

The Overview Of Pregnant Women's Knowledge Regarding Hepatitis B Prevention Efforts In Newborns In Surabaya City

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Abstract. In 2022, 50,744 pregnant women were diagnosed with Hepatitis B, and 35,757 babies were born to infected mothers. Despite the majority of babies receiving HB0 and HB1g immunizations within 24 hours, 135 babies tested positive for Hepatitis B at 9-12 months of age. Maternal knowledge influenced the prevention behavior of transmitting Hepatitis B to infants. This study examines pregnant women's Hepatitis B prevention knowledge in Surabaya, analyzing factors like age, information, education, and gravid status. This research in Surabaya involved 115 respondents, utilizing a quantitative cross-sectional method at Tanah Kali Kedinding and Kalirungkut Health Centers from March to November 2023. Sampling was done through consecutive sampling, and knowledge was assessed using a questionnaire, analyzed through the Spearman statistical test. The study revealed that 72.2% of respondents had good knowledge about preventing Hepatitis B transmission to newborns. Bivariate tests showed a non-significant relationship between age and knowledge ($p=0.290$), while the relationship between information sources ($p=0.02$), last educational level ($p=0.315$), and gravid status ($p=0.052$) were significant. In conclusion, most respondents demonstrated good knowledge, and there was a correlation between information sources and knowledge, while age, last educational level, and gravid status did not significantly correlate with respondents' knowledge.

Keywords: Hepatitis B, Knowledge, Newborns, Pregnant women, Transmission

BACKGROUND

The 2017 epidemiological data on Hepatitis B, released by the World Health Organization (WHO), disclosed a global prevalence of 3.5%, impacting approximately 257 million individuals. A substantial number of those affected contracted the virus before the widespread availability of the Hepatitis B vaccine for infants. Notably, the African region reported the highest prevalence at 6.1%, followed by the Western Pacific at 6.2% (World Health Organization, 2017).

In 2013, Indonesia's Basic Health Research (Riskesdas) indicated a 1.2% prevalence of Hepatitis in the general population, marking a twofold increase from 2007. East Nusa Tenggara province had the highest prevalence, accounting for about 21.8% of all Hepatitis cases in Indonesia during that period (Wijayadi et al., 2018). Despite a decline to 0.41% in 2018,

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concerns persisted, especially in Papua, where the prevalence reached 0.66%, affecting around 12,736 individuals (Basic Health Research, 2018).

Early detection of Hepatitis B in pregnant women in Indonesia commenced in 2013, with Rapid Diagnostic Tests (RDT) implemented by 2016. Ministry of Health data for 2021 revealed that 1.61% (47,550) of 2,946,013 screened pregnant women were positive for Hepatitis B. With Indonesia's large population, this percentage remains elevated, posing a risk of transmission from mothers to infants and necessitating increased attention (Ministry of Health, 2019).

The Triple Elimination program, initiated by the Indonesian Ministry of Health, aims to reduce transmission rates of Hepatitis B, HIV, and syphilis to 5% through preventive measures. In Surabaya, health initiatives cover testing for these infections in pregnant women across community health centers and hospitals. Although targets were surpassed in 2018, disparities indicate the need for a more collaborative and integrated approach, recognizing incomplete implementation and policy aspects (Adian et al., 2020).

Research by Octaviana et al. (2021) evaluated the Triple Elimination program in three Surabaya health centers, emphasizing the significance of studying substantial client numbers and STD clinic presence. The theoretical framework, influenced by Green et al.'s theory (1980), underscores the multifaceted influences on human behavior, including knowledge, attitudes, physical environment, and regulations. The research aims to understand the knowledge level among pregnant women in Surabaya regarding Hepatitis B prevention, with specific objectives analyzing correlations between various factors and knowledge. The findings are anticipated to contribute to midwifery references, offering practical insights for maternal management and services, while acknowledging potential risks of respondent inaccuracy in questionnaire completion. The purpose of this research is to determine the level of knowledge among pregnant women regarding efforts to prevent Hepatitis B in newborns in the city of Surabaya, with specific objectives to analyze the relationship between age, information, education, and gravid status with the knowledge of pregnant women about the prevention of Hepatitis B in newborns.

