

11-3-2022

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Studer-Perez, Emma and Musher-Eizenman, Dara, "To Feed or Let Eat! A Scale of Independence, Exploration, and Family to Measure Baby-led Weaning as a Complementary Feeding Approach" (2022). *Psychology Faculty Publications*. 60.

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To feed or let eat! A scale of independence, exploration, and family to measure baby-led weaning as a complementary feeding approach

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Abstract

Background: This article reports the development and validation of a measure of parents' use of baby-led weaning (BLW). BLW is a child-centred approach to complementary feeding where the infant is allowed to eat whole foods (rather than purees) and explore a variety of foods and textures. To date, parents' use of BLW has been assessed using either single items or a wide variety of measures. **Method:** In this study, exploratory and confirmatory factor analyses on independent samples supported three BLW subscales: independence, exploration, and family.

Results: The final 13-item scale showed adequate fit statistics and good reliability ($\chi^2(62) = 115.02, p < 0.001$; CFI = 0.98; TLI = 0.98; RMSEA = 0.05; SRMR = 0.06; exploration $\alpha = 0.738$; family $\alpha = 0.715$; independence $\alpha = 0.809$). In addition, the scale demonstrated good external validity and related in theoretically expected ways to an infant feeding-style measure and parent report of complementary feeding approach. This study was limited as it was mostly white parents, and the scale should be validated on a more diverse sample.

Conclusions: Future research can use this scale to examine if BLW relates to infant taste preferences, parenting styles, and child eating behaviours to improve child nutrition and health outcomes.

KEYWORDS

baby-led weaning, complementary feeding, infant feeding style

Key Points

- To date, there is limited operationalisation of BLW as a complementary feeding style.
- This study created a scale to measure BLW as a complementary feeding style.
- Three main factors emerged from the items: exploration, independence, and family.
- Future research should target the effects of BLW on child nutrition and feeding outcomes.

INTRODUCTION

Parents typically begin complementary feeding, or the introduction of foods other than breast milk or formula, during their infants' first year of life.¹ Within the past

100 years, it has been traditional in Western cultures for parents to spoon-feed the child purees or baby food.² With this method, the parent leads the feeding interactions by controlling the spoon. In the early 2000s, an alternative approach to complementary feeding known

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as baby-led weaning (BLW) was introduced and became popular globally.³ BLW encompasses a philosophy that the child is the leader in the feeding relationship. Behaviourally, it generally involves the parent following the infants' cues as they feed themselves from the same or similar foods that the family is eating.^{4,5} Although BLW has increased in popularity and potentially plays an important role in the early development of eating behaviours, only limited empirical research has investigated the construct, and this research has been conducted outside of the United States. Furthermore, operationalisation and measurement of BLW as a complementary feeding style are not well established.

Early literature on BLW considered this construct qualitatively, examining themes related to parents' experience with BLW and the challenges that come with it. In three studies of paediatricians in Spain, a majority of health professionals indicated that they have some familiarity with BLW, but only half of them recommended it for parents to use.⁶⁻⁸ Similarly, research indicates that healthcare professionals in New Zealand and Brazil are reluctant to recommend BLW because of the increased risk of choking for infants and potential problems with iron and overall energy intake.^{9,10} However, some Brazilian professionals recognised that there may be some advantages to adopting BLW.¹⁰ Parents reported learning about BLW online or from a family member or friend.⁴ Others transitioned to BLW when attempts at traditional spoon-feeding failed.¹¹ Across qualitative studies, parents reported that they enjoy this feeding approach as it allows the child to learn to accept different foods and textures in an environment with little pressure.¹² They can trust their child in the exploration of food.⁹ In turn, children are able to learn to trust their satiety cues and respond to their body when hungry, and parents hope that these skills will continue into their childhood.^{4,11} In addition, parents reported that BLW encourages independence with food and eating.¹⁰ In particular, D'Andrea et al. found that parents using BLW report less mealtime stress and more convenience as they can share meals with their child and the child can use food to develop their fine motor skills.⁴

