

Investigation on the Core Knowledge of Cancer Prevention and Control among Residents in Western Guangdong Province

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Abstract:

Objective: To understand the level of cancer awareness among residents in the western Guangdong Province and provide scientific basis for cancer prevention and control. **Methods:** 180 residents from urban and rural areas such as Yunfu, Yangjiang, Maoming, and Zhanjiang in the western Guangdong Province were randomly selected by convenience sampling for questionnaire survey. **Results:** The overall cancer knowledge awareness rate among residents in the western Guangdong Province reached 77.13%, exceeding 70%. Gender and smoking were found to be factors influencing the awareness rate of core cancer knowledge. **Conclusion:** The awareness rate of residents regarding cancer prevention knowledge, which requires a strong level of expertise, is not satisfactory. It is important to pay attention to and strengthen the dissemination of relevant knowledge in future health education.

Keywords:

Cancer Prevention and Control, Awareness Rate, Healthy China, High-Quality Development

1. Introduction

According to a 2020 estimate by the Global Cancer Observatory, there were about 4.5 million new cancer cases and 3 million cancer-related deaths in China. The number of new cancers and deaths is climbing [2]. Although the effectiveness of cancer treatment in China has improved in recent years through continuous efforts, the situation of cancer prevention and control is still very serious [3]. Therefore, China attaches great importance to cancer prevention and control. The Action for a Healthy China - Cancer Prevention and Control Implementation Program (2019-2022) clearly sets out the target value of no less than 70% awareness rate of core knowledge on cancer prevention and control by 2022. However, the coverage rate of screening for malignant tumors in China is still unsatisfactory, especially in some remote areas, where residents do not receive enough effective cancer science information [4]. For the above reasons, this research conducted a cancer knowledge survey among urban

and rural residents in western Guangdong Province (including Yunfu, Yangjiang, Maoming, and Zhanjiang), aiming to understand the current status of core knowledge on cancer prevention and control among residents in remote areas of Guangdong Province, and to provide reference directions and suggestions for the development of appropriate strategies for health promotion on cancer prevention and control in remote areas of Guangdong Province.

2. Objects and Methods

2.1. Subject

180 residents from urban and rural areas such as Yunfu, Yangjiang, Maoming, and Zhanjiang in the western Guangdong Province were randomly selected by convenience sampling for questionnaire survey from July to August 2023. The inclusion criteria were ① age ≥ 18 years; ② informed consent and voluntary participation in the research. The exclusion criteria are ① people with mental illness and serious consciousness disorder, who cannot cooperate with the survey; ② people who do not want to participate in the survey.

2.2. Tools

2.2.1. General Information Collection

The content includes: age, sex, educational background, household income, occupation, whether they smoke, medical insurance status, and whether there is a cancer patient in the three generations of the immediate family.

2.2.2. Entries in the Questionnaire on Core Knowledge of Cancer Prevention and Control

In this research, the core knowledge questionnaire [18] of cancer prevention and control formulated in China was selected, and the topics suitable for this survey were selected, with a total of 12 core knowledge topics for cancer prevention and control, including 4 multiple-choice questions and 8 single-choice questions. If the answer is wrong or not known, it will be judged as no awareness. The total number of questions answered correctly by the respondents/the total number of questions actually completed = the awareness rate of the respondents. According to the requirements of the *Three-year Action Plan for Cancer Prevention and Control in China (2019-2022)*, an awareness rate of more than 70% is considered to be awareness, and a rate of less than 70% is considered to be insufficient awareness.

2.2.3. Needs of Residents' Understanding of Core Knowledge on Cancer Prevention and Control

Designed with reference to Yin Fang's [16] 'Questionnaire on Knowledge and Behavioral Status of Residents in Tumor Prevention and Control', including 9 questions on needs of residents' understanding of core knowledge on cancer prevention and control.

2.3. Information Collection

The questionnaire was conducted online and offline. The online questionnaire can only be answered once from the same IP address. The questionnaire was filled in an

anonymous form after obtaining informed consent from the respondents. The questionnaires were double-checked by the researchers after collection. A total of 180 questionnaires were distributed and collected, excluding 8 invalid questionnaires such as omissions and errors. 172 valid questionnaires were collected, with an effective response rate of 95.55%.

