

Experiences and Factors Affecting Using WeChat among Urban Empty-Nesters: A Qualitative Descriptive Study

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Abstract

Background

In an era where population aging and social information are intertwined, the elderly need to learn to use electronic products, but due to aging and other reasons, the process of learning to use it is not easier than that of young people. The elderly, especially the empty-nesters whose children are not around, need to adapt to using electronic products in their daily lives.

Objective

To explore the experiences of using WeChat for the urban empty-nesters.

Methods

A qualitative descriptive design was used in this study. A total of 14 registered empty-nesters who had used WeChat in Fuzhou communities were recruited via convenience and purposive sampling methods. Data were collected through individual, semi-structured, and face-to-face interviews and were analyzed according to the content analysis approach.

Results

Data analysis led to the identification of four categories and ten sub-categories including the following: (1) uncertainty about WeChat dependence (dependence or no dependence on WeChat), (2) positive experience (providing life convenience, improving spiritual life, and consciously advancing with the times), (3) negative experience (disgusting false information, disgusting negative reports), and (4) influencing using WeChat factors (Physiology, education, social support). The identification of these experiences and factors could help community workers to develop strategies to enhance older adults, especially empty-nesters' utilization rate of electronic products such as WeChat and eventually adapt to the information society.

Conclusions

Informatization is unstoppable. Nowadays, the elderly must use electronic products, but the situations of the elderly using electronic products such as WeChat are different, and influencing factors are also different. Taking positive experiences of using WeChat as a reference promotes the elderly to participate in the information age. And taking negative experiences as a reference provides an early warning for other people using WeChat.

1 Introduction

With the development of the economy, the improvement of medical level, and the extension of population life span, the aging of the population in China is becoming increasingly serious. The National Bureau of Statistics (National Bureau of Statistics, 2021) showed that, by the end of 2020, the number of people aged 60 years and above in China was 264 million, accounting for 18.70% of the total population. As early as 2015, empty-nesters had accounted for half of the total number of the elderly, among them, the elderly living alone accounted for 10% of the total number of the elderly, the elderly living only with their spouses accounted for 41.9% of the total (National Health and Family Planning Commission, 2015). The proportion of empty-nesters and solitary elderly families in China has increased year by year. Life without children around would affect psychology fitness of the elderly and their quality of life in old age (China Research Center for Aging, 2019). Therefore, the living conditions of the growing number of the elderly, especially empty-nesters, should be paid more attention to.

WeChat, a new social media, is favored by the public due to its convenience and personalization (Yong & Huaicang, 2014). In the decade above since 2011, the proportion of Internet users aged 60 and above has increased from 2.40–12.20% in China (China Internet Network Information Center, 2011; China Internet Network Information Center, 2021). The number of elderly netizens who use WeChat is also growing. As of September 2018, the number of WeChat monthly active users over 55 ages in China reached 63 million (WeChat Open Class, 2019). With the increase in the use of WeChat, many aspects of the life of the elderly were also affected: through using WeChat, they can maintain communication with relatives and friends, experience a more entertaining life, and learn new knowledge (Zeng et al., 2016), but some old adults were also affected by false information on WeChat caused they deceived. In addition, they depended on WeChat and ignored real social situations (Lulu, 2018).

Above mentioned researches aimed to concentrate on the elderly population, and the results cannot accurately reflect experiences and factors affecting using WeChat among urban empty-nesters. Therefore, our study aimed to understand and describe the experience of empty-nesters using WeChat in daily life and provide information reference for their family members or community workers and play a vital role of new media in social life in the future.

2 Method

2.1 Study aim

The study aim was to explore the experiences of using WeChat for the urban empty-nesters.

2.2 Design

This study used a qualitative descriptive design. It is an inductive analysis that depends on the integrity of purpose arising from three sources: (a) a real-world question, (b) an understanding of what we do and don't know based on all empirical evidence, (c) an appreciation for the conceptual and contextual realm

within which a target audience is prepared to receive the answer (Thorne, 2016). The EQUATOR's COREQ checklist (Tong et al., 2007) for qualitative research was followed (File S1).

2.3 Recruitment

The research group contacted empty-nesters who conformed to inclusion criteria in the community to whether being willing to accept interviews through community staff. A researcher was specially employed to recruit participants and provided with written information for their consideration. If empty-nesters expressed a willingness to participate, the first author approached older adults, obtained their written consent, and performed the interview. They were interviewed at a convenient time in a quiet location within their home or nearby park setting. At least one researcher of our group involved in data analysis was present.

