

Systematic Review-based Recommendation for an Optimal Duration of Exclusive Breastfeeding in Indonesian Population (A Critical Appraisal)

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ABSTRACT

The length of exclusive breastfeeding (EBF) recommendation has been debated for the last decade between four and six months. Experts' opinion divided around what so called "weanling dilemma" and safety or concern on milk substitutes sanitation, furthermore, it also related to the target community, whether they are develop or developing nations. For each nation, developing recommendation or national program on EBF should be based on the strongest evidence found preferably from systematic review of randomized control trials. A review involving adequate and proportional evidence from either developed or developing countries reveals the beneficial value of six compare to four months EBF. Considering its strength and limitations, the review has a good objectivity. The applicability of the review in developing six months EBF recommendation for Indonesian population is regarded to be suitable because the results of the review are seen to be cost effective and appropriate with less harm, and even protective against diarrhea. This is a critical appraisal of a systematic review written by Kramer and Kakuma (2002).

Key words: exclusive breastfeeding, systematic review, critical appraisal

INTRODUCTION

It is established that mothers' breast milk is the best food required for maintaining infants' health, and support for their growth and development (Whitney, Cataldo, and Rolfes, 2002). Thus, breastfeeding is considered as the ideal choice of feeding healthy infants (Szajewska *et al.*, 2006). However, the question of the optimal duration of exclusive breastfeeding (EBF) has lead to an extensive debate and divided recommendations (Kramer and Kakuma, 2002). The World Health Organization (WHO) in 1995 suggests a period of 4–6 month of EBF, whereas UNICEF in the year 1999 and American Academy of Pediatrics in 1997 have used the wording at about 6 month (Lutter, 2000). At present, recommendation for EBF in Indonesia still follows the 1995 WHO recommendation. Because of the belief or so called 'weanling's dilemma' that breast milk alone is not sufficient to satisfy the infants' energy and micronutrient requirements beyond four months of age (Coutsoudis and Bentley, 2004), the current recommendation of EBF for six months is less likely to be accepted in Indonesia where malnutrition is still prevalent.

In the light of this controversy, in 2000, Kramer and Kakuma (2002) reviewed the evidence from the existing studies to derive a comprehensive recommendation of optimal duration of EBF the results of which were published in the Cochrane Database of Systematic Reviews on the 21st of January 2002. Even though the article was published in a reputable peer-reviewed journal, the conclusion can not be taken for granted (Health Library, 2002). Therefore, the current critical appraisal is conducted

to evaluate the rigor and quality of systematic review by Kramer and Kakuma (2002) on the optimal duration of EBF with particular application to Indonesian population using critical appraisal checklist for a systematic review by Oxman, Cook and Guyatt (Oxman, Cook, and Guyatt, 1994).

APPROPRIATENESS OF BACKGROUND

The systematic review by Kramer and Kakuma (2002) has sufficient and balanced background knowledge to draw readers into the existing debate, divided opinions and recommendations for EBF. Reasons for 4–6 months period of EBF recommendation has been sufficiently supported by the discussion of such issue as: the growth faltering related to inadequacy of energy intake from breast milk alone after three or four months presented by FAO and WHO in 1974, and the 'weanling's dilemma' theory by Rowland (1978 and 1986). There is also a balance between literature presented in the background to include studies both from develop and developing countries up until the most recent one in 2000, prior to the review. Thus, the literature review presented is clear, comprehensive and provides up to date background to the review.

THE CLARITY OF QUESTIONS

The objectives of the review were clearly defined with the primary objective to compare the child health, growth and development as well as maternal health as an outcome of two different EBF exposures which are four

to six months versus six months EBF. There is difficulty in giving a clear definition of EBF because not all studies included in the review strictly adhered to WHO's definition (Kramer and Kakuma, 2002). This is a common difficulty when making comparisons of different studies of breastfeeding initiation and termination (Coutsoudis and Bentley, 2004). However, Kramer and Kakuma have acknowledged the various definitions in their effort to avoid misleading conclusions.

