

# Maternal Coping Strategies for Premature Infant: A Systematic Review

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## Abstract

A mother's stress due to the birth of her premature baby results in obstacles to the mother's role, hence it requires appropriate coping strategies. This review aimed to identify coping factors, explore coping strategies by mothers with premature babies, and identify interventions for enhancing maternal coping strategies. The article navigation utilized Boolean Operator of "or" and "and" with keywords of [preterm or premature or LBW, coping, and mother. Databases included ScienceDirect, EBSCOhost, PubMed, SAGE, ProQuest, and Scopus. The 529 articles obtained were screened by reading the focus of journals and addressing the topic and suitability of the journal content, selecting 10 articles. The first result reported factors influencing coping strategies: delivery method, income, available information, knowledge, support, and maternal self-efficacy. The second result presented maternal coping strategies for closely handling premature babies: belief in God, support-seeking, and the babies' condition progress. The third result showed two interventions: mother's empowerment program and group discussions with health workers. These two interventions to improve coping strategies play an important role in supporting mothers by facilitating their participation in caring for their babies.

**Keywords:** maternal coping, mother, premature

## Introduction

Premature infants refer to live births before 37 weeks of gestation. Preterm birth is a worldwide epidemic, with a global incidence of 15 million per year.<sup>1</sup> Data reported that the estimated global preterm birth rate in 2014 was 10.6%, showing 14.84 million premature births in 2014.<sup>2</sup> Premature babies are typically born before the body system reaches the perfect condition, indicating certain physical characteristics and additional needs of different support and care for survival compared to the normally-born babies.<sup>3</sup> Therefore, hospitalization of premature infants immediately after birth is unavoidable in most cases.<sup>3</sup>

A premature baby's birth leads the mother to get stressed due to uncertainty concerning the baby's survival, increased risk of medical complications, long-term effects of prematurity, hospitalization with various medical devices and procedures, and home care.<sup>4,5</sup> In general, parents expect to discharge their babies from the hospital upon delivery; however, having a premature baby at home presents a huge challenge for the mother and family. The premature baby requires special care, creating tension and stress for the mother. Mothers perform high-

stress levels during their infant's hospitalization, even persisting upon the hospital discharge, which sometimes requires a longer duration of hospitalization (for six months or longer).<sup>6</sup>

Maternal anxiety needs to be under control because the mother acts as the primary care provider for the baby. The mother's emotional state potentially hinders the achievement of the mother's role and ability, which in turn affects the quality of care and the baby's growth and development process.<sup>7,8</sup> Maternal stress can especially hinder the development and growth of the baby, causing feelings of rejection of the baby's presence and further leading to mental changes, emotional problems, and inappropriate activity levels.<sup>6</sup> The mother experiencing stress also has low sensitivity to the baby, thereby affecting the interaction between mother and baby.<sup>9</sup>

Coping strategies provide solutions when dealing with stress. Lazarus and Folkman classify coping strategies into problem-based and emotion-based coping strategies.<sup>10</sup> The application of efficient coping strategies will be able to regulate the mother's emotions, reduce the negative effects of stress due to premature birth, and improve the ability and interaction with the baby.<sup>11</sup> Thus far, the abil-

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ity of stress reduction leads to better maternal behavior, such as the ability to provide good care for the mother.<sup>12</sup> Coping exhibits an essential indicator of maternal response and behavior.<sup>13</sup> Mothers with premature babies may have obstacles to carry out the mother's role, thus appropriate coping strategies are needed to deal with unexpected situations.<sup>14</sup>

Several articles report common coping strategies for mothers with preterm infants. This article does not classify coping as the problem-focused or emotion-focused, such as building a closer bond with the baby and seeking support.<sup>15-17</sup> Only one study classified problem-focused and emotional-focused coping coping.<sup>14</sup> To date, no articles summarize the research results of coping strategies for mothers with premature babies as an essential part of maternal health and care for premature babies. Thus, this study is a pioneer, contributing significantly to knowledge of coping strategies for mothers with premature babies. This review aimed to identify factors of coping, explore coping strategies implemented by mothers with premature babies, and identify interventions to enhance maternal coping strategies.

## Method

This systematic review used six science databases: ScienceDirect, EBSCOhost, PubMed, SAGE, ProQuest, and Scopus, also was adjusted using the PRISMA guidelines. The search process applied three major keywords: coping, mother, and premature baby. For the population, mothers with premature babies were taken. The search strategy in ScienceDirect was coping AND mother AND premature, and in EBSCOhost was coping AND mother AND premature; ("coping"[All Fields]) AND ("mother"[All Fields]) AND ("premature"[All Fields]) in PubMed; coping AND mother AND premature in SAGE; coping AND mother AND premature in ProQuest; and coping AND mother AND premature in Scopus as the keywords. In the filter process, the study included full text, journal article type, dates of publication from last one-year, English language, open access, and original research.

