JEVNAH
Journal of Evidencce-Based Nursing and Public Health
JEVNAH 2(1): 19–33
ISSN 3048-2615

Institute for Advanced Science, Social and Sustainable Future
MORALITY BEFORE KNOWLEDGE

Exploring the influence of demographic factors on COVID-19 prevention behaviors in traditional market settings

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Received Date: January 20, 2025 Revised Date: February 24, 2025 Accepted Date: February 28, 2025

ABSTRACT

Background: Covid-19 prevention behaviors are essential in controlling the spread of the virus, particularly in public spaces such as traditional markets. This study aimed to analyze the factors influencing the Covid-19 prevention behavior of traders at Yada Traditional Market, Palembang. Previous studies have indicated that demographic factors such as age, gender, education level, and knowledge significantly impact preventive actions. **Methods**: his cross-sectional study involved 110 traders as respondents, utilizing a structured questionnaire for data collection. Descriptive and inferential statistics, including Chi-Square and logistic regression, were employed to analyze the relationships between demographic factors and Covid-19 prevention behavior. **Findings:** The study found no significant relationship between gender and Covid-19 prevention behavior (p-value=0.156). However, significant associations were found between age, education level, and knowledge with prevention behavior (p-value<0.05). Older adults and individuals with higher education levels exhibited better prevention behaviors. **Conclusion**: Age, education, and knowledge were identified as key factors influencing Covid-19 prevention behaviors. This suggests that improving education and knowledge could enhance preventive measures among traders and the broader community. **Novelty/Originality of this article:** This study provides new insights into the Covid-19 prevention behavior of traders in a traditional market setting, highlighting the importance of demographic factors in health behavior interventions.

KEYWORDS: Covid-19 prevention behavior; traders; demographic factors; traditional market; health behavior.

1. Introduction

At the end of 2019, on December 1, 2019, the first cases of an illness initially referred to as Wuhan Pneumonia were reported by Chinese media. The disease was named Wuhan Pneumonia because its symptoms, including fever, malaise, dry cough, and dyspnea, were first identified in Wuhan and diagnosed as viral pneumonia. Initially considered part of the coronavirus family, this new virus was later identified by Chinese researchers and referred to as the 2019 novel coronavirus (2019-nCoV). Subsequently, the International Committee on Taxonomy of Viruses (ICTV) officially named it SARS-CoV-2, the virus responsible for causing COVID-19. Within the first fifty days of the epidemic, the SARS-CoV-2 virus infected more than 70,000 people and caused approximately 1,800 deaths (Zhou, 2020). The rapid increase in COVID-19 cases led to widespread transmission across Chinese provinces and eventually to other countries. Historically, the SARS-CoV pandemic of 2003 infected 8,098

Cite This Article:
Aliyah, N. & Purba, I. G. (2025). Exploring the influence of demographic factors on COVID-19 prevention behaviors in traditional market settings. *Journal of Evidencce-Based Nursing and Public Health, 2*(1), 19-33. https://doi.org/10.61511/jevnah.v2i1.2025.1736

individuals across 26 countries with a mortality rate of 9%, whereas the SARS-CoV-2 virus, as of early 2020, infected 120,000 individuals in 109 countries with a mortality rate of 2.9%.

On March 13, 2020, the World Health Organization (WHO) reported that 122 countries had confirmed COVID-19 cases, totaling 132,758 infections and 4,955 deaths (CFR 3.73%). The outbreak was officially declared a pandemic on March 12, 2020. By mid-March 2020, a total of 414,179 cases and 18,440 deaths (CFR 4.4%) were reported across 192 countries (Indonesian Ministry of Health, 2020). To this day, global efforts to combat the COVID-19 pandemic continue, as millions of people worldwide have been affected. COVID-19 marks the fifth pandemic since the 1918 influenza pandemic. In Indonesia, the first COVID-19 cases were reported on March 2, 2020, with two initial confirmed cases. By November 13, 2020, the total number of confirmed cases had reached 457,735, with 5,444 new daily cases and 15,037 deaths (Kementerian Kesehatan RI, DJP, & P2P, 2020). In South Sumatra, the first case was reported on March 24, 2020, with one confirmed case from six tested specimens.

COVID-19 is defined as a respiratory disease caused by the SARS-CoV-2 virus, a novel coronavirus variant discovered in 2019. The virus primarily affects the upper respiratory tract (sinus, nasal cavity, and throat) and lower respiratory tract (trachea and lungs). Common symptoms include fever, cough, shortness of breath, difficulty breathing, fatigue, chills, muscle aches, sore throat, nasal congestion, loss of taste or smell, nausea, and diarrhea. In severe cases, symptoms may progress to acute respiratory distress syndrome and kidney failure (PDPI, 2020). Elderly individuals (65 years and older) and those with comorbidities are at higher risk of severe complications. The virus is primarily transmitted through respiratory droplets released when an infected person talks, sneezes, coughs, sings, or breathes. Additionally, transmission may occur through contact with contaminated surfaces followed by touching the face (Susilo et al., 2020). On July 9, 2020, WHO officially acknowledged airborne transmission in crowded and poorly ventilated indoor spaces, such as restaurants or gyms.

