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Providing educational and instructional support for dog bite victims via WeChat in China: A satisfaction survey

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Abstract

Background WeChat in China has been used for public health education and the prevention of diseases. This study introduced a WeChat-based program for rabies prevention and evaluated the users' satisfaction with the program using the technology acceptance model.

Methods An online satisfaction questionnaire was used to survey 315 users who had followed the WeChat official account in China, and their satisfaction scores were assessed and analyzed.

Results The users were generally satisfied with the WeChat-based program as an educational and instructional tool with the mean satisfaction score for each item ranging from 3.87 to 4.60 out of a maximum of 5.0 and the total mean satisfaction score of 41.54 out of a maximum of 50.0 (SD = 4.31). Urban users showed more satisfaction than rural users (p=0.031). Users who were satisfied also reported that they intended to recommend WeChat to others (p= 0.000).

Conclusions Findings from the present study indicated that WeChat was considered a useful educational and instructional tool for rabies among dog-bite victims. This model of a WeChat-based program for rabies prevention should be expanded to other areas in China.

Background

Rabies is a zoonotic disease caused by viruses of the genus Lyssavirus. It is a vaccine-preventable viral disease which occurs in more than 150 countries. Despite the overall steady decline of cases since a peak in 2007, the occurrence of cases in new areas and the trend of its spread have been apparent in China in recent years [1]. Rabies in China still remains a public health problem [2]. Improving rabies prevention and vaccination is essential via the government and news organizations, and medical institutions and doctors in human and veterinary medicine need to partner with the government to implement vaccination and surveillance efforts [3]. For Chinese doctors, how to help raise public awareness of rabies, find a nearby rabies clinic as soon as possible for wound treatment, vaccination, and prevention are urgent problems to be addressed.

In recent years, WeChat (Tencent Ltd., Shenzhen, China), the most popular mobile-based social media application in China with 1.12 billion registered users, has become deeply integrated into the routine life of Chinese people. Similar to Twitter, Facebook, and Skype, WeChat supports numerous services for activities of daily living, including instant messaging (text or voice) and mobile payments [4]. Further, WeChat has emerged as a health education tool for management of diseases such as cancer, chronic illnesses, and communicable diseases [4, 5]. Given this context, a WeChat-based Program for Rabies Prevention (WCPRP) was developed by Chinese medical workers that was designed to disseminate knowledge related to rabies prevention, assist patients in seeking medical treatment, and authoritatively publish information on rabies prevention. It is a new program housed on a widely used social media platform in China.

Satisfaction is an important and commonly used indicator of the quality of health care delivery. Satisfied users usually comply with health instructions provided, thereby promoting positive health outcomes [4, 6]. However, very few studies have focused on using WeChat to provide rabies education and assist dog-bite victims in China. In addition, little is known about the satisfaction of users with the information on rabies available on WeChat. In this study, our research integrated the perspective of the technology acceptance model (TAM) to examine satisfaction with a WeChat-based program. The objectives of this study were to: (1) develop and introduce a program for rabies prevention using the WeChat official account, and (2) identify users' satisfaction and intention to use a WeChat-based educational program in China.

Methods

Development of the WeChat-based Program for Rabies Prevention

The WCPRP was developed by the doctors and research team in Peking University People's Hospital based on clinical guidelines and health management policies in March 2016. The WCPRP consists of three modules with educational and instructional messages in Chinese: knowledge pervasion, immunoprophylaxis, and general information. In each module, there are certain first-class menus, and the users get related information if they tap the corresponding menu or type in keywords on the dialogue interface. An overview of WCPRP is provided in Table 1. Each educational module can be selected by the user and may be repeated as needed. There are two special consultation functions in this program. One is that once the date of the first vaccination injection is typed in, the timing of and plans for the follow-up injections can be calculated by the program. The other consultation function is that the users can inquire where the nearby vaccination clinics are located to expedite treatment. The location function of WeChat can acquire users' location information, match the nearest clinic, and provide a navigation route. We normally recommend that every dog-bite patient subscribe to the WeChat official account by scanning the QR code in our hospital.

Sampling, data collection, and outcome measurement

The TAM is a widely used explanatory model regarding users of new information technology and the related acceptance behavior of an application [4]. In this study, TAM was used to examine satisfaction with using a WeChat-based program. A descriptive quantitative online design was used in this study. The participants included a sample of users who subscribed to the WeChat official account in our hospital and other affiliated hospitals from February 1, 2017 to February 1, 2018. The inclusion criteria were that the participants were over 18 years of age and had the ability to use WeChat properly. The exclusion criteria included users who were diagnosed with psychosis or other medical or psychological conditions.

