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CHI-SQUARE EXAMINES LAMPUNG'S COVID-19 PREVENTION BEHAVIOR CONNECTION TO KNOWLEDGE LEVELS

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Abstract || The global spotlight on COVID-19 underscores the need for a nuanced understanding to guide preventive measures. This study in Lebak Peniangan Village, Lampung Indonesia, examines the link between knowledge and preventive behaviors. Using a quantitative approach with 306 respondents, selected randomly from 1500 families, data was collected through structured questionnaires and analyzed using Chi Square. Results reveal a significant correlation ($p = 0.000$) between knowledge levels and preventive actions, highlighting education's crucial role. While 84.3% demonstrate good COVID-19 knowledge, 71.2% exhibit moderate preventive behaviors, indicating room for improvement. The study offers valuable insights for grassroots disease prevention efforts, emphasizing the importance of education in bolstering preventive measures.

Keywords || Covid-19, Knowledge Acquisition, Preventive Behaviors

Abstrak || Virus Corona, terutama COVID-19, telah menjadi sorotan global dengan dampaknya yang luas. Pengetahuan tentang virus ini memainkan peran penting dalam mengarahkan perilaku pencegahan di masyarakat. Studi ini bertujuan untuk mengeksplorasi hubungan antara pengetahuan dan tindakan pencegahan COVID-19 di Desa Lebak Peniangan, Lampung Indonesia. Penelitian ini menggunakan metode kuantitatif dengan rancangan cross-sectional. Populasi ditentukan berdasarkan jumlah kepala keluarga, dengan 1500 KK. Sampel diambil menggunakan teknik random sampling dengan jumlah 306 responden. Data penelitian dikumpulkan melalui kuesioner tentang pengetahuan dan perilaku, lalu dianalisis menggunakan uji Chi Square. Hasil analisis menunjukkan korelasi yang signifikan antara pengetahuan dan perilaku pencegahan ($p = 0,000$). Temuan menyoroti pentingnya edukasi dalam memperkuat tindakan pencegahan. Mayoritas responden (84,3%) memiliki pengetahuan yang baik tentang COVID-19, meskipun perilaku pencegahan masih perlu ditingkatkan, dengan sebagian besar (71,2%) berada dalam kategori cukup. Studi ini memberikan gambaran komprehensif bagi upaya pencegahan dan pengendalian penyakit di tingkat Masyarakat.

Katakunci || Covid-19; Tingkat Pengetahuan; Perilaku Pencegahan

Introduction

On January 30, 2020, the World Health Organization (WHO) declared Corona Virus Disease-19 (COVID-19) a Public Health Emergency of International Concern, reflecting the profound global threat posed by the virus and prompting a comprehensive response from the international community to curb its dissemination. Subsequently, on March 11, 2020, WHO formally classified COVID-19 as a pandemic, underscoring the magnitude of the global health crisis confronting humanity. COVID-19, stemming from a viral strain within the *Coronaviridae* family, surfaced initially in December 2019 in Wuhan, China, marking its transition from animals to humans (Nisar et al., 2021). Termed Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the virus manifests symptoms ranging from mild to severe, with pronounced effects notably on the respiratory system.

Furthermore, COVID-19 possesses the distinctive capability of interspecies transmission, raising concerns about its potential cross-species dissemination and complicating efforts to contain its spread. Originating in Wuhan, initial cases swiftly proliferated across China, spawning clusters of infections that precipitated urgent responses at local, national, and international levels (Dang-Van et al., 2022; Japutra & Situmorang, 2021). Confronting this pandemic entails multifaceted challenges necessitating collaboration among nations and sectors to mitigate and surmount its repercussions.

COVID-19 is a transmissible disease primarily spread through close contact with infected individuals, particularly via droplets emitted during sneezing or coughing. While the primary mode of transmission is recognized as droplet-based, studies have suggested the potential for aerosol transmission akin to that observed with SARS-CoV, capable of spreading distances exceeding six feet. Moreover, notable research findings indicate that a significant portion of infected individuals, approximately 27 out of 48 in one study, may remain asymptomatic, underscoring their pivotal role in viral transmission and elevating the risk within communities unaware of their infection status.

The profound impact of this virus has been swiftly realized within a remarkably brief span. Originating in Wuhan, China, the virus rapidly disseminated worldwide, exacting a toll on numerous countries, including Italy, Iran, South Korea, England, Japan, the United States, Germany, and Indonesia, resulting in a staggering loss of lives. This

underscores the unprecedented nature of the virus and the formidable global challenges entailed in its containment and mitigation.

