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Baby-Led-Weaning (BLW) from maternal perspective: Polish experience

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ABSTRACT

Introduction. Baby-Led-Weaning (BLW) is increasingly popular as a complementary feeding practice although its safety, limitations and advantages have not been widely studied as yet.
Material and Methods. The present survey employed an anonymous online questionnaire to learn from experience (their concerns, perceived advantages, disadvantages, and overall satisfaction) of Polish mothers (n = 373) that adopted BLW.
Results. Most of surveyed mothers adopting BLW had tertiary education and good economic status, and inhabited urban areas. Non-scientific online resources were the most important source of knowledge on BLW; none of surveyed mentioned healthcare professionals as having played any role in this respect. The risk of choking was the greatest concern expressed while considering the BLW prospect. At least one choking event during B:W adoption was reported by 55.6%, mostly involving an apple, occurring at beginning of introduction, and perceived as non-serious. The BLW advantages included: (i) promotion of infant self-reliance, motor skills, biting and chewing of food and speech), sensory learning of food, and (ii) motivation to eat family meals and make more healthier dietary choices. The greatest disadvantage was an in-house mess. Nearly all mothers recommended the BLW adoption to other caregivers.
Conclusions. In view of the scarcity of data on this feeding practice, the maternal experience demonstrated in the present study may offer valuable information for health professionals as well as future caregivers who consider the adoption of BLW to be a complementary feeding practice.

Keywords: Baby-Led-Weaning, complementary feeding practice, maternal experience, online survey.

Introduction

Infant feeding practices raise discussions among parents and paediatricians as their guidelines have changed several times over the last 60 years [1]. Currently, WHO and UNICEF unanimously recommend exclusive breastfeeding for the first 6 months of life followed by nutritionally-adequate and safe complementary (solid) foods together with continued breastfeeding up to 2 years of age or beyond [2, 3]. It has, however, been shown that in certain infant groups introduction of complementary feeding prior to 6 months may be beneficial [4]. Nevertheless, it is generally advised to gradually increase food variety and consistency to decrease the risk of choking, allergic reactions and other unwanted effects [1, 5].

Traditional complementary feeding practice requires parents or caregivers to decide entirely on amount, type and consistency of food given to infants, and actively assist at spoon feeding, particularly during the first months of its introduction. Contrary to this approach, an alternative strategy, established in 2003 by a British midwife Gill Rapley, as "Baby-Led Weaning" (BLW; also referred to as "self-feeding"), allows an infant to have a greater control over its feeding from the onset of

complementary feeding by being offered a range of whole pieces of solid foods, preferably from the family meal, eaten by hand and of its own choice [6]. Over the last decade BLW has been anecdotally reported to increase in popularity. According to Google Trends data (available online at trends.google.com), the number of online hits related to this feeding practice in the Google search engine is continuously growing, and over 700,000 total records by September, 2017 it appears that BLW is gaining attention. However, a systematic search for English language articles published up to early 2017 in the MEDLINE/PubMed database with key term "baby led weaning" yielded less than 30 items of which some were review papers [7–9], one was a description of a randomized controlled trial yet to be conducted [10], one reported the results of a clinical trial on choking risk [11], and two were commentaries [12, 13]. Other have described the maternal experience with BLW, attitudes of healthcare professionals or assessment of energy and nutrient intakes although the studied groups varied in size, and were mostly small; the need for further investigations on BLW was repeatedly indicated [14–18].

Learning from the maternal perspective may be valuable in understanding the main risks, disadvantages and advantages of BLW, and further to develop efficient support from health professionals in mothers' decision-making on infant feeding. In this context, BLW has been studied rarely and mostly on small sample sizes [16, 17, 19]. This study surveyed a group of Polish mothers (n = 373) adopting BLW, characterized it, and assessed its overall experience and accompanying feelings, fears and satisfaction. BLW has been promoted in Poland since 2011 following the translation Gill Rapley book. The experience of Polish mothers with BLW has not yet been the subject of any previous study.