The satisfaction questionnaire was sent to 400 users through the WeChat platform. Based on a review of the literature [4], the questionnaire content included users' demographic profile including gender, age, and educational attainment, and the WeChat Satisfaction Scale (WSS). Ten satisfaction items were included in this scale based on previous literature. Questionnaire items are scored on a 5-point Likert scale ranging

from 5 = strongly agree to 1 = strongly disagree with a total score ranging from 10 to 50. The higher the WSS score, the higher users' satisfaction.

Statistical analysis

Data were collected and analyzed with SPSS 20.0 (IBM, Armonk, NY), satisfaction scores were compared across demographic categories. Student's *t*-test was used for statistical analysis and *P*-values of < 0.05 were considered statistically significant.

Results

A total of 315 users (148 male and 167 female) with unique IP addresses completed the online survey. The total response rate was 78.8%. The users' ages ranged from 20 years to 40 years. Most participants (221/315, 70.2%) had a bachelor's degree, 48.9% (154/315) were employed, and only 24.1% (76/315) users were from rural areas of China. The substantial majority of users (92.1%; 290/315) reported an intention to recommend the program to others (Table 2).

The results showed that the participants were generally satisfied with using the WCPRP, with the mean satisfaction score for each item ranging from 3.87 to 4.60 and a total mean satisfaction score of 41.54 (SD = 4.31) (Table 3).

There were no significant differences between gender, age level, educational attainment, and occupation in terms of satisfaction scores (all ps > 0.05). A significant difference was observed in the satisfaction scores by living area (p = 0.031): users in the cities had a higher satisfaction score. In addition, users who were more likely to recommend the program to others also showed higher satisfaction levels with the WCPRP (p = 0.000) (Table 4).

Discussion

Utilizing information technology in health care, which involves providing disease-related information via telecommunication technologies, may become an important revolutionary approach that can greatly affect Chinese health care delivery [4, 7]. In this study, a WCPRP was developed and implemented. The program was developed by our doctors and research team who understood the necessity to support victims of dog bites with more need-specific education and instructions about rabies prevention. It was found that 92.1% of the users intended to recommend the program to others, and the total mean satisfaction score was 41.54, which indicated that users were satisfied with the WeChat education program. WCPRP met their needs due to its convenient functional design, and since this program was built in the public WeChat account, it is a convenient channel to transmit information to specific users and interact with them [8]. The education modules and text messages on the WCPRP public account were developed to provide simple, easy-to-understand health information, which was a viable way to connect medical staff and victims to facilitate health instruction delivery and resource sharing [9]. One previous

study reported a successful outcome based on intervention for patients with type 2 diabetes via WeChat [10], and similar results were also found in a WeChat-based life review program for cancer patients [11].

We found that users' satisfaction was not related to gender, age levels, educational levels, or occupation, but users' satisfaction differed significantly with respect to where they are living. Users living in urban areas were more satisfied than those living in rural areas. Possible reasons for this difference may be that rural rabies clinics are relatively few or that public awareness of rabies is relatively low among people in rural areas. Also, lower incomes in rural areas could have limited their ability to take full advantage of the WCPRP, possibly due to the cost associated with Internet access [4]. Therefore, public awareness of rabies in high-risk populations living in rural areas needs to be improved.

In this study, participants who showed higher levels of satisfaction were more likely to intend to recommend the WeChat official account to others. In line with previous findings, when individuals are satisfied with the efficiency and capability of new technologies, they have a higher intention to use it [12].

We believe that our study makes a significant contribution to the literature because it is one of the first programs of its kind to implement a dog bite and rabies information and prevention program using social media. It discusses a health promotion program that could easily be implemented using other social media platforms in other locations. Thus, it should be relevant to policymakers, clinicians, as well as researchers. However, there are some limitations to this study. One is that this study analyzed only user satisfaction and their intention to recommend the program to others. It is important to examine other factors that might affect users' satisfaction, such as family support and health literacy. Another limitation is that there is potential sample bias because users who accessed the WCPRP were more likely to be active and satisfied users of WeChat.

Conclusions

Findings from the present study indicated that WeChat was considered a useful educational and instructional tool for rabies among dog-bite victims. This model of a WeChat-based program for rabies prevention should be expanded to other areas in China.

Declarations

Abbreviations

TAM: Technology Acceptance Model; WCPRP: WeChat-based Program for Rabies Prevention; WSS: WeChat Satisfaction Scale

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Availability of data and materials

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

Authors’ contributions

ZD, TBW and CLW designed the study, analyzed the data and wrote and revised the manuscript. ZD and QJC designed the study, performed the experiments and reviewed the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

Ethics approval was obtained from the university and the affiliated hospital (2017–011). All participants were informed that they had the right to withdraw from this study at any time without any punishment or penalty and their legal rights were ensured in the invitation letter. Their decision to proceed with the online survey was accepted as informed consent.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests

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Tables

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- Table2.docx
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