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Use of new-media health information among the elderly and its effect on their health and health management

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Abstract

Background The aim of this study to explore the use of new-media health information and its influence on their health and health management.

Methods A total of 208 elderly people in Qiqihar City were selected as the survey objects, and a questionnaire was used to investigate their access to health information through new-media platforms. We analyze the factors (e.g., education, pre-retirement occupation, etc.) in the use of health information on new-media platforms. Results: Monthly income, educational level, pre-retirement occupation and attention of the new-media of the elderly had significant effects on health information acquisition ($p < 0.05$).

Conclusion The use of new-media health information among the elderly was diversified and had an impact on their health management. We should standardize the management of new-media health information dissemination platforms and publicize the use of new-media health information in a targeted way, to improve the self-health management of the elderly and reduce their burden on the national medical system.

Keywords Elderly, New media, Health information, Health management

Background

China has a highly aging population, with more than 180 million elderly people suffering from chronic diseases [1]. Many patients and their families indicate that effective health information is very important for rehabilitation from disease [2]. The Central Committee of the Communist Party of China and the State Council

issued the Outline of the Strategic Plan for Expanding Domestic Demand (2022–2035), proposing to actively develop “internet+medical and health” services [3]. The development of medical and health care is closely related to the Internet and electronic media. As a digital technology, new media provide users with information and services through computer networks, wireless communication networks, satellites, and other channels, as well as terminals (e.g., computers, mobile phones, and digital TV sets), which can exactly address the health information needs of older people. The elderly have low health-information literacy and weak ability to screen health information [4], and are easily misled by wrong information, affecting the rehabilitation process [5]. Therefore, based on the cognitive mediation model and the theory

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of planned behavior, this paper discusses the influence of the elderly's use of new-media health information on their own health management status, and then provides references for new-media health information managers to strengthen health-information management.

Methods

Research object

This study included elderly people aged ≥ 60 years in the Third Affiliated Hospital of Qiqihar Medical College from May to July 2022. The inclusion criteria of the study were as follows: ① age ≥ 60 years old; ② patient or their caregiver is capable of taking the survey and can answer the questions correctly; ③ provided signed informed consent for the study and participated voluntarily. The exclusion criteria were as follows: ① patients in the terminal stage of disease; ② patients with nervous system or mental illness; ③ serious heart, liver, or renal insufficiency, and other systemic diseases. This study was approved by the Ethics Committee of Qiqihar Medical University Ethics Committee (Approval Number): (Qi) Ethics [2024]4.

Research tools

A questionnaire was compiled based on existing foreign scales [6] and the cultural background of the elderly population in China [7], with reference to domestic and foreign literature [8, 9], and expert consultation. Thus, an electronic questionnaire was created through the Questionnaire Star software, with self-filling or substitute filling chosen for answer submission according to each patient's ability. The questionnaire was divided into four dimensions: general information, health status, the use of new-media health information, and the self-efficacy scale of health behavior change. The general basic data comprised six items covering general population sociological characteristics. Health status of the elderly includes three items: self-health concern, self-health evaluation, and self-health cognition. Use of new media health information included 10 items (e.g., exposure time, motivation, attention to new media, when to contact, how to pay attention, and what kind of attention). Health Behavior Change Self-efficacy Scale data were obtained using the General Self-Efficacy Scale (GSES) developed by Schwarzer et al [10]. The GSES comprises 10 questions that are scored using a four-point Likert scale. Cronbach's alpha of this scale was 0.88, indicating good consistency and

reliability. In the process of analysis, the corresponding independent variables were assigned different values: "male" gender was assigned "1" and "female" gender was assigned "2"; independent variables such as age, nationality, and living conditions were matched sequentially according to the values of "1–4". For variables such as whether or not to pay attention to health information, "yes" was assigned a value of "1" and "no" a value of "0." Independent variables (e.g., credibility of health information provided by new media) were assigned values of "1–5."

The sample size was calculated using the rough estimation method proposed by Kendall following factor analysis, which showed that it was appropriate to take 5 to 10 times the number of variables. It was assumed that each item represented an analysis variable, and the sample size was estimated based on the questionnaire with the largest number of items. The questionnaire comprised 29 items, which was multiplied by 5. Thus, considering a certain loss rate, it was determined that the sample size of the formal investigation should not be less than 145 cases. A total of 240 questionnaires were sent in an electronic format. After excluding incomplete questionnaires and not up to standard, 208 valid questionnaires were recovered, with an effective recovery rate of 86.67%.