THEORETICAL STUDY

Fundamental Concepts of Knowledge

Knowledge, defined as the result of perceiving specific objects through human senses, plays a pivotal role in shaping an individual's actions. These senses include sight, hearing, smell, taste, and touch (Notoatmodjo, S., 2012). Within the cognitive domain, knowledge

encompasses everything known or skills possessed, acquired through experience, training, or the learning process. While the learning process traditionally emphasizes reading, writing, and arithmetic, it increasingly emphasizes problem-solving, decision-making, adaptability, creativity, and innovation – all crucial for achieving better learning outcomes. Despite being considered the lowest level of cognition, knowledge significantly influences an individual's behavior (Notoatmodjo, 2007). Knowledge, as highlighted by Notoatmodjo (2007), plays a vital role in shaping attitudes. The cognitive domain encompasses six levels: Recall (remembering details), Comprehension (explaining and interpreting), Application (using learned material), Analysis (breaking down components), Synthesis (arranging components into a new whole), and Evaluation (justifying or assessing based on criteria). Each level contributes to an individual's cognitive development.

Riyanto and Budiman (2013) state that education significantly influences knowledge, shaping one's personality and abilities both within and outside the formal and non-formal school settings throughout one's life. Mubarak's theory (2007) emphasizes education as guidance given by one person to another to enhance understanding. Higher education facilitates easier information assimilation, with Baker and Lopes (2010) noting that greater education yields more knowledge. Parents' educational levels, categorized as high (high school and beyond) or low (elementary to junior high), influence the knowledge level. Studies by Sandra Maria and Fredrika in 2013 suggest a connection between education and pregnant women's knowledge about high-risk pregnancies.

Information is defined as what one is apprised or told, and it serves as a technique for collecting, preparing, storing, manipulating, announcing, analyzing, and disseminating information for specific purposes. Socio-economic status and environmental factors also impact knowledge acquisition, as does work experience, which provides practical knowledge and skills. Age affects an individual's cognitive abilities, with increasing age correlating with improved cognitive function. According to the Ministry of Health of Indonesia (Depkes RI, 2009), age categories range from infancy to elderly, each influencing knowledge acquisition differently.

The measurement of knowledge can be done through interviews or questionnaires. Questions can be subjective (essay-type, involving subjective judgment) or objective (multiple-choice, true/false, matching), and the formulation should align with the knowledge stage. Knowledge levels can be categorized as good ($\geq 75\%$), sufficient (56-74%), or poor ($< 55\%$). In summary, factors like education, parents' education, information, socio-economic status,

environment, work, and age influence knowledge acquisition, which can be measured through various types of questions to assess different knowledge levels.

Hepatitis B

Hepatitis B, caused by the Hepatitis B virus (HBV), induces liver inflammation. In pregnancy, it poses risks like abortion, low birth weight, prematurity, and maternal death. Vertical transmission to infants can lead to liver damage and mortality. Prevalence in Indonesia among pregnant women is 2.21%. Maternal carriers have a 90% chance of infecting newborns, with 25% facing liver cancer risks. Transmission occurs vertically, contributing to chronic infection. Globally, high, medium, and low chronic Hepatitis B infection rates are seen in Southeast Asia, the Pacific Basin, sub-Saharan Africa, the Amazon Basin, the Middle East, Central Asia, and parts of Eastern Europe.

In countries like China, Senegal, and Thailand, high infection rates persist in early childhood. However, in regions like Panama, Papua New Guinea, the Solomon Islands, Greenland, and among Alaska Indians, infant infection rates are relatively low but increase rapidly during childhood. Young and older women giving birth are more susceptible. Clinical manifestations of chronic Hepatitis B vary, from asymptomatic cases to signs of chronic liver disease. Immunization is a key preventive measure, and antiviral therapy aims to improve survival and prevent disease progression. For acute Hepatitis B, supportive and symptomatic therapy suffices, while chronic cases may require antiviral treatment. Transmission routes include vertical, horizontal, through contaminated needles and medical tools, and via sexual contact. Risk factors for Hepatitis B include unsafe sexual practices, shared needle use, same-sex intercourse, living with a chronic carrier, birth to an HBV-positive mother, working in high-risk areas, and travel to regions with high infection rates.