Before the formal interview, three qualified empty-nesters were recruited for pre-investigation and modified the interview outline based on the empty-nesters' understanding of the problem. All interviews were completed by the first author who had participated in qualitative research training, that introduced herself to empty-nesters as an elderly researcher. Semi-structured interviews were conducted face-to-face. Researchers explained to empty-nesters who meet the inclusion criteria the purpose and significance of our study. And after obtaining consent, each participant signed an informed consent form. The interviewers assured participants the research team would guard confidentiality.

A total of 14 convenience and purposive samples were recruited from parks and communities in Fuzhou, China, between Dec. 2020 and Feb. 2021, numbered N1-N14. The inclusion criteria included age older than 60-year-old, living in an urban community 12 months or more, using the WeChat application on kinds of electronic products, clear cognition, clear cognition, ability to express and comprehend simple Chinese characters, and willingness to complete questionnaires. The exclusion criteria were hearing impairment, speech impairment, cognitive impairment, mental illness, and severe or terminal ill. The interviews were continued until data saturation, which pointed that responses from participants were obtained without a new or repetitive theme. The demographic characteristics of the participants are shown in Table 1.

Table1. Characteristics of the sample(<i>n</i> =14)							
Number	Gender	Age, year	Education level	Marital status	Living status	Monthly personal income (RMB)	retire
1	Female	68	Senior high school	Married	Living with spouse only	≥4000	Yes
2	Female	60	Junior college	Married	Living with spouse only	≥4000	Yes
3	Female	73	Junior college	Married and widowed	Living alone	2001~4000	Yes
4	Male	67	Junior college	Married	Living with spouse only	≥4000	Yes
5	Male	80	Junior college	Married	Living with spouse only	≥4000	Yes
6	Male	76	Junior college	Married	Living with spouse only	≥4000	Yes
7	Male	67	Postgraduate	Married	Living with spouse only	≥4000	Yes
8	Female	65	Senior high school	Married	Living with spouse only	2001~4000	Yes
9	Male	73	Junior college	Married	Living with spouse only	≥4000	Yes
10	Male	63	Junior college	Married	Living with spouse only	2001~4000	No
11	Male	86	Junior high school	Married	Living with spouse only	2001~4000	Yes
12	Male	78	Junior college	Married	Living with spouse only	≥4000	Yes
13	Female	78	Junior college	Married	Living with spouse only	2001~4000	Yes
14	Male	60	Junior high school	Married	Living alone	2001~4000	No

2.4 Data collection

A 30-60 min semi-structured interview was used to obtain information about characteristics of using WeChat, and positive or negative experiences with various interview techniques such as questioning, response, repetition, reorganization, and summary, and timely adjusting the interview strategy according

to the situation. Field notes and ensuring that the interview data can be true, complete, and accurate to reflect the views they want to express, knowledge, etc. Empty-nesters were also asked demographics, including age, gender, education level, marital status, living status, etc. The interview outline was designed concerning a previous study (Hanjing, 2019), including (a) Could you please talk about what WeChat functions you use frequently? (b) Could you please talk about how you generally use WeChat during the day? (c) Could you please talk about what you need to use WeChat? (d) Could you please talk about the impact of using WeChat on your life? (e) If there is no WeChat, would your life be different? Empty-nesters received a daily necessity as compensation for study participation. The study involving human participants was reviewed and approved by the Ethics Review Committee of a certain medical college in Fujian.