Statistical processing

The collected questionnaire data were sorted and reviewed, and then analyzed with SPSS27.0 statistical software. The statistical analysis mainly included descriptive statistical analysis, chi-squared test, Pearson correlation analysis, and linear regression analysis. The test standard set by $\alpha=0.05$.

Results and analysis

Elderly people's access to health information through new-media platforms

The elderly obtained health information through different new-media platforms, among which 130 (62.5%) out of 208 participants chose to browse health websites, 137 (65.9%) chose to follow health WeChat public accounts or WeChat group forwarding, 77 (37.02%) chose to follow health micro-bloggers, and 65 (31.25%) chose to download a dedicated health class, as seen in Table 1.

Basic information of survey objects

Of the 208 respondents, 124 (59.6%) were female and 84 (40.4%) were male. Age: 62 (29.8%) were between 60 and 65 years old, 40 (19.2%) were between 66 and 70, 51 (24.5%) were between 71 and 75, 55 (26.4%) aged 75 and above, as seen in Table 2.

Table 1 Elderly people's access to health information through new media (n=208)

New-media platforms	Number (%)
Health website, webpage	130(62.5%)
WeChat group and public account	137(65.9%)
Health micro-bloggers	77(37.02%)
Health app	65(31.25%)

Table 2 New-media use and cognitive differences among the elderly n(%)

Variable	Group	Frequency (%)	New media Use or Not use	X ²	p
Gender	Male	84(40.4%)	44 40	0.462	0.497
	Female	124 (59.6%)	59 65		
Age	60–65	62 (29.8%)	35 27	6.177	0.103
	66–70	40 (19.2%)	24 16		
	71–75	51 (24.5%)	23 28		
	>75	55 (26.4%)	21 34		
Living status	Live alone	46 (22.1%)	20 26	11.59	0.021
	Live with spouse only	57 (27.4%)	34 23		
	Only living with children	52 (25%)	17 35		
	Living with spouse and children	49 (23.6%)	30 19		
	Residential nursing home	4 (1.9%)	2 2		
Monthly income	< 1000 RMB	70 (33.65%)	19 51	33.86	0.000
	1001–2000 RMB	53 (25.48%)	25 28		
	2001–3000 RMB	31 (14.9%)	16 15		
	3000–4000 RMB	22 (10.58%)	17 5		
	> 4000 RMB	32 (15.38%)	26 6		
Education	Primary and below	126 (60.6%)	46 80	29.64	0.001
	High school, technical secondary	33 (15.9%)	17 16		
	Tertiary	6 (2.9%)	4 2		
	Bachelor	26 (12.5%)	21 5		
	Master's degree or above	17 (8.2%)	15 2		
Prior to retirement	Occupational institutions and institutions	30 (14.4%)	24 1	29.64	0.000
	Enterprise	11 (5.3%)	6 5		
	Private owners	14 (6.7%)	10 4		
	Farmers	106 (50.9%)	34 72		
	Other	47 (22.6%)	29 18		
New media attention	Never pay attention to	46 (22.12%)	6 40	41.24	0.000
	Sometimes pay attention to	115 (55.29%)	60 55		
	More concerned about	41 (19.71%)	33 8		
	Pay great attention to	6 (2.88%)	4 2		
Total		208 (100%)			

Unifactor analysis of the elderly using new-media platforms to obtain health information

Out of the 208 respondents, 162 chose to pay attention to new-media health information, accounting for 77.9% of the total; among them, no statistically significant differences were observed in the use of new media to obtain health information based on gender, age, or living conditions ($p > 0.05$). In contrast, statistically significant differences were observed in the use of new media among the elderly based on monthly income, education level, pre-retirement occupation, and attention of new media ($p < 0.05$). Among those with a monthly income of more than 4000RMB, 26 (81.25%) chose to use new-media health information, as compared with those with a master's degree or higher ($n = 15$; 88.2%), those who worked in public institutions before retirement ($n = 24$; 80%), and those who were "relatively concerned" about new media ($n = 41$; 80.5%), as shown in Table 2.

Relationship between elderly people's satisfaction with new-media use and their own health management status

Paying attention to new-media health information, health information dependence, health information satisfaction, and exposure time to new-media health information were correlated with self-health focus of the elderly (R values of 0.374, 0.345, 0.311, and 0.391, respectively), and the differences were statistically significant ($p < 0.05$). Paying attention to new-media health information attention, health information dependence, health information satisfaction, and exposure time to new-media health information were correlated with health status evaluation of the elderly (R values of 0.288, 0.24, 0.312, and 0.269, respectively), and the differences were statistically significant ($p < 0.05$), as seen in Table 3.