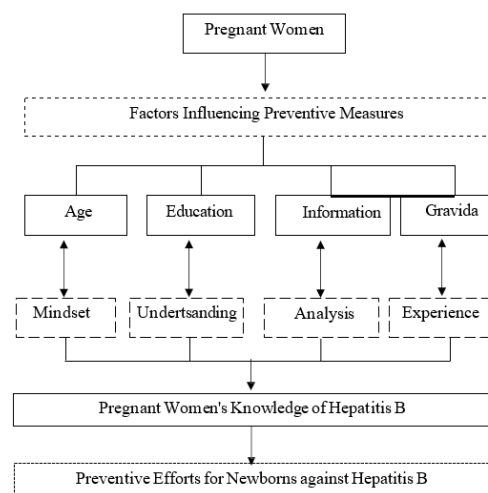
Table 1 Management drugs for Hepatitis B

Medicine	Drug Category
Lamivudine	C
Entecavir	C
Telbivudine	B
Adefovir	C
Tenofovir	B
Interferon alpha 2b	C
Pegylated-Interferon alpha 2a	C

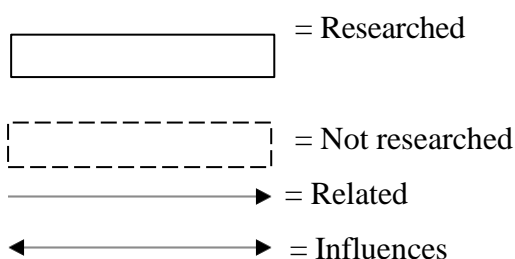
For acute Hepatitis B infection, there is no specific drug; treatment is supportive. Decisions on HBV treatment during pregnancy involve weighing risks and benefits for both mother and fetus. Mother's concerns include short-term and long-term effects, while the fetus faces potential teratogenic drug exposure during early embryogenesis. See the table for recommended drugs and categories.

WHO recommends vaccination in line with national programs. In regions with high perinatal HBV infection rates, the initial vaccine dose is administered within 24 hours of birth, with a minimum 4-week interval between doses. In Indonesia, following guidance from the Indonesian Medical Association, the first hepatitis B vaccine dose is given 12 hours after birth, alongside immunoglobulin (HBIG) for mothers testing positive for HBsAg (Sjahriani and Agustin, 2019). Vaccination is a secure and efficient preventive measure against hepatitis B infection. In addition to vaccination, strategies such as the administration of immunoglobulin (HBIG) have been developed to minimize transmission from mother to baby. A cohort study in Taiwan revealed a decrease in hepatocellular carcinoma incidence among children aged 6-9 years after vaccination, dropping from 0.52 to 0.13 per 100,000 (Sjahriani and Agustin, 2019).

Figure 1 Conceptual Framework



Explanation



Based on Figure 1, age education, information, and gravidity are identified as the factors influencing knowledge, selected due to their significant impact. Age plays a role in cognitive development, with increased maturity facilitating better knowledge absorption comprehension and decision-making. Information sources contribute to knowledge expansion and act as platforms for inquiries. Personal experiences, particularly pregnancy experiences, are recognized as valuable sources of knowledge The research hypotheses posit relationships between these factors and pregnant women's knowledge, forming the basis for further

investigation. The null hypothesis (Ho) suggests no relationships, while the alternative hypothesis (H1) proposes significant associations. This study aims to explore these relationships and their implications on pregnant women's knowledge.

RESEARCH METHODOLOGY

This study adopts an analytical observational approach using a cross-sectional design. In a cross-sectional study, variables are observed or measured at a specific point in time, implying that each subject is observed only once, and variable measurements are taken during the examination. No follow-up on the measurements is conducted in a cross-sectional study. The population in this study consists of all pregnant women in the city of Surabaya in 2023 when the research was conducted. The samples in this study are pregnant women from Tanah Kali Kedinding and Kalirungkut Community Health Centers with inclusion criteria being pregnant mothers willing to participate in the study, undergoing antenatal care, and no exclusion criteria applied. The study involves 115 pregnant women as respondents and is conducted from June to September 2023.

The sampling technique used in this study is nonprobability sampling. The type of sampling employed in this research is consecutive sampling, which involves selecting samples based on inclusion and exclusion criteria established by the researcher (Dianasari, 2018). Data for this study is gathered through a 20-question questionnaire addressing Hepatitis B and its prevention. The questionnaire is administered directly or remotely through a Google Form link. Confidentiality is maintained by using anonymous codes instead of names. The collected data is then analyzed to derive insights.