COVID-19 remains a significant global health challenge with escalating infection rates worldwide. The pandemic has severely impacted daily life, economies, and public health systems globally, including Indonesia. Efforts to mitigate the spread of the virus include implementing health protocols, early detection of infected individuals, and community participation in preventive measures (Parwanto, 2020). Public compliance with health protocols such as physical distancing, mask-wearing, and frequent handwashing is critical to controlling transmission. In Indonesia, measures like large-scale social restrictions/*Pembatasan Sosial Berskala Besar* (PSBB) have been implemented in cities like Jakarta and Palembang.

Palembang reported its first COVID-19 case on May 20, 2020, and adopted large-scale social restrictions/*Pembatasan Sosial Berskala Besar* (PSBB) policies until June 16, 2020. Following this, the city transitioned into the New Normal phase, characterized by the resumption of economic activities under strict health protocols. Despite these measures, traditional markets, such as Yada Market in Palembang, remain high-risk zones for COVID-19 transmission due to crowded conditions and limited enforcement of health guidelines (Quyumi & Alimansur, 2020). Traditional markets are crucial economic hubs, providing livelihoods for traders and essential goods for the community. However, poor hygiene and inadequate sanitation in these markets pose significant health risks (Ramadhani, 2020).

Previous studies have shown that traditional markets can become clusters of COVID-19 transmission due to the high volume of visitors from diverse locations and challenges in maintaining physical distancing (Girsang et al., 2020). Yada Market continues to operate as a central economic hub during the pandemic, with persistent interactions between traders and customers posing ongoing risks of viral transmission (Damanik et al., 2020). Observations indicate limited adherence to health protocols among traders, highlighting the urgent need for research into preventive behaviors and associated risk factors in this setting.

Based on these observations, this study aims to analyze the risk factors influencing COVID-19 preventive behavior among traders in Yada Market, Palembang. The findings are expected to provide insights into current preventive practices, identify barriers to

adherence, and contribute to developing more effective health interventions. Furthermore, this research seeks to evaluate the relationships between demographic factors (gender, age, education level) and knowledge about COVID-19 with preventive behavior. By addressing these aspects, the study aspires to inform public health strategies and reduce COVID-19 transmission rates in traditional markets.

2. Methods

2.1 Research design

This study employs a quantitative approach using a *cross-sectional* study design. This approach allows researchers to observe phenomena at a single point in time, where data collection, information gathering, and measurements of both independent and dependent variables are conducted simultaneously. The design was selected to illustrate the relationship between factors influencing Covid-19 prevention behavior at Yada Traditional Market in Palembang City. The research instrument used was a questionnaire, which included respondent characteristics (such as gender, age, and education level), knowledge, and Covid-19 prevention behaviors.

The purpose of this study is to determine the relationship between independent and dependent variables in the context of Covid-19 prevention behavior. Data obtained from the questionnaires will be analyzed to understand how respondent characteristics and knowledge influence prevention behaviors. Therefore, the results of this study are expected to contribute to a better understanding of the factors that play a role in improving Covid-19 prevention behaviors in traditional markets, which serve as central hubs for community economic activities.

2.2 Population

The population refers to a generalization area consisting of individuals who share specific qualities and characteristics defined by the researcher for study purposes and from which conclusions are drawn (Sugiyono, 2012). It encompasses all individuals who meet the inclusion criteria and are considered relevant to the study's objectives. In this study, the population consists of all traders at Yada Traditional Market. The total population is 160 traders actively working in the market.

The study population represents a group of individuals with similar characteristics relevant to the research objectives. From this population, a sample was selected to represent the whole group, ensuring that the findings are generalizable. The sample was drawn based on inclusion criteria to ensure consistency with the study's objectives while maintaining scientific rigor in the sampling process.

2.3 Sample

The sample represents a subset of the population, selected based on specific criteria to ensure it accurately reflects the characteristics of the larger population (Sugiyono, 2012). In this study, the sample consists of a portion of traders from Yada Traditional Market, calculated using an appropriate formula for the cross-sectional method. The sampling technique employed in this study is simple random sampling, where every member of the population has an equal chance of being selected as a sample. This method was chosen to minimize bias and ensure the representativeness of the sample. The sample was selected through a lottery system to maintain fairness in the selection process.

