Development of the 10-Hour Breastfeeding Training Module for Lay Personal (Dasa Wisma) as A Companion for Increasing Successful Exclusive Breastfeeding

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Abstract: Many studies have been conducted on the assistance of trained lay personal to increase exclusive breastfeeding. Currently, the modules used to train lay personnel is limited. The existing modules were for counsellor training with several hours and long sessions, so they were not suitable for lay personnel who do not have a health education background. This study aims to develop and analyze the effectiveness of the 10-hour breastfeeding training module (BTM) to increase knowledge and practice of lay personal. The research is carried out using Content Validity Ratio (CVR) formula by Lawshe-method to validate of the 10-hour BTM and using a pre-post-test design to analyze the effectiveness of the 10-hour BTM to increase knowledge and practice of lay personal. The results show that the module has a CVR score (0.71-1.00) and a CVI score (0.84). The Paired t-test shows the module significantly increased the knowledge (p=0.001 d=3.02) and practice (p=0.001 d=1.92). Learning media that are in accordance with the characteristics of students are very important to pay attention to convey information appropriately, so that the learning process runs optimally. It was be conclude that the 10-hour BTM is suitable for increasing knowledge and practice for lay person who will assist the breastfeeding mother.

Keywords: Breastfeeding; Development; Module

Introduction

Although WHO has recommended that all babies in the world should be exclusively breastfeeding until 6 months, the success of exclusive breastfeeding was still low in several countries (Victora et al., 2016). In Indonesia, the results of a national survey noted that mothers exclusively breastfeed until their babies are one month old (67%), 2-3 months (55%), and 4-5 months (38%) (Badan Pusat Statistik, 2013). If you pay attention, the number of mothers who exclusively breastfeed decreases as the baby ages. This trend deserves attention. The coverage of exclusive breastfeeding 0-6 months in Semarang City in the last three years were an increase, namely in 2019 (67.16%), 2020 (67.33%), and 2021 (68.22%) or around 10,733 babies who have received exclusive breastfeeding. However, there are still about 4,998 babies who have not received exclusive breastfeeding from 0-6 months. Of the 37 primary health care in Semarang City, 8 of them have exclusive breastfeeding coverage below the achievement target of Semarang City (65.8%), and 4 of them have experienced a decrease in the achievement rate in the last two years to below 60%.

Several studies report that inadequate support during breastfeeding was the cause of the failure of exclusive breastfeeding (Susiloretni et al., 2013; Burns et al., 2020). Long breastfeeding periods make breastfeeding mothers need continuous accompaniment (Nan et al., 2020). Currently, Indonesia's number of health workers, including lactation counsellors, is still limited (Basrowi et al., 2018). The number of breastfeeding counsellors was 4,314 people, while the number of babies was 14,188,458. Meanwhile, midwives and other health workers at the health center had limited time to accompany due to the high workload (Pemo et al., 2020; Dajaan et al., 2021). Therefore, accompaniment by trained lay workers is an option for assisting. In
Indonesia, the smallest group in society is called “Dasa Wisma”, which consists of 10-20 families formed based on region. Several studies have reported that the group's environment impacts health behavior (Burdette, 2013).

One of the members of “Dasa Wisma”, who activist “Dasa Wisma” calls can be relied upon to assist breastfeeding mothers, and Activist “Dasa Wisma” requires training to improve the breastfeeding competence in assisting breastfeeding mothers. The currently available training module is the WHO 40-hour counselling training module World Health Organization, and the other modules to train lactating counsellors. The existing module has a long session, and it was unsuitable for training lay personal specially of activist “Dasa Wisma” who does not have a health educational background. For this reason, it was necessary to validate the 10-Hours Breastfeeding Training Module, which has been improved to train lay personnel and test the module's effectiveness to increase the knowledge and practice of activist “Dasa Wisma”.

The module was developed based on the results of the identification of the types of assistance subjects needed by breastfeeding mothers in previous studies, a literature review of existing breastfeeding training modules, and relevant research results. The novelty of this research is related to the provision of breastfeeding modules needed to train to laypersonnel. An additional register of exclusive breastfeeding cohort register is needed to provide ongoing accompaniment.

