

Factors affecting the quality of mother-infant first contact after vaginal delivery

Czynniki wpływające na jakość pierwszego kontaktu matki z dzieckiem po narodzinach drogami natury

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STRESZCZENIE

CZYNNIKI WPŁYWAJĄCE NA JAKOŚĆ PIERWSZEGO KONTAKTU MATKI Z DZIECKIEM PO NARODZINACH DROGAMI NATURY

Cel pracy. Celem pracy była ocena wpływu poszczególnych czynników na jakość pierwszego kontaktu matki z dzieckiem w warszawskich placówkach położniczych.

Materiał i metody. W badaniu wykorzystano metodę obserwacji bezpośredniej. Materiał do badań gromadzony był za pomocą arkusza obserwacji skonstruowanego na potrzeby badania. Badania przeprowadzono w 11 warszawskich placówkach położniczych o różnym stopniu referencyjności.

Wyniki. Kontakt trwał dłużej (między 91 a ponad 120 minut) w grupie z mniejszą liczbą osób znajdujących się w sali porodowej w czasie narodzin ($p < 0,001$), dziecko układano na klatce piersiowej matki bezpośrednio po urodzeniu w grupie z mniejszą liczbą osób znajdujących się w sali porodowej ($p < 0,001$), badanie noworodka odbywało się częściej po 2 godzinach od narodzin w sytuacji, kiedy w sali porodowej przebywało mniej osób ($p < 0,001$).

Wnioski. Pierwszy kontakt matki z dzieckiem trwał dłużej i był inicjowany bezpośrednio po narodzinach, w przypadkach gdy w sali porodowej znajdowała się mniejsza liczba osób oraz gdy opiekę nad matką i dzieckiem sprawowała tylko położna.

Słowa kluczowe:

narodziny, kontakt skóra do skóry, noworodek

ABSTRACT

FACTORS AFFECTING THE QUALITY OF MOTHER-INFANT FIRST CONTACT AFTER VAGINAL DELIVERY

Aim. The primary objective of this study was to assess the influence of various factors on the first contact of mother and her infant in Warsaw's maternity facilities.

Material and methods. For this study, direct observation was performed. Research material was collected using original observation survey, specifically designed for this study. Study was conducted in 11 Warsaw's maternity facilities of varied referral level.

Results. The contact was the longest (between 91 and 120 minutes) if there were fewer people present in the delivery room during birth ($p < 0.001$). Infant was placed on mother's chest immediately after delivery if there were fewer people present in the delivery room ($p < 0.001$). Infant examination took place more than 2 hours after birth if there were fewer people present in the delivery room ($p < 0.001$).

Conclusions. Mother-infant first contact was the longest and was initiated immediately after delivery if there were fewer people present in the delivery room and if a midwife was a sole provider of care.

Key words:

birth, skin-to-skin contact, newborn

INTRODUCTION

Skin-to-skin contact involves placing a naked infant on mother's dry naked chest immediately after delivery, in the first minutes of life, before clamping the umbilical cord. Side-lying with head close to mother's breast is considered the safest position. A newborn should be delicately dried and then protected against heat loss with a warm, dry cloth (towel, blanket, muslin, surgical drape), covering their head and back. Mother should be asked to hold the infant in her arms. Any person assisting the birth can be asked to do so, as well. At that time, Apgar score should be assessed, cord clamped and ID bracelet placed on a newborn's wrist. It is recommended that the skin-to-skin lasts at least 2 hours. It should not be unnecessarily stopped. Skin-to-skin must be discontinued if mother's or infant's health or life is in danger. It should be duly noted in the medical records. If the newborn's condition does not allow for skin-to-skin, it should be initiated as soon as possible. If the mother's condition contraindicates skin-to-skin, the contact can and should be performed by the father. Routine procedures, like newborn assessment and anthropometric measurements, should be taken after the first contact is completed. During skin-to-skin, mother should be encouraged to recognise infant's cues of readiness for breastfeeding (sucking fingers, moving head towards nipple). Staff should monitor correct breastfeeding features and help mother if needed [1,2,3].

During necessary routine procedures done to the mother (delivery of placenta, genital tract inspection, perineal suturing), mother should be assisted in holding the covered infant on her chest. Newborn's breathing, skin colour and behaviour should be monitored. During obstetrical procedures requiring short-term general anaesthesia (e.g. manual placental extraction), it is recommended that skin-to-skin is temporarily discontinued and not reinstated until mother is conscious and capable of holding the child [1,2,3].

First contact within 2 hours of life is crucial on many levels. The advantages include:

- Reducing thermal stress after delivery by creating proper thermal regulation conditions – mother and infant mutually synchronise their heat (when infant's temperature lowers, mother's rises) [4,5,6],
- Positive effect on neurobehavioural processes – newborns stay calm, cry less, fall asleep more easily, show more flexion than extension in their motor activity [7,8,9],
- Minimised birth-induced stress thanks to mother's soothing embrace [10],
- Infant's skin being colonised with mother's microbial flora [11],
- Higher blood glucose level in first hours of newborn's life [4],
- Increasing duration and enhancing exclusive breastfeeding [12,13,14,15].

AIM

The primary objective of this study was to assess the influence of various factors on the first contact of mother and her infant after vaginal delivery in Warsaw's maternity facilities.