To prevent sample characteristic deviations, specific respondent criteria were established. The respondent criteria were divided into inclusion and exclusion categories. The inclusion criteria defined the general characteristics of the target population that were accessible for the study. In this research, the inclusion criteria were as follows: traders who were actively operating in Yada Traditional Market, traders who agreed to participate in the

research, and traders who were willing to complete the research questionnaire. On the other hand, the exclusion criteria involved eliminating subjects who met the inclusion criteria but were unable to participate due to particular reasons or circumstances. For this study, the exclusion criterion was traders who were absent during the data collection period.

2.4 Sample size calculation

The formula for calculating the minimum required sample size is based on several parameters. In this context, n represents the minimum sample size required, which is 110. The term $Z^2$1-α/2 denotes the squared value of the standard error margin, set at 1.96^2 for a 95% confidence level. The p value, which is 0.78, reflects the proportion of the population possessing the desired characteristic, as cited by Imanuel (2020), while q is the complement of p, representing the proportion of the population not exhibiting the characteristic, calculated as 1-p=0.22. The total known population size is denoted as N, which in this case is 160. Lastly, d signifies the desired level of absolute precision, set at 0.05. When the population size (*N*) is known, the sample size was calculated using a formula appropriate for the *cross-sectional* method:

$$n = \frac{Z^2_{1-\alpha/2} \times p \times (1-p) \times N}{d^2 \times (N-1) + Z^2_{1-\alpha/2} \times p \times (1-p)} \quad \text{(Eq. 1)}$$

Based on this formula, the minimum sample size required for this study is 100 respondents meeting the inclusion criteria. To anticipate potential dropouts, an additional 10% was added, resulting in a final total sample size of 110 traders. This calculation ensures that the selected sample accurately represents the larger population while maintaining statistical reliability. The sample was carefully drawn using a simple random sampling method to minimize bias and provide every trader an equal opportunity to participate in the study. This approach enhances the generalizability and validity of the findings, contributing to robust conclusions regarding the factors influencing Covid-19 prevention behaviors among market traders.

2.5 Types of data

This study employed two primary types of data: primary data and secondary data. Primary data refers to information directly collected from respondents during the research process. In this study, primary data was obtained through questionnaires distributed to traders at Yada Traditional Market. The questionnaires included items covering respondent characteristics, such as gender, age, and education level, as well as knowledge and behavior related to Covid-19 prevention. These data were critical in identifying patterns and relationships between the independent and dependent variables.

In addition to primary data, secondary data was also utilized. Secondary data refers to information sourced from existing, reliable documentation and records. In this study, secondary data included an overview of Yada Traditional Market and a list of active traders, obtained from the market's administrative office. This data provided context and supplementary insights that supported the analysis of primary data. Combining both data types ensured a comprehensive understanding of the research problem, enhancing the validity of the study's findings.

2.6 Data collection tools

The primary tool used for data collection in this study was a structured questionnaire. The questionnaire served as a key instrument to gather quantitative data from respondents. It included a series of written questions designed to collect information on respondent characteristics, knowledge, and preventive behaviors regarding Covid-19. Additionally,

supporting tools such as stationery for recording responses and a camera for documentation purposes were also utilized.

Questionnaires were chosen as the main data collection tool because they allow for systematic and efficient data gathering from a large group of respondents within a limited timeframe. The structured format ensured consistency in data collection across all participants, while documentation tools facilitated the recording of field activities and observations.

2.7 Data collection methods

Data collection in this study was conducted through interviews using the structured questionnaire as a guide. Each respondent was interviewed individually to ensure clarity and accuracy in their responses. The questionnaire included a series of questions focusing on respondent characteristics, such as gender, age, and education level, as well as their knowledge and behavior related to Covid-19 prevention.

The interview process was designed to create a comfortable and supportive environment for respondents, encouraging honest and accurate answers. Researchers ensured that respondents fully understood each question before providing their responses. This method not only improved data quality but also reduced potential biases arising from misunderstandings or misinterpretations of the questionnaire items.

2.8 Data processing

After data collection was completed, all data were processed systematically to convert raw data into meaningful information. The data processing phase involved several essential steps, including editing, coding, entry, and cleaning. The first step, editing, involved reviewing and checking all collected data to ensure completeness, consistency, and accuracy. This stage was crucial to prevent missing or erroneous data, which could compromise the quality of the analysis. Researchers carefully examined each questionnaire to identify and correct any errors or inconsistencies.

The second step, coding, involved assigning numerical codes to responses. This process transformed qualitative responses into a structured numerical format suitable for statistical analysis. Coding made it easier to input and analyze data using statistical software, ensuring accuracy and efficiency. Following coding, data entry was performed. In this stage, coded data were entered into a computer program specifically designed for statistical analysis. The goal of this step was to ensure that data were systematically organized for easier analysis and interpretation. The final step, cleaning, involved checking and verifying entered data for consistency and errors. Researchers carefully reviewed the data to identify and correct any discrepancies or anomalies. This phase was essential to ensure that the final dataset was clean, reliable, and ready for analysis. Through these systematic steps, the data processing phase laid a strong foundation for accurate and valid analysis.