Mitigative endeavors against COVID-19 encompass a spectrum of measures, including mask-wearing, regular hand hygiene practices, and adherence to physical distancing guidelines of at least one meter. As of May 2020, reports from the Task Force for the Acceleration of Handling COVID-19 noted a concerning situation in West Kotawaringin, where out of 29 confirmed cases, 27 remained within the community while two had recovered (Amalia & Sa'adah, 2020). Dissemination of information pertaining to COVID-19, encompassing its symptoms and preventative measures, predominantly occurs through social media and mass media platforms, aimed at fostering public awareness and preparedness (Indawati et al., 2022).

However, observations conducted in Baru Village reveal that approximately 50% of residents neglect to wear masks during outdoor activities, while gatherings in the market disregard prescribed physical distancing protocols. Furthermore, within this subdistrict, roughly 25% of the populace comprises elderly individuals, who are notably susceptible to the adverse effects of COVID-19. These empirical findings underscore the imperative for escalated measures to curb viral transmission.

Responding to this exigency, the government implemented a policy mandating the suspension of regular educational activities across all institutions. This proactive measure aims to mitigate transmission risks among students and faculty members, while safeguarding the vulnerable elderly population and other susceptible cohorts from potential exposure to COVID-19 (Komsiyah, 2022). Consequently, it is anticipated that this policy will contribute to the containment of disease spread and alleviate its societal impact (Wargadinata et al., 2020).

Knowledge acquisition has the potential to shape individual behavior significantly. Behavior encompasses an individual's capacity to respond to stimuli or actions, which may manifest consciously or subconsciously with discernible frequency, duration, and purpose. It is imperative for the public to attain comprehensive understanding of all facets of COVID-19, encompassing its manifestations, etiology, triggers, and management strategies.

Methodology

This study adopts a quantitative approach employing observational analytical methods. A cross-sectional design was selected to enable

concurrent measurement and collection of independent variables, dependent variables, and cases within the research context. Conducted in 2021, the research took place in Lebak Peniangan Village, Rebang Tangkas District, Way Kanan, Lampung Province, Indonesia. The study population comprised individuals listed on the Family Card, totaling 1500 families. Sampling involved selecting individuals from the Lebak Peniangan Village community who met predetermined inclusion and exclusion criteria. The minimum sample size, determined using Krejcie & Morgan's table (1970) based on the total population, was established at 306 respondents. Random sampling techniques were employed for sample selection. The research variables included the level of COVID-19 knowledge as the independent variable and COVID-19 prevention behavior as the dependent variable. Data collection utilized previously validated and reliable questionnaires measuring COVID-19 knowledge and prevention behavior. Collected data, from both observation and questionnaires, were tabulated for analysis. Univariate and bivariate analyses were conducted using SPSS 25.0 software, with bivariate analysis employing the Chi-Square Test. This statistical method, applied to a contingency table, assesses the hypothesis of independence between two variables (Walpole, 1990).

Analysis and Discussion

Secondary data collection encompassed respondent characteristics such as age, gender, highest level of education, and occupation. The distribution of respondents based on these attributes is depicted in table 1 below:

Table 1. Distribution of respondents based on age, gender, education, and occupation

Characteristics of Respondents	<i>n</i>	Percentage (%)
1. Gender		
Male	149	48.7
Female	157	51.3
2. Age		
17-25 Years	77	25.2
26-35 Years	65	21.2
36-45 Years	66	21.6
46-55 Years	61	19.9
56-65 Years	36	11.8
3. Education Level		
Elementary School	22	7.2
Junior High School	55	18.0

Characteristics of Respondents	<i>n</i>	Percentage (%)
Senior High School	207	67.6
Bachelor's Degree (S1)	22	7.2
4. Occupation		
Housewife	90	29.4
Farmer	65	21.2
Trader	19	6.2
Entrepreneur	41	13.4
Laborer/Employee/Porter/Driver/Taxibike	57	18.6
Lecturer/Civil Servant/Teacher	17	5.6
Undergraduate Student/Student	12	3.9

The majority of respondents exhibited a high school education level, comprising 67.6% of the total. Knowledge acquisition is not limited to formal schooling but can also stem from informal education and experiential learning. Concerning occupation, the preponderance of respondents identified as housewives, constituting 29.4%. Occupational engagement can significantly influence an individual's knowledge and expertise. Increased cognitive engagement in one's occupation can enhance memory retention and overall knowledge acquisition. To ascertain the relationship between gender, age, occupation, education level, and COVID-19 prevention behavior, a Chi-square test was conducted. The statistical results are presented in table 3 below.