However, not all reported experiences with BLW were positive. Many parents indicated anxiety about their child gagging and choking as part of learning how to feed themselves.^{4,11,12} Moreover, parents noted that it was difficult to allow the baby to lead their experience with food, and many parents worried about inadequate nutrient intake.¹³ Finally, parents noted that they had received inconsistent advice and information on BLW. In particular, high-quality information was challenging to locate, and some of the information given was not consistent with current recommendations by national health organisations.^{12,14} Many mothers noted that they felt confused by the information that they had access to and had to lean on personal experience when they chose how to introduce solid foods to their baby.¹¹

Research has also considered BLW using quantitative methodologies. In general, these studies have found that BLW is characterised by the child being able to explore foods with different tastes and textures while still being nutritionally supported by breast milk or infant formula.⁵ In addition, this approach to feeding is distinguished by sharing meals with the family, which includes eating the same foods served to other family members.³ In particular, a study conducted by D'Andrea et al. examined the types of foods that were given first and the way they were presented to the child.⁴ They found that parents engaging in BLW started by offering various fruits and vegetables. Then parents moved to offering their children animal-based proteins.⁴ These foods are kept whole or solid as opposed to being pureed or in liquid form and are typically given in soft strips that the child can grasp.^{4,13}

Correlates and outcomes of BLW, such as children's dietary intake and satiety responsiveness, have also been investigated. There are mixed findings on infants' energy intake when parents adopt BLW. One study found that infants whose parents use BLW consume more fat and less iron and vitamin B₁₂ than those who use a traditional complementary feeding approach.¹⁵ Contradicting this finding, Rowan et al. and Williams Erickson et al. found that there were no differences in dietary intake between older infants whose parents adopted BLW or spoon-feeding.^{16,17} Erickson found that children whose parents adopted a BLW approach were more likely to consume meat, dairy products, and powdered infant cereal. However, there were no differences in consumption of fruits, vegetables, bread, pasta, rice, and low sugar cereals.¹⁸ Research that examines differences in satiety responsiveness in infants between the different feeding styles also had mixed findings. For example, Brown and Lee found that children who were given solid foods in BLW were more responsive to their satiety.¹⁹ In contrast, other literature found no differences in responsiveness to satiety based on the feeding approach.^{3,20} Finally, one study evaluated parental personality differences as predictors of the complementary feeding they utilised and found that parents who scored lower on anxiety and restrained eating and higher on extraversion and conscientiousness were more likely to adopt a BLW approach to introduce solids to their infant.²¹

Most of the previous literature has measured BLW using a single dichotomous (yes/no) item or a series of questions that vary widely among studies. However, it is likely that even parents who use BLW incorporate it into their feeding to differing degrees; thus, this dichotomous approach likely does not capture the variability among parents. In addition, researchers have noted a lack of operational definition for BLW as an infant feeding approach.^{18,19,22-24} One extant scale examines parents' perceptions of BLW and whether it is a safe method to start complementary feeding.²⁵ However, to date, no scale is available to measure the degree to which parents

adhere to the ethos of BLW or to capture the multidimensionality of BLW. Therefore, this study aimed to operationalise and create a scale to measure BLW.

ITEM GENERATION AND SCALE CONSTRUCTION

In part 1, we developed items to measure BLW, examined the underlying factor structure in an exploratory factor analysis (EFA), and tested the relationship of the subscale scores to a single-item assessment of BLW. This study was approved by the Institutional Review Board of the authors' university.

MATERIALS AND METHODS

Survey participants

A total of 393 individuals were recruited for the first study via Cloud Research, an online platform that allows people to complete surveys for compensation.²⁶ Interested participants selected this study to complete and were then directed to a Qualtrics survey. The consent form was the first page of the survey, and participants could not continue the survey without consenting. The consent form listed the eligibility criteria. If they did not consent or did not meet eligibility criteria, they were directed to the last page of the survey that indicated they had nothing more to complete. The survey could be completed in less than 20 min, and participants were compensated 50 cents. Participants had to be a parent who lived in the United States with a child between age 6 and 30 months. The total number of children in the family was not specified, but parents were allowed to complete the survey as long as they had one child within the required age range. In addition, parents who used any form of complementary feeding (i.e., spoon-feeding, BLW, or a combination of the two) could participate; 224 participants were excluded as they signed up for the study but were not able to go further than the consent form due to not meeting eligibility criteria. An additional 20 individuals were excluded from the analyses due to not meeting data quality requirements. These 20 individuals completed the study but did not pass two of the three required attention checks throughout the survey. The final sample included 149 parents; 67.8% of participants identified as female, having a middle-class income (55.7%), and a bachelor's degree (40.3%). In addition, 79.9% identified their race/ethnicity as white/Caucasian, followed by African American or black (8.1%), Asian (7.4%), Latinx (4.7%), and Native American (2.7%). According to Osborne and Costello, for an initial EFA, a ratio of five participants to each scale item is adequate.²⁷

