

“FROM FIRST BITE TO RIGHT START: ENHANCING MATERNAL READINESS FOR BABY-LED WEANING THROUGH WEB-BASED LEARNING”

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Abstract

Introduction: In many communities, infants aged 6–12 months are traditionally fed spoon-fed porridge, considered easy to digest and nutritionally balanced. In contrast, Baby-Led Weaning (BLW) encourages self-feeding of chopped family foods from six months, promoting independence, self-regulation, and active engagement during meals. **Objectives:** To assess the pre- and post-test levels of knowledge and readiness regarding Baby-Led Weaning (BLW) among mothers of infants, evaluate the effectiveness of web-based learning on enhancing this knowledge and readiness, examine the correlation between mothers' knowledge and readiness, and determine the association of knowledge and readiness with selected demographic variables. **Materials and Methods:** A quantitative pre-experimental one group pre-test and post-test design was conducted among 100 mothers of infants (5-8 months) in selected community areas of Chennai, India, using purposive sampling. Web-based learning (self-made video) was provided via a YouTube link. Data were collected using a self-structured questionnaire and a 5-point Likert scale and analysed using descriptive and inferential statistics. **Results:** The study found significant improvements in mothers' knowledge and readiness after web-based learning. Initially, 56% had moderately adequate knowledge. Post-intervention, 95% achieved an adequate level of knowledge. Regarding readiness, 83% had a moderate level of readiness pre-test, while post-test, 97% exhibited complete readiness. The paired t-test analysis revealed statistically significant improvements ($t = 30.036$ for knowledge, $t = 39.336$ for readiness, $p < 0.001$). **Conclusion:** The findings suggest that web-based learning is an effective tool to enhance mothers' knowledge and readiness regarding BLW.

Introduction

Breastfeeding is the most natural and effective way to provide essential nutrients to infants, supporting optimal growth, development, and protection from infections and diseases. The World Health Organization (WHO) and the American Academy of Paediatrics (AAP) recommend exclusive breastfeeding for the first six months of life ^[1]. Complementary feeding (CF) is the introduction of solid and liquid foods alongside breast milk or formula, marking the transition to solids and supporting the infant's growing nutritional needs and development ^[2]. Weaning is the gradual reduction of breastfeeding and infant formula feeding, introducing solid foods to infants ^[3]. This period is crucial for rapid growth, food preferences, eating behaviours, and body weight development in childhood and also in adolescence and adulthood ^[4, 5]. Therefore, how a child is weaned may have an influence later, on the individual's entire life. Babies are traditionally first introduced to solid foods using spoon-feeding, in most countries. Beside to traditional approach, an alternative method, promoting infant self-feeding from six months of age, called **"Baby-led weaning or Auto-weaning"**, which means offering chopped and minced family meals to the infants ^[5].

Baby-Led Weaning (BLW) is an alternative feeding approach that allows infants to self-feed family foods in appropriate sizes and textures from around six months of age. This method promotes motor skills, self-regulation, and social engagement during meals. BLW fosters independence, supports developmental milestones, and encourages healthy eating behaviours, which may contribute to long-term health benefits such as reduced obesity risk ^[6]. Despite its advantages, many mothers remain unaware or uncertain about implementing BLW, often due to traditional beliefs or lack of professional guidance. Maternal knowledge and readiness are key determinants in the successful adoption of BLW practices. Nurses play a crucial role in educating and empowering mothers on complementary feeding options, yet access to structured guidance is often limited in community settings ^[7].

Web-based learning has emerged as a cost-effective and accessible solution for health education. With increasing internet penetration and smartphone use, digital platforms can deliver interactive and visual educational content to mothers. Web-based modules allow self-paced learning, flexibility, and consistent messaging

making it a suitable medium for promoting awareness and readiness for BLW [8]. This study explores the effectiveness of a web-based educational intervention in enhancing mothers' knowledge and readiness for Baby-Led Weaning. The findings aim to inform community health nursing strategies and contribute to evidence-based practices in infant nutrition education [9].

Baby-Led Weaning (BLW) is gaining recognition as a responsive feeding approach, yet many mothers lack adequate knowledge and support to adopt it effectively. Traditional education methods face limitations, especially in underserved areas. Hence, web-based learning offers a feasible strategy to enhance mother knowledge and readiness, supporting informed complementary feeding practices [10].

Objectives of the study

The objectives of the study were to assess the pre- and post-test levels of knowledge and readiness regarding Baby-Led Weaning (BLW) among mothers of infants, evaluate the effectiveness of web-based learning on enhancing this knowledge and readiness, examine the correlation between mothers' knowledge and readiness, and determine the

association of knowledge and readiness with selected demographic variables.

Hypotheses

RH1: There is a significant difference between the pre and post-test level of knowledge & Readiness regarding baby-led weaning among mothers of infants at $p < 0.05$ level.

RH2: There is a significant relationship between knowledge and readiness regarding baby-led weaning among mothers of infants at $p < 0.05$ level.