2.9 Validity

Validity refers to the extent to which an instrument accurately measures what it is intended to measure. In this study, the validity of the research instrument (questionnaire) was tested by examining the correlation between individual item scores and the total score for each variable. A questionnaire is considered valid if it measures the intended variables accurately and appropriately under specific conditions.

The validity test in this study was conducted on 30 respondents who shared similar characteristics with the target population, specifically traders from Lemabang Traditional Market. The results showed that 25 questionnaire items met the validity criteria, with correlation coefficients (r) exceeding the critical r-value (*0.3610*, df = 28, $\alpha = 0.05$, two-tailed). These findings indicate that the questionnaire items were valid and could be used to collect reliable data for the study.

Table 1. Results of the validity test for the research questionnaire

Number of questions	calculated r-value	critical r-value	Decision
Knowledge variable			
1	0.492	0.3610	Valid
2	0.558	0.3610	Valid
3	0.386	0.3610	Valid
4	0.546	0.3610	Valid
5	0.458	0.3610	Valid
6	0.427	0.3610	Valid
7	0.458	0.3610	Valid
8	0.386	0.3610	Valid
9	0.458	0.3610	Valid
10	0.546	0.3610	Valid
11	0.388	0.3610	Valid
12	0.427	0.3610	Valid
13	0.441	0.3610	Valid
14	0.497	0.3610	Valid
15	0.542	0.3610	Valid
COVID-19 Prevention Behavior Variable			
1	0.669	0.3610	Valid
2	0.847	0.3610	Valid
3	0.686	0.3610	Valid
4	0.602	0.3610	Valid
5	0.653	0.3610	Valid
6	0.699	0.3610	Valid
7	0.485	0.3610	Valid
8	0.497	0.3610	Valid
9	0.542	0.3610	Valid
10	0.470	0.3610	Valid

2.10 Reliability

Reliability refers to the consistency and stability of an instrument in measuring a variable over repeated trials. In this study, the reliability of the questionnaire was assessed using Cronbach's Alpha coefficient. The results showed that the knowledge variable had a Cronbach's Alpha value of 0.818, while the behavior variable had a value of 0.877. Both values exceed the reliability threshold of 0.6, indicating that the instrument was reliable. These findings suggest that the questionnaire items consistently measure the intended variables across different contexts and samples. As a result, the instrument can be trusted to produce accurate and dependable data for analyzing the factors influencing Covid-19 prevention behavior among traders in Yada Traditional Market.

3. Results and Discussion

3.1 Geographical conditions and area

Yada Market, also known as *Pasar Yakin Damai* (Yada), is a traditional market located on Jalan Taqwa Mata Merah, Sei Selincah, Kalidoni District, Palembang City, South Sumatra 30161. Yada Market is one of the 33 markets managed by Perusahaan Daerah (PD) Pasar Palembang Jaya. The geographical coordinates of Yada Market are 2.965474 latitude and 104.822686 longitude.

Yada Market was established in 2010 and was officially opened by the Mayor of Palembang, Ir. Eddy Santana Putra. According to the Mayor's Decree No. 309 of 2014, the market currently consists of a two-story building. The total area of Yada Market is 2,116.5 m^2, with 140 stalls. The market operates daily, opening at 6:00 AM and closing at 1:00 PM.

The supporting facilities at Yada Market include a single UPT (Market Office), a prayer room, one public restroom, and a waste disposal site. In efforts to prevent the spread of

COVID-19, the market has also provided two handwashing sinks, two running water faucets, and two posters or information media about COVID-19 prevention. The boundaries of Yada Market are as follows: to the north, it borders residential houses; to the south, it is adjacent to the main road, Jalan Taqwa Mata Merah; to the west, it borders residential houses; and to the east, it also borders residential houses.

3.2 Organizational structure

The organizational structure of Yada Market is led by RS, who serves as the market's head. The administrative and financial aspects of the market are handled by YM and RS, while the operational aspects are overseen by Y and R. These leaders are supported by various teams responsible for different essential services at the market. For example, the cleanliness and maintenance of the market are coordinated by Maryadi, with assistance from S, N, and M. This ensures that the market remains well-kept, promoting a clean and welcoming environment for both vendors and customers.

In addition, the market has dedicated teams for security, parking, and technical support. The security division is managed by AA and OB, ensuring that the market is safe for all visitors. Parking services, which are crucial for the market's operations, are coordinated by Aguscik, supported by H, M, SM, and AF. Technical aspects such as electrical maintenance are handled by S, while M is in charge of the public restroom and office cleaning services. This comprehensive organizational structure helps to ensure the smooth operation of Yada Market on a daily basis.