Analysis of the impact of new-media use on the health management status of the elderly

We performed a regression analysis to determine the relationship between new-media use, self-health management, and health status evaluation of the elderly. Based on our results, exposure time to new-media health information, satisfaction degree, attention and dependence on health information had an impact on the health status of the elderly, and the difference was statistically significant ($p < 0.05$). Satisfaction degree, attention degree, and dependence degree of new-media health information had significant effects on the evaluation of health status of the elderly, and the difference was statistically significant ($p < 0.05$), as seen in Table 4.

Table 3 Relationship between satisfaction with new-media use and health management status (n = 208)

Category		New media health information Attention	New media health information dependence	New media health information satisfaction	New media health information contact time
Self-health focus	r	0.374	0.345	0.311	0.391
	P	0.000***	0.01**	0.000***	0.000***
Health status Evaluation	r	0.288	0.24	0.312	0.269
	P	0.000***	0.01**	0.000***	0.000***

Table 4 Effect of new-media usage satisfaction on health status (n = 208)

Category	B	SE	t	P
The impact of new media use on self-health concerns				
New media health information exposure time	0.256	0.095	2.698	0.008
Satisfaction with health information	0.384	0.082	4.697	0.000
Health information concern	0.511	0.088	5.78	0.000
Health information depends on influence	0.414	0.078	5.269	0.000
The impact of new media use on health assessment				
New-media health information exposure time	0.106	0.095	1.117	0.265
Satisfaction with health information	0.381	0.81	4.718	0.01
Health information concern	0.389	0.09	4.311	0.000
Health information depends on influence	0.284	0.08	3.541	0.001

Result analysis

Fewer elderly people obtain health information through new media, and the channels for obtaining health information are diversified

Among the 208 elderly people who obtained health information through new media, 41 (19.71%) were more concerned about health information, and 115 (55.29%) were sometimes concerned about health information. This is likely because most older people live alone or with a spouse, and low literacy and lack of care make them less likely to pay attention to health information when they are out of hospital. 62.5% of the respondents obtained health information by browsing health websites, 65.87% followed health WeChat public accounts or WeChat group forwarding, 37.02% followed health micro-blogs, and 31.25% downloaded special health apps to obtain health information, the elderly required further publicity and popularization to find health information on new-media devices, this result is slightly higher than the results of the Bujnowska-Fedak's [11]. As the most primitive and popular information carrier, web pages remain the most choice of most elderly people, even though penetration rate of electronic products still beyond the pace of social aging [12]. Health websites have a higher popularity rate among the elderly because they may be mixed with advertisements. Compared with WeChat public

accounts and health apps that only provide health information, there are too many uncertainties. Our results showed that the elderly often have problems in the use and operation of new media, especially in downloading software, which is also consistent with Jail's results [13].

Our survey also found that the form of information presented by the health information platform is not novel. In this study, middle-aged and elderly people pay little attention to health information. Therefore, to meet the needs of the elderly, simple operation and presentation can capture their interest and become a primary factor when choosing new media to obtain information, which is also consistent with the research of Wenjie [14].

Differences in the elderly's access to health information through new media

Educational level

As seen in Table 2, the elderly's access to health information through new media depended on their education level, where the higher the education level, the higher the use of new media. Among the 208 elderly respondents, 15 with a master's degree or above chose to use new-media health information, accounting for 88.2% of the group. Among those with a junior high school or primary school and below level of education, 36.5% obtained information through new media. The proportions of those with "undergraduate," "junior college," and "senior high school and "technical secondary school" levels of education who obtained information through new media were 80.1%, 66.7%, and 50.4%, respectively. There is a significant difference between the education level and the access to health information from new media, by chi-squared test, $p < 0.05$ was considered statistically significant. 50.4% of those with secondary education or below did not obtain health information through new media, and those with a high educational level demonstrated high use of new media, which is consistent with the research results of van Deursen [15]. It can be seen that the level of education is an important factor affecting whether the elderly get health information through new media. Educational level, as the basis of an open mind, makes such individuals better at accepting and mastering new things, and thus better at acquiring scientific and active knowledge [16].