The inclusion criteria were original study, published in 2015-2021, samples using mothers with premature babies, written in English and published in scientific journals, open-access journals, and exploring the coping strategies. Articles were filtered by reading and focusing on the core content of the articles, paying attention to the topic and appropriateness of the journal content including abstract, keywords, introduction, and conclusion. The exclusion criteria were coping strategies by mothers with non-premature babies and coping strategies by mothers with babies having congenital diseases.

Three reviewers selected the research based on the eligibility of articles to be reviewed, which included the ti-

tle, abstract, and the full text. Four reviewers selected the articles based on their area of expertise. Two reviewers independently assessed the content of the article as a whole, starting from the title to the content of the article according to the set inclusion criteria. After removing inappropriate articles, the complete articles obtained were those eligible for entry into further research. In case the assessment from two reviewers was different, then the other two reviewers would examine the articles.

Data taken were based on the conditions met stated in the Systematic Review Flowchart (Figure 1); the author, the study period, the year of publication, the country, the study design, the study method, the study area, and the mother coping with caring for premature babies. Data synthesis used narrative synthesis. To reduce a risk of bias, four reviewers worked independently. It would be done through discussion and reading all the selected articles if they had different opinions. The eligible articles were then analyzed qualitatively based on the three variables: coping factors, maternal coping strategies, and interventions to enhance maternal coping strategies. The review used the preferred reporting items for systematic review and meta-analyses (PRISMA) guideline; a checklist has been carried out using the 2020 PRISMA Checklist.

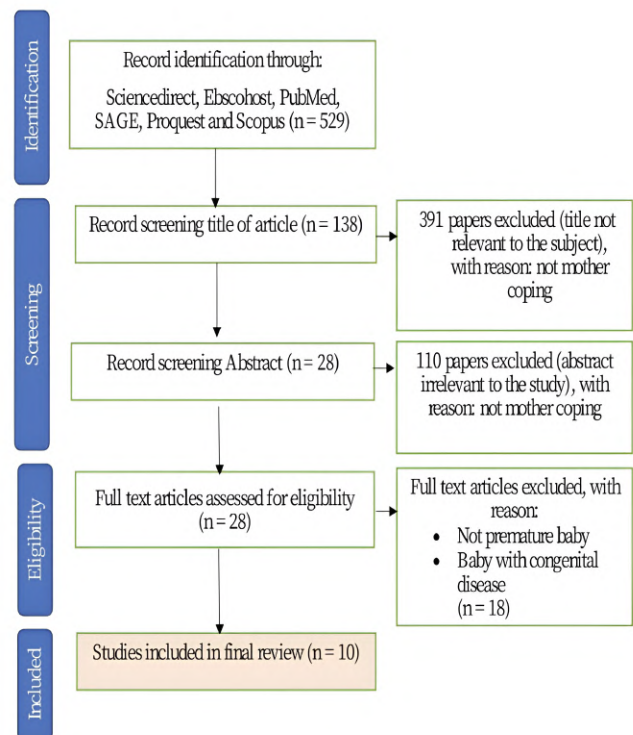


Figure 1. Systematic Review Flowchart

## Results

### Searching and Screening

From the ScienceDirect, EBSCOhost, PubMed, SAGE, ProQuest, and Scopus databases, all the 529 articles obtained were imported to Mendeley for further processing. Subsequently, a further checking was conducted based on the article’s title. The study found that 391 articles were similar articles. Then re-screening was taken and the study found that some articles were irrelevant as their titles were not about coping. After the first screening stage, of 138 articles’ abstracts read, 110 articles were found irrelevant because they did not discuss mothers dealing with premature babies. After the second screening stage, of 28 articles read for the whole text, 18 articles were found irrelevant because they did not discuss premature babies and discussed infants with congenital diseases, and finally the study selected 10 articles which were relevant and suitable for further review.

### Characteristics of Research and Review

This review included 10 articles: three from Iran, two from India, and five from Colombia, Ghana, Indonesia, South Africa, and Spain respectively. The research designs reviewed were five qualitative and five quantitative studies (three cross-sectional studies and two intervention studies). The selected 10 articles reported the study results with quantitative and qualitative designs, consisting of three themes. The first theme was sourced from four articles involving factors related to coping;<sup>18-21</sup> the second theme was sourced from four articles involving coping strategies and obstacles,<sup>14-17</sup> and the last theme was sourced from two articles involving interventions to enhance coping.<sup>11,22</sup> The complete review results are presented in Table 1.