Item generation

Researchers completed a review of literature related to BLW, complementary feeding, and finger foods and introducing solids using Google Scholar, PubMed, PsychInfo, and Academic Search Complete. Furthermore, the authors surveyed news articles and blogs to investigate what parents think BLW is and how this method of complementary feeding functions in the home. From these search methods, the main themes that were generated by parents and health professionals were adapted into survey items to reflect the philosophy, practice, and foods served in BLW. In addition, the pressure and control items were generated from previous scales, including responsive feeding measures. From this literature, 31 items were generated. These items included the philosophy of BLW (e.g., my infant should be allowed to explore the foods presented to them), practices of BLW (e.g., my baby brings the food up to their mouth), the use of pressure and control in BLW (e.g., I restrict the amount of food my child is allowed to eat during a meal; reverse coded), and foods served in BLW (e.g., I feed my child from baby food jars; reverse coded). Face validity was examined by the authors to ensure the scale items captured the underlying construct. In particular, researchers ensured that the items were congruent with the results of the previous literature conducted in other countries and with other scales that measure similar constructs. Participants rated each item on a five-point Likert scale ranging from strongly disagree or never to strongly agree or all of the time. These 31 items were pretested with a small sample ($n = 5$) of individuals who met eligibility criteria, and feedback on the items was collected. These individuals completed the survey via Qualtrics and were asked to give feedback via email, text message, or by phone to the researchers. Two items that were noted as ambiguous were revised before recruiting the larger sample. The item 'What is your race/ethnicity' was adapted to say 'What category best describes your race/ethnicity? Select all that apply'. In addition, the item 'I feed my infant cereal' was modified to say 'I feed my infant cereal (e.g., rice cereal, oatmeal)'.

In addition, a single item to examine the external validity of the scale was included in the survey after asking about the parent's current beliefs surrounding complementary feeding. This item read 'The feeding approach known as "baby led weaning" or "BLW" for short is a style of feeding infants that allows them to feed themselves right from the start of introducing solid foods. One aspect of this is that food is offered in thick finger-sized pieces and is soft and easily squishable between your fingers. Another approach is called spoon-feeding, where most of the foods introduced are in the form of purees and are eaten off of a spoon. When introducing new foods to your child, which style of feeding did you use?' Parents responded on a five-point

Likert scale of BLW, mostly BLW with some spoon-feeding, an equal amount of spoon-feeding and BLW, mostly spoon-feeding with some BLW, and spoon-feeding. A higher score on this item indicates following BLW.

Finally, an infant feeding measure was included to examine the external validity of this scale using infant feeding style. This 51-item scale included subscales of laissez-faire (e.g., it is okay for a toddler to walk around when eating as long as he or she is eating), pressuring (e.g., it is important for a toddler to finish all food on his or her plate), restrictive (e.g., a toddler should never eat sugary food like cookies), and responsive (e.g., my child knows when he or she is full). This scale has adequate reliability and validity.²⁸

Item analysis and scale construction

Thirty-one items, with no missing data, were analysed using EFA using principal component analysis with an oblimin rotation. The EFA was performed in SPSS Statistics software version 27.²⁹ The point of inflection on the scree plot, eigenvalues >1, the contribution of meaningful variance, loadings and cross-loadings, and theoretical interpretability were used to select the number of factors and eliminate poorly performing items.

