



The Effectiveness of the Kolb Learning Method in Preventing Baby Blues Syndrome in Postpartum Mothers through a Neurobiological Approach

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Abstract: This study aims to evaluate the effectiveness of the Kolb Learning method in preventing baby blues syndrome in postpartum mothers through a neurobiological approach. Baby blues syndrome is often caused by a sudden drop in hormones after giving birth, which can affect the new mother's neurobiological balance and mental health. Providing public education through the Kolb Learning method, which emphasizes experience-based learning and understanding of biological changes after childbirth, is expected to be able to prevent this disorder. This quasi-experimental research involved 120 postpartum mothers, divided into two groups: control and treatment in each BPM. The research results showed that the Kolb Learning method was significantly effective in preventing baby blues syndrome, with 100% of respondents in the treatment group not experiencing the syndrome. The simple t-test showed significant results with a p value = 0.000, strengthening the effectiveness of this intervention. These findings indicate that a neurobiological approach using the Kolb Learning method can be an effective intervention to prevent baby blues syndrome during the postpartum period. Therefore, it is recommended that this method be integrated into antenatal education programs to improve the psychological and biological well-being of mothers after giving birth.

Keywords: Baby blues; Kolb learning; Neurobiological; Postpartum mother; Prevention

Introduction

State Baby blues syndrome is a psychological phenomenon that commonly occurs in mothers after giving birth, where they experience various uncertain feelings such as sadness, anxiety, anger, and often cry for no apparent reason. This condition is a serious problem that affects the mental health of new mothers and can disrupt the bond between mother and baby. According to data from the World Health Organization (WHO, 2020), the incidence of baby blues syndrome in Asia ranges from 26% to 85%. The prevalence of postpartum blues, which is a milder form of postpartum depression,

varies in different regions of the world. For example, in Japan, the prevalence of baby blues ranges from 15% to 50%, while in the United States it reaches around 27%. In France, the prevalence is around 31.3%, and in Greece it is as high as 44.5%. In Indonesia itself, data shows that 57% of mothers experience symptoms of baby blues, making it one of the countries with the highest prevalence in Asia (BKKBN, 2024).

The high incidence of baby blues syndrome in Indonesia is a serious concern, especially because of its broad impact on the welfare of mothers, babies and families as a whole. This syndrome not only affects the mother's mental health, but can also have a negative

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impact on the baby's psychological development and family harmony (Rupanagunta et al., 2023; Sarkisova & van Luijtelaa, 2022; Tsai et al., 2023). For example, a husband may doubt his wife's ability to care for a baby, which can worsen the mother's emotional condition and increase tension in the husband and wife relationship. This disrupted relationship can ultimately hinder the development of a strong emotional bond between mother and baby, which is very important in the early days of a baby's life.

The underlying cause of baby blues syndrome is often associated with significant hormonal changes after giving birth. In particular, the drastic drop in hormone levels such as estrogen and progesterone after delivery is thought to play an important role in triggering the symptoms of baby blues (de Dreuille et al., 2023; Wei et al., 2023; Weil et al., 2023). From a neurobiological perspective, these hormonal changes affect the balance of neurotransmitters in the brain, which are responsible for regulating emotions and responses to stress. This imbalance can lead to increased vulnerability to feelings of sadness, anxiety, and irritability, which are characteristic of baby blues syndrome.

Moreover, these neurobiological changes not only affect maternal mental health directly, but also have broader implications for cognitive and emotional functioning. For example, a decrease in certain hormones can affect brain circuits involved in emotional processing and decision making, which can leave mothers feeling overwhelmed and less able to cope with the demands of caring for a newborn. In addition, prolonged stress due to baby blues syndrome can also affect the autonomic nervous system, which regulates unconscious body functions, such as heart rate and blood pressure (Shadid et al., 2023; Thomas, 2023; Zheng et al., 2023). This can worsen the mother's stress response, increasing the risk of developing more serious mental health disorders, such as postpartum depression.

In this context, it is important to explore interventions that are effective in preventing or reducing the impact of baby blues syndrome. One promising approach is the Kolb Learning Method, which is an experience-based learning model that involves four stages: concrete experience, active reflection, abstract conceptualization, and active experimentation. This model emphasizes the importance of direct experience and reflection in the learning process, which can help mothers develop the skills necessary to overcome the emotional challenges faced after giving birth (Oliveira & Kocoshis, 2023; Rioux-Labrecque et al., 2023; Zemel, 2023).