2.5 Data analysis

Data collection and data analysis were synchronous. Researchers would listen to the recording repeatedly within 24 hours after the end of each interview. The recording data was transcribed word by word and sentence by sentence into texts and set up a participants' database. Researchers used NVivo version 11 (www.qsrinternational.com) to transcribe texts was stored and coded. The inductive content analysis method (Elo, 2008) was suitable for insufficient or fragmented data. Our study used qualitative content analysis to analyze texts inductively and deductively (Graneheim et al., 2017). (1) two researchers trained in qualitative research, under the premise of mastering talking content, read the entire text several times to understand data comprehensively. (2) they separately reduced texts into meaning units, relating to the study aim and research questions. Then, the meaning units were condensed but retained their most valuable content. (3) general messages of the condensed meaning units were marked with codes. The codes were continually revised to make the inductive process more rigorous (Graneheim et al., 2017). (4) similar content that coded were deductively structured into themes and subthemes (Vaismoradi et al., 2013). Based on the patterns emerging from the analysis, the codes were deductively structured into the four dimensions, included uncertainty about WeChat dependence, positive experience, negative experience, and influencing using WeChat factors, thus which constitute themes presented in the results section (McCuaig & Quennerstedt, 2018). (5) subthemes were confirmed. They were categorized into four themes and described the latent meaning of the overt statements (Graneheim et al., 2017). An example of analyzing data is shown in Table 2. (6) researchers discussed, checked, and revised each other. Then, they returned to the empty-nesters to verify.

Table 2
Example of analyzing with subthemes and themes

Meaning unit	Condensed meaning unit	Code	Subtheme	Theme
The Pu-pu platform (A 30-minute delivery supermarket platform) in WeChat will automatically deliver the goods to your door. You can see, uh, what is cheaper today. You can shop. Especially I live alone. Moreover, I am unable to go out on rainy days because my feet can't move. Hey-hey. But now, as soon as WeChat posts the message, others will take the initiative to deliver goods to the door. Just provide me with convenience.	WeChat online shopping can provide home delivery convenience for empty-nesters who are inconvenient to go out.	WeChat online shopping convenience	Providing life convenience	Positive experience

According to Saunders et al. (Saunders et al., 2018), data saturation differs depending on the type of study and on assumptions concerning whether the data represent an ongoing process. After each interview, we evaluated the data to determine whether there were new patterns or variations to confirm saturation.

3 Results

Researchers extracted 4 themes and 10 sub-themes of using WeChat for the urban empty-nesters, included (a) uncertainty about WeChat dependence (dependence or no dependence on WeChat), (b) positive experience (providing life convenience, improving spiritual life, and consciously advancing with the times), (c) negative experience (disgusting false information, disgusting negative reports), and (d) influencing using WeChat factors (Physiology, education, social support).

3.1 Uncertainty about WeChat dependence

3.1.1 Dependence on WeChat

Some empty-nesters believe that WeChat is an indispensable social tool in life, and they need to pay attention to social activities on WeChat at all times.

"It's inseparable from WeChat. When I take out my mobile phone, I only want to use WeChat. Now we rarely call because (WeChat) is more convenient. There is no way to answer people if you don't check it out in time, especially one-by-one chatting. "-ID8

The WeChat group is most important for the news of the old classmate circle, and even classmates' death news could be learned through the group message.

"After waking up in the middle of the night, I immediately watched, watched whether there was any major news, which classmate passed away, and so on. I am 76 years old, and I have to carry my mobile phone with me. I can't live without WeChat."-ID6

For the empty-nesters, WeChat can even accompany the elderly like a friend, helping them to participate in various social activities.

" Without WeChat, (life) is as uncomfortable as if there is no water or electricity. Now it can be said that (WeChat) is like (my) a friend. It can also be used as a tool, such as communication among classmates and colleagues, that's it."-ID13

Some interviewees even suggest that WeChat can help empty-nesters who are inconvenient to go out to live independently and improve their quality of life.

" Now you can't do anything without WeChat. Like me who lives alone, if I don't have WeChat, I couldn't buy anything. I can use WeChat to contact these merchants and ask them to deliver the goods directly."-ID3

3.1.2 No dependence on WeChat

Some empty-nesters said that they did not rely on WeChat, and they can still live generally without WeChat in their lives. However, the elderly acknowledges the influence of WeChat to facilitate life.

" (If we are without WeChat,) it's just a little bit inconvenient, but life is still going on. I can't say, I can't say I would die without WeChat. "-ID9

In addition, the empty-nesters said that they have regular routines in their daily lives and have good habits. The elderly are not as fun as young people in playing WeChat. They mainly use WeChat when they have free time after a busy day. Even some empty-nesters are very self-disciplined in using WeChat.

