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Investigation on KAP Model of Urban Residents in Prevention and Control of COVID-19

--Take Changxing Community in Changzhi as an Example

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Abstract. Objective: To investigate the knowledge, attitude and practice of the residents in Changxing community in the prevention and control of novel coronavirus pneumonia, and put forward targeted suggestions for formulating epidemic prevention and control measures. Methods: Convenience sampling method was used to invite residents to fill in the self-designed questionnaire online. Results: Total of 294 valid questionnaires were obtained. Among them, the awareness rates of the infectious source, transmission route, incubation period and epidemic situation of COVID-19 were 84.7%, 94.2%, 90.1% and 83.0% respectively. The proportions of judging that COVID-19 has high infectious characteristics, low mortality and high cure rate were 89.5%, 40.1% and 62.6%. The proportions of mastering the knowledge of preventive behaviors such as wearing masks, avoiding family and friends' gatherings, and washing hands correctly were 98.0%, 96.6% and 90.8%; The level of attitude towards epidemic prevention and control measures and awareness of prevention behavior exceeded 90%. Conclusion: The knowledge, attitude and practice of residents in Changxing community on COVID-19 are good.

Key words: COVID-19; resident; KAP; Changzhi City.

1. Object and method

1.1. Research object

This article adopts the convenience sampling method and is based on the WeChat group of Changxing Community in Changzhi City. Residents are invited to voluntarily participate in the survey, and the invitees fill out the survey questionnaire online. A total of 303 questionnaires were received, with 294 valid questionnaires and an effective response rate of 97.03%.

1.2. Research method

This study uses self-designed questionnaires, with reference to the Diagnosis and Treatment Plan for COVID-19 (Trial Version 9) [1] issued by the National Health Commission and related literature [2, 3, 4]. The questionnaire consists of four parts and 30 items: The first part is basic information, consisting of 5 items (gender, age, education, whether there are medical staff in the family, monthly average income); The second part is a survey of knowledge about the COVID-19, with 13 items in total; The third part is a survey of attitude towards the prevention and control measures of COVID-19, consisting of 4 items (whether satisfied with the prevention and control measures of COVID-19 in community, whether it is necessary to conduct a nationwide temperature check, whether you will discourage relatives and friends from gathering, and whether you have confidence in winning the battle against COVID-19); The fourth part is the investigation on the preventive practice of COVID-19, a total of 7 items (reducing unnecessary going out, wearing masks in public places, paying more attention to maintaining hand hygiene and washing hands correctly than in the past, often opening windows for ventilation to maintain indoor air circulation, covering the mouth and nose with paper

towels or bending elbows when coughing or sneezing, cancelling dinner parties and tourism plans, and actively learning the development trend of COVID-19, etc.); And 1 validity test item.

1.3. Quality control

Control the quality of the questionnaire by setting validity test items. Observe the filling time of each questionnaire, and those less than 60 seconds will not be included in the analysis. Exclude questionnaires younger than 18 years old.

1.4. Statistical analysis

SPSS 25.0 software was used to analyze the data, and binary logistic regression analysis was carried out to determine whether different populations understand the status of COVID-19.Descriptive statistics were used to describe the basic information, attitude to the prevention and control measures of COVID-19, and the prevention practice of COVID-19.

2. Result

2.1. Demographic characteristics

A total of 294 valid questionnaires were received in this survey, including 117 males and 177 females; in terms of age, there are 99 people aged 18 to 30, 103 people aged 31 to 44, 73 people aged 45 to 59, and 19 people aged 60 or above. Please refer to Table 1 for details.

