How does contact affect breastfeeding within the first 24 hours after birth?

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Introduction

The research aims to investigate how hospitals can better encourage the successful initiation of breastfeeding in the first 24 hours after birth. The research was conducted due to the low rates of breastfeeding initiation found in the global North, aiming to find ways of increasing breastfeeding initiation within UK hospitals. The data used in this study was collected at a birth centre in the North-East of England. The birth centre is a midwifery-led unit in a tertiary-level hospital, where around 1800 low risk women give birth every year.

One of the main causes of low breastfeeding initiation rates is inexperienced mothers and a lack of skilled help (WHO, 2019, p. 15). Therefore, by providing hospitals with the adequate resources and professional staff breastfeeding rates would subsequently increase. The study aims to investigate whether one such resource, an in-bed bassinet, could help increase breastfeeding initiation rates in hospitals. The in-bed bassinet sits in bed with mum, so mum and baby are in closer proximity compared to the commonly used standalone bassinets. Previous research done by colleagues at the infancy and sleep centre has indicated that the standalone bassinets separate mum and baby and can act as a barrier to breastfeeding initiation (Taylor et al., 2015).

The UNICEF Baby Friendly Initiative states rooming-in as one of its 10 steps for successful breastfeeding (WHO, 2009 p.29), where baby is housed in the same room as their mum, rather than being separated. In theory, in-bed bassinets should increase responsivity and recognition of early feeding cues as mum is closer to baby. Using video recordings of first-time mothers throughout their in-patient postnatal stay, I coded how often breastfeeding occurs to determine if in-bed bassinets influence breastfeeding frequency compared to standalone bassinets. The study also examined whether mothers are still breastfeeding 6 to 8 weeks postpartum as suggested by the World Health Organisation (WHO) (WHO, 2019). Furthermore, I analysed ethnicity and education levels in relation to breastfeeding rates, as both these factors have been shown to influence breastfeeding rates.

Summary of literature

Biology of Breastfeeding

Two main hormones affect breastfeeding: prolactin and oxytocin. Prolactin is involved in causing the secretion of milk by cells in the alveoli. Progesterone and oxytocin block prolactin action throughout pregnancy until after delivery (WHO, 2019, p. 11). The action of a baby suckling causes the level of prolactin in the blood to rise, stimulating milk production in the alveoli (WHO, 2019, p. 11). Oxytocin on the other hand causes the myoepithelial cells around the alveoli to contract; making the milk that has collected in the alveoli flow to the milk ducts (Ramsay et al, 2004). Oxytocin secretion begins when a baby is suckling or when a mother expects to feed; this reflex is also dependent on the mother's sensations of touching, smelling, seeing, or hearing her baby (WHO, 2019, p. 12). Furthermore, Oxytocin has important psychological effects such as promoting bonding between mother and child. Through increased oxytocin secretion and skin-to-skin contact between mother and baby after delivery, both breastfeeding and emotional bonding are enhanced (WHO, 2019, p. 12).

By using an in-bed bassinet, mum will be closer to her baby and will therefore be able to experience the sensation of seeing, smelling, and touching her baby more often. In theory, this should cause an increase in oxytocin and prolactin production, increasing milk supply and promoting bonding. Results from recent studies show that skin-to-skin contact between mothers and their new-borns after birth caused an increase in breastfeeding initiation (Safari et al., 2018). Furthermore, skin-to-skin contact between mother and baby has proven to increase oxytocin levels following birth, helping to initiate breastfeeding, and strengthening the contractions for delivery of the placenta (Safari et al., 2018). It is proposed that the use of in-bed bassinets will cause the sensations shown to increase the oxytocin reflex to happen more regularly. Contact should also increase with the use of in-bed bassinets, elevating levels of prolactin, thus encouraging breastfeeding initiation.

Benefits of Breastfeeding

Studies of breastfeeding have shown that it can have multiple benefits for mother and baby. The WHO (2009, p. 3) states that optimal breastfeeding within the critical window (the first two years of life), could prevent 13% of

deaths occurring in children under the age of five globally. With over one in ten deaths being preventable through breastfeeding the WHO and UNICEF recommends that optimal infant feeding involves exclusive breastfeeding for the first 6 months, and complimentary breastfeeding for up to two years (WHO, 2009, p. 3-4). Complimentary breastfeeding involves supplementing breast milk with other foods and liquids when breast milk is no longer sufficient to meet the nutritional needs of a baby. Even after complementary foods are incorporated into an infant's diet, breastfeeding is still a crucial source of nutrients and provides protective factors for an infant (WHO, 2009, p.5). Early initiation of breastfeeding can increase breast milk production, determining the establishment of long-term breastfeeding and producing antibody protection for the new-born, lowering the risk of neonatal mortality (Takahashi et al., 2017). Further studies from non-industrialised countries show that infants who are not breastfed compared to those that are, are 6 to 10 times more likely to die within the first months of life (WHO, 2009, p.4).