### Findings Regarding Factors Affecting Maternal Coping with Premature Baby

The four articles examined the influential factors to

**Table 1. Review Results: Factors Affecting Maternal Coping with Premature Baby**

Author	Year	Country	Sample	Study Design	Result
Delgado Galeano & Villamizar Carvajal	2016	Colombia	144 mothers with premature babies	Prospective, descriptive, correlational study.	The regression results indicated that income variables, information provided at hospital, and preparation for parenthood were related to maternal coping.
Tambunan, Pratomo, Hadi & Rustina	2020	Indonesia	60 mothers with premature babies	Cross-sectional	There was a significant relationship between maternal knowledge of the care for the LBW infants and coping strategies.
Paul, Pais, Kamath, Pai, Lewis	2018	India	61 mothers with premature babies	Cross-sectional descriptive survey.	Most mothers (78%) indicated an average coping category. The mean and standard deviation of self-efficacy was 58.8±8.7. There was a positive relationship (r = 0.318, p-value = 0 .015) between perceptions of self-efficacy and parental coping, which was statistically significant.
Hendricks, Carter, Rao	2020	India	6 mothers with premature babies	Qualitative descriptive design.	Parents were reported to experience fear, anxiety, uncertainty, lack of control, and low self-esteem. Mothers showed coping skills and emotional strength and were confident in caring for the babies.
Sih, Bimerew & Modeste	2019	South Africa	11 mothers with premature babies	Qualitative	Major themes emerging from the data analysis were praying as a coping strategy, the mother’s attachment to the baby, and accepting the situation.
Ochandorena-acha, et al.	2020	Spain	15 mothers and 14 fathers with premature babies	Qualitative phenomenology.	The results of the study contained the three themes: parents’ ability, difficulties during care for premature babies, and coping strategies.
Tabrizi, Alizadeh & Radfar	2017	Iran	8 mothers with preterm babies	Qualitative	Mothers’ experience depicted that they had obstacles while being a mother, thereby implementing several strategies to overcome the situation. The coping strategy applied was building communications.
Akum	2018	Ghana	21 mothers with premature babies	An explorative, descriptive study design using a qualitative approach.	Mothers experienced physical, economic, sociocultural, and spiritual challenges. The support received was mainly from husbands, in-laws, friends, extended family members, and religious groups. The coping strategy was understanding the baby’s needs and belief in God.
Karbandi, Momenizadeh, Heidarzadeh & Mazlom	2018	Iran	70 mothers with premature babies	Clinical trial	The results indicated a significant difference after the intervention was practiced. There was an increase in problem-focused coping strategies and a decrease in emotion-focused coping strategies.
Mirlashari, et al.	2020	Iran	80 mothers with premature babies	Non-randomized, prospective, interventional study.	In the intervention group, there was a significant increase in the value of problem-focused coping strategies and a decrease in emotion-focused coping after the intervention.

Note: LBW = low birth weight

maternal coping with premature babies. The first article reported that the method of giving birth, income, information, and preparation for parenthood were related to maternal coping.<sup>18</sup> The cesarean section method affecting the maternal coping at home was feasible due to the separation from the baby, exacerbated by the mother's incapability to perform her role due to the influence of surgery recovery and the premature baby's condition. In addition, income affected maternal coping because having a premature baby required extra economic resources supporting the required care for premature babies. The last factor included the need of information at the admission time, during the baby's hospitalization, and after discharge.

The second article indicated a correlation between knowledge of infant care and coping strategies after controlling the mother's stress levels ( $p$ -value<0.001). The adjusted R-value of 0.453 denoted that the maternal knowledge of infant care and record had an influence by around 45% on maternal coping strategies. Based on the reported results, it was estimated that, for each one-point increase in the knowledge score, the coping strategy score simultaneously increased by 0.630 times after controlling the stress levels. Hence, it concludes that increasing knowledge and reducing stress could improve maternal coping strategies.<sup>19</sup>

The third article reported that family support and health workers largely facilitated most mothers' coping strategies. Mothers expressed the necessity for support from their families to help them perform their maternal role. Furthermore, mothers also expect to get professional health care support related to their skills, competencies, and communication skills.<sup>21</sup>