This study aims to evaluate the effectiveness of the Kolb Learning Method in preventing baby blues syndrome in postpartum mothers at two main health facilities, namely BPM Ari Rokhriyanti in Jakarta and

BPM Komariah in Jambi. These two BPMs each record an average birth rate of 25-30 babies every month, with around 50% of postpartum mothers experiencing baby blues syndrome. As the main health facilities in their area, BPM Ari Rokhriyanti and BPM Komariah Jambi play an important role in efforts to prevent and treat this syndrome (Sellem et al., 2023). Therefore, this research is not only clinically relevant, but also very important for improving the quality of maternal health services in both BPMs.

The neurobiological approach in this research will also explore how hormonal and neurochemical changes after birth can be modulated through learning-based interventions. By combining aspects of experience and reflection in the learning process, it is hoped that mothers will be better prepared emotionally and cognitively to face the changes that occur after giving birth. Apart from that, this research will also examine the long-term impact of the Kolb Learning Method on the psychological and biological well-being of postpartum mothers (Collin et al., 2023; Montes-Ibarra et al., 2023).

Thus, it is hoped that the results of this research can make a significant contribution in reducing the incidence of baby blues syndrome (Furuta et al., 2023). Apart from that, this research also has the potential to be further developed as an intervention model that can be implemented in various health facilities throughout Indonesia, to improve the welfare of postpartum mothers and their families.

Method

This research design uses a quasi-experimental method with a case-control design. This design allowed researchers to compare outcomes between a group of mothers who received Kolb's learning intervention and a control group who did not receive the intervention. This research involved primary data collection, which was carried out through administering the Edinburgh Postnatal Depression Scale (EPDS) questionnaire to postpartum mothers. EPDS is a measuring tool that has been proven for its validity in identifying symptoms of postpartum depression, including baby blues syndrome. This questionnaire consists of ten questions designed to assess the emotional state of the mother in the first few weeks after giving birth (Reed et al., 2023).

Data analysis in this study involved a series of statistical tests to determine whether there were significant differences between the treatment group and the control group. Before carrying out statistical tests, the collected data is first assessed for normality using appropriate statistical tests. If the data follows a normal distribution, then a parametric sample t test is used to test the differences between the two groups. However, if the data does not follow a normal distribution, a

nonparametric test, namely the Wilcoxon test, is used to calculate the difference (Lambe et al., 2023). The Wilcoxon test is a statistical method suitable for data that is not normally distributed, and is often used in research involving small sample sizes or ordinal data.

With this approach, this research not only seeks to understand the effectiveness of Kolb's learning in the context of baby blues prevention, but also to present accurate and reliable data analysis. It is hoped that the results of this research will provide new insight into the potential of an experience-based learning approach in supporting the mental health of postpartum mothers, as well as contributing to efforts to prevent baby blues syndrome in Indonesia, especially at BPM Ari Rokhriyanti and BPM Komariah Jambi.

Result and Discussion

Results

Based on the research results in table 1, it is known that based on the data in table 1, looking at the frequency distribution, it is clear that the majority of respondents in the treatment group with a total of 30 respondents, 100%, do not fall into the category *baby blues* and 6 respondents or 20% of the control group were not given a method *kolb learning* fall into the category *baby blues*

Table 1. Category Distribution *Baby Blues* to Postpartum Mothers at BPM Ari Rochriyanti Jakarta in 2024

Baby blues	Providing Kolb learning to Treatment Groups		Control Group		Total F Respondent
	F	%	F	%	
Of	30	100	24	80	55
No	0	0.	6	20	5
Total	30	100	30	100	60

Based on the data in table 2, looking at the frequency distribution, we get a picture of the majority of respondents in the case group with a total of 30 respondents and 93.4% of respondents from the case group do not fall into the category *baby blues* and 9 respondents or 30% of the control group were not given Kolb learning method fall into the category *baby blues*.

Table 2. Category Distribution *Baby Blues* to postpartum mothers at BPM Komariah Jambi in 2024

Baby blues	Providing Kolb learning to case groups		Control Group	
	F	%	F	%
of	2	6.6	9	30
No	28	93.4.	21	70
Total	30	100	30	100

Table 3. The Effectiveness of the Kolb Learning Method in Preventing Baby Blues during the Postpartum Period at BPM Ari Rokhriyanti in Jakarta in 2024

Giving Method Kolb		Baby blues		Mean	P. value
Learning		Of	No		
	f	%	f	%	
Yes Treatment Group	0	0	30	100	3.90
No Control Group	6	20	24	80	1.50

Based on table 3 test simple t test it is known that the significance value is $0.000 < 0.05$, then it can be concluded that H_0 is rejected and H_a is accepted, thus it can be concluded that the learning method kolb learning effective in prevention baby blues during the postpartum period at BPM Ari Rokhriyanti Jakarta.