" And I don't have the habit of playing on the phone while I lie in bed. Go to bed when you go to bed, get up when you wake up, and I will open my (WeChat) after everything is done, is not it? I don't want to be disturbed by others at night, so I turn on the flight mode on my phone. When it is switched on, it means that you don't disturb me anymore, and I won't look for you either. "-ID4

" I only start (playing WeChat) when I am free. I mainly do it when I have free (time). I keep my priorities in mind at all times, such as playing when I should play and letting it go when I should let it go."-ID11

3.2 Positive experience

3.2.1 Providing life convenience

Using WeChat provides convenience for all aspects of the life of the empty-nesters, including social connections, online shopping, and information acquisition.

In terms of social interaction, WeChat accompanies the elderly who are not children around or even widowed like a friend, so that they can pass the time. WeChat plays the role of companionship and support. At the same time, they can also make video calls with acquaintances through WeChat, which narrows the distance between people.

" (WeChat) Accompany me like my friend, no one chats with me, I would browse on WeChat, and I can also make video calls with others. "-N3.

" The comrades who had lost contact for decades were reunited on WeChat one day. I am happy indeed. We need to rely on the WeChat platform (to contact others), if not, we will never find where that person is. "-N14

In terms of online shopping, WeChat shopping without leaving home and door-to-door delivery bring convenience to the elderly, who be in special circumstances, such as travel inconvenience, epidemic isolation, and no accompanying children around.

" Especially I live alone. Moreover, I am unable to go out on rainy days because my feet can't move. Hey-hey. But now, as soon as WeChat posts the message, others will take the initiative to deliver goods to the door. Just provide me with convenience. "-N3

" Convenience! It's great that people can deliver the goods we need to my home without leaving my house. Especially during the COVID-19 epidemic, when people cannot move too much and cannot socialize, takeaways and couriers will deliver the goods to our homes. "-N12

In terms of getting information, empty-nesters mainly pay attention to preferential policies around, current affairs news, health, and wellness information, which expand their knowledge.

" I will receive good policies from my hometown. It's different from previous days when I was like the deaf. What good national policies, such as preferential policies, I didn't even know before. I have WeChat, and when others post in the group, I know these policies. "-N14

" Someone will tell you how older adults should provide for their old age, how to increase their health, exercise, and massage on WeChat. Multiple knowledge can be learned through WeChat, which can expand our knowledge reserve. "-N5

3.2.2 Improving spiritual life

Some empty-nesters said that WeChat provided them various platforms, shopping, communication, receiving health knowledge, and obtaining current news at home and abroad, which help them broaden their minds, emancipate their minds, and improve their quality of life.

" Providing such a platform is of great help to improve our mental condition, such as broadening our minds and reducing our mental burden. "-N3

" I think using WeChat will make life more fulfilling. On the one hand, you can meet the needs of leisure and entertainment. On the other hand, you can empty your mind while chatting with classmates and relieve boredom, which can help relieve boredom. "-N13

Older adults thought it was an honor to have a chance to enjoy information life when they were old, while it also was a kind of happiness. Some people even were not able to enjoy the convenience of technology until they die.

"At my age, I can still enjoy the convenience and rapid speed of the high-tech era. It must be a sense of happiness at all, is not it? It is a sense of happiness. "-N11

" If I feel like chatting with my family, I could chat with my family. And if I would like to communicate with my friends, I could chat with my friends. When we can't meet with friends for many years, we can build a WeChat group to contact, and it feels a sense of happiness. "-N14

3.2.3 Consciously advancing with the times

Live and learn. The vast majority of empty-nesters believe that they should consciously keep up with the pace of the times. They have a positive and encouraging attitude towards using WeChat by the elderly.

" If you can use WeChat, you should use it. I am unable to tell you, uh, older adults don't have to use new products. There is no such statement. The elderly must also keep pace with the times! Keep up with the times. If you do not accept new products or new goods, you will be eliminated (by society). "-N9

" If we don't learn how to use (WeChat), we will fall behind, is not it? However, (we) cannot be completely cut off connection (with the era). Being out of touch with the period will turn into a fool. Live and learn! The elderly has to become skilled at everything. "-N2

Some of them even regarded learning to use WeChat to be able to get along with young people as their goal. The elderly can also make changes in the matter of relearning.

" The important thing is that we cannot be eliminated by society. If you have been out of era, the young are no longer with you. People always learn to change. Of course, we must also learn and grow, so that young people are willing to be with our old people (getting along). We cannot stop learning, and there is a lot of knowledge to receive in WeChat. People, people need an organization to learn from each other. "-N8

3.3 Negative experience

3.3.1 Disgusting false information

Empty-nesters would provide their skeptical views of the information on WeChat. They thought some of the content in WeChat was unwarranted and fabricated, some were wrong, and some did not exist actually.