The fourth article reported that maternal self-efficacy in caring for premature babies was related to maternal coping with a  $p$ -value of 0.0013. It was also observed that most of the 47 (78%) mothers had an average level of coping, and 14 (22%) mothers had a good level of coping with premature birth. The average coping score was  $51.7 \pm 8.9$ . The mean and standard deviation of the maternal self-efficacy in caring for her baby was  $58.7 \pm 8.7$ .<sup>20</sup>

#### *Findings Regarding Coping Strategies for Mothers with Premature Baby*

The first article discussing maternal coping strategies for premature birth resulted in three themes.<sup>15</sup> The first theme referred to praying, consisting of gratitude and prayer sub-themes. The second theme was closeness or bonding to premature babies, consisting of sub-themes: bonding and interacting with the baby, as well as evidence of life, progress on babies, and feeling of no regrets. The last theme was acceptance of the situation with sub-themes: perseverance in the situation and the mo-

ther's awareness of her responsibility.

The second article reported that maternal coping strategies for premature babies are divided into problem-focused and emotional-focused coping strategies.<sup>16</sup> Strategies applied in the problem-focused coping include closer bonding with the baby and involvement in baby care, support-seeking from family, health workers, and other patients, and the last was to navigate information from the internet and health workers. Emotional-focused coping strategies were regarded as dreams, hopes, and positive thinking, focusing on positive emotions and progressing premature babies' health and daily condition.

The third article, regarding the coping strategy of mothers with premature babies, was to build communications with categories of "interacting with baby" and "support-seeking".<sup>14</sup> Interacting with baby consisted of physical and emotional interactions. At the beginning of physical interaction, mothers often experienced doubts and fears. However, when mothers had learned how to interact with and understand the baby's condition, they gradually became more stable, and with the support and guidance of health workers such as nurses, mothers were more confident to touch and hug their babies. Mothers interacted physically with their babies gradually before they were finally able to participate in baby care activities. The second category was support-seeking, referring to the support needed by mothers, including family, health workers, and mothers of other premature babies.

The fourth article reported the following results: the coping strategy by mothers in performing responsibilities to care for their premature babies was through understanding the baby's needs and having faith in God.<sup>17</sup> Mothers generally observing the baby understood the baby's needs, such as hunger, wet diapers, or needs of attention. The second coping strategy referred to having faith in God was by accepting any God's blessing, thereby receiving strength to live it.

#### *Findings Regarding Coping Interventions for Mothers with Premature Baby*

Interventions to enhance maternal coping strategies for premature babies included mother's empowerment programs,<sup>11</sup> consisting of four stages of "behavioral training" with the following details: the first stage of 2-4 days after the infant was admitted to the hospital, the second stage of 2-4 days after the first stage, the third stage of 1-3 days before the baby was discharged and the fourth stage of a week after the hospital discharge. The empowerment program called "Creating Opportunities for Parent Empowerment (COPE)" was an educational-behavioral intervention designed based on self-regulation and control theory. This program increased problem-focused coping strategies and decreased emotion-focused coping strategies.



The second intervention involved group discussion with health workers,<sup>22</sup> conducted from the third day since the baby was admitted to the Neonatal Intensive Care Unit (NICU). Four sessions of discussion were conducted fortnightly on Monday and Saturday every week, and all mother participated in all four group discussion sessions; each session lasted 60 minutes. The discussion topics were selected based on most common topics related to the needs of mothers and agreed upon by all discussion members. All mothers in the study received a free booklet about caring for premature babies. Each session was attended by a mother, a pediatrician, and a nurse. This intervention significantly increased problem-focused coping scores during and after two weeks of intervention. Mothers in the intervention group implemented a higher level of problem-focused coping strategies. In contrast, there was a significant decrease in emotion-focused coping scores during and after two weeks of intervention. Mothers from the intervention group implemented less emotion-focused coping strategies.<sup>22</sup>

## Discussion

The discussion is based on the research objectives; the first is the factors influencing the coping, maternal coping with premature babies, and interventions to improve maternal coping.