Material and Methods

The study assessed the overall maternal experience with BLW using a self-report, anonymous questionnaire. The inclusion criteria included: Polish citizenship, adoption of BLW regardless of whether it was adopted consequently or with temporary exceptions. The questionnaire examined:

- the mother's intention(s) behind the BLW adoption,
- main sources from which mothers learned about BLW,
- the mother's fears (if any) that accompanied the BLW adoption of BLW,
- the attitude of relatives (family and friends) towards the BLW adoption,
- the experience of the mothers with BLW as regards consistency in its adoption,
- the occurrence of adverse events,
- main advantages and disadvantages of BLW as identified by mothers.

The questionnaire also assessed the demographic characteristics of each mother (age, education, economic status, place of living). The online survey was undertaken during a period of one year (June 2015 – July 2016). The invitation to complete the questionnaire were frequently posted on Polish parental online message boards and websites.

Results

Demographic characteristics

The demographic characteristics of the polled group (n = 373) are presented in **Table 1**. The vast majority had completed their education at a tertiary level, inhabited urban areas, and had good economic status.

Table 1. Demographical characteristics of Polish mothers enrolled in the study

Characteristic	n = 373
Age	
Mean (years ± SD)	29.8 ± 3.71
Median (range) years	30 (20-43)
Place of living *n* (%)	
Urban > 100,000 residents	221 (59.2)
Urban 50,000 – 100,000 residents	27 (7.2)
Urban 10,000 – 50,000 residents	52 (13.9)
Urban < 10,000 residents	22 (5.9)
Rural	51 (13.7)
Education *n* (%)	
Primary	0 (0)
Secondary	55 (14.7)
Tertiary	316 (84.7)
Vocational	2 (0.5)
Income status *n* (%)	
Very good	71 (19.1)
Good	176 (47.2)
Satisfactory	118 (31.7)
Poor	8 (2.2)
Very poor	0 (0)

Motivations to adopt BLW and knowledge sources

The main motivation to adopt BLW by studied group included plain curiosity (51.5%), an infant showing a lively interest in solid foods eaten by adults (43.5%), and the conviction that this feeding practice is associated with health benefits for child development (38.3%; **Figure 1A**).

The vast majority of women (98.3%) indicated non-scientific online resources to be the source of information on BLW (**Figure 1B**). A significant number (72.8%) also indicated books, and less often – family and friends. Only a small percentage had read scientific sources (e.g. publications from peer-reviewed journals) while none of them indicated health professional (e.g. paediatrician, dietician) as a source of information on this feeding approach (**Figure 1B**).

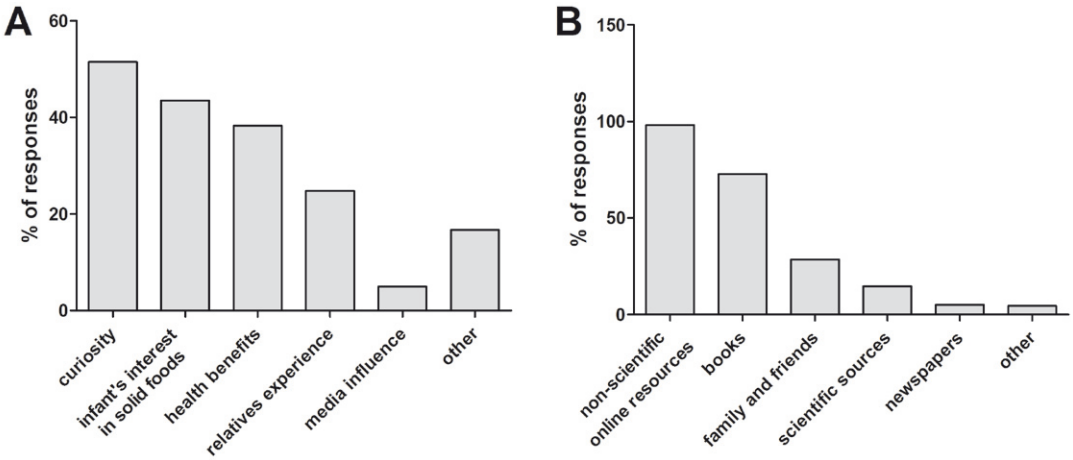

Figure 1. Motivation to adopt BLW (A) and sources of information on this feeding practice (B) among the studied mothers (n = 373)

