

FACTORS INFLUENCING ANXIETY DISORDERS IN WOMEN OF PRODUCTIVE AGE WITH CHRONIC HEPATITIS B INFECTION

Faktor-Faktor yang Memengaruhi Gangguan Kecemasan pada Wanita Usia Produktif dengan Infeksi Hepatitis B Kronis

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ABSTRAK

Infeksi Hepatitis B Kronik (IHBK) masih menjadi masalah kesehatan global yang signifikan, dengan prevalensi tinggi di kalangan wanita usia produktif. Dampak psikologis infeksi hepatitis B kronik, khususnya gangguan kecemasan, sering diabaikan, yang mana berdampak negatif pada kualitas hidup pada populasi ini. Kecemasan yang tidak diobati dapat menyebabkan masalah kesehatan mental yang lebih parah dan penurunan kesejahteraan. Meskipun penting, faktor-faktor yang memengaruhi kecemasan pada populasi ini tidak dipahami dengan baik. Penelitian ini bertujuan untuk mengidentifikasi faktor-faktor yang memengaruhi kecemasan pada wanita usia subur dengan IHBK untuk memfasilitasi intervensi dini. Sebuah penelitian deskriptif-analitik, cross-sectional dilakukan dengan melibatkan 51 wanita berusia di atas 18 tahun yang didiagnosis dengan IHBK di Palang Merah Indonesia (PMI) di Surabaya. Diagnosis IHBK dikonfirmasi oleh adanya HBsAg selama lebih dari enam bulan. Pemilihan sampel dilakukan secara total sampling. Gangguan kecemasan diukur menggunakan kuesioner Zung Self-Rating Anxiety Scale (ZSAS). Data tentang usia, status perkawinan, pendidikan, pekerjaan, dan dukungan sosial dikumpulkan melalui wawancara dan catatan medis. Analisis chi-square digunakan untuk menguji hubungan antar variabel dan regresi linier untuk mengukur nilai risiko. Hasil penelitian menunjukkan bahwa usia ($p = 0,005$), status perkawinan ($0,007$), pendidikan ($0,016$), dan dukungan sosial ($0,001$) berhubungan secara signifikan dengan gangguan kecemasan. Sebagai kesimpulan, wanita usia subur dengan IHBK memiliki prevalensi gangguan kecemasan yang tinggi. Deteksi dini dan intervensi yang tepat sangat penting untuk meningkatkan kualitas hidup mereka.

Kata kunci: gangguan kecemasan, infeksi hepatitis B kronis (IHBK), wanita usia produktif

ABSTRACT

Chronic Hepatitis Infection (CHBI) remains a significant global health issue, with a high prevalence among productive age women. The psychological impact of CHB, particularly anxiety disorders, is often overlooked, negatively affecting the quality of life in this population. Untreated anxiety can lead to more severe mental health problems and reduced well-being. Despite its importance, the factors influencing anxiety in this population are not well understood. This study aims to identify factors that influence anxiety in women of childbearing age with CHB to facilitate early intervention. A descriptive-analytic, cross-sectional study was conducted involving 51 women over 18 years old diagnosed with CHB at the Indonesian Red Cross (PMI) in Surabaya. CHB diagnosis was confirmed by the presence of HBsAg for more than six months. The

sample selection was carried out total sampling. Anxiety disorders were measured using the Zung Self-Rating Anxiety Scale (ZSAS) questionnaire. Data on age, marital status, education, employment, and social support were collected through interviews and medical records. Chi-square analysis was used to test the relationship between variables and linear regression to measure risk values. The results showed that age ($p=0.005$), marital status (0.007), education (0.016), and social support (0.001) were significantly associated with anxiety disorders. In conclusion, women of childbearing age with HBK have a high prevalence of anxiety disorders. Early detection and appropriate intervention are essential to improve their quality of life.

Keywords: anxiety disorder, chronic hepatitis B infection (CHBI), women of productive age

INTRODUCTION

Chronic hepatitis B (CHB) is a significant global health problem, affecting millions of people worldwide. Persistent chronic hepatitis B virus (HBV) infection can lead to serious complications such as cirrhosis and liver cancer[1]. Chronic hepatitis B virus infections are increasing globally in developing and low-income countries. According to the World Health Organization (WHO), in 2022, there were 254 million people infected with chronic hepatitis B, and this number continues to grow annually, with approximately 1.2 million people living with the infection. The number of deaths from chronic hepatitis B alone is approximately 1.3 million cases of death annually worldwide.[2] In Indonesia, according to basic health research data (Riskesdas), the incidence of hepatitis B has decreased from 7.1% in 2013 to 2.4% in 2023. Despite the decline in cases, the government is still having difficulty implementing programs to prevent the increase in the prevalence of chronic hepatitis B infection, especially in rural areas[3], [4]. This is due to limited access to vaccination and treatment, as well as low public awareness, to prevent the stigma that hepatitis B infection can cause. One of the stigmas that arises for women of childbearing age with hepatitis B is mental health problems, both due to the duration of treatment and the severity of the disease, which causes anxiety, decreased quality of life, and social isolation[5].