Moreover, breastfeeding can benefit mothers as well. According to data from the collaborative reanalysis of data in 30 countries, it is estimated that if women in industrialised countries breastfed each child for 6 months longer than they do currently around 25,000 breast cancer cases could be prevented each year (Fathalla, 2019). If this was extended to an additional 12 months the figure could be as high as 50,000 cases (Fathalla, 2019).

Despite the importance of breastfeeding for maternal and infant health, rates of breastfeeding remain relatively low, especially in Central and Eastern European countries where only 19% of babies were exclusively breastfed for the first six months in 2006 (UNICEF, 2007). Figures elsewhere in the global North were not much better, with UNICEF's 2018 report showing that Ireland had the lowest number of babies that had never breastfed, with only 55% of babies having ever been breastfed, and France following suit with only 63% (Howard, 2018). In 2010, the UK breastfeeding initiation rate was 81%, however, rates of exclusive breastfeeding at six months were only 1%, despite being recommended by the WHO (NHS, 2012). This leads us to ask the question; why are breastfeeding rates so low in some countries despite its proven importance?

An Evolutionary Perspective of Mother-Infant Contact

One explanation for the changes in skin-to-skin contact between mother and baby over history could be due to evolutionary mismatch. Evolutionary mismatch is when a trait that evolved in one context, no longer matches the modern context (Lloyd, 2011). Human infants have evolved to be in constant contact with a caregiver for the first year of life, this contrasts with our cultural expectations that infants should be independent and autonomous from as early as an age as possible.

Human infants are born helpless at birth, in an underdeveloped state compared to other mammals (Dunsworth and Eccleston, 2015, Trevathan, 2010). They are precocial), while also having altricial traits. As precocial mammals they have developed internal and sensory organs, low fat, and high sugar breast milk, and must stay close to mum as a source of comfort and physiological security, however unlike other precocial mammals they are unable to cling or follow mum (Ball & Russell, 2012). This combination of altricial and precocial characteristics means that the underdeveloped human infant is required to remain in close contact to mum, as skin to skin contact maintains infant health through foetal body regulation, hormonal changes, and physical changes (Trevathan, 2010). Frequent mother-infant contact also allows for frequent feedings that low fat, high sugar breast milk requires, and the contact provides the infant with comfort. Ethnographic data from traditional, non-industrialised societies around the world showcases that these mothers are in almost constant contact with their babies (Ball & Russell (2012, p. 384). The demand of Western industrialised society conflicts with the evolved reproductive system, women are unable to be in permanent contact with their babies, for example, due to lack of comprehensive maternity leave, which may consequently lead them to breastfeed for a shorter period of time.

Another explanation for a decrease in breastfeeding throughout history is the medicalization of childbirth. The medicalization of childbirth refers to the past century when births in hospitals became more frequent. The wide use of chloroform as an anaesthetic in hospital settings left mothers unable to care for their babies while recovering, and so nurseries were established in hospitals where babies were cared for by nurses (Ball & Russell, 2012,

p.385). This separation created a new culture where mothers and babies were separated at birth, and one consequence of this was the decrease in breastfeeding initiation rates as skin-to-skin contact immediately post birth ceased. Wright (2001) showcases how breastfeeding rates fell in the United States and Western Europe, and even as recently as between 1956-1972 breastfeeding initiation rates in the US fell almost 20%. In the 1980s research began to showcase the negative effects on both infant and maternal health of feeding babies artificial formula from birth, and it became clear that mother infant separation at birth was impacting breastfeeding rates (Ball & Russell, 2012, p. 389-390). The medicalization of birth created a context within which mother-infant postnatal separation became common, and with this breastfeeding rate declined and use of artificial formula increased. As artificial formula has been proven less effective than breastfeeding for maintaining infant and maternal health, policies are being introduced to counteract the effects of past medicalization.

Other Factors Contributing to Breastfeeding Rates

Breastfeeding practices can be influenced by factors other than the historical contexts; breastfeeding is not simply a biological issue, but also a social one (Rollins et al., 2016). The results of Peregrino's and colleagues (2018) study showed that the prevalence of breastfeeding was highest among mothers who had an NVQ education level of 4 and 5, indicating a social gradient between maternal education and breastfeeding initiation. Only 46.6% of mothers with no education level-initiated breastfeeding, while 87.9% mothers with an NVQ education level of 4 or 5 initiated breastfeeding, with the percentage of mothers initiating breastfeeding increasing as NVQ education level increased. Furthermore, 30.5% of mothers with an NVQ education level of 4 or 5 were still exclusively breastfeeding at 3 months compared to 8.3% of mothers with no education level.