Method

The study was conducted in two stages, stage 1: validation of the 10-Hour Breastfeeding Training Module and stage 2: effectiveness testing of the validated 10-Hours Breastfeeding Training Module. Validation was carried out on 21 validators consisting of practitioners and scientists, with the following details: 4 lecturers, 1 midwifery professional organization, 10 midwives, and 6 nutritionists. Each validator was given a module summary description sheet, a printed 10-Hour Lactating Module Training, and a validation sheet. Validators were asked to respond to the module's content by giving a score for each subject item and providing suggestions for improvement narratively on the validation sheet. The scoring uses a Likert scale (1-4), with the following conditions: score 1: not useful; score 2: useful but not essential; score 3: essential and score 4: urgently essential. Twenty-one validators have filled out the validation sheet completely and 2 validators commented that this 10-Hour Breastfeeding Training Module was very good.

The rationality of the module's content was calculated using the Content Validity Ratio (CVR) Lawshe method, with a formula CVR = (Ne-N/2)/N/2. The more validators agree on an item subject, the higher the level of validity of the item subject. Item Subject with a CVR of 0.47 and above were retained in the module (Getu et al., 2022) Pre-experimental design with one group pre-post-test design was used to determine the effectiveness of the 10-Hour Lactating Training Module to increase the knowledge and practice of activist “Dasa Wisma”. The module was used to provide training, and the data on knowledge and practice were measured before and after being given training (pre-test and post-test). The post-test was carried out once on the second day after the training. Knowledge and practice were measured using a questionnaire that had been tested for validity and reliability and the Cronbach Alpha (0.917) and (0.93) scores, respectively.

Number 49 activists, “Dasa Wisma” were used in this effectiveness test. Purposive sampling with inclusion criteria: can write and read; have previous breastfeeding experience; and follow the research to completion. The Saphiro-Wilk normality test was carried out on measurements normality of knowledge and practice variables namely (p=0.095) and (p=0.041) respectively. Paired T-test and Wilcoxon test were used to determine the increase in knowledge and practice before and after using the 10-Hour Lactating Training Module. The statistical test was two-sided, and the level of statistical significance was set at a p-value <0.05. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) V.26.0.

Result and Discussion

All items subject to the 10-Hour Lactating Module Training have a CVR score of 0.71-1.00 and a CVI (Content Validity Index) score of 0.84. Of the eight subjects compiled, five subjects have a CVR score:1.0. This indicates that the five subjects received total approval from all of the validators (see Table 1). Therefore, all items subject to the module were retained. Meanwhile, the narrative input the validator gave was to replace the terminology of breast anatomy with parts of the breast to make it easier to understand.
Another finding from this study is that the results of calculating the CVR score for all 10-Hour Lactating Module Training subjects have a score (>0.47) so that all subjects in the module were maintained, and nothing was reduced (Mani et al., 2021). This shows that the validators consider that all the subjects in this module were essential to increase the competence of activist “Dasa Wisma” as a companion for breastfeeding mothers. The validation test used in this study was a CVR score using the Lawshe method. Lawshe's CVR method was also used in several previous studies for content validity similar to this research, such as content validation of yoga modules to reduce burnout among healthcare workers (Upadhyay et al., 2022) and content validation of yoga modules to reduce pain among sufferers of ankylosing spondylitis (Singh et al., 2022). Only a little research has been found related to the breastfeeding training module's validation to increase lay workers' competence as assistants to breastfeeding mothers (Yang et al., 2018).

One of the five subjects with total agreement from validators or the highest CVR score (of 1.0) was how to position correctly when breastfeeding, including the accuracy of attaching the baby to the mother's breast when breastfeeding. This indicates that the validators consider the accuracy of attachment babies. This indicates that attaching the baby while breastfeeding is an important subject in the module to increase the competency of “Dasa Wisma” activists as breastfeeding mothers' companions. As it is known that factors that cause the failure of exclusive breastfeeding were improper attachment during breastfeeding (Parashar et al., 2015), chafed nipples (Feenstra et al., 2018), suction that is not nutritious (Tiruye et al., 2018), and lack of preparation for breastfeeding when the mother returns to work (Chang et al., 2019).