TYPE OF STUDIES

In terms of the strength of evidence, in their review Kramer and Kakuma selected the best available evidence they could find including randomized control trials (RCTs) and observational studies. Moreover, published studies in all languages were identified which reduced the publication bias. Even though further unpublished studies and data were identified through further investigation from the reference lists of the relevant published studies; there is still a chance of unpublished studies that have not been identified to be included in the review, especially those studies from developing countries that have less opportunity for online publication. The results of those unidentified studies might be different from studies included in Kramer and Kakuma's review, hence they might have had influenced the results, regardless whether they would have underestimated or overestimated it.

The restriction was imposed on the review. The review was limited to studies with internal comparison group with one group of infants who received EBF for ≥ 3 but < 7 months and mixed breastfeeding (MBF) until six months or later and another group of infants who were exclusively breastfed for ≥ 6 months (Kramer and Kakuma, 2002). Studies with external comparison using reference data were excluded. The results of the studies with external comparison might differ from those with internal comparison, something that might have affected the results of the review. However, with the restriction, the comparison would give a more precise result since they compared the subjects in relatively similar populations. Moreover, Kramer and Kakuma (2002) argue in their review that:

"The restriction was imposed to provide direct relevance to the clinical and public health decision context: whether infants who are exclusively breastfed for the first three to four months should continue EBF or should receive complementary foods in addition to breast milk (MBF)." (p. 4)

IDENTIFICATION OF STUDIES

To reduce selection bias, in the review, two independent literature searches were conducted. In addition, Kramer and Kakuma also made an effort to contact the authors of all studies that qualified for inclusion in the review to

obtain details of the methodology, clarify inconsistencies and obtain unpublished data. Consultations with experts in the field and further examination of the reference lists were performed to identify other potentially relevant published or unpublished studies. Overall, the identification of studies to be included in the review was by far thorough to cover relevant studies and to reduce potential publication bias.

ASSESSMENT OF THE INCLUDED STUDIES

To ensure objectivity and to reduce selection bias, evaluation of potentially relevant studies was carried out without consideration of the results of the studies (Kramer and Kakuma, 2002). In their efforts to assess the quality of the studies they have identified, Kramer and Kakuma used three tools as standard criteria. For assessing the quality of randomized controlled trials, Cochrane criteria for assessing controlled clinical trials and the five point Jadad scale (Jadad 1996 cited in Kramer and Kakuma, 2002) were used. For observational studies including cohort, case-control and cross sectional studies, assessment for control for confounding, losses to follow-up, and outcome were conducted. The results of these assessments were presented in "Table of Included Studies" in the methodological quality section of the review.

Strength and limitations of the included studies were sufficiently discussed. For example, Kramer and Kakuma (2002) have discussed three limitations they have had identified from two Honduras studies by Cohen (1994) and Dewey (1999) while emphasizing the strength of the studies as the only experimental design studies to specifically address EBF recommendations controversy. These considerations are important to ensure objectivity of the review as well as to avoid misleading conclusion readers might perceived. Hence, the review's authors have done enough to assess the quality of the included studies.

THE RESULTS OF THE REVIEW

Kramer and Kakuma (2002) argue that there was no studies, either from controlled clinical trials or the observational studies, show significant evidence of the so called "weanling's dilemma" in the EBF duration for up to six months. Moreover, in the two Honduras controlled trials, although not statistically significant, weight-for-age, length-for-age and weight-for-length z-score at six months were slightly higher in the EBF group (Kramer and Kakuma, 2002). In contrast, observational studies of EBF versus MBF for three to seven months in the developing countries setting show reduced weight and length gain from four to six months in the EBF group, but the results were not statistically significant (Kramer and Kakuma, 2002). To avoid misleading conclusions and overgeneralization, in presenting these results, Kramer and Kakuma consider the limitation of observational

studies design such as confounding due to differences in socioeconomic status, water and sanitation facilities, parental size and weight and length of the MBF group prior to the introduction of complementary food (Kramer and Kakuma, 2002).