Adhering to ethical standards is crucial in midwifery research, particularly when involving human participants. This study, granted ethical clearance by the Research Ethics Committee of the Faculty of Medicine, Universitas Airlangga (Certificate No. 225/EC/KEPK/FKUA/2023), underscores ethical considerations. Obtaining informed consent involves clarifying the research's purpose and potential impacts while respecting participants' right to decline. Anonymity is preserved by employing codes instead of names on measurement sheets, safeguarding subjects' confidentiality. The utmost priority is placed on confidentiality, ensuring the discreet handling of all collected information, with only specific data groups disclosed in research outcomes—a commitment to maintaining ethical standards in midwifery research.

RESULTS AND DISCUSSION

Results

The study involved 115 pregnant women from the areas served by Puskesmas Tanah Kali Kedinding and Puskesmas Kalirungkut in Surabaya City during September-October 2023. The characteristics of the respondents are summarized in the table below.

Table 2 Distribution of frequency characteristics of respondents in the working area of Tanah Kali Kedinding and Kalirungkut Community Health Centers.

No	Variable	Frequency N=115	Percentage (%)
1	Age		
	<20 years	0	0
	20-34 years	103	89,6
	≥35 years	12	10,4
2	Ethnicity		
	Javanese	56	48,7
	Madurese	10	8,7
	Sundane	39	33,9
	Othes	10	8,7
3	Education		
	Lower education (Elementary school and middle school)	5	4,3
	Middle education (High school)	55	47,8
	Higher education (bachelor's degree and above)	55	47,8
4	Gravida		
	Primigravida	68	59,1
	Multigravida	47	40,9
	Grandemultigravida	0	0
5	Respondent's occupation		
	Housewife	30	26,1
	Entrepreneur	22	19,1
	Private employee	25	21,7
	Civil servant	17	14,8
	Others	21	18,3
6	Source of information		
	Internet	51	44,3
	Healthcare professional	47	40,9
	Family	0	0
	Friends	17	14,8
	Others	0	0
7	Pregnancy age		
	1-13 weeks	21	18,2
	14-26 weeks	56	48,6
	27-40 weeks	38	33
8	Delivery Plan		
	Hospital	72	62,6
	Midwife	41	35,6
	Community health center	2	1,7
9	Have heard about the infection		
	Hepatitis B, HIV, Syphilis	47	40,8
	Hepatitis B, HIV	26	22,6
	HIV	22	12,1
	Hepatitis B	13	11,3
	Syphilis	4	3,4
	Hepatitis B, Syphilis	1	0,9
	HIV, Syphilis	1	0,9
	Never heard of	1	0,9
10	Personal history of Hepatitis B infection		
	Never	114	99,1

	Ever	1	0,9
11	Family history of Hepatitis B Infection		
	Never	115	100
	Ever	0	0
	Total	115	100

Table 2 shows that out of 115 respondents, in terms of age, the majority (89.6%) are aged 20-35 years. Based on ethnicity, the majority (48.7%) are from the Javanese ethnic group. Regarding the respondents' highest education level, the majority (55%) have intermediate and high education. In terms of gravidity, the majority of respondents (59.1%) are primigravida, meaning they are experiencing pregnancy for the first time. When considering respondents' employment status, the majority (26.1%) are homemakers

Table 3 Coverage of triple elimination screening examinations in pregnant women in the working area of Tanah Kali Kedinding and Kalirungkut Community Health Centers.

Triple elimination screening examination	Frequency	Percentage (%)
Already conducted	100	87
Not yet conducted	15	13
Total	115	100

According to table 3, the majority of participants (87%) have already undergone screening for triple elimination, a mandatory government program for pregnant women to detect Hepatitis B, HIV, and Syphilis infections.

Table 4 Level of knowledge of pregnant women regarding efforts to prevent Hepatitis B transmission to newborns

Knowledge Level	Frequency	Percentage (%)
Good	83	72,2
Sufficient	30	26,1
Poor	2	1,7
Total	115	100

Table 4 shows that the majority of respondents (72.2%) have a good level of knowledge regarding the prevention of Hepatitis B transmission to newborns. Additionally, 26.1% of respondents have a sufficient level of knowledge, while 1.7% of other respondents have a poor understanding of efforts to prevent Hepatitis B transmission to newborns.