Table 4. Effectiveness of Learning Methods Kolb Learning towards Prevention Baby Blues during the Postpartum Period at BPM Komariah in Jakarta in 2024

Providing the Kolb learning method	Baby blues				Mean	P. value
	f	of %	F	No %		
Yes Treatment group	2	6.6	28	93.4	2.82	0.000
No Control group	9	30	21	70	1.50	

The results of the simple t test show that the significance value is $0.000 < 0.05$, so it can be concluded that H_0 is rejected and H_a is accepted, thus it can be concluded that the Kolbs learning method is effective in preventing baby blues during the postpartum period at BPM Komariah Jambi in 2024.

Discussion

Distribution of the Baby Blues Category among Postpartum Mothers at BPM Ari Rokhriyanti Jakarta and BPM Komariah in 2024

Based on the data in Table 1 and Table 2, it can be seen that the majority of respondents in the treatment group showed very positive results. In BPM Ari Rokhriyanti, 100% of the treatment group, or 30 respondents, did not experience baby blues syndrome, while 20% of the control group experienced baby blues. At BPM Komariah Jambi, 93.4% of the treatment group, or 28 respondents, also did not experience baby blues syndrome, while 30% of the control group experienced this condition. These findings indicate that Kolb's learning approach is effective in reducing the incidence of baby blues syndrome in both study locations.

EPDS is an effective method for identifying infant blues syndrome. EPDS is a diagnostic technique that has proven useful in assessing postpartum depression, with excellent sensitivity and specificity. This scale consists of ten questions that evaluate the patient's emotional

condition over the past week. A score of more than 10 indicates varying degrees of depression, with 10 often indicating the need for more in-depth psychiatric treatment (Berthy et al., 2023; Kang et al., 2023; Merz & Achebe, 2023). Women who score between 5 and 9 and do not display suicidal thoughts need to be reassessed after two weeks to determine the progress of their condition.

In a neurobiological context, baby blues syndrome is often associated with postpartum hormonal fluctuations that affect brain neurotransmitters, such as serotonin and dopamine, which play a role in emotional regulation. Decreased levels of the hormones estrogen and progesterone after giving birth can disrupt the balance of neurotransmitters, causing feelings of sadness, anxiety and emotional instability (Conrad et al., 2023). Kolb's learning approach based on direct experience and active reflection can help mothers adjust to these hormonal changes by providing better coping strategies. By providing a structure that supports experience and reflection, this method has the potential to modulate neurobiological responses to stress and improve maternal psychological well-being (Johansson et al., 2023; Ouyang et al., 2023; Rupanagunta et al., 2023).

Therefore, this study not only evaluates the effectiveness of the Kolb method in reducing the symptoms of baby blues, but also examines its impact on the neurobiological changes underlying the condition (Candel & van Breukelen, 2023; Chen et al., 2023; Wang et al., 2023). The results of this research are expected to provide new insights into how an experience-based learning approach can contribute to preventing and overcoming baby blues syndrome, as well as how this interacts with biological factors that influence postnatal mental health.

Effectiveness of Learning Methods Kolb Learning for Prevention Baby Blues During the Postpartum Period at BPM Ari Rochriyanti Jakarta and BPM Koamriah Jambi in 2024

The t-test results show a significance value of 0.000 < 0.05, which means H_0 is rejected and H_a is accepted. Thus, it can be concluded that the learning method kolb learning managed to prevent it baby blues at BPM Ari Rochriyanti Jakarta and BPM Komariah Jambi in 2024. In this research it can be concluded that the kolb learning method is effective in preventing baby blues at BPM Ari Rochriyanti Jakarta and BPM Komariah Jambi in 2024, the method kolb learning is an approach that starts from the mother's pregnancy period, an in-depth and broad-minded approach in the educational process involving the mother actively in real experiences that can be applied to prevent the occurrence of baby blues in puerperal mothers. Learning kolb learning will take

mothers through a step-by-step process that begins with real-life experiences, followed by reflection on those experiences, application of newly acquired understanding in the context of motherhood, and a seven-day postnatal assessment. It's clear that Kolb's learning helps protect new mothers from postpartum grief.