2.4. Statistical Analysis

The paper version of the questionnaire was entered by two people and the data was analyzed with SPSS 22.0 statistical software. Count data were described by frequency counts, constitutive ratios and statistically analyzed with X². Linear regression was used to analyze the factors affecting the awareness of core knowledge on cancer prevention and control, and the difference was considered statistically significant at $P < 0.05$.

3. Results

3.1. Awareness of Cancer Prevention Knowledge

The overall awareness rate of 172 subjects was 77.13%, of which the top three awareness rates were: whether early detection of cancer is beneficial (96.51%), whether vaccination can prevent related cancers (95.93%), whether cancer can prevent smoking cessation and whether it helps to prevent lung cancer (91.86%), followed by only 56.97% of the most accurate methods of cancer diagnosis, and only 41.86% of the early screening methods of lung cancer. However, the lowest awareness rate of breast cancer prevention knowledge was only 29.65%. The awareness rates of the core knowledge questionnaire entries for body cancer prevention and control are shown in Table 1.

Table 1. Awareness Rate of Core Knowledge Questionnaire Entries for Cancer Prevention and Control (n=172).

Item	Answer Number of questions	Correct Number of questions	Awareness rate (%)	Sort
Can cancer be prevented?	172	158	91.86	4
Can quitting smoking help prevent lung cancer?	172	158	91.86	4
Can hepatitis B vaccination prevent liver cancer?	172	165	95.93	2
Can checking for stool occult blood help detect colorectal cancer early?	172	154	85.93	7
Can cancer screening or physical exams help detect cancer early?	172	166	96.51	1
Which of the following factors can increase the risk of cancer?	172	149	86.62	6
What is the most accurate (gold standard) method for cancer diagnosis?	172	98	56.97	10
Which of the following measures to prevent breast cancer are known to you?	172	51	29.65	12

What is an effective early screening method for lung cancer?	172	72	41.86	11
What is the correct option?	172	99	57.55	9
Does cancer only occur in old people?	172	159	92.44	3
Do you think early detection of tumors is beneficial to reduce cancer mortality?	172	163	84.89	8
Total	2064	1592	77.13	-

3.2. Comparison of the Awareness Rate of Core Knowledge on Cancer Prevention and Control among Residents with Different Characteristics

Among the different residents, the awareness rate of women (91.57%) was higher than that of men (82.92%), the awareness rate of cancer prevention knowledge aged 25 to 40 years old was 92.18%, which was higher than that of other age groups, and the awareness rate of people with family history of cancer (89.91%) was higher than that of people without family history (87.14%). There were statistically significant differences in the comparison of different genders, different ages, and whether they smoked or not ($P \leq 0.05$). There was no significant difference in the comparison of cancer patients with different educational backgrounds, different occupations, and three generations of immediate family ($P > 0.05$), as detailed in Table 2.

Table 2. Comparison of the Awareness Rate of Core Knowledge on Cancer Prevention and Control among Residents with Different Characteristics (n=172).

Item	Number of cases (persons)	Composition ratio (%)	Total answers Number of questions	Correct Number of questions	Awareness rate (%)	X ²	P value
Gender						8.023	0.005
Female	91	52.90	1092	1000	91.57		
Male	81	47.09	972	806	82.92		
Age						7.812	0.050
≤25 years old	100	58.13	1200	1038	86.50		
25 to 40 years old	33	19.18	396	365	92.18		
41 to 60 years old	23	13.37	276	232	84.05		
> 60 years old	16	9.30	192	158	82.29		
Educational background						7.327	0.120
Primary education	16	9.30	192	154	80.20		
Junior high school education	20	11.62	240	200	83.33		
High school education	8	4.65	96	70	72.91		
College education	53	30.81	636	567	89.15		