The strength of this module is that, apart from containing a subject on lactation management, it moreover has subject on the register of the exclusive breastfeeding cohort with a CVR score of 1.0, which means that the validators give total consent to the subject on the register of the exclusive breastfeeding cohort, where the register of the exclusive breastfeeding cohort is very important as a media in monitoring and documenting mothers' breastfeeding practices during exclusive breastfeeding up to 6 months.

Furthermore, this module is equipped with interpersonal communication material with a CVR score (0.71) where this material was maintained. This is deemed necessary to enrich "Dasa Wisma" activists while assisting breastfeeding mothers. The results of previous studies concluded that mothers feel comfortable with companions who have a friendly attitude, making mothers nothesitate to express their feelings and fulfil the need for breastfeeding knowledge (Nankunda et al., 2010).

Table 1. Validation Test of the 10-Hour Lactating Training Module Based on CVR-Lawshe

<table>
<thead>
<tr>
<th>Subject</th>
<th>Item of Subject</th>
<th>Ne</th>
<th>N</th>
<th>N/2</th>
<th>Ne-N/2</th>
<th>CVR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Communication (IC)</td>
<td>Definition, Principles, and Types of IC</td>
<td>18</td>
<td>21</td>
<td>10.5</td>
<td>7.5</td>
<td>0.71</td>
</tr>
<tr>
<td>Giving support to breastfeeding mothers</td>
<td>Accepting the mother's opinion</td>
<td>19</td>
<td>21</td>
<td>10.5</td>
<td>8.5</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>Provide practical support and relevant information</td>
<td>19</td>
<td>21</td>
<td>10.5</td>
<td>8.5</td>
<td>0.81</td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td>Definition of exclusive and predominant breastfeeding</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Why should babies be exclusively breastfed until 6 months</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Benefits of breast milk</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Nutritional contains in breast milk</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td>Maintain smooth milk production</td>
<td>Breast anatomy</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>7.5</td>
<td>0.81</td>
</tr>
<tr>
<td>Correct breastfeeding position</td>
<td>Correct position and proper attachment</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Bonding</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td>Breastfeeding problems and how to overcome it</td>
<td>Sore nipples, swollen breasts, inverted nipples, perception of milk insufficiency</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
<tr>
<td>Managing expressed breast milk</td>
<td>How to express, store and use expressed milk</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>6.5</td>
<td>0.71</td>
</tr>
<tr>
<td>Exclusive breastfeeding cohort register</td>
<td>Instructions for filling out the cohort</td>
<td>21</td>
<td>21</td>
<td>10.5</td>
<td>10.5</td>
<td>1.00</td>
</tr>
</tbody>
</table>

CVI (Content Validity Index): 0.84; Ne = number of experts indicating “essential and urgently essential” (3 or 4 in 1-4 Likert scale); N = Total number of experts, CVR = Content validity ratio.
## Table 2. Summary Description 10-Hour Lactating Training Module