Chronic diseases such as hepatitis B infection often trigger psychological problems such as decreased quality of life, depression, and anxiety. The stigma attached to some chronic diseases can exacerbate these psychological disorders. Chronic hepatitis C, for example, carries significant psychosocial risks, and its late complications can reduce quality of life. Physicians and psychiatrists need to be aware of patients with mental illness who are at risk for hepatitis B and C infection and monitor them closely[6]. In addition, pre-existing mental disorders can complicate the treatment of chronic hepatitis B and C viruses, as the treatment itself has the potential to worsen the patient's mental condition[1].

Of all inpatients and outpatients in hospitals, 20–40% experience mental disorders due to chronic illness. In Asia, the prevalence of mental disorders has continued to increase over the past 12 years. In Japan, the prevalence of severe mental disorders is 1.5%, moderate mental disorders 4.1%, and mild mental disorders 3.2%. In Indonesia, the prevalence of mental disorders, based on data from 30 provinces in the population aged 15 years and over, is 11.6%, with 9.0% for males and 14.0% for females.[7]. According to other sources, emotional mental disorders such as anxiety occur if the sufferer suffers from more than one chronic disease, such as hepatitis B and diabetes, the risk of emotional disorders is 4.6 times greater, so if the sufferer suffers from more than one chronic disease, the emotional condition is at greater risk[8]. In other research, it was found that women are 2.4 times more susceptible to anxiety and other psychological disorders due to hormonal factors, dual roles in the social environment,

and social pressure, especially in women who suffer from diseases and require long-term treatment such as tuberculosis, chronic hepatitis B, liver, and other diseases[4].

Anxiety is a common emotional response in patients with chronic illnesses, including IHBK. The diagnosis and management of a chronic illness often lead to uncertainty, worry about the future, and fear of complications. In patients with IHBK, anxiety can be triggered by various factors, including uncertainty about the disease course, stigma and discrimination impacting quality of life, lack of social support, or a history of anxiety disorders or depression[9]. According to a study, chronic fatigue is a common symptom of CHBI with a prevalence rate of 20%-80% in various groups, where this physical fatigue affects mental fatigue, accompanied by muscle and joint pain, sleep disturbances, and restless legs[10]. This chronic fatigue is central in nature, which is different from peripheral fatigue related to muscles. This central fatigue is influenced by psychological, social, and physical factors, but the direct effect of the virus on this symptom is still unclear[2], [11]. However, in reality, fatigue is a characteristic of depression that results in apathy, demotivation, anxiety, and restlessness, resulting in restless sleep, lack of interest in anything, and loss of energy[1]. Other researchers also found a high frequency of anxiety and depression in patients with CHBI and psychiatric pathology negatively impacting the quality of life of sufferers[3]. Regarding the role of the hepatitis B virus itself, a cross-sectional study (hepatitis B virus, HCV, alcohol abuse, and metabolic syndrome) found that the presence of the hepatitis B virus was independently associated with depression[12]. The origin of untreated anxiety and the increasingly widespread spread of the virus independently suggest an additional causal mechanism due to the presence of the virus on anxiety that continues to lead to depression[13].

Poor mental health factors, according to research in its findings, namely samples with psychological disorders (PHQ-8) and poor physical health, are influenced by several factors such as gender, black race, low education, unemployment, low social support, and high comorbidity[14]. In another cohort study examining the epidemiology and clinical impact of chronic hepatitis B, factors such as exposure to treatment, demographic variables such as country, socio-cultural, education, and level of mental health during the course of the disease can influence the psychosocial well-being of sufferers[2]. However, the high incidence of anxiety in CHBI has not yet become a focus for health workers or the environment in the process of developing treatment for psychosocial problems (anxiety) caused by CHBI and the duration of treatment carried out for sufferers[1].

