

REVIEW ARTICLE

Intervention Enhancing Parenting Sense of Competence in Caring Low-birth Weight Infant: A Scoping Review

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ABSTRACT

Low birth weight (LBW) is a complex health issue in babies, with various causes.. The study used an integrative review approach to search for articles related to parenting, competence, LBW, and premature. The risk of bias in systematic reviews (ROBIS) method was used to evaluate the quality of the reviews. After exscreening five meeting the eligibility criteria for review. Most studies used the parenting sense of competence scale to measure outcomes, with one defining parenting competence as knowledge, skill, and confidence. Five studies tested different interventions. All studies reported that their intervention has the potential positive impact on improving parent's. Furthermore, longitudinal studies are suggested to be suitable for monitoring the progress of interventions aimed at enhancing parental feeling of competence in infants with LBW.

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INTRODUCTION

Low birth weight (LBW) is widely acknowledged as a complex health issue in babies, involving various contributing causes, both direct and indirect (1). Approximately 15-20% of infants worldwide, equivalent to around 20 million, are born LBW (2). Infant who are born with LBW have a greater likelihood of experiencing deficits in neurodevelopment compared to children who are born at full term (3,4,5,6).

Parents of LBW Infant encounter numerous challenges related to disagreements, struggles in managing their children's behaviour, and insufficient communication, which ultimately contribute to parental stress (7,8). They expose to higher risk of parenting anxiety (mental suffering) and depression compared to mothers of full-term infants (9,10,11).

Parenting sense of competence pertains to the parents' subjective assessment of their ability to provide care for their babies which often understood as perceived self-efficacy in parenting; and their satisfaction with their position as parents (12). Nevertheless, the majority of research on parental feeling of competence has mostly examined parents of full-term children or newborns with

certain conditions, such as autism, multiple sclerosis, and intellectual impairment (13,14).

The majority of research examining parenting skills have indicated substantial enhancements in parental competence in caring for infants with LBW. For example, interventions included use of educational materials pertaining to parenting through multimedia articles, films, and audio files. Additionally, a platform was provided for parents to communicate with healthcare experts and other parents (15,16,17). Education is very important in improving parents' self-efficacy in parenting. Digital educational techniques may not effectively support experiential learning, thereby impeding parents' acquisition of parenting skills (17). Although research study showed the effectiveness of virtual reality technology in educating parents on newborn first aid, the parents' sense of confidence in parenting abilities was unknown (18). Computer animations and virtual reality technologies may teach parents and provide very realistic experiences in learning newborn care skills (18,19). The results of previous studies reported different findings and nevertheless, few review has been done to summarize parental competence in caring of LBW. Nevertheless, a restricted review research of parental competence in caring of LBW. This research contributes to the continuing discourse about perception of Effective measure at enhancing the parental competence. This study is therefore to examine: (1) recent data on intervention to improve sense of parent competence in caring LBW infant; (2) to identify emerging issues

arising from the intervention to improve sense of parent competence in caring low-birth weight infant.

MATERIAL AND METHODS

This study applied an integrative review approach to summarize intervention to improve sense of parent competence in caring LBW infant. A systematic approach that focuses only on pertinent research that contributes novel information to the study objectives (20,21). An integrative review is distinguished from other research methodologies by its adaptable and comprehensive design, which incorporates both quantitative and qualitative investigations. It allows for a more intentional choice and incorporation of diverse data sources and scholarly contributions that illustrate the correlation between religion and quality of life over a broad range of sampling frames. Hence it is a suitable method for providing a comprehensive and detailed account of a synthesizing information from several disciplinary sources (22). Consequently, we have chosen and included research sources that are able to characterize and assess intervention to improve sense of parent competence in caring low-birth weight infant.

Data Sources

Figure 1 depicts a search that took place from September to November 2023. Three online databases (PubMed, PsycINFO, and ScienceDirect) were used, using MeSH keywords like 'parenting' AND 'competence', OR 'feeling of competence' AND 'low birth weight,' OR 'premature'. The primary author collected and examined article abstracts that included the relevant keywords (refer to Figure 1), and the findings of the studies were verified by the second and third reviewers.