Table 2 presents the Chi-square analysis examining the relationship between Gender, Age, Type of Work, Level of Education, and COVID-19 prevention behavior.

Table 2. Case processing summary

	<i>n</i>	Valid Percent	Cases		<i>n</i>	Total Percent
			Missing Percent			
Gender * Education Level	306	100.0%	0	0.0%	306	100.0%
Gender * Employment Level	306	100.0%	0	0.0%	306	100.0%
Age * Education Level	306	100.0%	0	0.0%	306	100.0%
Age * Employment Level	306	100.0%	0	0.0%	306	100.0%

The Case Processing Summary analysis reveals that all 306 cases, constituting 100.0% of the sample, were valid, with no missing data. These cases encompass various combinations of variables, including gender and education level, as well as gender and employment level, alongside interactions involving age and these two variables. Moreover, this analysis delineates an intriguing breakdown of respondents by gender concerning education level. Among the total of 306 respondents, 149 were male, while 157 were female, indicating a slightly

higher representation of female participants in the study. Additionally, the research elucidates the distribution of respondents across different education levels. Furthermore, the dataset encompasses information pertaining to age and employment level, contributing to a comprehensive depiction of respondent characteristics concerning these variables. This comprehensive analysis serves as a robust foundation for understanding the demographic profile of respondents and offers valuable insights into the intricate dynamics governing the relationships among the variables under scrutiny.

Table 3. The results of the analysis examining the association between gender and education level

Count		Crosstabulation				Total
		Education level			4.00	
		Elementary School	Junior High School	Senior High School		
Gender	Male	22	55	72	0	149
	2	0	0	128	29	157
Total		22	55	200	29	306

Chi-Square Tests				Asymptotic
	Value	df	Significance (2-sided)	
Pearson Chi-Square	121.554 ^a	3		.000
Likelihood Ratio	162.630	3		.000
Linear-by-Linear Association	107.780	1		.000
N of Valid Cases	306			

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10,71.

The significance value in table 3, denoted as Asymptotic Significance (2-sided), is observed to be less than 0.05, indicating a significant relationship between gender and education level. Subsequently, further analyses were conducted to explore and elucidate the nature of this relationship.

Table 4. The analysis examining the correlation between gender and employment level

Count		Crosstabulation							Total
		Employment Level							
		House wife	Farmer	Trader	Entrepreneur	Laborer	Lecturer	7.00	
Gender	Male	90	59	0	0	0	0	0	149
	2	0	6	20	41	56	18	16	157
Total		90	65	20	41	56	18	16	306

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	284.200 ^a	6	.000
Likelihood Ratio	383.977	6	.000
Linear-by-Linear Association	228.503	1	.000
N of Valid Cases	306		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7,79.

The Asymptotic Significance (2-sided) value in table 4, denoted as Asymp. sig, is found to be less than 0.05, signifying a significant association between gender and employment level. Subsequent analyses were conducted to delve into the relationship between age and education level.

Table 5. The analysis examining the relationship between age and education level

Crosstabulation						
Count		Education level				Total
		Elementary School	Junior High School	Senior High School	4.00	
Age	17-25	22	55	0	0	77
	26-35	0	0	55	0	55
	36-45	0	0	66	0	66
	45-55	0	0	61	0	61
	5.00	0	0	18	29	47
Total		22	55	200	29	306

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	477.816 ^a	12	.000
Likelihood Ratio	456.701	12	.000
Linear-by-Linear Association	192.663	1	.000
N of Valid Cases	306		

a. 5 cells (25,0%) have expected count less than 5. The minimum expected count is 3,38.

The Asymptotic Significance (2-sided) value in Table 5 indicates a significance level below 0.05, suggesting a substantial relationship between age and education level. Subsequent analyses were conducted to explore the association between age and employment level.