3.3 Vision and mission of Yada Market

The vision of a market represents a broad, long-term goal or ideal that guides the direction of an organization or group. The vision of Yada Traditional Market is to create a clean market that is safe and comfortable, with the aim of increasing the income of the local community and the city of Palembang. The mission outlines the actions and steps required to achieve the broader vision. It can be summarized as the necessary efforts to bring the vision to life. The mission of Yada Traditional Market includes several key objectives: to establish a clean market, ensure market safety, develop a professional and transparent market management system, and boost both local revenue and the income of Palembang's citizens.

3.4 Univariate analysis

The results of the univariate analysis of respondent characteristics, which include gender, age, and educational level of 110 vendors at Yada Traditional Market in Palembang, can be seen in Table 2 below:

Table 2. Frequency distribution of respondent characteristics

Variable	Category	(n)	(%)
Gender	Male	38	34.5
	Female	72	65.5
Age	Adolescent	16	14.5
	Adult	49	44.5
	Elderly	45	40.9
Education Level	Low (<Junior High School)	32	29.1
	High (>Junior High School)	78	70.9

Based on Table 2, it can be observed that the majority of respondents are female (72 respondents or 65.5%). Most of the respondents are in the adult age category (49 respondents or 44.5%), and most of them have a high level of education (78 respondents or 70.9%). The results of the univariate analysis based on respondents' answers to knowledge

questions from 110 vendors at Yada Traditional Market in Palembang are presented in Table 3.

Table 3. Frequency distribution of respondents based on answers to each knowledge question

No.	Statement	Correct (n)	(%)	Incorrect (n)	(%)
1	Definition of Corona Virus/Covid-19	103	93.6	7	6.4
2	Mode of transmission of Covid-19	107	93.3	3	2.7
3	Symptoms of people infected with Covid-19	99	90	11	10
4	Prevention methods to reduce the spread of Covid-19	97	88.2	13	11.8
5	Ways to maintain immunity to stay healthy and avoid Covid-19	97	88.2	13	11.8
6	Correct way to wear a mask	101	91.2	9	8.2
7	Proper coughing/sneezing etiquette	98	89.1	12	10.9
8	The right duration to wash hands	93	84.5	17	15.5
9	Important benefits of washing hands	102	92.7	8	7.3
10	Tools and materials used for handwashing	105	95.5	5	4.5
11	The correct number of steps for handwashing according to WHO	39	35.5	71	64.5
12	Alternatives for handwashing when there is no running water	95	86.4	15	13.6
13	Government programs for Covid-19 prevention in the community	102	92.7	8	7.3
14	Correct way to practice physical distancing	93	84.5	17	15.5
15	Definition of disinfecting work areas to minimize the spread of Covid-19	66	60	44	40

Based on Table 3, of the 15 questions, the most correct answers were given by 107 respondents (93.3%) to question 2, which asked about the mode of transmission of Covid-19. This result shows that nearly all respondents were knowledgeable about how Covid-19 is transmitted. On the other hand, the least correct answers were given to question 11, concerning the number of handwashing steps recommended by the WHO, with only 39 respondents (35.5%) providing the correct answer. This indicates that many respondents were unaware of the proper number of handwashing steps as recommended by the WHO. The results of the univariate analysis of knowledge levels among 110 vendors at Yada Traditional Market in Palembang can be seen in Table 4:

Table 4. Frequency distribution of respondent knowledge

Knowledge Level	(n)	(%)
Poor	13	11.8
Fair	24	21.8
Good	73	66.4
Total	110	100

Based on the results in Table 4, the majority of respondents had a good level of knowledge, with 73 respondents (66.4%). A smaller portion of respondents had a fair level of knowledge, represented by 24 respondents (21.8%), and only a few respondents had poor knowledge, totaling 13 respondents (11.8%). The results of the univariate analysis based on respondents' answers to behavioral questions from 110 vendors at Yada Traditional Market in Palembang are presented in Table 5 below.

Table 5. Frequency distribution of respondents based on answers to each behavioral question

No.	Statement	Very Often (n)	(%)	Often (n)	(%)	Rarely (n)	(%)	Never (n)	(%)	Total Score
1	I use a mask when leaving the house	96	87.3	10	9.1	3	2.7	1	0.9	421