Bachelor education or above	75	43.60	900	806	89.55		
Occupation						10.99 7	0.08 8
Employee in organizations/institutions	28	16.27	336	309	91.96		
Enterprise/commercial staff	17	9.88	204	174	85.29		
Student	80	46.51	960	855	89.06		
Agricultural laborer	12	6.97	144	110	76.38		
Retiree	3	1.74	36	19	52.77		
Unemployed person	16	9.30	192	165	85.93		
Others	16	9.30	192	164	85.41		
Do you smoke?						9.148	0.02 7
Never	123	71.51	1476	1287	89.91		
Ex-smoker (no longer smoked at the time of the survey, used to smoke every day for at least 6 months)	28	16.27	336	12	3.57		
Current occasional smoker (smoked in the 30 days prior to the survey, averaging less than 1 cigarette per day for more than 6 months)	8	4.65	96	72	75.00		
Current regular smoker (at least 1 cigarette per day for more than 6 months at the time of the survey)	13	7.55	156	120	76.92		
Are there cancer patients in the three generations of the immediate family?						0.32	0.85 8
Yes	19	11.04	228	205	89.91		
No	153	88.95	1836	1600	87.14		

3.3. Factors Influencing Residents' Awareness of the Core Knowledge on Cancer Prevention and Control

The results of the research, analyzed by using linear regression with whether the core knowledge on cancer prevention was known or not as the dependent variable, and gender, age and smoking as the independent variables, showed that there was no significant correlation between age and awareness rate ($P > 0.05$), as shown in Table 3.

Table 3. Analysis of Factors Influencing Residents' Awareness of Core Knowledge on Cancer Prevention and Control.

Variant	B value	Standard error	Beta	t value	P value
Gender	-6.258	2.441	-.190	-2.564	0.011
Age	-1.622	1.201	-.100	-1.351	0.178
Smoking	-4.572	1.392	-.237	-3.284	0.001

3.4. Analysis of Need for Training on Residents' Core Knowledge on Cancer Prevention and Control

The survey showed that 91.54% of the people had not received cancer exams, and that only 24.41% had cancer checkups. Meanwhile, most of the residents' channels for acquiring cancer prevention knowledge came from the community health service centers (stations), which accounted for 83.13%, and 93.02% of the residents thought that there was a need to train the public on knowledge of early detection of tumors. In addition, 80.23% of the residents hoped that the government could provide regular cancer exams, and a small number of them hoped that the government could publicize the knowledge of cancer prevention by giving lectures on cancer prevention, social census, etc., as shown in Table 4.

Table 4. Analysis of Need for Training on Residents' Core Knowledge on Cancer Prevention and Control (n=172).

Item	Number of persons	Composition ratio (%)
Have you received a cancer screening/cancer exam?		
Yes	42	24.42
No	130	75.58
Do you know that "early detection, early diagnosis and early treatment can cure about 1/3 of all cancers"?		
No	36	20.93
Not until the propaganda.	68	39.53
Have already known	68	39.53
What are the ways to gain knowledge on cancer prevention?		
Community health service centers (stations)	143	83.14
Lectures on cancer prevention knowledge	125	72.67
Radio, television, newspapers and magazines	118	68.60
Search online	107	62.21
Consultation with medical personnel	104	60.47
Communication with relatives and friends	97	56.40
Others	27	15.70
Do you think there is a need to train the public on early detection of tumors?		
Yes	160	93.02
So-so	8	4.65
Not necessary	4	2.33

Do you think tumor control is relevant to the ordinary people?		
Yes	162	94.19
I don't care	4	2.33
No	6	3.49
Which of the following activities would you like the government to carry out in response to early detection?		
Regular physical exam	138	80.23
Health lecture	65	37.79
Others	42	24.42
Expert consultation	51	29.65
Social census	47	27.33
Do you think there is a need for regular physical exam?		
Yes	163	94.77
Not necessary	4	2.33
I don't care	5	2.91
Do you think there is a need to have a cancer screening?		
Yes	164	95.35
Not necessary	4	2.33
I don't care	4	2.33
Would you like help with early tumor detection?		
Yes	161	93.60
No	6	3.49
I don't care	5	2.91

4. Discussion

4.1. Current Status of Residents' Awareness of the Core Knowledge on Cancer Prevention and Control

The overall awareness rate of cancer prevention knowledge among residents in western Guangdong Province reached 77.13%, exceeding 70%, indicating that the overall awareness of cancer prevention among residents in this area is relatively high. The questions with an awareness rate less than 70% include: the most accurate method of cancer diagnosis (gold standard), known measures to prevent breast cancer, and effective early screening methods for lung cancer. It can be seen that the awareness rate of cancer prevention measures, screening and diagnosis methods needs to be improved, indicating that health education knowledge on prevention methods needs to be popularized.