Experiences with BLW

The vast majority of mothers (85.3%) introduced BLW between 6 and 9 months of their infants' lives. BLW was introduced before 6 months and after 9 months by 9.4 and 5.4%, respectively. As reported, most children (93.8%) were highly interested in solid foods when BLW was introduced. Nearly one-third (29.5%) of mothers declared that they had adopted BLW consistently while the rest (70.5%) adopted it with slight and temporary exceptions, namely spoon-feeding soup and yogurt at home, and spoon-feeding in restaurants and other public places.

The possibility of choking was a major fear (68.4%) that was present during BLW adoption (**Figure 2A**). In fact, 55.6% of mothers reported that their children experienced at least one event of choking with solid food, particularly during the first weeks of BLW adoption. The food involved in such events included fruits (46.0%), mostly an apple (35.4%), cooked or raw vegetables (31.7%; usually a carrot – 43.1% or a piece of broccoli – 23.5%) and less often, bread (13.0%). Choking was more frequently reported by mothers adopting BLW before 6 months than afterwards (62.9 *vs* 42.4%; $p < 0.05$; Pearson chi-square test). None of these events was reported to be serious and the surveyed mothers viewed them as a normal step in the child's education in self-feeding. No other adverse events related to BLW adoption were reported by the polled group. Nearly one-third of mothers (29.2%) feared that BLW could lead to undernourishment (**Figure 2A**) although problems in weight gain were reported only by 2.7%.

As many as 71.6% of mothers faced some form of criticism and negative attitude towards BLW from their relatives, family and friends. Again, the concern that was most often expressed was the risk of choking (59.6%). The other BLW disadvantage seen by relatives included the generation of in-house mess (30.0%), and risk of undernourishment (38.0%). Some relatives also indicated that BLW is unsuitable for such young children (18.4%) and that this approach generates large food waste (12.9%) (**Figure 2B**).

The majority of the surveyed mothers (87.1%) declared that their children were very interested in new food during BLW adoption. Nearly all of them (97.3%) reported that their children willingly ate meals together with the rest of the family. A number of advantages related to the BLW approach

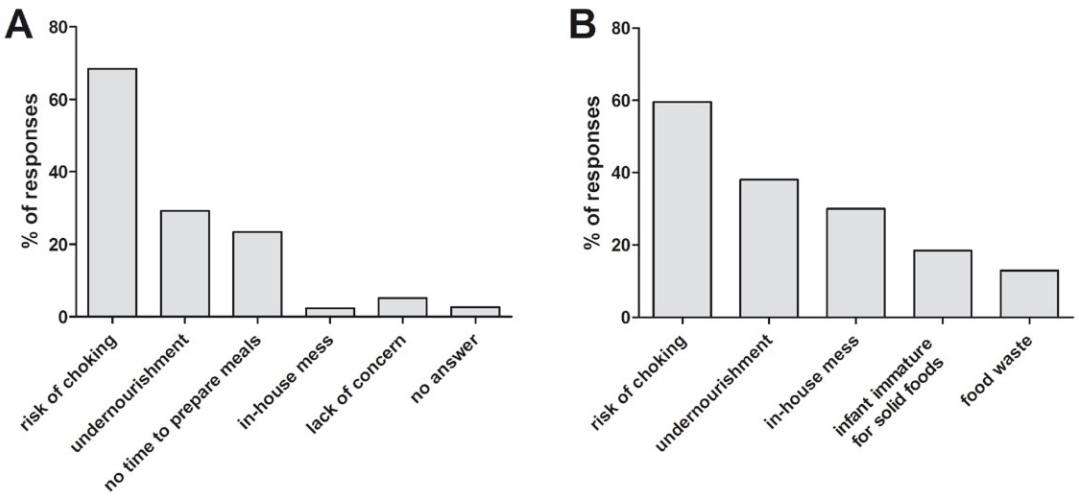

Figure 2. Fears and concerns associated with adoption of BLW expressed by mothers (A) and their relatives – family and friends (B) (n = 373)