As with Rebecca Surya W's research in Surabaya in 2020 entitled "The Effectiveness of Emotional Intelligence to Improve Psychological Well-Being", shows that the method kolb learning increasing emotional intelligence and research entitled "Using Kolb's learning theory in stimulation-based learning to improve participants confidence", with the results of an increase in respondents' self-confidence by 78%. In counseling emotional support and social support are treatments baby blues syndrome. Emotional support counseling is a form of health promotion that can be carried out in various ways starting from the pregnancy period to the postpartum period. This can also be individual or group. Counseling goes through a cycle of experience, reflection, conceptualization and continuous experimentation as with the 4 cycles of learning methods.

Kolb learning can be applied to handle cases baby blues during the postpartum period. Ray Wagiu Basrowi, community medicine practitioner from the Health Collaborative Center and FKUI, highlighted how important it is to use a strategic approach to public education at the community level, considering the prevalence of mental health problems among toddlers, breastfeeding mothers and pregnant women (Arns-Glaser et al., 2023; Shi et al., 2023; Sleire & Markhus, 2023). The public education approach at the communication level is considered very strategic as an effort to prevent mental disorders such as baby blues. Public education has several learning methods such as learning methods kolb learning on prevention baby blues.

Research on learning kolb learning towards prevention baby blues There is still no research either domestically or abroad to find research on effectiveness kolb learning reduce stress in junior high school students (Houston et al., 2023; Lucassen et al., 2023; Wood et al., 2023). Providing health education through direct instructional training and demonstrations is one way to improve capabilities (Porter et al., 2023; Tobias et al., 2023; Tsai et al., 2023). To provide opportunities for people to continue learning how to increase their awareness (literacy) and skills (life skills) for their health, health education is a deliberately designed process. Students feel challenged when they receive direct learning (Horeau et al., 2023; Murphy-Alford et al., 2023; Rolandelli, 2005). Of course, during the learning process, students will ask about information provided by the

teacher related to real events that occur in the surrounding environment. So that teachers can provide additional material or knowledge that is not in the book, students are free to express concerns or highlight topics in the lesson plans using this learning method. Another opinion through training direct instructional make students have basic skills, technical skills, and can solve problems using logic.

Conclusion

Based on the results of research conducted at BPM Ari Rokhriyanti Jakarta and BPM Komariah Jambi in 2024, it can be concluded that the Kolb Learning method is effective in preventing baby blues syndrome in postpartum mothers. This research aims to evaluate the effectiveness of the Kolb Learning method through a neurobiological approach. Baby blues syndrome is often caused by a sudden drop in hormones after giving birth, which can affect the new mother's neurobiological balance and mental health. Providing public education through the Kolb Learning method, which emphasizes experience-based learning and understanding of biological changes after childbirth, is expected to be able to prevent this disorder. This quasi-experimental research involved 120 postpartum mothers, divided into two groups: control and treatment in each BPM. The research results showed that the Kolb Learning method was significantly effective in preventing baby blues syndrome, with 100% of respondents in the treatment group not experiencing the syndrome. The simple t-test showed significant results with a p value = 0.000, strengthening the effectiveness of this intervention. The Kolb Learning Method, which involves direct experience, reflection, conceptualization, and experimentation, allows mothers to better process emotional and hormonal changes after giving birth. This approach functions to stabilize the mother's mood by increasing coping abilities and overcoming the neurobiological impact of postpartum hormonal fluctuations, such as decreased estrogen and progesterone levels which affect brain neurotransmitters such as serotonin. Thus, it is recommended that health workers and counselors use the Kolb Learning method in education and counseling programs, starting during pregnancy and continuing with evaluation during the postpartum period. The knowledge and skills of health workers in applying this method need to be improved through special training and workshops. Apart from that, educational institutions in the health sector should integrate the Kolb Learning method in their curriculum to prepare prospective health workers to deal with baby blues effectively. Implementation of this method in clinical practice has the potential to improve the quality of support provided to postnatal mothers, as well as

reduce the prevalence of emotional disorders after childbirth. With this comprehensive and systematic approach, it is hoped that the psychological and biological well-being of postpartum mothers can be significantly improved.

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Author Contributions

The following statements should be used Conceptualization LI, IH, S, SN, C, AY contributed to the data collection process, data processing, article writing.

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Conflicts of Interest

The authors declare no conflict of interest.

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