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"Effectiveness of Banana Stem Diet on prolactin level among postnatal mother: A protocol for systematic review"

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Abstract

Background:
Since breastmilk is the healthiest nourishment for a newborn, the World Health Organization advises exclusive breastfeeding for a minimum of six months. But for a variety of reasons, including health conditions, hormone imbalances, and improper nursing techniques, a lot of mothers are unable to breastfeed. Mothers from lower socioeconomic backgrounds cannot afford medications, and many preferred fenugreek, banana plant, and moringa leaves, in a believed to increase breast milk production.
Objective: To identify the effects of the banana stem diet on blood prolactin levels among post-natal mothers.

Study design and methods:
This protocol has been approved by PROSPERO and PRISMA guidelines will be followed. After completing the three steps, a literature search confined to English-language research articles published between 2008 and 2024 will be carried out. PICO phrases will be used to conduct a preliminary search in the Science Direct and PubMed-Medline databases.
Study quality will be assessed using the Joanna Briggs Institute Manual (JBI) clinical assessment criteria. Two authors will assess independently, and any differences will be resolved.
Result: The summaries will contain study-specific statistical data as well as narrative descriptions.

Conclusion: This review will help to understand how banana stem diet supplementation helps in breastmilk production.

Keywords: Breastmilk, lactation problem, banana stem diet, blood prolactin, postnatal mother.

Introduction:

Pregnancy outcomes and the likelihood of problems are directly correlated with the health of women in their reproductive years prior to conception.

Globally, it has been reported that around 36.8% of the women were anemic.(1). Iron deficiency during pregnancy has a negative impact on fetal brain development(2). Both the woman and the developing fetus depend on the mother's health during pregnancy. A balanced diet, routine prenatal care, mental health, and lifestyle changes are all important for maintaining excellent health during pregnancy to protect the mother's and the baby safety and well-being.

Exclusive breastmilk for six months is advised by the World Health Organization, and nursing can last for up to two years or more. (3) Breastmilk is the perfect food for newborns as it gives immunity and maintains the correct temperature.

Globally only 48% have practised exclusive breastfeeding and the World Health Assembly has targeted to reach 50% by 2025(4) Mothers were unable to breastfeed due to various causes such as medical problems, hormonal problems, stress and nutritional status.

Usually, the lactation process begins on the fourth or fifth postpartum day. (5) However, lactation issues prevented many new mothers from being able to breastfeed their newborns. Of all the causes, lactation problems resulting from decreased supply of breastmilk are the most prevalent. Postpartum mothers encounter numerous difficulties in caring for their newborns, including emotional strain (6), depression (7), and annoyance, which is linked to breastfeeding failure. Very few mothers use medicines, even though there are excellent pharmaceuticals on the market to address lactation issues. To get around the expense, many postnatal mothers and the family choose to bottle feed their babies, and if the caretaker fails to maintain hygiene, it can lead to health issues of the newborn.(8)

Breast milk production is influenced by several factors, including physiological processes, the health and dietary pattern of the mother. Oxytocin and prolactin are the two main hormones that control lactation. Milk production is stimulated by prolactin, while milk ejection during nursing is facilitated by oxytocin. (9) In addition to this, medication, herbs, or food items that can slightly to moderately stimulate milk production are known as galactogues. Some of the most popular herbal galactagogues are fenugreek, moringa, and alfalfa. Herbal galactagogues can be consumed as teas, powders, tablets, or meals.

(10). The North Eastern Indian tribal people believe that consuming banana stems during the postnatal period can increase the production of breastmilk. This is a natural galactagogue that has been routinely used for generations. Foods high in galactagogue have been shown to improve breast milk production during lactation stage.(11) A conventional diet made from banana stems is inexpensive, simple to make, efficient and easily available. For this reason, the indigenous people of Manipur, India, consume it regularly.

Rationale:

With this background information, it is evident that nursing is very important for newborns, and moms who have lactation failure treat the problem by using medication or a galactagogues diet. Due of their outreach housing or inability to pay for the medication, many new mothers are unable to buy it. In order to cope, these women typically follow the decades-old banana stem diet. As there are very few studies on the banana stem and its association with breastmilk production, scholars firmly believe that the traditional diet's advantages for producing breastfeeding need to be further studied.