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Introduction</td>
<td>Information About the Module, contains an explanation of:</td>
</tr>
<tr>
<td></td>
<td>Who can use the module</td>
</tr>
<tr>
<td></td>
<td>How to use the module</td>
</tr>
<tr>
<td></td>
<td>An overview of the work module framework, which includes the syllabus,</td>
</tr>
<tr>
<td></td>
<td>training schedule, and training activity steps</td>
</tr>
<tr>
<td>Module Syllabus</td>
<td>Contains an explanation of:</td>
</tr>
<tr>
<td></td>
<td>The module framework contains all the subject matter that will be provided</td>
</tr>
<tr>
<td></td>
<td>in the training. Each subject matter is given an explanation related to</td>
</tr>
<tr>
<td></td>
<td>the method, media, and time used</td>
</tr>
<tr>
<td>Draft Schedule of Training Activities</td>
<td>Contains an explanation of:</td>
</tr>
<tr>
<td></td>
<td>Distribution of the main sequence of training materials along with the time</td>
</tr>
<tr>
<td></td>
<td>span used in each subject delivery</td>
</tr>
<tr>
<td>Training Activity Steps</td>
<td>Contains an explanation of:</td>
</tr>
<tr>
<td></td>
<td>The sequence of activities carried out in each training session, starting</td>
</tr>
<tr>
<td></td>
<td>from the pre-test, opening, giving material, post-test, closing</td>
</tr>
<tr>
<td>Module Subject</td>
<td>Interpersonal Communication</td>
</tr>
<tr>
<td></td>
<td>Definition of KAP, Principles in KAP, Types of KAP, Fostering the atmosphere</td>
</tr>
<tr>
<td></td>
<td>in KAP breastfeeding</td>
</tr>
<tr>
<td>Giving Support to Breastfeeding Mothers</td>
<td>Accept what breastfeeding mothers think</td>
</tr>
<tr>
<td></td>
<td>Recognize and praise what mothers and babies do right</td>
</tr>
<tr>
<td></td>
<td>Give practical help</td>
</tr>
<tr>
<td></td>
<td>Give relevant information in simple language</td>
</tr>
<tr>
<td></td>
<td>Give one or two suggestions, not commands</td>
</tr>
<tr>
<td>Exclusive Breastfeeding</td>
<td>Definition of exclusive breastfeeding, partial breastfeeding, and predominant</td>
</tr>
<tr>
<td></td>
<td>breastfeeding, Benefits of exclusive breastfeeding compared to partial and</td>
</tr>
<tr>
<td></td>
<td>predominant breastfeeding, why babies should get exclusive breastfeeding for</td>
</tr>
<tr>
<td></td>
<td>6 months, Types of breastfeeding and its benefits, Nutritional content in</td>
</tr>
<tr>
<td></td>
<td>breast milk, and Benefits of breastfeeding for babies, mother and family</td>
</tr>
<tr>
<td>How to Keep Milk Production Smooth</td>
<td>The parts of the breast, how do the production and release of milk work,</td>
</tr>
<tr>
<td></td>
<td>and how to keep milk production smooth</td>
</tr>
<tr>
<td>The Correct Way of Breastfeeding</td>
<td>What is the correct breastfeeding position, how is the correct breastfeeding</td>
</tr>
<tr>
<td>(Position, Attachment, and Bonding)</td>
<td>attachment, and Bonding between mother and baby during breastfeeding</td>
</tr>
<tr>
<td>Breastfeeding Problems and How to Overcome Them</td>
<td>Several types of breastfeeding problems that often occur when mothers are</td>
</tr>
<tr>
<td></td>
<td>breastfeeding and how to treat them (scratched nipples, full and swollen</td>
</tr>
<tr>
<td></td>
<td>breasts, mastitis, flat nipples, and insufficient milk syndrome)</td>
</tr>
<tr>
<td>Managing Breast Milk</td>
<td>How to express breast milk by hand and using an electric pump, how to store</td>
</tr>
<tr>
<td></td>
<td>expressed breast milk, and how to use expressed breast milk</td>
</tr>
<tr>
<td>Completion of the Cohort of Exclusive Breastfeeding</td>
<td>Explanation regarding documentation of exclusive breastfeeding mothers,</td>
</tr>
<tr>
<td>Mothers</td>
<td>starting from postpartum until the baby is 6 months old. Documentation</td>
</tr>
<tr>
<td></td>
<td>begins with giving colostrum, not giving pre-lactal feeding, and exclusive</td>
</tr>
<tr>
<td></td>
<td>breastfeeding which is recorded every week until the baby is 6 months old.</td>
</tr>
<tr>
<td>Module Supplementary</td>
<td>Multiple choice written questions, which consist of questions about knowledge</td>
</tr>
<tr>
<td>Pre-Test and Post-Test Questions</td>
<td>about breastfeeding, breastfeeding attitudes, and breastfeeding practices,</td>
</tr>
<tr>
<td></td>
<td>which are used as pre-test and post-test questions in the “Dasa Wisma”</td>
</tr>
<tr>
<td></td>
<td>training activity to measure the ability to understand “Dasa Wisma” before</td>
</tr>
<tr>
<td></td>
<td>and after being given training.</td>
</tr>
<tr>
<td>Key Answers to Questions and Methods of Assessment</td>
<td>Answer keys to pre-test and post-test questions are available to calculate</td>
</tr>
<tr>
<td></td>
<td>the total score of the pre-test and post-test results.</td>
</tr>
</tbody>
</table>
The description of the results of the paired t-test in table 3 indicates that the average score of knowledge about breastfeeding in "Dasa Wisma" after being given training (M=80.57 SD=7.37) was significantly higher than before being given training (M=53.47 SD=10.26), p<0.001 with effect size d=3.02 which means that the increase is very significant. While the skills regarding breastfeeding in "Dasa Wisma" based on the Wilcoxon test it can be concluded that the skills of "Dasa Wisma" regarding breastfeeding after being given training (M=88.16 SD=7.33) were significantly better than before being given training (M=73.67 SD=7.75), p=0.001. This condition illustrates that the training provided using the "Dasa Wisma" Mentoring Module has an effect on increasing knowledge and skills of "Dasa Wisma" about breastfeeding. Thus "Dasa Wisma" has the provision to provide assistance to breastfeeding mothers. This is the same as Tahya's findings in his research on the development of chemistry modules based on local wisdom that have been validated to improve students' skills (Tahya et al., 2022).