Table 2. Advantages of BLW as reported by the mothers surveyed in the present study (n = 373)

Reported advantages of BLW	% (n)
Supporting child self-reliance	176 (47.2)
Supporting child development	117 (31.4)
Eating family meals together	103 (27.6)
Supporting child decision making	94 (25.2)
Supporting sensory learning of food	85 (22.8)
Supporting healthier and more diversified diet	79 (21.9)
Supporting interest in food and new flavors	57 (15.3)
The joy which child has during eating	49 (13.1)
Child eats the same food as adults	42 (11.3)
Giving child a sense of trust	24 (6.4)
Possibility to feed child in non-stressful way	24 (6.4)
No answer	40 (10.7)

were identified (**Table 2**). The most often indicated included promotion of self-reliance during a meal and independence in food choices. Over 30% indicated that BLW supports child development including manual and motor skills, biting and chewing of food as well as speech. In view of mothers, BLW promoted sensory learning of food by involving not only taste but also smell and touch. A relatively high share of mothers indicated that BLW is a way to experience shared family meals which motivate adults to make more balanced, more diversified, well-thought-out and healthier dietary choices (e.g. by including fresh, unprocessed, seasonal foods; decreased salt and sugar free consumption). It is worth noting that nearly all mothers surveyed in the present study (97.6%) would recommend BLW to other parents as a complementary feeding practice.

Nevertheless, the surveyed group also pointed to some disadvantages of BLW, the in-house mess that an infant usually generates while eating being a major one. This was often accompanied by dirty clothes and a need for their more frequent washing, and often baby bathing. Nearly 10% of mothers expressed the view that there were no disadvantages to this feeding practice (**Table 3**).

Table 3. Disadvantages of BLW as reported by the mothers surveyed in the present study (n = 373)

Reported disadvantages of BLW	% (n)
Generation of in-house mess	186 (49.9)
Possibility of chocking	46 (12.3)
Time-consuming	23 (6.2)
Lack of public acceptance of BLW	21 (5.6)
No answer	49 (13.1)
No disadvantages	35 (9.4)

Discussion

This study has provided an insight into the world of Polish mothers practicing BLW, identified their basic demographic characteristics, described their experience with BLW and indicated its benefits, fears and disadvantages from their own perspective. In view of the scarcity of data on BLW, the maternal experience may offer valuable information for health professionals and future caregivers who consider the BLW adoption

Considering the growing interest in BLW [19], it is important to deliver accurate information to parents interested in alternative practices of

infant feeding. Unsurprisingly, the non-scientific Internet websites were found to be the most important source of information on BLW. Their influential role in diet promotion has already been documented [20, 21]. The surveyed individuals also anticipated information from scientific literature – over 10% had already used them to learn about BLW. This advocates the need to disseminate the research results, e.g. by Open Access publishing mode. Through valuable free, full-text, online resources, Open Access greatly enhances the possibility to accurately communicate science to the general public and health professionals.

As demonstrated previously, healthcare professionals can and should play a significant role in decision-making on breastfeeding and introducing solid foods [22, 23]. Strikingly, not a single mother surveyed in our study indicated that a medical specialist or dietician had played any role in this respect. This further highlights the urgent need to increase awareness of BLW among different paediatricians and dieticians in Poland, for the benefit of future mothers and their children. As found in a mini-survey conducted in New Zealand, some healthcare professionals had concerns about the risk of iron deficiency, inadequate energy intake and choking, and as a result most felt reluctant to recommend it [16]. A recent investigation revealed that infants following BLW (n = 25) had a lower intake of iron, zinc and vitamin B12 than those on traditional spoon-feeding (n = 26) although energy intake was similar and there was a higher fat intake [18]. These observations still require assessment through further studies, preferentially randomized clinical trials or cross-sectional investigations on a larger sample size.