Peregrino's and colleagues (2018) study also shows that breastfeeding initiation was higher for mothers whose ethnicity was non-white. Even in the UK ethnic minority mothers were more likely to breastfeed, as they may have preserved their cultural practices around breastfeeding initiation (Baker et al., 2011 & Kelly et al., 2006). 67.5% of white mothers-initiated breastfeeding; all other ethnicities had a higher percentage of initiation, with black/black British mothers having the highest percentage of 92.9% initiating breastfeeding. A

similar pattern is also shown for mothers exclusively breastfeeding at 3 months postpartum. Only 18% of white mothers were still breastfeeding at 3 months, compared to 22.8% of black/black British mothers, and 29.5% of mixed mothers. White mothers however did not score the lowest, with 78.2% of Bangladeshi and Pakistani mothers initiating breastfeeding, and only 17.8% still exclusively breastfeeding at 3 months.

These figures show that breastfeeding initiation and maintaining breastfeeding several months is also influenced by ethnicity and education levels.

Methods

In this study, video cameras were used to view and record the mother's breastfeeding frequency in the rooms at the Birth Centre, where families stayed with their babies immediately following birth. Alice Keegan, who I have assisted in coding data for her PhD, set up these recordings. All data that is mentioned in this paper was taken from Keegan's study and is a preliminary analysis of a subset of that data. In this paper, data from 23 participants was analysed. They were recruited through various methods, such as recruitment at the 20-week scan where expectant mothers were provided with an information sheet by the research team, at parental education classes, and through online publicity. The varying methods of recruitment were used to attract as many participants as possible, including those outside the Trust catchment area (only 44% of women in this area give birth at the centre).

I used Noldus Observer XT to code the video recordings, coding for feeding behaviours using a set of rules to standardise the coding process. For example, if breastfeeding sessions had less than a 5-minute gap between them they were counted as one session.

Subject	Behaviour Group	Behaviour	Notes
Mother	Feeding	Attempted breastfeeding	Mother's breast is exposed and baby's face is facing towards the breast. It appears mother is attempting to breastfeed.
Other		Other feeding	Baby is receiving food from something other than a breast (Eg. bottle, syringe or cup)
Staff		Feeding n/a	If there is no feeding please select this option

Comments	Reference
Feeding sessions seperated by at least 5 mins	Klingaman: "Infant feeding was defined as the infant's mouth on the breast or bottle nipple. Feeding episodes began and ended with the nipple attachment and detachment. Feeding sessions were defined by episodes separated by at least five minutes. This procedure was consistent as in McKenna, Mosko and Richard (1997). Refer to page 45"

Figure 1. Coding rules

Controls

Only first-time mothers were included in the study, to avoid contamination of previously established parenting strategies. Furthermore, all mothers had to have low-risk pregnancies and deliver between 37 and 42 weeks. All participants were asked “how likely are you to breastfeed?” and were given six options in answer

1. I definitely will not breastfeed
2. I probably will not but may try it
3. I have not decided about it yet
4. I will try and see what happens
5. I would like to breastfeed
6. I will definitely breastfeed

Those who answered ‘I definitely will not breastfeed” were excluded from the study. Demographic data was also recorded (figure 2) for each participant to assess whether factors other than the type of bassinet could be influencing breastfeeding frequency.

Randomisation was used to decide which bassinet each participant was given to reduce bias. Each participant was randomly assigned a number that correlated to the type of bassinet they would be allocated. Blinding of research aims was also used to reduce bias. Blinding typically means that the allocated condition is hidden from participants and investigators. However, due to the nature of the trial, this was not possible as participants could see which bassinet they had been assigned. Instead, participants were told the investigation was looking at parental postnatal care in the Newcastle birthing centre, without any specific discussion of breastfeeding outcomes. After the study, they were debriefed and told the true aim of the investigation.

Ethnicity	Count	Percentage
African	1	4.35%
Any other mixed background	1	4.35%
Any other white background	1	4.35%
Chinese	1	4.35%
White and Asian	1	4.35%
White British	18	78.26
Education	**Count**	**Percentage**
GCSE	1	4.35%
AS/A level	3	13.04%
Degree	10	43.48%
Postgraduate	8	34.78%
Not given	1	4.35%
Marital status	**Count**	**Percentage**
Living with partner	10	43.48%
Married/civil partnership	12	52.17%
Prefer not to say	1	4.35%
Breastfeeding intentions	**Count**	**Percentage**
I will definitely breastfeed	13	56.52%
I will try and see what happens	2	8.7%
I would like to breastfeed	8	34.78%
Type of birth	**Count**	**Percentage**
Land	16	69.57%
Water	7	30.43%
Total number of participants	**23**	

Figure 2. Participant demographics

Analysis and Results

When analysing the data, I had coded in observer, I standardised the video lengths, as there was a large disparity between videos. The longest video was just over 25 hours, and the shortest was almost 7 hours (figure 3). Because of this range in video lengths, the first 7 hours of data was used so that the length of the videos would not influence the frequency of breastfeeding. Figure 4 shows the maximum and minimum length of the newly standardised videos.