Previous studies highlighting the psychosocial disorders arising from the development and treatment of CHBI have not yet fully quantified the incidence of psychosocial disorders, particularly the early symptoms of anxiety, which, if left untreated, can develop into more severe mental disorders. Furthermore, these studies have not identified factors that influence the incidence of anxiety in women of childbearing age with chronic hepatitis B infection, thus increasing the risk of anxiety.

Therefore, It is important to understand the factors that influence anxiety in patients with chronic hepatitis B. It is hoped that appropriate interventions can be designed to improve psychological well-being and quality of life. Therefore, this study aims to identify factors that influence anxiety levels in women of childbearing age with chronic hepatitis B.

This research is a descriptive analytical study with a cross-sectional approach. The study population was 51 women with hepatitis B, using a total sampling technique. The sample used was women with inclusion criteria of at least 18 years of age who underwent blood donation on April 2-May 3 at the Indonesian Red Cross in Surabaya. The exclusion criteria were women diagnosed with hepatitis B with a history of mental disorders before being diagnosed with hepatitis B. Prior to the study, an informed consent was filled out (a sign of agreement as a respondent).

Anxiety disorder variables were assessed using the Zung Self Rating Anxiety Scale (ZSAS) questionnaire. The validity test of the questionnaire was carried out using the Pearson correlation method, with the results showing that all questionnaire items were valid with a calculated r value $> r$ table (calculated r 0.523 $> r$ table 0.361). The reliability test of the questionnaire instrument was measured using the Cronbach Alpha coefficient, with the results showing a Cronbach Alpha value of 0.87 which exceeds the minimum instrument limit of 0.7, so the questionnaire has high reliability. Data on age, marital status, education, employment and social support were collected through interviews and medical records with data processing techniques using chi-square analysis to see the influence between variables and regression correlation to see the risk of events between dependent and independent variables. Before the study was conducted, the researcher conducted an ethical test and was approval by the health research ethics agency of the Nadhlatul Ulama Tuban Health Sciences Institute, with ethical clearance number no. 64 / 0084223523 / LEPK.IIKNU / IV / 2025.

RESULTS

Table 1. Frequency of Chronic Hepatitis B Patients Experiencing Anxiety Disorders

Anxiety level	CHBI patients	
	n	(%)
Normal	13	25.5
Mild Anxiety	15	29.4
Moderate Anxiety	17	33.3
Severe Anxiety	6	11.8
Total	51	100.0

Table 1 shows the number of chronic hepatitis B patients experiencing anxiety disorders. The highest number was found in chronic hepatitis B patients with moderate anxiety, at 33.3%, while the lowest number was found in chronic hepatitis B patients with severe anxiety.

Table 2. Relationship of Factors Associated with Anxiety Disorders in Women of Productive Age

Variables		Anxiety level screening								<i>p-value</i>
		Normal		Low anxiety		Moderate anxiety		Severe anxiety		
		n	%	n	%	n	%	n	%	
Age category	Young adults (18-40 years)	12	29.3%	8	19.5%	17	41.5%	4	9.8%	0.005
	Middle adulthood (40-60 years)	1	10%	7	70%	0	0%	2	22.2%	
Marital status	Marry	10	41.7%	3	12.5%	10	41.7%	1	4.2%	0.007
	Not married yet	3	11.1%	12	44.4%	7	25.9%	5	18.5%	
Education	Low education	3	12.5%	6	25%	9	37.5%	6	25%	0.016
	Higher education	10	37%	9	33.3%	8	29.6%	0	0%	
Work	Work	7	31.8%	6	27.3%	7	31.8%	2	9.1%	0.818
	Doesn't work	6	20.7%	9	31.0%	10	34.5%	4	13.8%	
Social support	Get support	11	45.8%	9	37.5%	3	12.5%	1	4.2%	0.001
	No support	2	7.4%	6	22.2%	14	51.9%	5	18.5%	

Source: primary data from chi-square test processing, 2025

Table 2 shows the relationship between factors influencing anxiety disorders in

women of reproductive age with chronic hepatitis B. Based on age category, age was found to have a significant relationship with anxiety levels ($p = 0.005$). Respondents in the young adult age group (18-40 years) showed the highest proportion in the moderate anxiety category, at 50%. The results of this study also found that the young adult age group (18-40 years) had a 3.72 times greater risk of experiencing anxiety. This may be due to the phase of life at this age, which is generally characterized by work demands, family pressures, and high financial responsibilities, thus increasing the risk of stress and anxiety.