" Many contents in WeChat are not...they are virtual, unactual. As we know, some contents are not entirely actual. We believe WeChat a little. "-N13

The Elderly who are weak in identifying false WeChat information would forward them. The forwarding of false information had caused some trouble to the elderly who read follow general procedures.

" Their educational level was not so high that they were unknow how to choose good or poor content. Some older adults forward it to everyone as long as others share the link with him, including relatives and friends. There are many, many, non-real things, fake things in WeChat, which will bother others. "-N11

Some empty-nesters advocate a dialectical approach to false information and beware of being deceived. Some of them even have had the experience of being deceived.

" WeChat generates a lot of information every day. We can only use this information as a reference, and we cannot easily believe it. From my point of view, the content forwarded on WeChat seems to be unreliable, and many things are impossible indeed. "-N8

" Especially let us receive red envelopes! Many red envelopes, red envelopes, make you want to share with others. Let us share this group or that group. These are all liars. It is best not to do. Don't do these things, or you will be deceived. Those people who have weak willpower will be deceived. "-N14

3.3.2 Disgusting negative reports

Most empty-nesters deemed that passive reports, included vulgar and nonnutritive content, should be prohibited. They would hinder the healthy growth of the young. And the web environment should be rectified. Some people who post them are irresponsible.

" There are some spam messages and content in WeChat is not to say flooding, but it also appeared at least, which is uncomfortable. For example, as a kind of opinion, different views are allowed, which is OK. But some passive content comes out uncontrollably, which is unsatisfactory. "-N12

" Messy harmful news spread very quickly, and it can lead young people to think negatively. Passive information should be resolutely prohibited. We should actively spread positive social energy instead of passing negative news. "-N6

3.4 Influencing using WeChat factors

3.4.1 Physiology

Due to aging, the empty-nesters have a decline in body functions, such as intelligence decline, slow response, and decreased memory, which will cause inconvenience to the empty-nesters in using WeChat and hinder them from using WeChat.

" It's a good time for me to use WeChat now. I will give up playing WeChat until I'm too old to play anymore. As people get older, their intelligence will gradually decline, and many things will be unclear at

that time. "-ID14

" Because my mind is no longer flexible (like before), I don't want to learn new knowledge. I am possible to make a mistake in using WeChat. For example, I have to pay 10 RMB to buy something online. But in fact, I defray the wrong money on account of my reduced responsiveness. Then, my loss is too much. "-ID5

3.4.2 Education

Most of the empty-nesters interviewed considered that a higher level of education indicated that they were more likely to accept and use WeChat, a new type of social media. Education level determines humans' ability to accept and learn new things.

" Many educated seniors learn quickly. The elderly with poor educational foundations are slow to learn because their cultural level is too low to keep up with the needs of society. It is related to his foundation. "-N10

" People who have no cultural foundation, specifically those older than me, inside rural people, have never studied before. Or they all come out of literacy classes. How can they understand WeChat? "-N2

Some elderly adults thought they were more likely to reflect on how to pursue the quality of life and enrich their spiritual life with high education. As a product of the development of the times, WeChat can improve people's lifestyles in many ways.

" Some people have a better education, so they are more pursuing life, did you know? Their levels are different, did you know? For example, if you have received some education and have gone to college like you, you know how to enjoy life. "-N12

3.4.3 Social support

Social support of their families promotes using WeChat by the elderly, and even directly affects the elderly whether using WeChat or not. Some even suggested that their families should teach them how to use electronics' foundational functions.

" I would use WeChat because my family taught me to use it. "-N8

" There should be someone around to teach the elderly to use WeChat. For example, children should teach the elderly to use WeChat. Older people don't have to know how to use so many functions, but they can use video or voice calls at least, right? "-N9

In addition to family members, classmates and colleagues also have an affecting role in using WeChat for the empty-nesters. It shows that group learning can promote the use of electronic products by the elderly.

" My classmates have used WeChat. I showed songful and funny WeChat content to my classmates who don't use WeChat. They also think WeChat is available, and now they also learn to use it. "-N13

" Learn from each other with colleagues. Group learning is significant. For example, after the elderly retire, only the husband and wife are at home, and the son is not at home. The husband and wife will not use WeChat. Who do they ask? "-N10

The young lack patience when teaching the elderly how to use electronics, and even put themselves out of consideration for the elderly. Doing so will undermine the confidence of the elderly in using WeChat.