Table 1. Demographic characteristics of the research object

Demographic characteristics	N	%
Gender		
Male	117	39.80
Female	177	60.20
Age		
18~30	99	33.67
31~44	103	35.03
45~59	73	24.83
≥60	19	6.46
Education		
Junior high school and below	38	12.93
High school/Polytechnic school/ Vocational high school	64	21.77
Undergraduate course /Junior college	183	62.24
Master degree or above	9	3.06
Whether there are medical staff in the family		
Yes	48	16.33
No	246	83.67
Monthly average income		
≤3000 yuan	107	41.47
3001~5000 yuan	107	41.47
5001~9999 yuan	35	13.57
≥10000 yuan	9	3.49

2.2. Status of knowledge, attitude and practice about COVID-19

2.2.1. Status of cognition on COVID-19

The cognition rate of the respondents to the basic characteristics of COVID-19 was 80.67%, the cognition rate to the risk of COVID-19 was 64.07%, and the cognition rate to the prevention behavior of COVID-19 was 95.13%. Table 2.

Table 2. Cognition of respondents on COVID-19

Related knowledge	N	%
Basic characteristics of COVID-19		
1.Infectious source	249	84.7
2.Transmission route	277	94.2
3.Susceptible population	196	66.7
4.Incubation period	265	90.1
5.Isolation days of close contacts	224	76.2
6.Differences from common cold symptoms	217	73.8
7.Status of COVID-19	244	83.0
Risk of COVID-19		
1.Infectivity	263	89.5
2.Mortality	118	40.1
3.Cure rate	184	62.6
prevention behavior of COVID-19		
1.Is wearing masks outside an effective measure to prevent Covid-19 infection	288	98.0
2.Can refusing to dine with relatives and friends reduce the Risk of covid-19 infection	284	96.6
3.Whether you understand the correct hand washing method (seven-step washing method)	267	90.8

2.2.2. Status of attitude towards COVID-19 prevention and control measures

The survey on attitudes towards the prevention and control measures of COVID-19 was divided into four items (see Table 3 for details). The results showed that 97.62% of the survey respondents were satisfied with the prevention and control measures in community. During the COVID-19, 94.56% of the respondents believed that it was necessary to check the body temperature of the whole people and would discourage relatives and friends from having parties. 97.28% of the research subjects have confidence in winning the battle against COVID-19, indicating that the majority of the public recognizes the government's COVID-19 prevention and control measures.

Table 3. Attitude of respondents towards COVID-19 prevention and control measures

Question	Option	N	%
1.Whether satisfied with the prevention and control measures of COVID-19 in community?	Yes	287	97.62
	No	7	2.38
2.Whether it is necessary to conduct a nationwide temperature check?	Yes	278	94.56
	No	16	5.44
3.Whether you will discourage relatives and friends from gathering?	Yes	274	93.20
	No	20	6.80
4.Whether you have confidence in winning the battle against COVID-19	Yes	286	97.28
	No	8	2.72

2.2.3. Status of preventive practice against COVID-19

The investigation on the prevention practice of COVID-19 was divided into 7 items (see Table 4 for details). The results showed that 97.28% of the respondents reduced unnecessary going out and would wear masks in public places (98.98%). 98.30% of survey respondents cancelled plans for gatherings and travel, and placed more emphasis on maintaining hand hygiene (97.96%) and opening windows for ventilation (99.66%) than in the past. 98.30% of the respondents would cover their mouth and nose with paper towels or elbows when coughing or sneezing, and 99.32% of the respondents took the initiative to learn about the COVID-19.

Table 4. Status of respondents' preventive practice against COVID-19

Question/ Option	Yes	No
1.Reducing unnecessary going out	286(97.28%)	8(2.72%)
2.Wearing masks in public places	291(98.98%)	3(1.02%)
3.Cancelling dinner parties and tourism plans	289(98.30%)	5(1.70%)
4.Paying more attention to maintaining hand hygiene and washing hands correctly than in the past	288(97.96%)	6(2.04%)
5.Often opening windows for ventilation to maintain indoor air circulation	293(99.66%)	1(0.34%)
6.Covering the mouth and nose with paper towels or bending elbows when coughing or sneezing	289(98.30%)	5(1.70%)
7.Actively learning the development trend of COVID-19	292(99.32%)	2(0.68%)

2.3. Binary logistic regression analysis

In order to study the factors that affect the respondents' understanding of the current situation of COVID-19, binary logistic regression model was used for analysis. Take “do you know the status of COVID-19” as the dependent variable ("know"=1, "don't know"=0), take age, education, whether there are medical staff in your family, and monthly average income as independent variables, and assign values respectively. See Table 5 for the assignment.