Table 6. The analysis examining the relationship between age and employment level

Count		Crosstabulation						
		Employment Level					7.00	Total
		House wife	Farmer	Trader	Entrepreneur	Laborer		
Age	17-25	77	0	0	0	0	0	77
	26-35	13	42	0	0	0	0	55
	36-45	0	23	20	23	0	0	66
	45-55	0	0	0	18	43	0	61
	5.00	0	0	0	0	13	18	47
Total		90	65	20	41	56	18	306

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	753.799 ^a	24	.000
Likelihood Ratio	700.888	24	.000
Linear-by-Linear Association	273.267	1	.000
N of Valid Cases	306		

a. 14 cells (40,0%) have expected count less than 5. The minimum expected count is 2,46.

The Asymptotic Significance (2-sided) value in table 6 indicates a significance level below 0.05, suggesting a notable relationship between age and employment level. The majority of respondents fall within the 17-25 age group, comprising 25.2% of the sample. This age range aligns with young adulthood, characterized by problem-solving abilities, abstract thinking, logical reasoning, and active engagement in social activities. These findings resonate with the theory posited by Amanda (2021), asserting that individuals in their productive years actively participate in various endeavors, which enhances learning and information retention capabilities. Furthermore, most respondents possess a high school education, indicative of a solid understanding of COVID-19. Their knowledge acquisition extends beyond formal education to encompass non-formal sources such as television news, social media platforms like WhatsApp, TikTok, Facebook, and YouTube, as well as information shared by acquaintances, relatives, and neighbors, contributing to a comprehensive understanding of COVID-19-related issues.

Based on the type of work, the predominant group among respondents comprised housewives, accounting for 29.4% of the

sample. Employment has a notable impact on individuals' knowledge and experience. Occupations demanding higher cognitive engagement typically enhance memory retention, consequently augmenting knowledge acquisition. It is hypothesized by researchers that individuals not engaged in employment may have more leisure time to gather information from diverse sources such as television, the internet, social media platforms, and familial or peer interactions. Moreover, non-working individuals often participate in health worker counseling sessions, offering them opportunities to acquire supplementary knowledge.

The knowledge and behavior of respondents in this study were categorized into three groups: Good, Sufficient, and Poor. Here, knowledge pertains to respondents' comprehension of COVID-19, encompassing its definition, etiology, clinical manifestations, modes of transmission, risk factors, and preventive measures. Meanwhile, preventive behavior denotes the actions undertaken by respondents within society to mitigate the spread of COVID-19. The distribution of respondents across these categories is delineated in table 7.

Table 7. The frequency distribution of knowledge levels and COVID-19 prevention behavior within the community

The frequency distribution	<i>n</i>	%
1. Knowledge Levels		
Good	258	84.3%
Enough	36	11.8%
Not Good	12	3.7%
2. COVID-19 prevention behavior		
Good	218	71.2%
Enough	61	19.9%
Not Good	27	8.8%

According to table 7, among the 306 respondents from the Lebak Peniangan Village community in Rebang Tangkas District, Way Kanan Regency, Lampung Province, 84.3% demonstrate a good level of knowledge regarding COVID-19. According to the Knowledge, Attitude, and Behavior Model, knowledge serves as a significant determinant influencing behavioral changes. The acquisition of knowledge and skills occurs through the learning process, with knowledge being a pivotal factor in shaping individual behavior. Essentially, an individual's behavior is largely predicated on their level of knowledge. Adequate knowledge serves as a crucial foundation for managing COVID-19 cases and curbing transmission rates, thereby fostering awareness regarding preventive measures. Information

sources are diverse, facilitating easier access to essential knowledge. Comprehensive insights into COVID-19 and preventive measures can be gleaned from various outlets, including television, mobile devices, educational sessions, and familial interactions. Novel information disseminated via mass media can shape fresh perspectives on pertinent topics.

These research findings are consistent with a study by Hasibuan & Ain (2023) conducted in Potorono Banguntapan Hamlet, Bantul D.I. Yogyakarta, which revealed that 82.7% of respondents exhibited a good level of knowledge concerning COVID-19. This favorable knowledge status is influenced by several factors pertinent to the respondents. Moreover, the results align with the research conducted by Widyakusuma putra & Manalu (2020) which indicated that in SK 14/31 Batu Gantung Village, Nusaniwe, Ambon City, the public's knowledge level regarding COVID-19 predominantly fell within the high category (52%), while 48% were categorized as medium. The prevalence of a good knowledge level among members of the Lebak Peniangan Village community in Rebang Tangkas District, Way Kanan, Lampung Province, holds paramount significance amidst the pandemic, as it can significantly impact behavior in preventing COVID-19 infections.