2	I cover my mouth and nose with tissue or my arm when sneezing or coughing	72	65.5	20	18.2	5	4.5	13	11.8	371
3	I wash my hands to prevent Covid-19 transmission through touch	73	66.4	18	16.4	19	17.3	0	0	384
4	I touch my face, nose, or mouth when my hands are dirty or not washed	4	3.6	8	7.3	24	21.8	74	67.3	388
5	I disinfect my work area and frequently touched items	18	16.4	32	29.1	26	23.6	34	30.9	254
6	I try to avoid direct contact with others	47	42.7	48	43.6	12	10.9	3	2.7	359
7	I take vitamins to boost my immunity	23	20.9	45	40.9	21	19.1	21	19.1	290
8	I go out for unnecessary activities	4	3.6	12	10.9	38	34.5	56	50.9	366
9	I perform religious activities outside the home after working at the market	8	7.3	11	10	37	33.6	54	49.1	357
10	I use public transportation to travel	8	7.3	7	6.4	27	24.5	68	61.8	375

Based on the results in Table 5, the highest total behavior score was obtained for statement 1 regarding mask use (421), indicating that the majority of respondents consistently use masks when leaving the house. The lowest total behavior score was for statement 5, concerning cleaning work areas and frequently touched items with disinfectant, which had a total score of 254, indicating that few people routinely disinfect areas they frequently touch. The results of the univariate analysis of prevention behavior variables for Covid-19 in this study can be seen in Table 6 below:

Table 6. Frequency distribution of Covid-19 prevention behavior

Prevention Behavior	(n)	(%)
Mean	32.47	
Median	33.00	
Minimum	15	
Maximum	40	
Not Good (< Median)	52	47.3
Good (≥ Median)	58	52.7

Based on Table 6, it can be seen that the majority of respondents exhibited good prevention behavior with 58 respondents (52.7%), while a smaller portion, 52 respondents (47.3%), showed poor prevention behavior.

3.5 Bivariate analysis

The results of the bivariate analysis between gender and COVID-19 prevention behavior among traders at Pasar Tradisional Yada Kota Palembang, based on statistical calculations, are shown below:

Table 7. Relationship between gender and COVID-19 prevention behavior among traders at Pasar Tradisional Yada

Gender	Covid-19 prevention behavior				Total		P-value	PR 95% CI
	Poor		Good					
	n	(%)	n	(%)	n	(%)		
Men	22	57.9	16	42.1	38	100	0.156	1.925 (0.868-4.269)
Women	30	41.7	42	58.3	72	100		

Based on Table 7, it was found that 22 male respondents (57.9%) exhibited poor COVID-19 prevention behavior. The Chi-square statistical test indicated no significant relationship between gender and COVID-19 prevention behavior (p-value=0.156>0.05).

3.6 Relationship between age and COVID-19 prevention behavior

The results of the bivariate analysis between age and COVID-19 prevention behavior among traders at Pasar Tradisional Yada Kota Palembang, based on statistical calculations, are shown below:

Table 8. Relationship between age and COVID-19 prevention behavior among traders at Pasar Tradisional Yada

Age	Covid-19 prevention behavior				Total		P-value	PR 95% CI
	Poor		Good					
	n	(%)	n	(%)	n	(%)		
Elderly	36	80.0	9	20	45	100	0.000	13.818 (5.125-37.258)
Adults	11	22.4	38	77.6	49	100	0.001	8.800 (2.435-31.807)
Adolescents	5	31.3	11	68.8	16	100	Reff	Reff

Based on Table 8, the analysis using simple logistic regression revealed a significant relationship between age and COVID-19 prevention behavior, specifically for elderly and adult age groups. Elderly individuals were 13.818 times more likely to exhibit poor COVID-19 prevention behavior compared to adolescents, with a p-value of 0.000 (<0.05). Adults were 8.800 times more likely to exhibit poor behavior compared to adolescents, with a p-value of 0.001 (<0.05). The researcher believes that 95% of age is a risk factor for COVID-19 prevention behavior, with confidence intervals (CI) for the elderly ranging from 5.125 to 37.258 and for adults from 2.435 to 31.807.

3.7 Relationship between education level and COVID-19 prevention behavior

The results of the bivariate analysis between education level and COVID-19 prevention behavior among traders at Pasar Tradisional Yada Palembang Regency, based on statistical calculations, are shown below:

Table 9. Relationship between education level and COVID-19 prevention behavior among traders at Pasar Tradisional Yada

Education level	Covid-19 prevention behavior				Total		P-value	PR 95% CI
	Poor		Good					
	n	(%)	n	(%)	n	(%)		
High	24	75	8	25	32	100	0.000	5.357 (2.126-13.500)
Low	28	35.9	50	64.1	78	100		

Based on Table 9, it was found that 24 respondents (75%) with low education exhibited poor COVID-19 prevention behavior. The Chi-square statistical test revealed a significant relationship between education level and COVID-19 prevention behavior (p-value=0.000<0.05). Individuals with low education were 5.357 times more likely to have poor prevention behavior compared to those with higher education. The researcher believes that 95% of education level is a risk factor for COVID-19 prevention behavior, with a confidence interval (CI) ranging from 2.126 to 13.500.