With the standardised videos, I then calculated for each type of bassinet; the average percentage of total time spent breastfeeding, the average rate of breastfeeding/hour, and the average total time spent breastfeeding. I also took note of the percentage of participants that were still fully breastfeeding at 6-8 weeks postpartum (figure 5).

I then calculated the average percentage of total time spent breastfeeding and the average rate of breastfeeding/hour for each of the demographic factors (figure 6)

Condition	Average duration of video	Max video duration	Min video duration
In-bed bassinet	13:38:47	23:33:08	06:16:46
Standalone bassinet	13:45:22	25:27:10	07:15:45

Figure 3. Average, maximum and minimum duration of videos by condition before standardisation

Condition	Average duration of video	Max video duration	Min video duration
In-bed bassinet	06:55:07	07:00:00	06:16:46
Standalone bassinet	07:00:00	07:00:00	07:00:00

Figure 4. Average, maximum and minimum duration of videos by condition after standardisation

Condition	The average % of total time spent breastfeeding (7 hours)		
In-bed bassinet	18.42%		
Standalone bassinet	22.02%		
Condition	**Average rate of breastfeeding/hour (7 hours)**		
In-bed bassinet	0.66		
Standalone bassinet	0.68		
Condition	**The average total time breastfeeding (7 hours)**		
In-bed bassinet	01:15:52		
Standalone bassinet	01:32:28		
Condition	**Count of Feeding status 6-8 weeks after birth**		
	Supplemented breastfeeding	breastfeeding	Bottle feeding
In-bed bassinet	1 (4.34%)	9 (39.13%)	0
Standalone bassinet	0	10 (43.48%)	3 (13.04%)

Figure 5. Percentage of total time spent breastfeeding, rate of breastfeeding, average total time spent breastfeeding and count of feeding status 6-8 weeks after birth by condition

Ethnicity	Average % of total time spent breastfeeding	Average rate of breastfeeding/hour
African	4.49%	0.43
Any other mixed background	15.48%	0.71
Any other white background	23.96%	1.29
Chinese	39.50%	0.86
White and Asian	45.36%	1.57
White British	18.98%	0.49
Education	**Average % of total time spent breastfeeding**	**Average rate of breastfeeding/hour**
GCSE	15.48%	0.71
AS/A level	14.62%	0.76
Degree	20.96%	0.56
Postgraduate	23.47%	0.71
Not given	13.70%	0.29
Marital status	**Average % of total time spent breastfeeding**	**Average rate of breastfeeding/hour**
Living with partner	21.73%	0.64
Married/civil partnership	20.72%	0.71
Prefer not to say	4.49%	0.43
Type of birth	**Average % of total time spent breastfeeding**	**Average rate of breastfeeding/hour**
Land	18.77%	0.66
Water	24.30%	0.69

Figure 6. Percentage of total time spent breastfeeding and rate per hour of breastfeeding by ethnicity, education, marital status and type of birth

With the average data for each of the two bassinet types calculated, I began my statistical analysis using R-studio. As this study involved two independent groups a t-test is used to test for a significant difference between these two groups. The t-test assumes that:

1. The data is continuous
2. The data collected is representative of the population
3. That the data is normally distributed
4. That the sample size is large enough
5. That there is a homogeneity of variance

The first assumption is met, as the time-spent breastfeeding is continuous data. To assess the second assumption of representative data, I calculated the descriptive statistics (the mean, median and Interquartile Range (IQR)) before plotting a histogram for all data (figure 7), in-bed bassinet group (figure 8) and stand-alone bassinet group (figure 9) to test whether the data is representative. The mean was calculated and plotted on a histogram to see if the majority of the data coincided with the data peak. The interquartile range (IQR) and medium were also calculated, to see if the majority of data falls within the IQR. I also calculated the range to compare the IQR to the total spread of data (shown in figure 10).