Table 5 Results of respondents' answers along with the number of correct and incorrect responses from a questionnaire consisting of 20 questions

No	Questions	Answers			
		Correct	(%)	Wrong	(%)
1.	Can pregnant women be infected with Hepatitis B?	111	96,5	4	3,5
2.	Does Hepatitis B cause symptoms?	113	98,3	2	1,7
3.	Is jaundice a symptom of Hepatitis B?	113	98,3	2	1,7
4.	Is mild fever a symptom of Hepatitis B?	75	65,2	40	34,8
5.	Are swollen lymph nodes a symptom of Hepatitis B?	71	61,7	44	38,3
6.	Is dark yellow urine a symptom of Hepatitis B?	113	98,3	2	1,7
7.	Can Hepatitis B be transmitted from mother to child during pregnancy?	2	1,7	113	98,3
8.	Can Hepatitis B be transmitted from mother to child during childbirth?	112	97,4	3	2,6
9.	Can Hepatitis B be transmitted from mother to child during breastfeeding?	66	57,4	49	42,6
10.	Is normal delivery recommended for women with a positive Hepatitis B status?	66	57,4	49	42,6
11.	Is cesarean section recommended for women with a positive Hepatitis B status?	113	98,3	2	1,7
12.	Will all babies born to mothers with Hepatitis B be infected with Hepatitis B?	77	67	38	33
13.	Will babies born to mothers with Hepatitis B receive a different vaccination than other babies?	111	96,5	4	3,5
14.	Can Hepatitis B be transmitted through sexual intercourse?	114	99,1	1	0,9
15.	Can Hepatitis B be transmitted through blood transfusion?	115	100	0	0
16.	Can Hepatitis B disappear on its own without treatment?	82	71,3	33	28,7
17.	Can washing hands after contact with all body fluids prevent the transmission of Hepatitis B?	113	98,3	2	1,7
18.	Can the use of sterile and disposable syringes prevent the transmission of Hepatitis B?	114	99,1	1	0,9
19.	Can Hepatitis B be prevented through screening and vaccination?	114	99,1	1	0,9
20.	Can Hepatitis B infection lead to liver cancer?	112	97,4	3	2,6

Table 5 indicates that a small portion of respondents (3.5%) lacked awareness that pregnant women could contract Hepatitis B. Furthermore, 34.8% were unaware that mild fever is a symptom of Hepatitis B infection. The table highlights that 98.3% of respondents believed that Hepatitis B could be transmitted to the baby during pregnancy. Additionally, 42.6% thought that normal delivery is not recommended for Hepatitis B-infected pregnant women. However, 98.3% were aware that cesarean section could be recommended for Hepatitis B patients. Moreover, 99.1% of respondents knew that sexual intercourse and blood transfusion can transmit Hepatitis B. Regarding Hepatitis B treatment, 28.7% believed it could heal without

intervention. Additionally, 99.1% knew that using sterile disposable needles and undergoing screening and vaccination can prevent Hepatitis B transmission.

Table 6 Cross-tabulation and Spearman's rank correlation test results between the age of respondents and their level of knowledge about efforts to prevent the transmission of Hepatitis B to newborns

Usia	Knowledge Level						Total		P Value
	Good		Sufficient		Poor				
	n	%	n	%	n	%	n	%	
<20 years	0	0	0	0	0	0	0	0	0,290
20-34 years	76	73,8	25	24,3	2	1,9	103	100	
≥35 years	7	58,3	5	41,7	0	0	12	100	
Total	83	72.2	30	26.1	2	1.7	115	100	

The analysis of Table 6 reveals that the majority of respondents, constituting 73.8%, exhibit good knowledge, predominantly within the age group of 20-34 years. Cross-tabulation indicates that respondents aged 20-34 years with good knowledge (73.8%) outnumber those aged ≥35 years (58.3%). Sufficient knowledge is observed in 24.3% of respondents aged 20-34 years, surpassing the 41.7% in the ≥35 years category. The category of insufficient knowledge accounts for 1.9% among those aged 20-34 years, with no respondents in the <20 years age group and none with insufficient knowledge in the ≥35 years age group. Spearman's rank correlation test shows a P-value of 0.290 ($P > 0.05$), indicating no significant correlation between age and knowledge about preventing Hepatitis B transmission to newborns in Surabaya City.

Table 7 Cross-tabulation and Spearman's rank correlation test results between the source of information for respondents and the level of knowledge regarding efforts to prevent Hepatitis B transmission to newborns.