3.8 Relationship between knowledge and COVID-19 prevention behavior

The results of the bivariate analysis between knowledge and COVID-19 prevention behavior among traders at Pasar Tradisional Yada Kota Palembang, based on statistical

calculations, are shown below. Based on Table 10, there was a cell with a zero observed value.

Table 10. Relationship between knowledge and COVID-19 prevention behavior among traders at Pasar Tradisional Yada, Palembang City

Knowledge	Covid-19 prevention behavior				Total		P-value	PR 95% CI
	Poor		Good					
	n	(%)	n	(%)	n	(%)		
Less	13	100	0	0	13	100	0.021	0.000
Adequate	16	66,7	8	33,3	24	100	0005	0.245 (0.091-0.660)
Good	23	31,5	50	68.5	73	100	Reff	Reff

Therefore, the cells were merged, as shown in Table 11. Based on Table 11, 29 respondents (78.4%) with poor to fair knowledge exhibited poor COVID-19 prevention behavior. The Chi-square statistical test showed a significant relationship between knowledge level and COVID-19 prevention behavior (p-value=0.000<0.05). Respondents with poor to fair knowledge were 7.880 times more likely to exhibit poor COVID-19 prevention behavior compared to those with good knowledge. The researcher is confident that 95% of knowledge level is a risk factor for COVID-19 prevention behavior, with a confidence interval (CI) ranging from 3.123 to 19.883.

Table 11. Relationship between knowledge and COVID-19 prevention behavior among traders at Pasar Tradisional Yada, Palembang City

Education level	Covid-19 prevention behavior				Total		P-value	PR 95% CI
	Poor		Good					
	n	(%)	n	(%)	n	(%)		
Less to adequate	29	78,4	8	21.6	37	100	0.000	7.880 (3.123-19.883)
Good	23	31.5	50	68.5	73	100		

3.9The relationship between gender and COVID-19 prevention behavior

The bivariate analysis results indicate that 57.9% of male respondents demonstrated poor COVID-19 prevention behavior, a difference of 16.2% compared to female respondents. However, the Chi-Square statistical test revealed no significant relationship between gender and COVID-19 prevention behavior (p-value=0.156>0.05). This finding suggests that gender is not a risk factor influencing COVID-19 prevention behavior.

Gender is often classified as a predisposing factor that contributes to the formation of an individual's behavior. Nonetheless, it does not serve as the primary determinant, as numerous other supporting factors come into play. Both men and women possess equal opportunities to engage in or neglect preventive health behaviors. The similarity in COVID-19 prevention behaviors between male and female respondents in this study may be attributed to comparable levels of exposure to information and proactive attitudes regarding the pandemic.

This result aligns with Prihati et al., (2020) findings, which reported no significant relationship between gender and COVID-19 prevention behavior (p-value=0.25). Similarly, Astuti and Suryani (2018) found no association between gender and clean and healthy living behavior (p-value=0.149>0.05). A study by Supriyadi, Istanti, and Erlita (2021) in Yogyakarta also indicated that gender does not influence adherence to health protocols, with a Kendall Tau test yielding a p-value of 1.000.

Conversely, Pratiwi et al. (2020) identified a significant relationship between gender and COVID-19 prevention behavior levels (p-value=0.007<0.05). In the current study, the gender factor appeared neutral in influencing COVID-19 prevention behaviors. Male and female respondents were similarly prone to exhibiting poor preventive behaviors, with respective percentages of 57.9% and 41.7%. However, female respondents showed a

tendency toward better preventive behaviors, supported by findings that 42 female respondents demonstrated good prevention behaviors, a margin of 16.2% higher than males. According to Wulandari et al. (2020), women tend to engage more frequently in discussions about the pandemic and its prevention, which may explain their relatively better behaviors.

3.10 The relationship between age and COVID-19 prevention behavior

Simple logistic regression analysis revealed a significant relationship between age and COVID-19 prevention behavior. Elderly respondents exhibited significantly poorer prevention behaviors (p-value=0.000<0.05), with a risk 13.818 times higher than other age categories. Adult respondents also showed a significant association with prevention behaviors (p-value=0.001<0.05), identifying age as a risk factor in COVID-19 prevention behavior. Age is considered a predisposing factor that influences cognitive capacity and decision-making. As individuals age, their cognitive abilities and reasoning are expected to mature, potentially fostering better knowledge absorption and healthier behaviors (Notoatmodjo, 2012). Increased age is often associated with greater responsibility and awareness, which could enhance preventive health behaviors.

However, this study found that elderly respondents were more likely to exhibit poor prevention behaviors. While age is a factor, it cannot solely guarantee positive behavior due to other influences, such as social and environmental conditions, which may either support or hinder preventive actions. Additionally, differences in information access and activity levels among age groups may affect awareness and adherence to prevention measures.