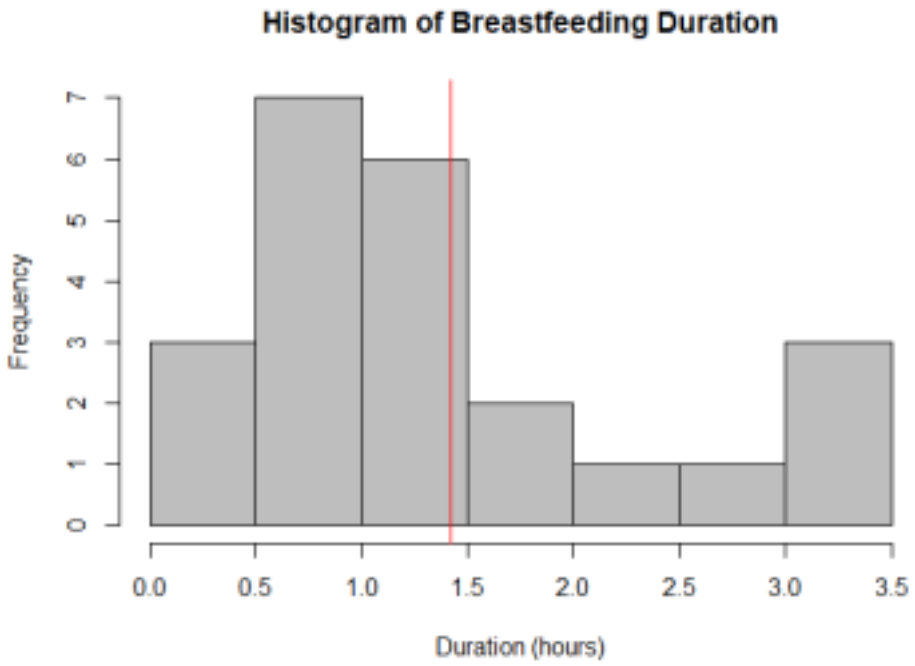

Figure 7. Histogram of breastfeeding duration for all data

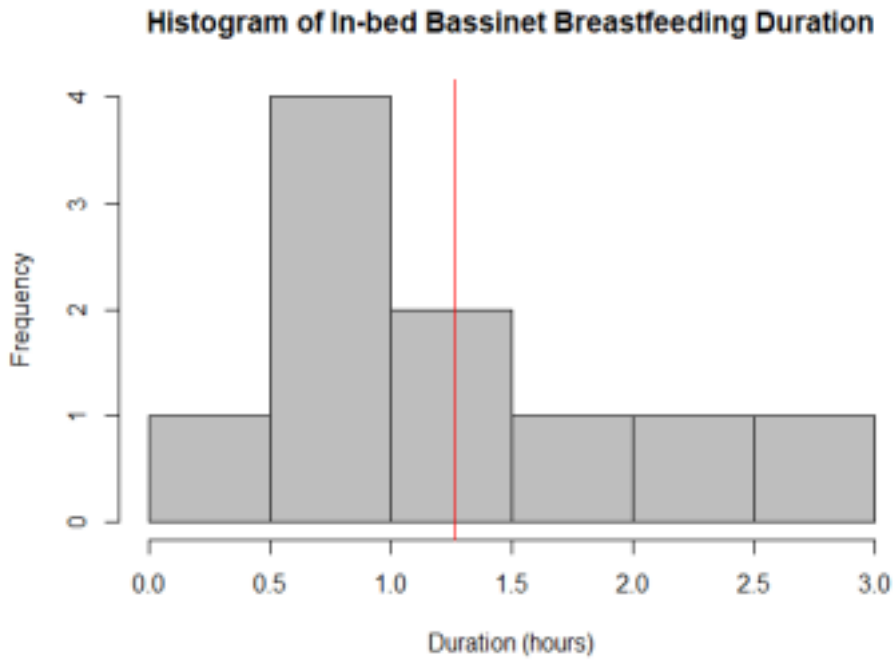

Figure 8. Histogram of breastfeeding duration for in-bed bassinet group

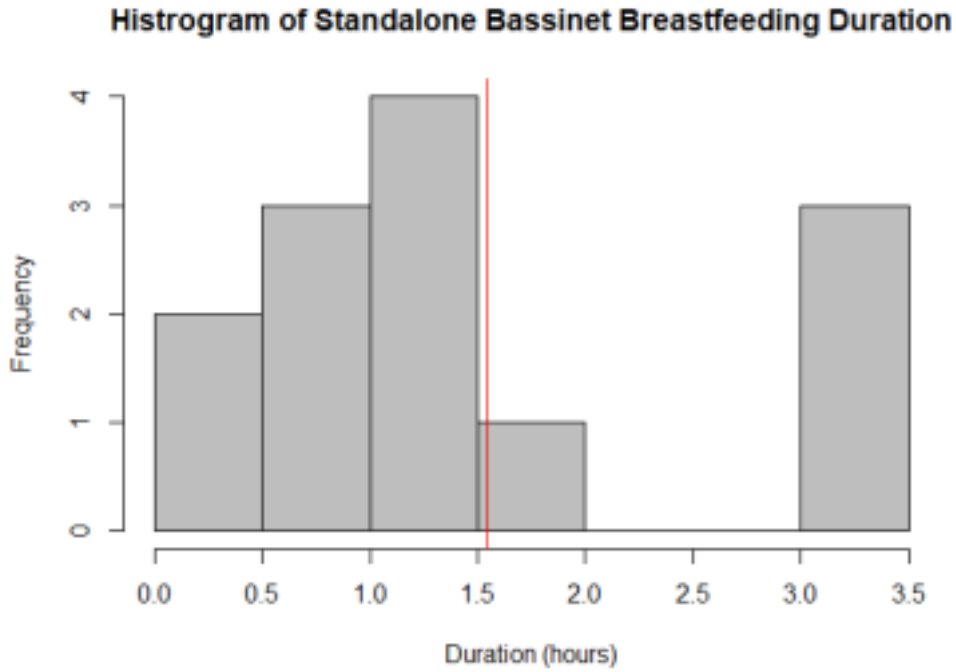

Figure 9. Histogram of breastfeeding duration for standalone bassinet group

condition	mean	median	range	IQR	Standard deviation
Standalone bassinet	1.54	1.08	3.44-0.36 = 3.08	0.92	1.06
In-bed bassinet	1.26	1	2.77-0.31 = 2.46	0.83	0.73

Figure 10. Mean, median, range, IQR and SD for each condition group

For the standalone bassinets, the mean (1.54) can be seen among the majority of the data on the histogram, indicating that the majority of data is representative of the sample as it coincides with the data peak. The IQR for standalone bassinets is 0.92, meaning that the majority of data falls 0.92 away from the median (1.08). The IQR and the median further support that the data is representative, as the majority of data falls between the IQR, and the range shows that there is a large variety of data represented by the collected sample

For in-bed bassinets the mean (1.26) is further away from the data peak, however, it is not so far that we cannot say the data is unrepresentative, as it still falls within the IQR (0.83) where the majority of data is located, it just shows that there is a wider spread and variability of results for in-bed bassinets. The range still shows that there is a large variety of data represented by the collected samples.

In order to test for the third assumption (that the data is normally distributed), I used inferential statistics, carrying out the Shapiro-Wilks test. If data is above the alpha of 0.05, we accept the null hypothesis. The null hypothesis states that the population is normally distributed. From the results of the Shapiro Wilks test (figure 11), only the in-bed bassinet group had normally distributed data, meaning the data does not meet the assumptions of the t-test.

condition	Shapiro-Wilk Test P-value	Result
All data	0.003	Not normally distributed; rejects null
Standalone bassinet	0.012	Not normally distributed; rejects null
In-bed bassinet	0.464	Normally distributed; accepts null

Figure 11. Normality test results for all data, and both condition groups

Instead of the t-test, a nonparametric test must be used, in this case the Mann-Whitney U test. The Mann-Whitney U test is used to test the difference between two independent groups when the dependent variable is continuous, and not normally distributed. The data collected fulfils this criterion. Scatter plots were plotted for the in-bed bassinet group (figure 13) and the standalone bassinets group (figure 12) for breastfeeding duration and cumulative frequency, with a line of best fit plotted in red.