Table 5. Assignment of logistic regression model

Variable	Assignment
Dependent variable Do you know the status of covid-19	don't know =0, know =1
Independent variables Age	18~30=1, 31~44=2, 45~59=3, ≥60=4
Education	Junior high school and below=1, High school/Polytechnic school/ Vocational high school =2, Undergraduate course /Junior college=3, Master degree or above=4
Whether there are medical staff in the family	Yes=1, No=2
Monthly average income	≤3000 yuan =1, 3001~5000 yuan =2, 5001~9999 yuan =3, ≥10000 yuan =4

Using SPSS 25.0 software to perform binary logistic regression analysis on the data, the results of the Hosmer and Lemeshow tests were: χ^2=14.729, P=0.065>0.05, it can be considered that the goodness of fit of this model is relatively good. The analysis results show (Table 6) that the P-value of the independent variable “age” is less than 0.05, indicating a linear regression relationship between the two variables. The β value of the variable is -0.498, so the influence of age on whether the respondents understand the current situation of COVID-19 is negative, that is, with each increase in age, the respondents' understanding of the current situation of COVID-19 will decrease by 61.3%.

Table 6. Logistic regression analysis results

Variable	β	S.E	Wals	df	p-value	OR	95%CI	
							Lower	Upper
Age	-0.489	0.188	6.758	1	0.009*	0.613	0.424	0.887
Education	0.190	0.217	0.769	1	0.381	1.209	0.791	1.850
Whether there are medical staff in the family	-0.777	0.555	1.959	1	0.162	0.460	0.155	1.365
Monthly average income	0.079	0.189	0.174	1	0.677	1.082	0.747	1.566

Note: * indicates that the p-value is less than 0.05.

3. Discuss

From the overall results, the residents of all groups in Changxing Community have a good understanding of the knowledge about the COVID-19, and more than 80% of them have a good understanding of its infectious source, transmission route, incubation period and COVID-19 situation. But for more professional problems, such as the difference between COVID-19 and common cold symptoms, the cognitive level is low. This is very similar to the level of people's understanding of SARS during the SARS epidemic [5].

People's awareness of COVID-19 prevention practice is good, and the awareness rate of each item has reached more than 90%. It is worth noting that 97.96% of the respondents paid more attention to maintaining hand hygiene than in the past in the survey of COVID-19 prevention practice, which is higher than the respondents' understanding of correct hand washing methods (90.8%), which reflects the separation of " knowledge " and "practice ". Therefore, letting more people master the correct hand washing method, that is, the seven-step washing method, and use it in daily life can promote the integration of "knowledge" and " practice ", thus strengthening the public's prevention of COVID-19 and reducing the risk of infection.

The results of binary logistic regression analysis show that there is a linear regression relationship between the independent variable "age" and the dependent variable " do you know the status of COVID-19", and the influence of age on whether the respondents understand the current situation of COVID-19 epidemic is negative, that is, the understanding of COVID-19 by the respondents decreases by 61.3% with each increase in age. This is consistent with the research results of Qi Ye et al.. The possible reason is that the younger age group has more channels and stronger ability to obtain information compared to the older age group, resulting in a better understanding of the current situation of the COVID-19. Due to their lack of proficiency in using smart devices and the internet, the elderly group lacks the ability to grasp real-time COVID-19 data information, resulting in narrower channels for obtaining information and limited understanding.

4. References

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