Marital status also showed a significant association with anxiety levels ($p = 0.007$). The study also found that the unmarried/divorced group had a 5.71 times greater risk of developing anxiety. Divorced respondents had a higher proportion of severe anxiety compared to married or unmarried respondents. Less stable emotional and social conditions after divorce can be a trigger for increased anxiety levels.

Respondents' education level was also significantly related to anxiety ($p = 0.016$). The results of this study also found that the low-education group had a 0.24-fold increased risk of developing anxiety. Respondents with low educational backgrounds showed a greater tendency to experience moderate and severe anxiety. This suggests that education level can influence how individuals cope with stress and access to information or services that can help manage anxiety.

Social support demonstrated a highly significant effect on anxiety levels ($p = 0.001$). The study also found that the group without support was 10.57 times more likely to develop anxiety. Respondents who felt they lacked adequate social support had a significantly higher proportion of moderate and severe anxiety levels. This confirms findings from various previous studies that suggest social support plays a crucial role in reducing psychological distress and increasing individual resilience to stressful situations.

Meanwhile, no significant relationship was found between employment status and anxiety levels ($p = 0.818$). The study found that the unemployed group was 1.78 times more likely to experience anxiety. This could be due to the possibility that both employed and unemployed respondents experienced psychological stress from other factors, such as family burdens, financial problems, or social environments, so differences in employment status did not show a significant effect on anxiety levels.

Overall, these findings emphasize the importance of considering factors such as age, marital status, education, and social support in early detection and intervention efforts for anxiety disorders. Anxiety prevention and treatment strategies should be tailored to individual characteristics, particularly in the vulnerable groups identified in this study.

Factors associated with anxiety disorders in productive-age women with chronic hepatitis B include age, marital status, education, and social support. Occupation, however, was not associated with anxiety disorders in productive-age women with chronic hepatitis B.

DISCUSSION

This study shows that age significantly influences the incidence of anxiety in adult women with chronic hepatitis B virus infection. This is consistent with other research, which has shown that women with chronic hepatitis B virus infection are older and have lower levels of education[14]. Adult women with chronic hepatitis B are more likely to experience mental health problems such as depression and anxiety. Other studies have shown that age is negatively correlated with stress levels, and patients with higher education have lower levels of anxiety[15].

This is in line with a longitudinal study by Infurna et al. (2024) that examined changes in coping strategies over 10 years in middle-aged and older adults with chronic illness. They found a general decline in the use of all coping strategies (instrumental action, denial/disengagement, positive reappraisal, focusing, and venting emotions) over time,

and this decline was moderated by age. Positive reappraisal declined more steeply in middle-aged participants, while other strategies declined more sharply in older participants[7], [10].

Age does influence the ability and types of coping mechanisms individuals use to deal with anxiety related to chronic illness. Older adults may show a decline in some active coping strategies but also demonstrate greater emotional resilience. Thus, some studies suggest that older adults may have better emotion regulation and lower affective reactivity to stress due to accumulated life experiences (age difference), and other research findings also suggest that older adults may have higher levels of affective well-being to deal with anxiety issues[16].

This study found that women with an unmarried marital status had an influence on anxiety. Marital status explains that married women with partners tend to have social support from their husbands, which influences anxiety levels[14], [17]. Unmarried women with CHBI experience higher levels of anxiety than married mothers due to difficulties in obtaining social and financial support, as well as inadequate health services[6]. Marital status with general social support in women with chronic diseases, such as CHBI, shows that emotional and instrumental support significantly reduces anxiety[15].

Marital status is one of the important factors influencing the availability of this social support. Research conducted on patients with chronic diseases such as hepatitis B in Iran showed that more than half of the patients confided in their husbands, mothers, and sisters and talked to them about their condition, receiving more support from their families[7], [9]. It appears that if disclosure of the illness to the partner results in appropriate acceptance from the partner, it can reduce the patient's pain and suffering and increase the partner's individual capacity to cope with the challenges and anxieties caused by the illness.

The findings in this study indicate that education influences anxiety in women with hepatitis B infection. This is consistent with other findings that mothers with hepatitis B who are highly educated are better able to cope with anxiety. Education provides greater knowledge and control over their lives, allowing them to better cope with psychosocial and environmental factors.[8]. A similar to this study showed that peer education (group B) was significantly more effective in reducing anxiety levels (lower SAS scores) and depression (lower SDS scores) compared to the control group (group A) after the intervention was carried out ($p < 0.05$).

