation, supervision and control of standards should be put high on the agenda.

Though most participants welcomed online help, put forward suggestions and advice, when starting such programs it should also be noted that the aim of internet-based program is to help patients to combat and overcome their illness, rather than become self indulgent. The convenience and attraction of the internet already has created dependence in some adolescents whose lives are negatively affected, some of whom have become completely isolated from reality [22]. For people with mental health problems, who have existing problems of social withdrawal or alienation may be at risk of further withdrawal and this needs to be considered in the planning and implementation of material and the interface [16]. While encouraging, the results do deserve further discussion and careful exploration to ensure proper application of internet applications for people with mental illness.

6.   Conclusion

The internet is an accessible and empowering medium in providing health information and delivering interventions to patients with mental illness. In general, participants in this study held positive attitudes toward getting help online. Furthermore, some suggestions and recommendations such as interaction, authority, creditability and privacy have also been put forward which should be considered seriously when launching such programs. Internet based intervention is worthwhile and should be explored and prepared for dissemination amongst the vast numbers of people with mental illness in China.

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