Objectives:

To identify the impact of a banana stem diet on blood prolactin level (BPL) among postnatal mothers.

Methods:

PRISMA guidelines will be followed in this review, and the Prospero registration number is CRD42023440893.

Eligibility Criteria:

The literature search for this systematic review will only turn up English-language studies that were released between 2008 and 2023.

P- Postnatal mother who had a normal vaginal delivery and has lactation problem on the 4^{th} day following delivery.

I- Banana stem diet

C- Normal diet and free of banana stem.

O- Blood prolactin level

The following standards will be used to select the studies for this review.

a) Studies are published in peer-reviewed journals and can be accessed via internet databases.
b) Study design: This review will prioritize on original study RCT and non-RCT.
c) Intervention: The review will cover the studies with the banana plant and its association with blood prolactin level, lactation failure, lactation management, banana plant and breastmilk production, breastfeeding problems and bottle feeding, maternal stress and other health issues.
d) Population: 4th day Postnatal mother with breastfeeding problem.
e) Setting: The study will be conducted in rural and urban residential of a district.
f) Outcome: Blood prolactin level
The following conditions will be excluded from the study: a C-section mother, a mother with a medical condition and who is taking medicine, a mother whose newborn is admitted in NICU or whose baby has medical issues.

Information Sources:

The Science Direct and PubMed databases will be searched first using PICO-based keywords. The titles and abstracts will be searched for additional keywords.
A comprehensive search in databases such as PubMed-Medline, CINHAL plus databases, Science Direct, and the Cochrane Library will be carried out utilizing an effective search technique. Moreover, Citation Pearl will be used to look for relevant studies.

Search strategy:

Breastfeeding AND disorder lactation, Banana plant AND blood prolactin, Postnatal AND breastmilk production.
Research articles will be filtered from 2008 -2023.

Data Management

Every search article that was intended to be uploaded to the Zotero program (Reference Manager) and duplication will also be managed. For the duration of this review, the article details will be tracked in the Reference Manager.

Selection Process

To ascertain the applicability of the review topic, two authors will separately examine the titles and preliminary abstracts of the papers in the screening phase. Screening in accordance with the eligibility conditions will occur after such a comprehensive text assessment.
After the two authors have independently inspected each other, the third author will talk about any discrepancies that surface.

Data collection Process:

The quality of each selected article will be assessed using a clinical appraisal criteria created by JBI (Joanna Briggs Institute Manual)(12). Two reviewers will conduct the quality evaluation independently, and the third reviewer will look for any differences.
After the two authors screen separately, any differences will be discussed with the third author and resolved. The selected studies will have their data collected using the Cochrane data extraction form.

Data items: Research on variables such lactation management, blood prolactin, banana plants, nursing issues, postnatal mother diets, and diets high in galactagogues will be covered in this review.

Outcomes and Prioritization: The purpose of this study is to find the effectiveness of banana stem diet on blood prolactin levels among postnatal mothers, so blood prolactin level will be the outcome.

Risk of bias in individual studies: The Cochrane Risk Bias Assessment Tool for RCTs will be used to assess every study that is part of this evaluation.

Data synthesis

Based on the goals, study results will be gathered. A descriptive synthesis will be carried out and provided as a tabular narrative summary. Research narratives and statistical findings will both be included in the summaries. I^2 statistics will be used to measure heterogeneity in the meta-analysis of the blood prolactin variable using SMD (Standardized mean difference).

Meta-bias(es): We will evaluate publication bias for the listed studies.

Confidence in cumulative evidence: The GRADEpro Approach will be employed to assess the reliability of the evidence.

Conclusion:

In our evolving world, the number of breastfeeding issues and difficulties is rising quickly. The health of the mother and the child was negatively impacted by the greater suffering experienced by the working mother. While alternatives and treatments were accessible in metropolitan regions, people living in rural areas were left out. The traditional diet known as the "banana stem diet" is seen by society as beneficial and acceptable. It contains galactagogues, which support the formation of breastfeeding and aid in raising blood prolactin levels. To overcome breastfeeding issues, the postnatal mother accepts and follows the banana stem diet as it is an accepted diet that does not have any side- effects.

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