It appears that the risk of choking is one of the greatest concerns related to the BLW adoption. In our study this was expressed by both mothers and their relatives. Although more than half of mothers actually found their children to choke at least once, none of those events were reported to be serious. As recently shown using randomized controlled trials, infants that follow BLW do not appear more likely to choke than infants that follow traditional feeding practice [11]. Moreover, the mothers surveyed in our study admitted to treating these choking events as a natural step by which a child learns how to eat solid foods.

Undernourishment was the other important risk that mothers feared while adopting BLW and which also formed part of negative attitude expressed by their relatives. It should be noted that the surveyed mothers did not report this issue as a BLW disadvantage, indirectly indicating that in their opinion, the children were fed appropriately. As shown in other study, weaning style may have an important impact on childrens' food preferences and growth. BLW has been shown to promote regulation of food intake better when compared to spoon-feeding, leading to lower BMI, and preference for carbohydrates rather than sweets [24]. Other study demonstrated that infants weaned by BLW were significantly more satiety-responsive [25]. Considering that childhood obesity related partially to excessive free sugar consumption is becoming a worldwide health issue [26], BLW may potentially represent a strategy to lessen its devastating consequences. As declared by some mothers surveyed in our, BLW adoption supported a healthier diet for the whole family by decreasing salt, free sugars and processed food consumption. This aspect would be worth further investigations on a more objective level. A previous study found only a low percentage of individuals underweight (< 5%) in children fed by BLW [24]. This indicates that fears that BLW may lead to insufficient nutrient supply expressed by healthcare professionals [16], mothers and their relatives may be unsupported. As suggested , BLW allows for a gradual transition to solid foods, in the childrens' own time and at their own pace. In fact, nearly half of the respondents in our study noted that BLW promotes childrens' self-reliance [9].

Nearly one-third of respondents declared that BLW promoted eating family meals together and vast majority of mothers also noted that their children ate basically the same food as adults. This is an entirely different pattern in comparison to the traditional approach in which parents are forced to spoon-feed and often cannot eat at the same time. BLW promotes eating meals together not only because of the fear of an infant choking and the necessity to carefully supervise but also because of the chance afforded to the infant to observe its parents may be supportive in acquiring new motor skills [16]. A number of benefits of eating family meals together have been evidenced including improvement of psychological well-be-

ing and healthier diet patterns [28, 29]. The frequency of family meals, due to various reasons, is likely to decrease in some regions [30, 31]. Eating a meal together with an infant may be difficult to coordinate on a daily basis but BLW adoption may somewhat enforce this and provide potential benefits for the whole family.

The surveyed mothers indicated at high frequency that BLW promotes child development, specifically manual and motor skills, biting and chewing, and speech. It is unknown whether BLW may actually be more efficient in this aspect compared to traditional practices. It is worth further investigation, specifically using a clinical trial approach with a considerable number of recruited and compared infants due to the large number of factors implicated in reaching developmental "milestones" [31].

Although the study provides some valuable information regarding maternal experience with BLW, it also have some limitations, therefore its data should be interpreted cautiously. The study did not assess the frequency at which BLW is being used by Polish parents; this would require cross-sectional investigations on a population level. Although a relative high number of mothers was surveyed, the study was limited only to one country. Moreover, benefits of BLW were self-reported and while some provide important observations, those particularly related to child development would require further confirmation on a clinical level.

Conclusions

In the opinion of the surveyed mothers the pros of BLW outweighs the cons, and nearly all of them would recommend its adoption to other parents/caregivers. There is a need for further investigations, preferably randomized trials, that would focus on the involvement of BLW in promotion of infant development, and supporting family to eat meals together with its potential social and health beneficial outcomes. Considering the increase in BLW popularity, there is a need for healthcare professionals to serve as a reliable source of information on this feeding practice

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Conflict of interest statement
The authors declare no conflict of interest.

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