RH3: There is a significant association between the level of knowledge and readiness regarding baby-led weaning among mothers of infant with their selected demographic variables at $p < 0.05$ level.

Material and Methods

The present quantitative pre-experimental study was conducted among mothers of infants aged 5-8 months residing in selected community areas, namely Nayapakam, Koppur, Vellaivetikadu, Mevalurkuppam, Ilupur, Vellarithangal, Papparampakkam, and Nerkundram. These communities were selected based on their feasibility, accessibility, availability of an adequate number of eligible participants,

and the willingness of mothers to participate in the study. Recent demographic statistics of the selected areas indicated a population comprising 11,031 females, 10,325 males, 594 infants, and 275 newborns, thereby providing an appropriate setting for the investigation. The study was carried out over a period of one month, from September 12, 2024, to October 12, 2024. A total of 100 mothers with infants aged 5–8 months were recruited using a non-probability purposive sampling technique. This approach enabled the investigator to include participants who fulfilled the predetermined inclusion criteria and could contribute relevant information regarding knowledge and readiness related to Baby-Led Weaning (BLW).

Prior to the commencement of data collection, ethical clearance was obtained from the Institutional Ethical Committee of ACS Medical College and Hospital (Ref No: 1264/2024/IEC/ACSMCH, dated 05.07.2024). Written informed consent was secured from all participants after providing a detailed explanation regarding the objectives, procedures, benefits, and possible risks associated with the study. Participants were informed that their participation was voluntary and that they had the right to withdraw from the study at any stage without any penalty. Strict

measures were taken to ensure confidentiality and anonymity of the information obtained from the participants. In addition, oral permission was obtained from the concerned authorities of the selected community areas before initiating the data collection process to ensure ethical conduct and community support.

The intervention consisted of an investigator-developed 11-minute web-based educational video on Baby-Led Weaning. The video included information on the transition from breastfeeding or formula feeding to solid foods, the benefits of BLW, identification of developmental readiness signs, appropriate finger foods, and precautions to prevent choking. The web-based format enabled mothers to access the information conveniently and learn at their own pace, thereby improving their knowledge, confidence, and preparedness for the safe implementation of BLW practices. Data collection was carried out using a demographic data sheet, a structured knowledge questionnaire, and a modified Change Readiness Scale. The demographic proforma gathered information related to maternal age, infant age, educational status, occupation, number of children, birth order, monthly family income, and place of residence. The investigator-prepared knowledge

questionnaire consisted of 20 self-administered questions related to Baby-Led Weaning, with each correct response awarded one mark, giving a maximum possible score of 20. Readiness regarding BLW was assessed using the modified Change Readiness Scale developed by Rafferty and Jimmieson (2002). The scale contained 15 items measured on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5), with a total obtainable score of 75.

Results

The findings of the study revealed that the majority of mothers of infants were aged between 21–25 years (48%) and 26–30 years (43%). Most infants were aged between 5–8 months, with 30% being 8 months old. More than half of the participants (53%) belonged to nuclear families, 33% had completed higher secondary education, and the majority (80%) were housewives. About 51% of the mothers had two children, while 48% reported a monthly income between Rs.15,001–25,000. A majority of the participants (58%) resided in rural areas. The pre-test findings showed that 56% of mothers had moderately adequate knowledge, 38% had inadequate knowledge, and only 6% had adequate

knowledge regarding Baby-Led Weaning (BLW). Following the web-based learning intervention, 95% achieved adequate knowledge and 5% demonstrated moderately adequate knowledge. Regarding readiness to adopt BLW, the pre-test findings revealed that 83% had moderate readiness, 16% had mild readiness, and only 1% had complete readiness, whereas post-test results showed that 97% exhibited complete readiness and 3% had moderate readiness. The effectiveness of the intervention was confirmed through paired t-test analysis, which demonstrated a significant improvement in both knowledge and readiness scores after the intervention. The mean knowledge score increased from 8.83 ± 3.17 in the pre-test to 17.32 ± 1.63 in the post-test ($t = 30.036$, $p < 0.001$), while the mean readiness score improved from 45.82 ± 5.87 to 70.16 ± 2.91 ($t = 39.336$, $p < 0.001$). Furthermore, a moderate positive correlation ($r = 0.471$) was observed between post-test knowledge and readiness scores, indicating that improved knowledge positively influenced readiness to implement BLW. Chi-square analysis revealed significant associations between post-test knowledge and demographic variables such as type of family and income, while post-test readiness was significantly associated with residence and income.

Other demographic variables did not show statistically significant associations.

Discussion

The present study explored the impact of a web-based learning intervention on the knowledge and readiness of mothers regarding Baby-Led Weaning (BLW). The demographic profile of participants showed that most mothers were aged 21-30 years, predominantly from nuclear families, with moderate education levels and household incomes primarily between Rs. 15,001 and 29,000. These findings are consistent with previous research, such as Brown and Lee (2011) and Białek-Dratwa et al. (2022), who reported similar maternal age ranges and education levels, although variations exist in occupational status and childbearing patterns across different populations^[11].