Monthly income and pre-retirement occupation

Based on our results, those with a higher monthly income or better pre-retirement occupation were more inclined to use new media to obtain health information. Among those with a monthly income of >4000 RMB, 26 chose to use new media health information, accounting for 81.25% of this group. Among those who worked in public institutions before retirement, 24 chose to use new media health information, accounting for 80% of this group. Among those with a monthly income of <1000 RMB, 19 obtained information through new media. The proportions of those with monthly incomes of 1001–2000, 2001–3000, and 3001–4000 RMB who obtained health information through new media were 47.2%, 51.6%, and 77.3%, respectively. The proportion of those whose occupations were “enterprises,” “private owners,” “farmers,” and “other” who obtained information through new media were 54.5%, 71.4%, 32%, and 61.7%, respectively. Different monthly income and pre-retirement occupation have significant differences in whether to obtain health information from new media, by chi-squared test, $p < 0.05$ was statistically significant. Monthly income and pre-retirement occupation largely determine the quality of life and lifestyle of the elderly [17]. With the electronic information age, the public should realize that the poor elderly are powerless in the face of electronic technology. We should vigorously popularize new-media knowledge during daily life and hospitalization, so that they can keep up with the pace of change. Access to health information should be popularized and nationalized, and the medical development of the country, which is now experiencing serious aging situation, can be easily carried out. As the elderly have different degrees of acceptance and understanding of new things, there will be a phenomenon of “digital divide” [18], which may explain why elderly people with low monthly income do not choose new media to obtain health information, and do not have enough energy or time to accept new things that are slightly difficult.

Effective use of new media can improve the assessment of health status and health management of the elderly

The higher the degree of satisfaction, attention, and dependence of the elderly to obtain health information through new media, and the longer the exposure time, the more attention is paid to new media, the more objective the evaluation of physical health, and the greater the impact on their own health management. From our survey, the respondents' evaluation of their physical health status in real life is mostly 208 people, 92 people (44.23%), think that their health is not good, 68 people (32.69%) think that their health is better than others. This is probably because of the poor health knowledge, many elderly people cannot know about their own health. With

increasing penetration of new media into daily life, it is worth thinking about how to use it to spread health information so that the elderly can better prevent the occurrence of diseases, relieve pain for those with diseases, and promote physical recovery. This is consistent with the research results of Patrick H et al. [19]. With the variety of disease and the increasing complexity of treatment methods, patient-centered, whole-course, whole-life cycle treatment can facilitate discharge from the hospital and allow patients carry out simple self-health management [20]. Therefore, to make the elderly better use new media to obtain health information, so that they can operate, use and identify the new-media information, new-media service providers must understand the characteristics of the elderly, develop platforms that are conducive to them, push information suitable for the elderly according to their needs, and think more about media operation, information content, and service costs, so that new media can be popularized among the elderly. Furthermore, we should make the elderly pay more attention to new media, and strictly manage the information uploaded on the platform, avoid the introduction of false information, improve their satisfaction, and help their health management.

Health concerns and health status evaluation were positively correlated with new media information

New-media health information attention, health information dependence, health information satisfaction, and exposure time were positively correlated with self-health attention and health status evaluation. New-media health information was correlated with self-health focus of the elderly (R values of 0.374, 0.345, 0.311, and 0.391, respectively), and the differences were statistically significant ($p < 0.05$). Our results showed that health information does have a positive impact on the self-health of the elderly. Therefore, strengthening the provision and dissemination of health information can become a scientific and effective way to solve the needs of elderly people in the recovery period [21]. This method can not only continuously provide health education and knowledge popularization for patients who leave the hospital, but also imperceptibly make patients pay attention to their own health, enhance patients' confidence, and promote disease prognosis. In addition, as new media is communicative and interactive, health information sharing of the elderly can be promoted on new-media platforms [22].

Conclusions

As a carrier of health information, new media is closely related to the health management of the elderly. The use of new media for health information dissemination is also one of the most economical and effective measures to improve health literacy [23]. Therefore, the management

of new-media platforms is very important. The government and management agencies at all levels should provide good information supervision, health information dissemination, and education. Families should also give social support to the elderly, so that they can use new media correctly, provide good health management services, improve health literacy and information literacy, and effectively improve the quality of life of the elderly. As medical workers, we can scientifically use modern information tools and network ecological environment to promote national health, improve national health literacy, improve patients' self-health management ability and health level, promote economic development and social progress, and make important contributions to the sustainable development of the medical industry.

Limitations

The main limitation of this paper is that we did not compare or analyze cases in different regions, and the results caused by different regional cultures may lead to different opinions. In the future, it is expected to further analyze and discuss the lifestyle differences of the elderly living in different regions and the influence brought using new media.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-024-19597-1>.

Supplementary Material 1

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Data availability

All data generated or analyzed during this study are included in this published article (Tables 1, 2, 3 and 4).

Declarations

Ethics approval and consent to participate

All patients provided signed informed consent and volunteered to participate in the study. This study was approved by the Ethics Committee of Qiqihar Medical University Ethics Committee.

Consent for publication

Not Applicable.

Competing interests

The authors declare no competing interests.

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