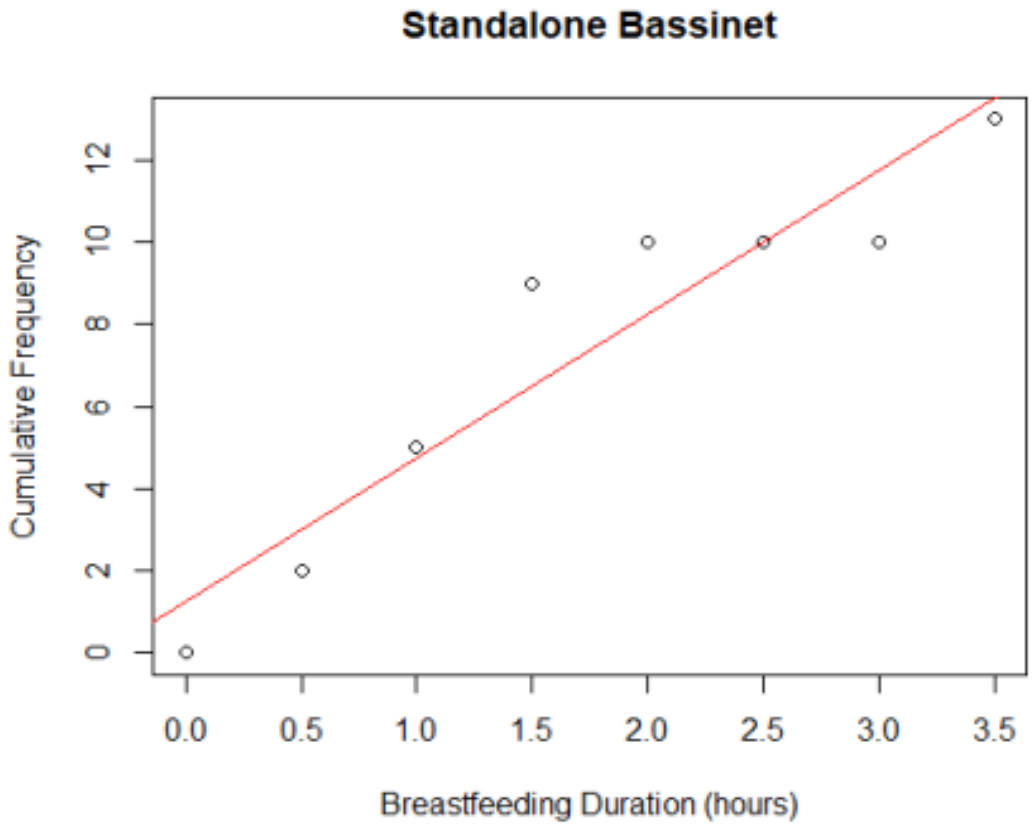

Figure 12. Scatterplot showing breastfeeding duration for the standalone bassinet group

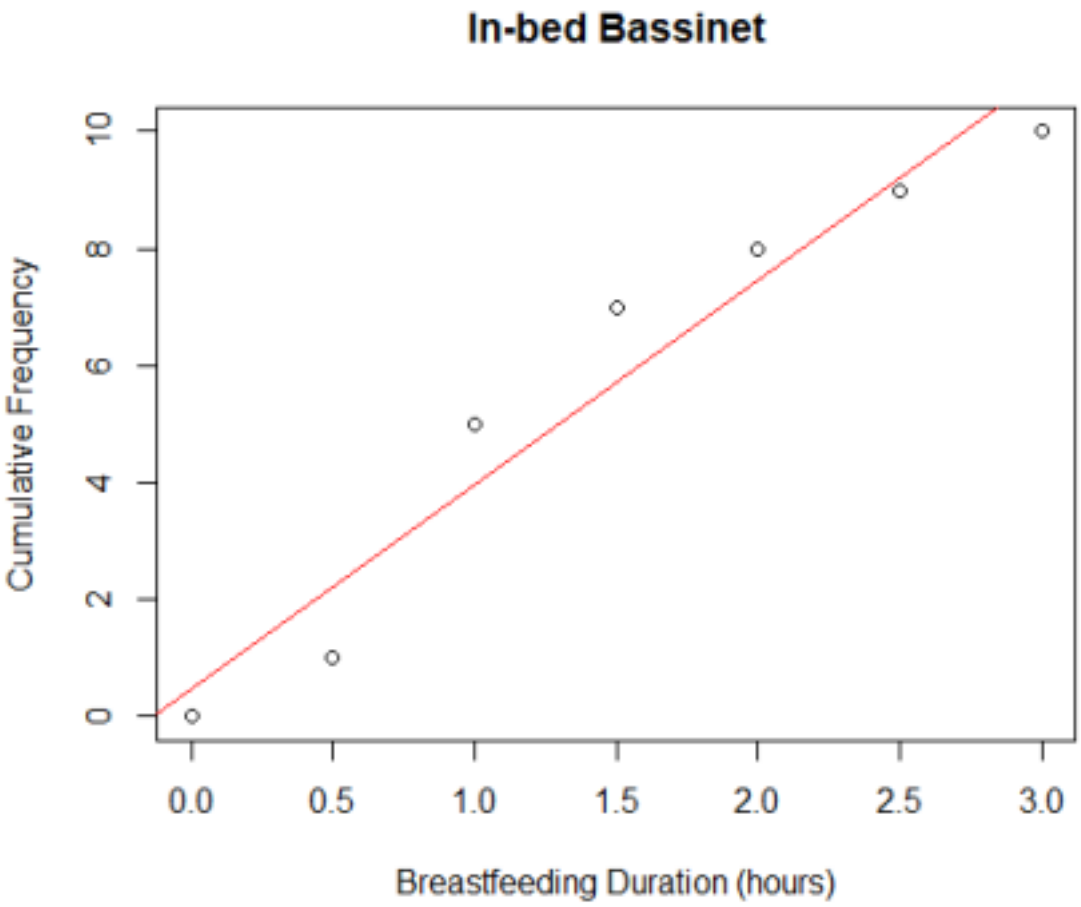

Figure 13. Scatterplot showing breastfeeding duration for the in-bed bassinet group

For the Mann-Whitney U test an alpha of 0.05 is used. If the p-value is above the alpha we accept the null hypothesis; that the distribution of both groups are identical, so there is a 50% probability that an observation from a value randomly selected from one population, exceeds an observation randomly selected from the other population.

Mann-Whitney U test P-value	Result
0.522	no significant difference in distribution, accept null

Figure 14. Mann-Whitney U test results for all data

The result of the Mann-Whitney U test indicated that those who used an in-bed bassinet (Mdn=1), did not breastfeed significantly more than those allocated a standalone bassinet (Mdn = 1.08), p=0.522. The p-value is above the alpha, and therefore we accept the null hypothesis of no significant difference in breastfeeding graduation between the two groups.