The intervention demonstrated a significant improvement in both knowledge and readiness to implement BLW. Before the intervention, only a small proportion of mothers showed adequate knowledge or complete readiness, but post-intervention results revealed that the vast majority attained adequate understanding and readiness. This aligns with earlier studies by San Mauro Martín et al. (2022) and Neves

et al. (2021), which highlighted widespread awareness of BLW among health professionals and parents, and the benefits they associate with the method^[7]. The enhancement in knowledge and readiness in this study is further supported by the statistically significant increases in mean scores post-intervention, confirming the effectiveness of web-based educational strategies for maternal learning.

Moreover, the positive moderate correlation between knowledge and readiness suggests that as mothers become better informed about BLW, their willingness and preparedness to adopt the practice also increase. This supports the research hypothesis that knowledge and readiness are interrelated. However, this relationship may be context-specific, as Białek-Dratwa et al. (2022) found no significant correlation between knowledge and actual BLW application in a Polish cohort, pointing to possible cultural or practical factors influencing the translation of knowledge into behaviour^[11].

Regarding demographic influences, the study identified that family type and income were significantly associated with post-test knowledge, while residence and income were linked to readiness to change. These findings underscore the complex role

socioeconomic and environmental factors play in health behaviour adoption. Similar conclusions were drawn by Brown (2015), who reported higher education and professional status among mothers practicing BLW, yet no association with age or marital status ^[12]. Conversely, Białek-Dratwa et al. (2022) reported no significant demographic associations, suggesting that regional differences may shape how demographics influence BLW knowledge and practice ^[11].

Overall, the findings support the utility of tailored web-based interventions in enhancing maternal competence and preparedness regarding BLW, while highlighting the importance of considering demographic and contextual factors in designing and implementing such programs. Future research could explore the longitudinal impact of increased knowledge and readiness on actual BLW practice and infant health outcomes, as well as address cultural and socioeconomic barriers to implementation.

Conclusion and Recommendation

The present study revealed that web-based learning, delivered through a

self-developed YouTube video, is an effective educational approach for enhancing mothers' knowledge and readiness regarding baby-led weaning (BLW) in a community setting. The significant improvement observed in post-intervention knowledge and preparedness indicates that digital educational platforms can effectively strengthen maternal understanding, confidence, and preparedness in implementing safe and appropriate infant feeding practices. These findings emphasize the importance of integrating accessible web-based educational interventions to promote healthy feeding behaviours and improve infant health outcomes. Further longitudinal studies are recommended to evaluate the long-term effects of BLW on child growth, development, and obesity prevention. Future research should also examine the effectiveness of digital and web-based educational strategies in improving parental adherence to BLW practices. In addition, comparative studies and the development of evidence-based nursing guidelines are necessary to ensure the safety and nutritional adequacy of BLW practices.

Table 1: Frequency and percentage distribution of pretest and post-test level of knowledge regarding Baby-Led Weaning among mothers of infants.

Level of Knowledge	Pretest		Post Test	
	Frequency	Percentage	Frequency	Percentage
Inadequate (0 – 7)	38	38.0	0	0
Moderately Adequate (8 – 14)	56	56.0	5	5.0
Adequate (15 – 20)	6	6.0	95	95.0

Table 2: Frequency and percentage distribution of pretest and post-test level of readiness to change regarding Baby-Led Weaning among mothers of infants.

Level of Readiness to Change	Pretest		Post Test	
	Frequency	Percentage	Frequency	Percentage
Resistance to change (0 – 20)	-	-	-	-
Mild level of readiness to change (21 – 40)	16	16.0	-	-
Moderate level of readiness to change (41 – 60)	83	83.0	3	3.0
Complete readiness to change (61 – 75)	1	1.0	97	97.0

Table 3: Effectiveness of Web-Based learning on knowledge regarding Baby – Led Weaning among mothers of infants.

Knowledge	Median	Mean	S.D	Mean Difference Score	Paired “t” test & p-value
Pretest	8.0	8.83	3.17	8.49	t=30.036
Post test	17.0	17.32	1.63		p=0.0001, S***

***p<0.001, S – Significant

Table 4: Effectiveness of Web-Based learning on Readiness regarding Baby – Led Weaning among mothers of infants.

Readiness to Change	Median	Mean	S.D	Mean Difference Score	Paired “t” test & p-value
Pretest	47.0	45.82	5.87	24.34	t=39.336
Post test	71.0	70.16	2.91		p=0.0001, S***

***p<0.001, S – Significant

Table 5: Correlation between post test scores of knowledge and readiness to change regarding Baby – Led Weaning among mothers of infants.

Test	Variables	Mean	S.D	Karl Pearson’s Correlation “r” & p-value
Pretest	Knowledge	8.83	3.17	r= -0.044
	Readiness to change	45.82	5.87	p=0.661, N.S
Post Test	Knowledge	17.32	1.63	r=0.471
	Readiness to change	70.16	2.91	p=0.0001, S***

***p<0.001, S – Significant

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Conflicts of interest

There are no conflicts of interest

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