" The young have no patience in teaching elderly people. They did not take into account that older people are slow in thinking. And they talk so fast so that older adults can't remember what they said. Give up halfway at the end."-ID11

4 Conclusions

4.1 Urban empty-nesters rely on WeChat to varying degrees

Empty-nesters using WeChat in this study don't necessarily lead to a sense of dependence, which is similar to the results of Xiaotian (Xiaotian, 2018). Empty-nesters who use WeChat to generate dependence will always pay attention to WeChat information, mainly depending on the social of acquaintances, which is consistent with the results of Xi (Xi, 2019). On the one hand, WeChat dependence has a positive effect on meeting the social needs of the elderly. Lei (Lei & Ying, 2020) found through surveys and interviews that empty-nesters lack the company and emotional support of their children, and their belonging cannot be met. WeChat can provide the elderly an approach to contact old friends, make new friends, and enhance their self-identity and belonging, which cause a positive social dependence. On the other hand, reliance on WeChat will cause the elderly to ignore the actual social interaction, which will cause a negative impact. Lulu (Lulu, 2018) used case analysis and observation methods to conclude that older adults' excessive reliance on WeChat's emotional catharsis led to the desalination of real social life. He advocated that the elderly should not indulge in WeChat, causing the adverse consequences of turning the cart before the horse. However, the empty-nesters who didn't dependent on WeChat said that their daily routines remained regular and did not change due to WeChat. It shows that the degree of reliance on WeChat varies from person to person, and the impact is also different.

4.2 Obstacles to using WeChat by urban empty-nesters

The obstacles to using WeChat by urban empty-nesters include three aspects, including physiology, low education level, and lacking social support. In terms of physiology, with increasing age, empty-nesters' functions have a declining trend, such as reduced intelligence, memory decline, and unresponsiveness, which will hinder the empty-nesters from accepting and using WeChat, which is consistent with the results of Xiaotian (Xiaotian, 2018). However, Yaxue (Yaxue, 2017) showed that different ages older adults could widely accept WeChat. It may be related to whether the elderly are interested in WeChat. In terms of education level, this study found that participants with higher education levels can adapt and master how to use WeChat. They believe that education level determines the ability of empty-nesters to accept and learn new things. Yuqiong (Yuqiong, 2018) also showed that the elderly with low education

lack self-efficacy in new media and most of them use the fundamental chat function only. However, Yaxue (Yaxue, 2017) believes that the adoption and access of WeChat by the elderly are not affected by education. It may be related to the ease of use and convenience of WeChat. In terms of social support, social support (Huanhuan et al., 2016) refers to support from society or others, and it is also a relatively stable social relationship formed by the communication between the elderly and others or the society. Foreign research (Rondon et al., 2017) believes that social support can benefit the elderly and maintain good health. Our result showed that the social support of family members, classmates, colleagues would promote empty-nesters to use WeChat. In addition, the empty-nesters themselves also hope to get help from their children or friends when learning to use WeChat. This kind of help often plays a decisive and dominant role.

4.3 Convenient channels to improve empty-nesters' daily lives in WeChat

The interview found that the empty-nesters use WeChat to make social connections, obtain information, online shopping, which are three significant aspects of their daily lives, which are similar to Zhang (Zhang & Jung, 2019). In the interviews, all empty-nesters said that WeChat instantly messaging has brought many conveniences to their social connections. Especially empty-nesters are more convenient to get in touch with the outside world at any time when they do not live with their children or relatives, which improves safety. Eleven empty-nesters said that WeChat is the principal channel for obtaining information in daily life, especially paying more attention to current ent affairs news or health information. Elderly users can perceive WeChat brings convenience to them. WeChat can deliver available, timely, and reliable information to them (Jiaxing et al., 2017). Therefore, compared to traditional media such as television and newspapers, WeChat is more able to mobilize the enthusiasm of the elderly to obtain information and learn new knowledge. Seven empty-nesters said that WeChat online shopping has increasingly replaced traditional shopping and consumption methods. Especially in the face of particular circumstances such as epidemic isolation, widowhood living alone, inconvenient legs, poor weather, etc., empty-nesters are more willing to choose WeChat online shopping which is out-of-home and door-to-door delivery.