These findings align with studies by Riyadi & Larasaty (2020), which observed a positive association between age and adherence to health protocols, and Sofia and Magfirah (2021), which confirmed a significant relationship between age and COVID-19 prevention behavior (p-value=0.000). However, Lu et al., (2010) noted that age alone does not ensure positive behavior, as factors like social support and community participation also play a role. Yuliyanti (2021) highlighted that aging-related physiological changes, such as declining cognitive function, might reduce productivity and health awareness, explaining why elderly respondents in this study showed poorer preventive behaviors.

3.11 The relationship between education level and COVID-19 prevention behavior

The bivariate analysis indicated that respondents with lower education levels (75%) were significantly more likely to exhibit poor COVID-19 prevention behaviors, with a margin of 39.1% compared to those with higher education levels. The Chi-Square test confirmed a significant relationship between education level and COVID-19 prevention behavior (p-value=0.000<0.05). Lower education levels increased the risk of poor prevention behavior by 5.357 times compared to higher education levels (95% CI: 2.126–13.500).

Education, as defined by Notoatmodjo (2012), encompasses planned efforts to influence individuals, groups, or communities to achieve desired behaviors. Higher education levels enhance knowledge acquisition, leading to improved behavior (Dewi, 2020). Knowledge gained through education facilitates better health behavior, contributing to community health indicators as an outcome of health education.

This finding aligns with studies by Gannika & Sembiring (2020), which reported a significant relationship between education level and prevention behaviors in North Sulawesi (p-value=0.000), and Putra & Manalu (2020), which observed similar associations with adherence to health protocols among high school graduates. Additionally, Prihati, Wirawati, and Supriyanti (2020) found a significant link between education level and prevention behaviors in West Kotawaringin, supporting the notion that education is a critical factor in behavior formation.

3.12 The relationship between knowledge and COVID-19 prevention behavior

Bivariate analysis revealed that respondents with low to moderate knowledge (55.8%) were significantly more likely to exhibit poor prevention behaviors, with a margin of 24.3% compared to those with high knowledge. The Chi-Square test confirmed a significant relationship between knowledge and COVID-19 prevention behavior (p-value=0.000<0.05). Insufficient knowledge increased the risk of poor prevention behaviors by 7.880 times compared to sufficient knowledge (95% CI: 3.123–19.883).

Knowledge is a crucial factor in behavior formation (Notoatmodjo, 2012). It involves an individual's perception and understanding, which influences decision-making and actions. Higher knowledge levels are associated with better behaviors, as individuals with more information are better equipped to make informed decisions. Environmental factors, including physical, biological, and social environments, also significantly influence knowledge (Notoatmodjo, 2010). These findings are supported by Purnamasari & Raharyani (2020), who reported a significant relationship between knowledge and prevention behavior in Wonosobo (p-value = 0.047). Similarly, Putra & Manalu, (2020) and Honarvar (2020) found that individuals with higher knowledge levels were more likely to adhere to COVID-19 protocols, demonstrating the critical role of knowledge in shaping preventive health behaviors.

4. Conclusions

The findings from this study, conducted on 110 respondents who work as traders in the Yada Traditional Market, provide insights into Covid-19 prevention behaviors. The majority of respondents exhibited good preventive behavior, with 58 respondents (52.7%) demonstrating positive practices. Most respondents were female (72 respondents or 65.5%), belonged to the adult age category (49 respondents or 44.5%), and had a high level of education (78 respondents or 70.9%). Additionally, most respondents demonstrated good knowledge about Covid-19, as indicated by 73 respondents (66.4%).

The study revealed no significant relationship between gender and Covid-19 prevention behavior (p-value=0.156>0.05). However, a significant relationship was found between age and prevention behavior, particularly in the elderly (p-value=0.000<0.05) and adult age groups (p-value=0.001<0.05). Similarly, a significant association was identified between education level and prevention behavior (p-value=0.000<0.05). Furthermore, knowledge was significantly related to Covid-19 prevention behavior (p-value=0.000<0.05). These findings indicate that age, educational attainment, and knowledge levels are critical factors influencing the adoption of preventive measures against Covid-19.

In summary, this research highlights the importance of demographic and cognitive factors in shaping Covid-19 preventive behaviors among traders in traditional markets. The results underscore the need for targeted interventions that address specific demographic groups and educational needs to enhance compliance with preventive measures. Future initiatives should focus on improving knowledge dissemination, particularly among individuals with lower education levels and within certain age groups, to foster better adherence to health protocols.

Acknowledgement

The authors express their gratitude to the reviewers for their valuable and constructive feedback on this article.

Author Contribution

All authors contributed equally to this work.

Funding
This research received no external funding.

Ethical Review Board Statement
Not available.

Informed Consent Statement
Not available.

Data Availability Statement
Not available.

Conflicts of Interest
The authors declares no conflict of interest.

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