Discussion

The results concluded that there was no significant difference in breastfeeding duration between those families allocated an in-bed bassinet and those allocated a standalone bassinet. There may be several reasons for this, the first being that the type of bassinet does not make a difference to breastfeeding effectiveness within the first 24 hours post birth. In both cases, baby and mother were in the same room rather than separated into separate rooms. Historically, it was this separation of mother and baby that had the greatest negative impact on breastfeeding initiation (Ball & Russell, 2012, p. 385), as there was interference in hormone production as the mother could not see or touch the baby. Both these are important mechanisms for initiating successful breastfeeding (WHO, 2009). However, in the Birth Centre mothers can still see the baby and their baby is not taken away to be placed in a separate nursery, regardless of bassinet type, suggesting that it was this initial separation of mother and baby that causes problems in initiating successful breastfeeding.

Furthermore, some of those assigned the in-bed bassinet did not use it for any/all of the night, possibly skewing the results. Moreover, those allocated a standalone bassinet may have had to hold their babies more often, due to possible difficulties accessing their babies. Recording total contact time of mother and infants would have been useful to analyse to test whether skin-to-skin contact differed between the bassinet types.

Another reason for little significant difference in results could be the small sample size. I analysed only 23 women, which is a relatively small sample. Due to covid-19, no further data was able to be collected in this study. The larger the sample the more accurate results are. A further study would have to be undertaken with an appropriately powered sample size to clarify if such a relationship exists between cot type and breastfeeding initiation.

Furthermore, the videos were standardized to a length of 7 hours, there could be issues that this is not a long enough time frame to assess breastfeeding duration differences between the two groups. If a future study was undertaken the length of videos would have to be significantly increased to at least 24 hours to validate the results of this study.

In figure 5 we can however see that at 6-8 weeks post birth none of the mothers who were allocated an in-bed bassinet were bottle-feeding, while 23% of standalone bassinet mothers were. Further statistical tests and studies would have to be carried out, but from this initial observation we can suggest that there may be some difference between long-term breastfeeding success and successful breastfeeding initiation between the two groups. Moreover, the percentage of people in the study breastfeeding at 6-8 weeks post birth is much higher than in the UK general population, so the sample may have been biased, as those who participated agreed they had a high likelihood of breastfeeding.

Despite the lack of significant difference in breastfeeding duration between the two groups, using figure 2, we can see that there are some differences in breastfeeding duration for the demographic factors. In my literature review, I discussed the difference that ethnicity and education can have on breastfeeding practices. For ethnicity White and Asian spent the most time breastfeeding, spending 45.36% of the total time breastfeeding, while those who identified as White British only spent 18.98% in comparison, and African only 4.49%. Peregrino's et al. (2018) study partly supports this theory that demographic factors such as ethnicity influenced the study, as White British had low breastfeeding initiation rates. In their study, however, all other ethnicities had a higher initiation rate while in this study African ethnicity had the lowest percentage of time-spent breastfeeding. The reason for this may be that there was only one person of African ethnicity in this study compared to a high proportion of white British people, so the study may not be representative.

For education, the average percentage of total time breastfeeding increased from A-levels to a degree, to a postgraduate level. GCSE education average time spent breastfeeding however was higher than A-levels by under 1%. At a GCSE level the average percentage time spent breastfeeding was 15.48%, while for postgraduate it was 23.47%. Peregrino's et al. (2018) study shows the same gradient, as education level increases from NVQ level one (GCSE grades E-G) to NVQ level 4/5 (higher education), so does breastfeeding initiation. This supports the results that the education level in this study influenced breastfeeding rates.

Conclusion

In conclusion, the results of this study showed that there was no significant difference between breastfeeding duration for those who were allocated an in-bed bassinet versus those allocated a standalone bassinet. However, to verify this result, further studies would need to be conducted with a larger sample size and longer video duration.

From the data collected, we can suggest that there may be a difference in long-term breastfeeding success. Further studies would need to be carried out in order to test for a significant difference between the type of bassinet allocated and long-term breastfeeding success. The data also shows differences in the average percentage of total time spent breastfeeding and ethnicity and education. This is supported by my literature review and showcases how other demographic factors can influence breastfeeding success, not simply the type of bassinet.

I would like to thank the Laidlaw Foundation for providing me with this opportunity and my supervisor Professor Helen Ball for allowing me to take part in such an interesting project and providing me with support throughout the Laidlaw scholarship. I would also like to thank Francesca Tugwell who helped me learn how to code for two weeks at the beginning of my six-week research period, by letting me assist her on her Master's project. Finally, I would like to thank Alice Keegan, without Alice I would not have been able to complete this project and I would like to thank her for her support, as well as for letting me use her data and assisting me as well as teaching me how to undertake a research project.

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