Relevant researches have shown that there is a correlation [9] between the level of core knowledge on cancer prevention and control and the risk of cancer incidence, and that the higher the level of awareness of core knowledge on cancer prevention and control, the lower the risk of cancer, while the level of awareness rate of core knowledge on cancer prevention and control also has a certain impact on the cancer screening of the residents [10], and that the low level of awareness of core knowledge on diagnostic and screening methods for cancer prevention and control among residents may be one of the reasons for the high burden of cancer disease in this area. In this case, health education on cancer should be strengthened to increase the awareness rate of prevention and screening methods.

4.2. Factors Influencing Residents' Awareness of the Core Knowledge on Cancer Prevention and Control

The results of this research showed that gender and smoking were the influencing factors for the awareness of core knowledge on cancer, which is basically consistent with the results of researches in other provinces and cities [13,14,15]. More concerned about their health, women and non-smokers are more aware of cancer and prevention-related measures. It may be due to the fact that most women, as housewives, are more concerned about the health of their family members and are more knowledgeable in that area compared to men [12]. Considering that smoking and gender significantly affect the awareness rate of core knowledge, it may be due to the difference caused by the higher education level of this group or the higher male composition, as some researches have shown that the prevalence of smoking in the population with a university degree or higher is only about 5% [17].

The results of the above research suggest that health care and health education personnel in Guangdong Province should carry out targeted publicity and health education on the core knowledge on cancer prevention and control according to the different characteristics of the population groups. For example, males, people with low educational degree, and smokers should be regarded as key groups who should receive cancer prevention publicity and education, and cancer-related projects should be timely screened for key groups in combination with urban cancer prevention and control plans and rural cancer prevention and control plans, so as to improve residents' awareness rate of cancer knowledge and strengthen their understanding of their own health conditions.

4.3 Residents' Training Need for Core Knowledge on Cancer Prevention and Control

The results of this research show that 70% of the people had not received cancer exams, and that only 30% had cancer checkups. In terms of "early detection, early diagnosis and early treatment can cure about 1/3 of all cancers", the people who did not know until the propaganda accounted for 38.4%, while those who had already known the above accounted for 42.4%. Meanwhile, most of the residents' channels for acquiring cancer prevention knowledge came from the community health service centers (stations), which accounted for 90%, and 93% of the residents thought that there was a need to train the public on knowledge of early detection of tumors. In addition, 76% of the residents hoped that the government could provide regular cancer exams, and a small number of them hoped that the government could publicize the knowledge of cancer prevention by giving lectures on cancer prevention, social census, etc. Most of the residents thought there was a need for regular physical exams and cancer prevention screening, and hoped to get help for early detection of tumors, accounting for 93.60%.

It can be seen that residents in western Guangdong Province have a positive attitude towards the learning of cancer prevention and control. The government and relevant departments should pay attention to the lack of health education for high-risk groups with a low awareness rate and expand the channels of acquiring knowledge on cancer prevention and control. Not only limited to traditional media such as books, newspapers and television, they should also adopt flexible and easy-to-understand publicity methods in the new era, such as pushing through WeChat official accounts, Tik Tok, KuaiShou, live streaming, etc. to carry out health education and publicity of

core knowledge on cancer prevention for the relevant groups that need it, and related activities to enhance awareness of cancer prevention and promote early detection and treatment of cancer.

5. Conclusions

The findings of this research show that residents are generally aware of cancer prevention knowledge such as whether cancer can be prevented, whether smoking cessation can help prevent lung cancer, whether vaccination can prevent related cancers, and whether early detection of cancer is beneficial, and that the number of non-smokers and the number of people who buy insurance are the majority. This may be related to the fact that the overall incidence of malignant tumors among China's residents is on an upward trend every year [1]. With gradually increasing economic burden from malignant tumor diseases [19], people's attention to them is increasing. The factors such as gender, age, education level, occupation and smoking on the awareness rate of core knowledge on cancer prevention and control were preliminarily analyzed. The quality and level of the research can also be further improved in future researches by increasing the number of survey points to improve the social, economic, educational, and medical variables, so as to analyze the influencing factors of the awareness rate of core knowledge on cancer prevention and control in a more detailed and in-depth manner. It is recommended that effective health education be provided accurately according to the different characteristics of key populations, so as to further improve the level of awareness of cancer prevention and control among residents.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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