This indicates that higher education and peer support have the potential to reduce psychological distress. This effectiveness is thought to be due to the shared backgrounds and experiences between peer educators and patients. This similarity facilitates better communication, mutual understanding, and relevant psychological support in familiar language and topics[6]. Furthermore, this study found that group B showed significantly lower scores in avoidance behavior, passive coping, and giving up on the disease ($P < 0.05$) [1].

These findings suggest that peer education can change patients' responses to their illness. Peer educators can share effective behavioral strategies, accurate information, and easy-to-understand concepts. Furthermore, the emotional support provided by peers can increase patients' self-acceptance and confidence in coping with their illness.[8], [15] In this study, analysis considering various demographic and quality of life factors showed that a high level of education was significantly associated with improved quality of life. This finding may be due to a deeper understanding of chronic hepatitis B infection (CHI) in patients with a high level of education. Women with a high level of education have a better understanding of CHI compared to women with a low level of education, so adjustments in anxiety coping management are easier for women with a higher level of education[9], [18].

This study shows that social support significantly influences the incidence of anxiety in mothers with CHBI. Other studies also explain that there is a significant negative relationship between quality of life and social isolation ($r = -0.273$; $p < 0.001$) [5]. This explains that isolation (exclusion from the social environment) is a health problem associated with depression and decreased quality of life among the elderly, so support from family and friends is needed to achieve well-being[17], [18].

Other research also shows a relationship between social isolation and age and education. This study explains that mothers with HBV require more support from family members and other organizations to reduce stress that can trigger mental disorders[15]. Another study found that non-pregnant CHBI mothers were more likely to experience mental disorders than comparison subjects (30.2% versus 11.6%), and had higher anxiety scores[18]. Overall, up to half of patients with CHBI infection have psychiatric morbidity[16].

In this study, the work variable did not influence anxiety in mothers with CHBI (p-value 0.81). This is in line with other studies, which found that there was no significant relationship between working mothers with CHBI and the occurrence of anxiety (p-value 0.84)[19]. This research is in line with the results of research that there is no significant influence between work and the incidence of anxiety in mothers with chronic hepatitis B.

Excellence in this study clearly identifies age, marital status, and education level as demographic factors that significantly influence anxiety in adult women with CHBI. It also explores the importance of social support, particularly from partners, in reducing anxiety levels in CHBI patients. This highlights the crucial role of the social environment in mental health management. This study demonstrates the effectiveness of peer education in reducing anxiety and depression levels. This opens up opportunities for more personalized and relevant intervention approaches.

A limitation of this study is that the discussion specifically targets adult women with CHBI. This may limit the generalizability of the results to other populations (e.g., men, children, or individuals with other chronic diseases). Although it is stated that employment was not a significant effect, there is no further explanation regarding potential reasons behind this finding or whether other variables might interact with employment. If the reference data (other studies) come from different cultural or socioeconomic contexts, there may be limitations in the applicability of the findings to this study population. Although this discussion references other studies, it does not explicitly present primary quantitative data from the studies in question (e.g., percentages, p-values, effect sizes) for each variable. This makes it difficult to evaluate the strength of the relationships between variables.

Therefore, the implications of this study indicate the need to develop mental health support programs or interventions tailored to age groups (e.g., different coping strategies for middle-aged vs. older adults) and marital status (e.g., focusing on strengthening social support for single women). Furthermore, it highlights the important role of education in reducing anxiety, implying that comprehensive health education interventions, including peer education, should be an integral part of the management of patients with CHBI. Educational materials should be tailored to the patient's educational level. Health organizations or social institutions should develop programs to strengthen social support networks for women with CHBI, especially those who are single or have limited access to support. This could take the form of support groups, family counseling, or community initiatives. By addressing factors that trigger anxiety (age, marital status, education, social support), it is hoped that significant improvements in the quality of life of women with CHBI can be achieved. These findings pave the way for further, more in-depth research into specific coping mechanisms across different age groups, the impact of financial support, and the development of community-based intervention models for patients with chronic illnesses.

CONCLUSION

This study found factors that influence anxiety in women of productive age with CHBI, including age, marital status, education, and social support, so that readers can prevent anxiety early on in CHBI sufferers with relaxation exercises, a healthy lifestyle, seeking broader social support, reducing exposure to information that causes anxiety, and focusing on the present (mindfulness). Further research is needed to explore the underlying mechanisms of the relationship between Hepatitis B infection and anxiety disorders based on other more specific factors such as diet, rest patterns, and duration of infection to see whether there are differences in anxiety levels between newly diagnosed women and those who have lived with CHBI with chronic Hepatitis B for a long time for a more targeted prevention and treatment approach.

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