Based on the research findings, the majority of respondents in Lebak Peniangan Village exhibit commendable preventive behavior, with 71.2% demonstrating effective preventive measures. These measures encompass practices such as thorough handwashing with soap, maintaining appropriate physical distancing, avoiding crowded settings, wearing masks when outside, and observing hygiene protocols like bathing or changing clothes after travel. Conversely, only 8.8% of respondents displayed inadequate preventive behavior. Harvey & Alexander (2012) posits that health behavior is influenced by five determinants: an individual's intention to act, social support from the community, access to health information, personal autonomy in decision-making, and conducive environmental conditions. Individuals may feel disinclined to adopt certain behaviors if they lack community support or face barriers accessing information and healthcare services.

Research by Aprianti et al. (2022) conducted in Potorono Banguntapan Bantul Hamlet reveals that 43.2% of the population exhibit reasonably good preventive behavior against COVID-19. These behaviors entail maintaining physical distance, regular handwashing with soap or sanitizer, mask-wearing in public spaces, and minimizing unnecessary physical contact. Data analysis indicates widespread acceptance and implementation of preventive recommendations

among the community members, underscoring their awareness of the imperative to mitigate virus transmission.

According to the Ministry of Health, 75% of COVID-19 transmissions occur through droplets that can linger on surfaces, emphasizing the critical importance of adhering to WHO-standard handwashing practices. Notably, many respondents in this study reported adhering to hand hygiene protocols after handling potentially contaminated objects, before or after meals, and when touching their faces.

Table 8. An analysis of the relationship between knowledge level and COVID-19 prevention behavior

Variable	Data Analysis	
	P-Value	<i>r</i>
Relationship between level of knowledge and preventive behavior COVID-19	p=0.000	0.463

The test outcomes conducted using SPSS indicate a p-value of 0.000, whereas the p alpha is 0.05. Consequently, the p-value is less than the p alpha ($0.000 < 0.05$). Hence, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. This finding elucidates a significant relationship between knowledge level and COVID-19 prevention behavior within the Lebak Peniangan Village community in Rebang Tangkas District, Way Kanan, Lampung Province. Furthermore, the research indicates that 218 respondents (71.2%) possess good knowledge and exhibit commendable preventive behavior. These results underscore the pivotal role of knowledge in influencing an individual's behavior, whether beneficial or detrimental, in disease prevention endeavors. Comprehensive knowledge about COVID-19, encompassing an understanding of its definition, etiology, clinical manifestations, prevention methods, and adherence to government-recommended health protocols, contributes to fostering effective preventive behavior. This aligns with behavior formation theory, which posits that behavior arises as a response to stimuli. Such stimuli prompt internal responses within individuals, driving them to fulfill their needs in navigating their environment. Knowledge stands out as a crucial stimulus in shaping such behaviors (Zhang et al., 2022).

Conclusion

The research outcomes and subsequent discussions concerning the correlation between knowledge levels and behaviors aimed at preventing COVID-19 within the community of Lebak Peniangan Village, Rebang Tangkas District, Way Kanan Regency, Lampung Province, in 2021, offer a comprehensive overview of the interplay between knowledge dynamics and preventive measures adopted by the community amidst this pandemic. Through the conducted analysis, researchers observed a prevalent robust understanding of COVID-19 among community members, coupled with behaviors aligning with recommended preventive guidelines. This observation underscores the pivotal role of adequate education and information dissemination in fostering awareness and facilitating effective preventive actions. Moreover, the research not only presents findings but also underscores a significant correlation between knowledge levels and COVID-19 prevention behaviors.

Correlation analysis indicates a moderate positive correlation, denoted by an r -value of 0.463, suggesting that heightened public awareness regarding COVID-19 corresponds to enhanced preventive endeavors during this crisis. Consequently, researchers advocate for increased public engagement in sourcing information from credible outlets about COVID-19, aiming to integrate this endeavor as a pivotal component of virus containment efforts. Additionally, adherence to established health protocols such as mask-wearing, maintaining physical distancing, and regular hand hygiene remains imperative. Nonetheless, this research is not immune to limitations. Hence, for future investigations, researchers recommend addressing and mitigating identified weaknesses. Moreover, they advocate for research refinement employing diverse methodologies, including more representative sampling techniques and broader literature incorporation to facilitate more comprehensive analyses. It is envisioned that the outcomes of subsequent research endeavors will furnish greater insights into and aid in effectively managing the COVID-19 pandemic.

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