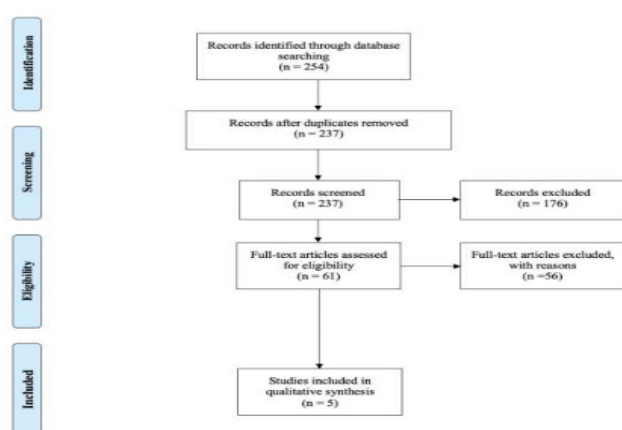


Figure 1: PRISMA flow diagram

Inclusion Criteria

The inclusion or exclusion of papers in the review was based on the following criteria: 1) English language papers that have undergone peer review. 2) Studies that include intervention or a combination of qualitative and quantitative methods. 3) Conduct research on interventions aimed at enhancing parental self-efficacy.

Excluded from consideration were reviews, theoretical articles, books, chapters, term papers, conference papers, blog entries, and working papers.

Data Extraction

The researchers gathered data from the title, abstract, and keywords of the reviews. In cases where consensus was lacking or there was insufficient information, they analyzed the whole text. Subsequently, the researchers assessed the reviews to verify that they satisfied the specified criteria for inclusion. Another researcher discussed inconsistencies among the researchers. The extraction process was adopted from the Cochrane Review Groups. The analysis included the examination of study qualities, specificities in the review, and the description of the intervention and control, including the kind of intervention, frequency, intensity, length, and results.

Quality Appraisal

Two independent researchers used the Risk of Bias in Systematic Reviews (ROBIS) approach to assess the caliber of systematic reviews (23). The tool evaluates the quality of research based on four factors: inclusion criteria, selection of relevant studies, data collection and evaluation, and analysis of outcomes. Bias is classified as either strong, low, or undetermined. Both researchers used the same methods, and any differences were settled by consensus, with the assistance of a third researcher. The interrater reliability was assessed using the kappa coefficient (κ), where a κ value more than 0.7 indicates strong agreement, a κ value between 0.5 and 0.7 indicates moderate agreement, and a κ value less than 0.5 indicates poor agreement.

RESULTS

Out of the initial search results, a total of 254 articles were identified. Among these, 61 articles were chosen for further analysis, while 176 articles were excluded due to their failure to meet the specified criteria. After a thorough screening and careful examination, a total of 61 papers were chosen while 56 research were removed due to not meeting the selection criteria. Finally, five articles match the qualifying requirements for evaluation. The articles analysed are shown in Table 1. All studies were published between 2018 and 2023. Two studies conducted using randomized control trial (24,25) and three studies using quasi experimental study (26,27,28). The sample ranged from 30 to 85 parents who have infant with LBW or premature. The most of studies applied parenting sense of competence scale to measure the outcome. While, only one study defined parenting competence as knowledge, skill, and confidence to deliver care to their babies (Table I).

All studies reported that their intervention has potential positive impact on improving parent sense of competence (26, 27,24,28,25) (Table I)