RESULTS

Initial analyses showed that there was adequate variance on all 31 items. Thirteen items were excluded iteratively based on the criteria outlined earlier. In particular, eight items were eliminated as they did not contribute meaningful variance to the scale, and five items were excluded as they were the only item on a factor. Then, one item was removed due to its cross-loading across all the factors (i.e., my infant should be given the same foods as the family is eating [possibly in addition to breast milk]). Finally, two items were excluded as they negatively affected the Cronbach's α reliability test between the subscales (i.e., my infant uses utensils when they eat, I offer foods to my child when they are content and happy). Then, a final EFA on 15 items was conducted. The Kaiser–Meyer–Olkin statistic was 0.82, and Bartlett's test of sphericity was $\chi^2(91) = 748.62$, $p < 0.001$, suggesting that the sample size was adequate for the analysis. All three components of the final EFA had an eigenvalue above 1 and combined explained 56.53% of the total variance. These three components were labelled (1) exploration, (2) independence, and (3) family. The α values for the scales were 0.79, 0.83, and 0.74, respectively.

Subscale scores (item means) were calculated and correlated with one another to examine if the subscales

were related with each other in theoretically expected ways. All subscales were significantly positively correlated (Table 1). Each subscale was also significantly positively correlated with the single-item complementary feeding approach reported by the parent (independence: $r = 0.28$, $p < 0.001$; exploration: $r = 0.30$, $p < 0.001$; family $r = 0.27$, $p < 0.001$). In addition, sex differences were calculated between each subscale. In the sample in part 1, there was a significant difference from the exploration subscale ($t(147) = -2.52$, $p = 0.013$) such that mothers ($M = 3.45$) reported allowing significantly more exploration in their approach to complementary feeding than fathers ($M = 3.15$). There were no significant differences for the independence (mothers: $M = 3.32$; fathers: $M = 3.15$) ($t(147) = -1.82$, $p = 0.071$) or family (mothers: $M = 2.86$; fathers: $M = 2.77$) ($t(147) = -0.616$, $p = 0.539$) subscales. In the sample that was recruited in part 2, there were significant differences between the subscales that measured exploration ($t(162) = -3.80$, $p < 0.001$) and independence ($t(162) = -5.07$, $p < 0.001$) such that mothers (exploration: $M = 3.64$; independence: $M = 3.04$) reported more independence and exploration tendencies in their complementary feeding approach than fathers (exploration: $M = 3.20$; independence: $M = 2.58$). The family subscale did not show sex differences (mothers: $M = 3.20$; fathers: $M = 3.04$) ($t(162) = -1.78$, $p = 0.078$).

Finally, the BLW subscales were correlated with the infant feeding–style subscales (Table 1). All three subscales (i.e., independence, exploration, and family) were significantly negatively related to the pressure and restriction subscales of the infant feeding style. In addition, the independence and exploration subscales of the BLW scale were significantly positively related to the responsive subscale of the infant feeding styles.

SCALE REFINEMENT AND FINAL VALIDATION

To ensure that the factor structure would be maintained in an independent sample, in part 2, we tested a confirmatory factor analysis (CFA) in a separate sample of parents.

MATERIALS AND METHODS

Survey participants

For this study, 339 parents were recruited via cloud research. The same recruitment methods and informed consent process were utilised as in part 1. Cloud research ensured that participants who participated in part 1 could not participate in part 2; 131 potential participants were excluded as they did not meet

TABLE 1 Original scale items

1. My infant should be given the same foods as the family is eating (possibly in addition to formula/breast milk).
2. My infant should be allowed to explore the foods presented to them.
3. How much do you believe the statement 'Food is fun until age one'.
4. My infant should eat different foods than what the family eats.^a
5. My infant should have special mealtimes that are planned just for them.^a
6. My infant should sit with the family at mealtime.
7. My infant uses utensils when they eat.^a
8. My infant is allowed to feed themselves.
9. My infant holds food pouches when presented to eat.
10. I feed my child so they do not have to touch the food.^a
11. I play games (e.g., airplane and choo-choo train) to get my child to eat more.^a
12. Meals are messy with my infant.
13. My baby brings the food up to their mouth.
14. I feed my child.^a
15. My baby feeds themselves.
16. I introduce new foods frequently.
17. I allow my child to explore new foods.
18. I offer foods when my baby has already had some breast milk.
19. I offer foods to my child when they are content and happy.
20. I offer foods to my child when they are fussy.^a
21. I offer foods to my child when they are hungry.^a
22. I restrict the amount of food my child is allowed to eat during a meal.^a
23. I decide when my child stops eating.^a
24. I pressure my child into eating more.^a
25. When my child is done eating, I ask/tell my child to eat more.^a
26. I offer small portions of various foods to my child for a meal.
27. I feed purees to my baby.^a
28. I feed my child from baby food jars.^a
29. I give my child strips of soft foods to eat.
30. My infant eats the same foods as I provide for my family (in addition to breast milk/formula).
31. I feed my infant cereal (e.g., rice cereal, oatmeal).