### *Factors Affecting Maternal Coping with Premature Babies*

Caring for premature babies generates significant stress for mothers.<sup>23</sup> Premature babies need a special care which is different with the full-term babies, leading mothers to experience numerous daunting challenges, such as the baby's minimal bond with the mother, depression, anxiety, and fears about their health, future, and mortality.<sup>24</sup> Hence, the mother's assessment of the situation is pivotal because the mother must accept and understand that a premature baby is different from a full-term baby.<sup>25</sup> Mothers must adapt to such condition through effective coping strategies to deal with the stressful situations.<sup>26</sup> Coping refers to a process of cognitive and behavioral changes to cope with internal and external demands generating stress.<sup>27</sup> Proper coping strategies could assist mothers in reducing stress and improving maternal behavior, such as the ability of mothers to take good care of themselves.<sup>12</sup>

Attempts to generate effective and efficient coping strategies involve mothers' and health workers' attention regarding the affected factors, such as the delivery method, income, available information, knowledge, support, and maternal self-efficacy.<sup>18-21</sup> Providing information and elevating maternal knowledge played a fundamental role in term of maternal coping strategies. Consequently, providing appropriate information on baby

care from admission to the hospital is vital to developing maternal coping when discharged. The type of information and the way the information is provided should be reviewed and considered according to the mother's needs. The need of information typically originates from the need to control the situation and facilitate active information seeking.<sup>28</sup> The main factor which elevates maternal knowledge includes information on the condition and education for baby care.

### *Coping Strategies for Mother with Premature Baby*

Based on the review results, the coping strategies of mothers with premature babies referred to this entire article explaining that maternal coping relates solely to a closer bond with premature babies. This closeness is commonly formed by understanding the baby's needs, interacting with the baby, and involving in the care of premature babies.<sup>14-16,25</sup> The following two articles explained the belief in God as part of maternal coping strategies.<sup>15,25</sup> Such strategy included the grateful feeling for the premature baby's condition through praying for the health and safety of the premature baby and getting closer to God. In addition to those mentioned above concerning two coping strategies, it is explained that support-seeking was also considered a maternal coping strategy.<sup>14,16</sup> The support needed by mothers was in the form of support from partners, health workers, extended family, and fellow mothers with premature babies. The last coping strategy focused on the progress of the baby's condition practiced by the mother to deal with the experienced stressful conditions.<sup>15,16</sup>

### *Coping Interventions for Mother with Premature Baby*

From the review results, the two interventions to improve the coping were navigated, including mother's empowerment program and group discussions with health workers.<sup>11,22</sup> This review result is in accordance with a study by Karbandi suggesting the effectiveness of empowerment programs in improving coping strategies; thus, it is necessary to implement the program as service standard for enhancing maternal coping strategies.<sup>11</sup> While, study by Mirlasari reported limited participation of fathers and other family members in caring for premature babies, leaving the mothers as the primary caregiver for their babies. Numerous efforts had been devoted to improving the quality of care in the neonatal intensive care unit (NICU), yet in most hospitals, the family was reported to be less involved in the decision-making process and baby care. These conditions thus encouraged health services and health workers to facilitate mothers to form discussion groups to improve health care for mothers and babies and promote collaboration between mothers and health care teams. The health care team could support mothers by facilitating their participation

in the caring to express affection for their babies.<sup>22</sup>

### *Limitations, Weaknesses, Strengths, and Recommendation of This Review*

This systematic review has several limitations. First, the authors only found 10 articles which met the inclusion criteria. Second, not all articles discussed the three variables for this review. Lastly, the study designs of selected articles in this study are qualitative and quantitative, which unfortunately affects the results of the review. Researchers were trying to expand the applied keywords and published articles to solve these limitations. Also, the authors focused the discussion on the articles obtained. This review is the first to critically review and discuss coping strategies among mothers with premature babies. The results of this review encourage further studies emphasizing the exploration of maternal coping strategies and the interventions to improve maternal coping strategies.

### **Conclusion**

The results of this review state that the influential factors to maternal coping for premature babies are delivery method, income, available information, knowledge, support, and maternal self-efficacy. Coping strategies implemented by mothers with premature babies are solely believing in God, grateful feeling, a closer bond with premature babies, support-seeking, and focusing on the baby's condition progress. Nurses must enhance maternal coping strategies with empowerment programs and group discussions to improve coping strategies.

### **Abbreviations**

PRISMA: Preferred Reporting Items for Systematic Review and Meta-analyses; LBW: Low-Birth-Weight; COPE: Creating Opportunities for Parent Empowerment; NICU: Neonatal Intensive Care Unit.

### **Ethics Approval and Consent to Participate**

Not applicable.

### **Competing Interest**

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

### **Availability of Data and Materials**

As a source of data and information, ScienceDirect, EBSCOhost, PubMed, SAGE, ProQuest, and Scopus databases are utilized.

### **Authors' Contribution**

REK and YSA contributed substantially to the concept and work design. MT, QIL, LS and NA conducted data analysis, data interpretation, and drafting of the manuscript. REK and YSA revised it critically for the important intellectual content and final approval of the version to

be published.

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