Table 1: Methodological characteristics of included studies

Author, year	Study design	Sample	Instrument	Intervention	Findings
Ghaljaei et al., 2023	Quasi-experimental study	all mothers of premature infants admitted to the NICU of an urban hospital in Iran (n = 80)	Parenting sense of competence scale	The Fordyce Happiness Training Program involves introducing group members to happiness and identifying factors affecting it. Participants are given instructions on raising positive thinking, increasing intimacy, lowering expectations, increasing creativity, planning, avoiding anxieties, and prioritizing happiness. The program also includes homework assignments, discussions about mothers' experiences, and feedback. Participants are encouraged to express their feelings and emotions, and the program aims to provide a context for participants to express their feelings and emotions.	pre-intervention stage, parental sense of competence scores averaged 61.32 (± 6.44) and increased to 68.52 (± 2.52) after the intervention.
Huang et al., 2023	a single-blind, two-arm randomized controlled trial with a repeated-measures design	Forty-five families were randomly assigned to the intervention group and 44 to the control group.	Parenting sense of competence scale, parental care ability	Online family-focused parenting support intervention. The intervention included three components: (1) two one-hour group sessions and three 30-minute individual sessions of online parenting support; (2) two follow-up telephone calls (15-30 min each) post-discharge; and (3) access to online parenting resources.	Parents in the intervention group showed significant improvements in parenting sense of competence ($P < 0.001$), parental care ability ($P < 0.001$), depression ($P < 0.001$), and social support ($P = 0.002$).
Li et al., 2022	Quasi-randomized controlled trial	60 received traditional discharge education (control group) and 56 received PPM discharge education (PPM group)	Parenting sense of competence scale	The PRECEDE-PROCEED model is an intervention that provides health education to mothers about the catch-up growth of preterm infants and routine care skills. The intervention involves video training in the parents' reception setting of the NICU, followed by traditional post-discharge care. In the PPM group, mothers receive theory and practice support at monthly hospital visits, and are advised to learn as much care-related information as possible from the hospital's WeChat platform.	The mean scores for care skills, satisfaction, and efficacy were significantly higher in the PPM group than in the control group ($P < 0.05$)
Lee et al., 2019	A two-arm randomized controlled trial	30 participants (dyads)	Parenting sense of competence scale	The guided participation discharge program comprised three structured sessions and one follow-up phone call. GP sessions were offered at 33–34 weeks postconceptional age (PCA), 34–35 weeks PCA, and 48h before hospital discharge.	The intervention group exhibited greater improvements than the control group in the parenting sense of competence scores at T1, T2, and T3, although these differences were also not statistically significant.
Cheng et al., 2018	Quasi-experimental study	26 participants in the control group received regular health education and 26 participants in the experimental group received learning portfolios and regular care	Self-administered questionnaires regarding knowledge of and skills in preterm infant care and maternal confidence	The Preterm Infant Care Learning Portfolio (PICLP) is a semi-structured learning tool provided by nurses, starting with 15 minutes of instructions and self-assessment methods. Follow-up sessions are conducted after each task, with skill frequency adjusted based on participants' needs.	The experimental group showed greater improvement than the control group by post-test 2; there was no statistical difference between groups at 1 day before discharge and 1 month after discharge.

DISCUSSION

The studies included in this review examined intervention to improve parent sense of competence in infant with LBW. This review found that five articles reported different intervention including fordyce happiness training program, online family-focused parenting support intervention, the guided participation discharge program, and the preterm infant care learning portfolio. All the intervention showed significant improvement on parent sense of competence. Previous research has shown that parental education programs may serve as a significant preventative measure to enhance parents' feeling of happiness within the broader community (29).

Parental education programs use several strategies, and the incorporation of counseling might enhance parental competence (30). Implementing parental education programs may serve as a significant preventative measure to enhance parents' overall happiness within the broader society (29). Furthermore, longitudinal studies are suitable for monitoring the progress of interventions aimed at enhancing parental feeling of competence in infants with low birth weight, using a variety of metrics. This phenomenon can be attributed to the provision of consistent guidance by healthcare professionals, which helps mothers in developing their self-confidence and provides them with a sense of safety. Additionally, the

interactions between mothers and their peers serve as a valuable source of emotional support for each other following the discharge of their infants (31).

An elevated proficiency in caregiving abilities has a beneficial impact on the maternal perception of proficiency in child-rearing, subsequently fostering the acquisition of new skills (31). It is important to thoroughly observe and routinely provide healthcare services to preterm babies after they leave the hospital in order to identify any abnormalities in their growth and development. This will also help caregivers with feeding and preventative measures (32). Research conducted by (33) found that providing a solid foundation for interventions may assist parents in fulfilling their parenting responsibilities and help them engage in interactions that are suitable for the developmental needs of their preterm babies. This research also offered valuable understanding on the mother's role as a significant family member and her influence on psychological outcomes. To enhance the overall statistical power, future research might include newborn and parent volunteers from various institutions' NICUs. Furthermore, sub-group analyses might be conducted to investigate the impact of treatments on parental outcomes at various time-points and among women with singletons, twins, or triplets.

Limitations

The study's conclusions are derived from several nations across four continents. However, there is a scarcity of research done in Asia or eastern countries, where distinct parenting approaches may exist, potentially influencing the outcomes. There is a scarcity of longitudinal studies pertaining to the study design. It is necessary to conduct further studies in order to get a more profound comprehension of the intervention and its impact on the long-term duration.

CONCLUSION

The research included in this review investigated interventions aimed at enhancing parental perception of competence in infants with low birth weight. These interventions were conducted using various approaches, with a primary emphasis on health education. The evaluation demonstrated a favorable impact of the intervention program on the perception of competence in parenting.

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