^aIndicates the item is reverse coded. This scale is rated on a five-point Likert scale that ranges from strongly disagree to strongly agree.

eligibility criteria (i.e., a parent with a child between age 6 and 30 months). An additional 33 participants were excluded from analyses as they did not successfully complete the data quality requirements for this study for a final sample of 175 parents. A majority of participants were female (70.7%), white/Caucasian (73.8%), had a socio-economic status in the middle class (50.6%), and had completed a bachelor's degree (34.8%).

RESULTS

Data from the second survey were used to confirm the factor structure of the scale through CFA in r studio.³⁰ The fit of the model using 15 items was adequate ($\chi^2(87) = 197.44$, $p < 0.001$; comparative fit index [CFI] = 0.96; Tucker-Lewis index [TLI] = 0.96; root mean square error of approximation [RMSEA] = 0.07; standardized root mean squared residual [SRMR] = 0.08).

TABLE 2 Correlations between BLW subscales and infant feeding style questionnaire in sample 1

	1	2	3	4	5	6
1. Independence						
2. Exploration	0.557**					
3. Family	0.582**	0.410**				
4. IFS-laissez-faire	-0.081	-0.135	0.032			
5. IFS-pressure	-0.368**	-0.309**	-0.326**	0.229**		
6. IFS-restriction	-0.335**	-0.279**	-0.386**	-0.248**	0.571**	
7. IFS-responsiveness	0.196*	0.325**	-0.006	0.109	0.000	0.207*

Abbreviations: BLW, baby-led weaning; IFS, infant feeding-style questionnaire.

** $p < 0.01$ (two-tailed); * $p < 0.05$.

TABLE 3 Correlations between BLW subscales in sample 2

	1	2	3	<i>M</i>	<i>SD</i>
1. Independence				2.90	0.617
2. Exploration	0.511**			3.51	0.642
3. Family	0.363**	0.398**		3.15	0.504

Abbreviations: BLW, baby-led weaning; *SD*, standard deviation.

** $p < 0.01$ (two-tailed).

Two of the items had low factor loadings on the independence latent variable. These items were less face valid for the subscale (i.e., I feed purees to my baby, I give my child strips of soft foods to eat) and did not contribute meaningful variance and so were excluded from the scale. After these items were excluded, the CFA analysis was rerun with 13 items. With the 13-item scale, the fit of the model was improved, and overall a good fit was observed ($\chi^2(62) = 115.02$, $p < 0.001$; CFI = 0.98; TLI = 0.98; RMSEA = 0.05; SRMR = 0.06).

Subscale scores (item means) were calculated and correlated with one other to examine if the subscales were related with each other in theoretically expected ways. Similar to part 1, the subscales significantly positively correlated with each other (Table 2). Again, all three subscales of the BLW scale significantly positively were related to the single item that asked parents which approach of complementary feeding they followed, indicating that parents who reported using BLW also scored higher on the BLW measure (exploration: $r = 0.25$, $p < 0.001$; independence: $r = 0.34$, $p < 0.001$; family: $r = 0.30$, $p < 0.001$). The Cronbach's α values were 0.738, 0.715, and 0.809 for the exploration, family, and independence subscales, respectively (Tables 3 and 4).