Source of Information	Knowledge Level						Total	P Value	
	Good		Sufficient		Poor				
	n	%	n	%	n	%	n	%	
Internet	47	92,2	4	7,8	0	0	51	100	0,02
Healthcare Professional	22	46,8	24	51,1	1	2,1	47	100	
Family	0	0	0	0	0	0	0	0	
Friends	14	82,4	2	11,8	1	5,9	17	100	
Others	0	0	0	0	0	0	0	0	
Total	83	72,2	30	26,1	2	1,7	115	100	

The cross-tabulation in Table 7 reveals that 92.2% of respondents using the internet as their information source exhibit good knowledge about preventing Hepatitis B transmission to newborns. Those with good knowledge also include respondents informed by healthcare providers (46.8%) and friends (82.4%). Regarding sufficient knowledge, most respondents informed by healthcare providers (51.1%) excel, compared to 7.8% from the internet and 11.8% from friends. The Spearman's rank correlation test indicates a significant relationship ($P = 0.02$) between information sources and knowledge levels in preventing Hepatitis B transmission to newborns in Surabaya City.

Table 8 Cross-tabulation and the Spearman rank correlation test results between respondents' highest education and their knowledge level regarding the prevention of Hepatitis B transmission to newborns

Last Education	Knowledge Level						Total		P Value
	Good		Sufficient		Poor				
	n	%	n	%	n	%	n	%	
Higher education	37	67,3	18	32,7	0	0	55	100	0,315
Secondary education	42	76,4	11	20	2	3,6	55	100	
Lower education	4	80	1	20	0	0	5	100	
Jumlah	83	72,2	30	26,1	2	1,7	115	100	

The cross-tabulation in Table 8 reveals that a higher proportion of respondents with a medium-level education (76.4%) possess good knowledge about preventing Hepatitis B transmission to newborns, compared to those with higher or lower education levels. For respondents with higher education, 67.3% exhibit good knowledge, 32.7% have sufficient knowledge, and none have inadequate knowledge. In the case of respondents with lower education, 80% have good knowledge, and 20% have sufficient knowledge. The Spearman test indicates no significant relationship ($P > 0.05$) between respondents' last education and their knowledge level regarding Hepatitis B prevention in newborns in Surabaya.

Table 9 Cross-tabulation and Spearman test results between respondents' gravid status and their knowledge level regarding efforts to prevent Hepatitis B transmission to newborns

Gravida	Knowledge Level						Total		P Value
	Good		Sufficient		Poor				
	n	%	n	%	n	%	n	%	
Primigravida	54	79,4	12	17,6	2	2,9	68	100	0,052
Multigravida	29	61,7	18	38,3	0	0	47	100	
Grandemulti gravida	0	0	0	0	0	0	0	0	
Total	83	72,2	30	26,1	2	1,7	115	100	

The analysis of Table 9 indicates that most respondents with good knowledge are primigravida (79.4%), while those with sufficient knowledge are mainly multigravida (38.3%). Insufficient knowledge is only found among primigravida (29%). Statistical analysis (Spearman test) resulted in a P-value of 0.052 (> 0.05), suggesting no significant association between respondents' gravid status and their knowledge level regarding Hepatitis B prevention in newborns in Surabaya.

Discussion

The study shows that 72.2% of respondents have good knowledge about preventing Hepatitis B transmission to newborns, while 26.1% have satisfactory knowledge, and only 1.7% lack sufficient understanding. Despite knowledge being a key factor influencing behavior, continuous education is necessary to ensure comprehensive awareness among all pregnant women. The questionnaire analysis reveals common misconceptions, such as 98.3% mistakenly thinking Hepatitis B can infect the fetus during pregnancy. Educational efforts should address these gaps and tailor information to various aspects like age, information sources, education levels, and gravid status.

Women in their childbearing years, typically aged 20 to 35, are considered optimal for pregnancy due to the full development and optimal function of their reproductive systems, reducing various risks during pregnancy (Gunawan, 2010:81). The results from the Spearman test in Table 6 reveal a p-value of 0.290 ($P > 0.05$), indicating no significant relationship between the variables. These findings contradict Riyanto and Budiman's (2013) theory, which suggests that age influences cognitive abilities and thought patterns, with increasing age leading to improved knowledge.