However, the results were not similar from study to study regarding to specific outcome, thus caution should be taken in the interpretation. For example, the two Honduras controlled trials differ in their results regarding the age at which the infants sat from lying position and walking by 12 months. Significant heterogeneity also observed in the results of four observational studies in developed countries. The slightly but significantly higher pooled weight and length gain between six to nine months were observed in the MBF group (Kramer and Kakuma, 2002).

In terms of the benefit outcomes, six months EBF shows much more advantages than four to six months MBF. The review underlines several advantages of the six months EBF, such as: significant reduction in risk of gastrointestinal infection (Kramer, 2000), delayed resumption of menses, prolonged amenorrhea, rapid maternal postpartum weight loss, and infants' early development as indicated by significantly younger age of crawling (Cohen, 1994 and Dewey, 1999). The only drawback revealed was a lesser iron status in the six months EBF group in Honduras studies. However, Kramer and Kakuma (2002) argue that the improvement of iron status in the MBF can also be achieved by iron supplementation. Hence, there was no detrimental effect of the initiation of EBF for six months observed in the systematic review.

APPLICATION OF RESULTS

The populations in which represented in the review such as Honduras (Cohen, 1994 and Dewey, 1999), Peru (Brown, 1991), the Philippines (Adair, 1993), and Senegal (Simondon, 1997) were quite similar to Indonesian population. Since the systematic review by Kramer and Kakuma (2002) was sufficiently including studies from developing countries, the results of the review might be suitable to be applied in Indonesia.

The review also considers all important outcomes both for infants' growth and development as well as mothers' health. Issues like slightly but significantly lesser weight and length gain for six to nine months, and lesser iron status of infants with six months duration of EBF were sufficiently discussed, and possible explanations were stated. Therefore implementation of the findings of the review to Indonesian population might already cover all possible outcomes with no such detrimental or surprising outcomes.

The review by Kramer and Kakuma (2002) did not address the issue about cost-benefit or cost-effectiveness in implementing the results into a particular setting. In developing countries setting, one of the most important

potential advantages of 6 months EBF is the reduction of mortality from infectious diseases especially diarrhea. This phenomenon is likely related with the introduction of breast milk substitutes, semi-solid or even worse solid food which less in clean and safety than breast milk (Coutsoudis and Bentley, 2004).

According to the Indonesia Demographic and Health Surveys (DHS) conducted in 1994 and 1997, the median duration of exclusive breastfeeding (EBF) in six provinces was less than 4 months (Latief *et al.*, 2000). Moreover, the percentage of EBF for 0–3 months was only 54% in 1997 (Latief *et al.*, 2000). At the same time, 3,134.2 thousand cases of diarrhea disease occurred in 1998 and it could be hypothesized that at least some of them could be directly linked to the short period of EBF. These findings confirm the results of the meta-analysis conducted by the WHO based on developing countries data that mortality from infectious diseases, particularly diarrhea, is five or six times higher in infants who are not breastfed than those who are breastfed for the first two months of life (Coutsoudis and Bentley, 2004). In Indonesia, diarrhea was ranked as the top contributor for the lost of Disability Adjusted Life Years (DALY) and a leading cause of under-five morbidity, second only to malnutrition (Latief *et al.*, 2000). Hence, for Indonesian population, the advantages of the implementation of EBF for six months will ideally include the reduction of DALY and costs associated with morbidity from diarrhea. Such benefits that worth the harm and costs that might be coming from effort to improve iron status of infants that exclusively breastfed for six months like iron supplementation.

CONCLUSION

In summary, the review by Kramer and Kakuma (2002) on the optimal duration of exclusive breastfeeding clearly demonstrates the advantages of EBF for six months to four to six months EBF. No evidence observed in relation to the so called "weanling's dilemma" (Kramer & Kakuma 2002). Supporting evidences from observational studies were adequate for both developed and developing countries setting. However, since the only RCTs uncovered in the review were conducted both in Honduras and having several methodological problems, additional evidences required through well-designed and conducted RCTs. Nonetheless, the review considered its strength and limitations, hence less likely to be misleading or bias. In terms of applicability, particularly for Indonesian population, the results of the review are seen to be cost effective and appropriate with less harm or detrimental effects.

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