Another finding from this research was the 10-Hours Breastfeeding Module Training, which was used to train “Dasa Wisma” activists, significantly increase knowledge and skills regarding breastfeeding. This finding was in line with previous research conducted by Nugraheni, who concluded that there were significant differences in the knowledge and practice of Housewives’ Peer Group Activists before and after being given training (Nugraheni et al., 2022). The same was conveyed in other research findings that breastfeeding education provided to mothers who visited primary health care increased knowledge, attitudes, and breastfeeding practices (Hanafi et al., 2014). It was further explained that, before being given training, most mothers did not understand the precise definition of exclusive breastfeeding, this was in accordance with the findings of a study in Bangladesh (Sultana et al., 2022), the benefits of breastfeeding for the health of infants and mothers were known by most mothers (Hamze et al., 2019), however, the results of this study most mothers do not know that exclusive breastfeeding can reduce the risk of stunting (Tello et al., 2022).

Many respondents did not understand the skills of proper attachment to breastfeeding. This is inline with the findings of previous research that proper breastfeeding techniques were still low (Jama et al., 2020). Furthermore, it was stated that improper attachment to breastfeeding was caused by a lack of information (Banginwar et al., 2011) and occurred more in primiparous mothers. A proper attachment of the baby to the mother's breast is one of the keys to successful breastfeeding. In addition, the skills related to storing expressed breast milk which has a specific time limit in different storage places, such as one-door refrigerator freezers and two-door refrigerator-freezers, have not been understood by respondents.

**Conclusion**

The present research shows that the 10-hours breastfeeding training module, which was developed based on the results of a survey on breastfeeding mothers regarding breastfeeding assistance subjects needed by breastfeeding mothers, has provided adequate validity results. Validation results from the 8 subjects arranged in the 10-hour lactating training module show that all subjects are accepted, and none is issued. The results of the module effectiveness test show that the module is very effective in increasing the knowledge and skills of breastfeeding-trained lay personal specially “Dasa Wisma” as accompaniments to breastfeeding mothers to achieve exclusive breastfeeding success.

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**Author Contributions**

Conceptualization; I., R. A., A. W.: methodology; I., validation; R. A.: formal analysis; A. W.: investigation.; I. resources; R. A: data curation: A. W.: writing—original; I: draft preparation; R. A: writing—review and editing: A. W.; visualization: I. All authors have read and agreed to the published version of the manuscript.

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**Conflicts of Interest**

The authors declare no conflict of interest.
References