Considering theoretical perspectives, age fundamentally influences knowledge accumulation, with older individuals tending to have more extensive knowledge. However, it can be argued that pregnant women aged 20–34 exhibit a high level of knowledge, facilitated by easy access to the internet for information and education, surpassing those aged ≥ 35 . This aligns with Suwaryo's (2017) assertion that individuals aged 20–35 actively participate in society, spending more time preparing for successful adaptation to old age, including extensive reading (Suwaryo, 2017). The study's results indicate no relationship between age and the knowledge level of pregnant women, potentially influenced by factors such as the distribution of respondents, with a significant number aged 20–34 compared to those aged ≥ 35 .

Table 7 indicates a significant relationship (p-value = 0.02) between information sources and knowledge levels, aligning with Mubarak et al.'s (2008) theory. The study emphasizes the impact of information accessibility on knowledge acquisition. Social media,

particularly the internet, is the preferred health information source for pregnant women during the Covid-19 pandemic. While Tucunan et al. (2022) found no correlation, Indriani & Anggraini (2021) observed that non-healthcare information sources increased the risk of low knowledge about Hepatitis B. Remijawa et al. (2020) and Noorhidayah et al. (2016) similarly reported correlations between information sources and knowledge in their studies.

Table 8 shows a significant relationship ($p\text{-value} = 0.315$, $p < 0.05$) between education and knowledge, contrary to Notoatmodjo's (2010) theory that higher education leads to broader knowledge. Indriani & Anggraini (2021) found a correlation ($p = 0.02$) between education and knowledge about Hepatitis B, with lower education posing a higher risk of low knowledge. Other studies (Rachman, 2016; Reid and Oliver, 2007; Mutika & Lalusu, 2018; Tungka, 2014; Roza, 2015; Rajamoorthy et al., 2019; Atmaja, 2022) also explored the connection between education and knowledge, presenting varied findings. Overall, education's influence on information processing and decision-making is emphasized, and individuals with higher education tend to have easier access to information and make informed decisions (Noviana, 2018; Mulyani & Salsabil, 2020; Latipun, 2011).

The analysis using the Spearman test revealed a non-significant relationship ($p = 0.052$) between the gravid status of respondents and the knowledge level of pregnant women regarding Hepatitis B prevention in newborns. This finding contrasts with the theory suggesting past experiences influence behavior. Primigravida respondents showed better knowledge than multigravida, contrary to expectations. Studies by Denando & Cahyati (2022) and Indriani & Anggraini (2021) also found no significant correlation. Enny Anggraeny categorized primigravida as having a higher risk of lacking knowledge (31.8%) compared to multigravida (66.7%). The study implies gravid status has limited influence on maternal knowledge, as it primarily affects maternal readiness for pregnancy. This aligns with Lestari's (2019) perspective on the enhanced psychological readiness of high-parity mothers due to prior childbirth experiences.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study, titled "Overview of Pregnant Women's Knowledge Levels Regarding the Prevention of Hepatitis B Transmission in Newborns in Surabaya," involved 115 respondents. The conclusions drawn from the research are as follows: Firstly, there is no correlation identified between age, last education, and gravidity with the knowledge of pregnant women regarding efforts to prevent Hepatitis B transmission in newborns. Secondly, there is a

significant correlation between the source of information and the knowledge of pregnant women about efforts to prevent Hepatitis B transmission in newborns.

Recommendation

The research findings hold valuable implications for healthcare institutions, specifically Tanah Kali Kedinding and Puskesmas Kalirungkut Community Health Centers, suggesting the need for educational interventions on preventing Hepatitis B transmission from pregnant women to newborns. This entails leveraging social media and internet platforms to enhance basic education, particularly in Surabaya where a notable proportion of pregnant women lack sufficient knowledge on this matter. Healthcare professionals play a pivotal role in utilizing internet technology for health-related education, emphasizing infectious diseases relevant to pregnant women. Intensive approaches should target reluctant pregnant women, encouraging routine check-ups and comprehensive ANC. Cadres and healthcare professionals at health centers can assist pregnant women in accessing services and motivate Hepatitis B screening. Pregnant women, guided by research insights, are encouraged to seek additional information through various channels and attend Hepatitis B education sessions for a comprehensive understanding of prevention. Future researchers can draw inspiration from this study for learning and development, considering alternative methods and locations for diversified insights. Lastly, the broader community can contribute to early Hepatitis B prevention by raising awareness through internet-based education and public advertisements, focusing on preventing transmission, especially to infants.

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