4.4 Good platforms to meet empty-nesters' needs by WeChat

The vital theory of communication, Uses and Gratifications Theory, showed that people use a certain medium to satisfy their needs (Ritter John & Foss, 2009). WeChat has rich functions, which could expanse human social interaction, maintain social relations, meet expressing emotions, and self-realization (Yong & Huaicang, 2014). The interview found that most empty-nesters have a positive attitude towards using WeChat. Some empty-nesters compared WeChat to "friends", and they used WeChat to alleviate the loneliness, satisfy their needs for social connections, and draw the distance between people. Our study showed that some empty-nesters whose children were outside the province or abroad instead of Fuzhou could learn about the current situation of their children through WeChat, which

provided psychological comfort. In addition, some empty-nesters said that their children were busy at work, so they didn't want to disturb the children. WeChat messages allowed the elderly to care about their children while not disturbing their children's work. In addition, older adults' classmates and friends also come from all over the world. Due to the inconvenience and difficulty of communication in the past, they could not get in touch. But now, they can contact again through WeChat to regain the time spent with each other and greet each other, which can enhance the belonging of the elderly and encourage the elderly to learn WeChat from each other and keep pace with the times.

4.5 Handful information on WeChat troubles the empty-nesters

WeChat has become one of the most popular social media in China, while it has also been flooded with harmful information, such as false information or passive reports, which has caused some trouble for empty-nesters to browse WeChat. The interview found that empty-nesters have a certain degree of recognition of malicious information on WeChat. Wenjing (Wenjing et al., 2019) showed that most older adults usually estimated WeChat content based on their own experience. If they think content credibility was poor, they might choose to ignore it. It is consistent with our study. However, it's worth noting that the elderly who use WeChat were accustomed to quickly obtaining a large amount of information in a short time, and the fragmented and superficial reading would interrupt in-depth thinking and lead to a decline in information judgment (Xi, 2019). In addition, participants also stated that the forwarding of false information would also cause inconvenience to other relatives and friends who followed general procedures to browse information. And tempting fraudulent information was likely to cause the consequences of being deceived and lead to economic losses. At the same time, some empty-nesters who relied on WeChat to obtain news also pointed out that there was some negative information on WeChat that was vulgar, nonnutritive, and affected the healthy growth of the young. The elderly was particularly sick with such information and hoped to clear the Internet and spread positive social energy and maintain good order in cyberspace. It also reflects the strong sense of social responsibility of the empty-nesters from the side.

Declarations

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Conflicts of interest/Competing interests

The authors declare no conflicts of interest. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Availability of data and material

The data are notes and recordings.

Authors' contributions

Four authors contributed to the completion of this manuscript: The first author, Ms. Yuting Yang, was responsible for data collection, analysis, and interpretation of the data, drafting the manuscript. The second author, Ms. Miao Yao, was responsible for recruitment, data analysis, and critical review of the manuscript. The Third author, Mr. Yongwei Yang, was responsible for recruitment, data analysis, and critical review of the manuscript. The last and corresponding author, Professor Ting Lin, was responsible for the study conception and design, supervision of the study, provision of administrative and material support, analysis and interpretation of the data, drafting, and critical review of the manuscript. All authors have contributed significantly and agree with the content of the manuscript.

This study explored the experience of the elderly, especially the empty-nesters, using electronic products-WeChat. This research shows that WeChat has increasingly become an indispensable tool of daily life for the elderly, and it is very effective in improving the quality of life and can bring many benefits to the elderly. Therefore, I believe that your journal readers will also be interested in our research. Because this is one of the few studies that use qualitative research methods to explore the feelings of older people using new social media.

Ethics approval

This study involving human participants was reviewed and approved by the Ethics Review Committee of Fujian Medical University ([2021] Fujian Medical University Ethics Review No. 96). The corresponding author is a teacher from the School of Nursing, Fujian Medical University, and the remaining authors are graduate students from the School of Nursing, Fujian Medical University. The participants signed their written informed consent to participate in this study.

Consent to participate

All participants were informed and agreed to participate in the interviews process of this research.

Consent for publication

All authors agree to the publication of the manuscript of the paper. This manuscript reporting the main findings is original and has never been submitted to other journal for publication.

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