DISCUSSION

The aim of the current research was to create a scale to measure BLW. To date, no operational definition of BLW or no scale that measures BLW as an approach to

start complementary feeding exists. This initial creation and examination of the validity of the BLW scale yielded positive results. Part 1 provided a new scale to operationalise and measure BLW. In the EFA, a three-factor solution was obtained. The subscales showed good internal consistency in the sample of parents whose children had started eating solid foods or had recently gone through the process of complementary feeding. The results of this initial scale development suggest that BLW can be measured by three components: first, the degree to which the child has independence in eating; second, how much the child is allowed to explore their food (e.g., textures, colours, and tastes); and third, the extent to which the infant sits with and eats with the family. Interestingly, items that asked about pressure and restriction were excluded from analyses as they did not load consistently with the other items and factors on the scale. This suggests that pressure and restriction are separate constructs that are not related to practices associated with BLW. These results are consistent with previous literature and articles that describe BLW as an approach when starting complementary feeding^{7,11,13} and are consistent with how parents think about BLW in qualitative studies.⁴

This new measure of BLW allows the parent's approach to complementary feeding to be examined along a continuum. Indeed, in the sample in part 1, a majority of parents (68.3%) use a combination of complementary feeding approaches (i.e., item was rated on a five-point Likert scale that included (1) spoon-feeding, (2) mostly spoon-feeding and some BLW, (3) equal amount of both spoon-feeding and BLW, (4) mostly BLW and some spoon-feeding, and (5) BLW). That is, most parents do not adhere to one complementary feeding philosophy and, therefore, should not be forced to choose between BLW and spoon-feeding in classifying themselves, as they have typically done in previous research. Another advantage of this new scale is that parents who have not heard the term 'baby-led weaning', but who follow this approach anyway, still score high on the measure, giving a more accurate view

TABLE 4 Final scale items

	Factor 1	Factor 2	Factor 3
1. My infant should have special mealtimes that are planned just for them. ^a	1.000		
2. My infant should eat different foods than what the family eats. ^a	0.874		
3. My infant eats the same foods as I provide for my family (in addition to breast milk or infant formula).	1.109		
4. My infant should sit with the family at mealtime.	0.690		
5. My infant should be allowed to explore the foods presented to them.		1.000	
6. I introduce new foods to my child frequently.		1.117	
7. I allow my child to explore new foods.		1.546	
8. My infant is allowed to feed themselves.			1.000
9. My infant holds food pouches when presented to eat.			0.674
10. I feed my child so they do not have to touch the food. ^a			0.515
11. My baby brings the food up to their mouth.			0.913
12. My baby feeds themselves.			0.955
13. I feed my child from baby food jars. ^a			0.539

Abbreviation: BLW, baby-led weaning.

^aIndicates the item is reverse coded. Factor 1 was labelled family, factor 2 was labelled exploration, and factor 3 was labelled independence. This scale is rated on a five-point Likert scale that ranges from strongly disagree to strongly agree.

of their feeding approach. Finally, in the samples recruited in parts 1 and 2 of this study, both mothers and fathers were recruited. Most previous literature that has focused on BLW has included only mothers in the sample.^{4,6,9,11,13,17–19} Including fathers in the validation of the scale indicates that they are involved in food decisions with their children. Considering this, future research can create a more complete picture of parental beliefs of child complementary feeding styles.

The factor structure of the measure revealed that parents who use BLW may hold different values about feeding than those who use traditional spoon-feeding. Whereas BLW prioritises independence, exploration, and the baby eating with the family, traditional spoon-feeding approaches prioritise parent-led feeding with purees and the infant not being included in family meals. Indeed, Brown and Lee³¹ found that parents who follow a BLW approach self-report using lower levels of controlling and restrictive feeding practices. It is also likely that BLW relates to demographic variables such as socio-economic status, race, ethnicity, and education status. For example, parents with higher education and of particular ethnicities may be more exposed to BLW and in turn more likely to adopt this way of complementary feeding. Indeed, Langley-Evans discussed in their editorial how BLW is more popular in the United Kingdom among high-income families.³² In addition, as BLW is child centred and allows the child to explore at their own pace, it is important to consider how parenting style is related. Parents who have different levels of responsiveness and place different demands on their children may be more likely to adopt a particular infant

feeding style. Finally, it is important to understand how BLW relates to family dynamics. Given that maladaptive family dynamics can have negative effects on children (e.g., lower psychological well-being, self-esteem, and more behavioural problems^{33,34}), examining how BLW fits into familial patterns of interaction might be worthwhile. Furthermore, examining how BLW might be implemented in non-traditionally structured families, such as single-parent families, would be useful in future research.

Perhaps most proximally, it is important to understand how BLW may relate to children's eating behaviours, and it is hoped that a standard measure for this construct will help in this endeavour. Disordered eating behaviours can manifest early in life,³⁵ and early disordered eating patterns are a risk factor for developing an eating disorder as a teenager or an adult.³⁶ Because the development of intuitive eating patterns can be a protective factor against disordered eating,³⁷ it is important to investigate how BLW relates to responsive feeding, children's eating behaviours, and hunger and satiety responsiveness.

LIMITATIONS

Although this scale development represents an important step forward in research on BLW, it has its limitations. This sample was recruited via Cloud Research/Amazon's Mechanical Turk. Therefore, the parents who completed the study may have more experience with and access to technology. In addition, participants on mTurk are more

likely to not have other employment, be more educated, and be less religious.³⁸ All these characteristics may be associated with greater exposure to ideas about various complementary feeding approaches. In addition, the samples in these studies lacked racial and ethnic diversity. Thus, additional research is needed to understand this construct with more diverse samples. In addition to these issues of sampling, these studies relied on parents' self-report. Observational research to corroborate these results would be very useful. Furthermore, parents with children aged 6 months to 2½ years were recruited for this study as they were in the process of complementary feeding or recently went through the experience and could retrospectively report about the experience. However, this may have impacted the scale development if parents were not able to accurately retrospectively report about their feeding. Therefore, this study should be replicated to confirm the factor structure of this scale.

Moreover, previous research examining BLW was conducted outside of the United States, and there may be cultural differences in feeding practices and the principles of BLW cross-culturally. For example, in the United States, parents commonly give food pouches to children to hold and eat on their own. This might be a practice that is congruent with BLW because the child is in control and leading the eating occasion. In the United Kingdom, however, this practice is discouraged due to oral health and other concerns. Therefore, future research should investigate the possible differences in BLW practices across different cultures to gain a more complete scenario of how BLW manifests in different countries.

Finally, exploration, independence, and family emerged as the three basic tenets of a BLW approach to complementary feeding based on this study and previous literature. However, it is possible that there is more to BLW than these themes. For example, some researchers have identified other tenets of BLW such as continuing breastfeeding/formula feeding on demand or introducing solid foods around 6 months. Therefore, future research should continue to investigate how parents view BLW and what are the most salient aspects of this approach in relation to positive and negative eating outcomes.

CONCLUSION

This initial BLW scale creation and validation yielded positive results. After EFA and CFA analyses, the final scale included 13 items that form three subscales. Future research might use this continuous approach to measuring BLW to examine taste preferences, weight status, and feeding patterns in children whose parents use this approach. Furthermore, as more information on the consequences of BLW versus parent-led feeding becomes known, future research should investigate perceptions

and opinions of BLW from health providers, because paediatricians may be a key source of information for parents on complementary feeding. Given the challenges associated with childhood nutrition, understanding early factors that may help protect against poor nutrition and weight outcomes may have important public health consequences.

AUTHOR CONTRIBUTIONS

Emma Studer-Perez contributed to theory, item generation, data collection, analyses, and manuscript preparation. Dara Musher-Eizenman contributed to theory, analyses, and writing and editing of the manuscript and overall support of the project.

ACKNOWLEDGEMENTS

In addition, there were no external sources of funding for these studies. No other individual contributed to the creation of this work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

TRANSPARENCY DECLARATION

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported. The reporting of this work is compliant with CONSORT guidelines. The lead author affirms that no important aspects of the study have been omitted. All materials and analysis codes can be obtained by emailing the corresponding author. This study, hypotheses, and analytic plan were preregistered with Open Science Framework. The registration is available at https://osf.io/5zjne/?view_only=8a3f0971a63a442dac2ec7a299457bbf. Finally, this manuscript was part of the transparent peer review process. All correspondence between the authors and reviewers is available upon request.

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How to cite this article: Studer-Perez E, Musher-Eizenman D. To feed or let eat! A scale of independence, exploration, and family to measure baby-led weaning as a complementary feeding approach. *J Hum Nutr Diet.* 2022;1–9. <https://doi.org/10.1111/jhn.13110>