MATERIAL AND METHODS

For this study, direct observation was performed. Observation survey was chosen as a research instrument. Research material was collected using original observation survey, specifically designed for this study.

Study was conducted in 11 obstetric facilities of varied referral levels, administration whereof approved the research to be performed. Anonymity of acquired data was provided. Observations were launched at delivery and continued until the end of fourth period of labour. Number of observations per facility was determined proportionally based on yearly delivery figures.

RESULTS

Study was conducted in facilities of varied referral level. The number of 176 observations (57.89%) were conducted in 6 tertiary facilities, 117 (38.49%) in 4 secondary facilities and 11 (3.62%) in single primary facility.

A total number of 304 observations of vaginal deliveries were analysed. The shortest gestation at delivery was 35 weeks, the longest 41 weeks. Average gestation period in the study group was 93.11 weeks \pm 1.12.

As many as 97.7% (N=297) were mature healthy infants, 2.30% (N=7) were premature infants in overall good condition.

First minute Apgar score was 10 for 86.52% (N=263), 9 for 7.89% (N=24) and 8 for 5.59% (N=17) of infants. Five minute Apgar scores were similar.

Apgar scores were registered immediately after delivery. In 61.51% of cases (N=187) the score was taken by a midwife, in 35.53% (N=108) by neonatologist, in 2.63% (N=8) by a nurse and in 0.33% (N=1) by an obstetrician.

When it comes to 78.29% (N=238) of women, they gave birth in horizontal position, 20.39% (N=62) in vertical position and 1.32% (N=4) had water birth.

The number of 96.38% (N=293) of infants were placed on their mother's chest immediately after delivery, while 3.62% (N=11) of infants were placed on their mother's chest after examination at the resuscitation-procedure station.

In the case of 23.03% of mother-infant first contacts, they lasted for the recommended 2 hours or more. In 21.71% of cases, the contact lasted from 1.5 to 2 hours. The shortest contact duration of 1 to 5 minutes was observed in 21.71% of cases (Tab. 1).

■ Tab. 1. Time spent by infant on their mother's chest – first contact

	N	%
1-5 minutes	66	21.71
6-15 minutes	10	3.29
16-30 minutes	19	6.25
31-45 minutes	32	10.53
46-60 minutes	15	4.93
61-90 minutes	26	8.55
91-120 minutes	66	21.71
More than 2 hours	70	23.03

The relationship between number of people present in the delivery room and the factors affecting the quality of mother-infant first contact

The lowest number of people present was 1, the highest was 10. Average number was 3.59 (+/-2.05), mean 3.00. Woman giving birth, her companion (child's father) and person recording observations were not included in the final count.

The study showed statistically significant correlation between number of people present in the delivery room immediately after delivery and the following factors:

1. Time spent by the infant on mother's chest – contact was the longest (between 91 and over 120 minutes) if there were fewer people present in the room during birth ($p < 0.001$),
2. Mother-infant contact initiation – infant was placed on mother's chest immediately after delivery if fewer people were present in the delivery room ($p < 0.001$)
3. Time of infant transfer to resuscitation-procedure station for routine procedures – infant was transferred for routine procedures after 2 hours of birth more likely if there were fewer people in the delivery room ($p < 0.001$)
4. Duration of first breastfeeding – feeding was longer (between 21 and 30 minutes) if there were fewer people present in the delivery room ($p < 0.001$)

Relationship between various factors and the course of mother-infant first contact

One of the factors affecting the initiation of first contact was the hospital's referral level. Infant was placed on mother's chest immediately after delivery more frequently (55.11%) in tertiary facilities ($p = 0.010$). Apgar assessment by a midwife had a statistically significant impact on moment of infant's placement on mother's chest ($p = 0.031$). Infant was placed immediately after delivery more frequently (63.50%) when the Apgar score was assessed by a midwife (Tab. 2).

■ Tab. 2. Impact of variation on mother-infant first contact initiation

	Recommended time of infant's placement on mother's chest – immediately after delivery		Infant's placement on mother's chest after general condition assessment		P
	N	%	N	%	
Tertiary referral level	151	55.11	25	83.33	0.010
Apgar score assessed by a midwife	174	63.50	13	43.33	0.031

It was determined that the facility's referral level affected the duration of the first mother-infant contact. Infants stayed on their mothers' chests the longest (91-120 minutes and longer) more frequently in tertiary facilities – 59.56% ($p = 0.022$). Apgar assessment by a midwife had a statistically significant impact on the duration of infant's placement on mother's chest ($p < 0.001$). Infants stayed on mother's chest longer if the Apgar score was assessed by a midwife. The study also found a statistically significant correlation between a birth position and the contact duration ($p = 0.008$). First contact was usually shorter (83.93%) if mother gave birth in horizontal position (Tab. 3).

■ Tab. 3. Impact of variation on mother-infant first contact duration

	The longest first contact (91-120 minutes and longer)		Shorter first contact (below 90 minutes)		p
	N	%	N	%	
Horizontal position delivery	97	71.32	141	83.93	0.008
Tertiary referral level	81	59.56	95	56.55	0.022
Apgar score assessed by a midwife	107	78.68	80	47.62	<0.001

The study found statistically significant correlation between the time of routine procedures performance and the horizontal position delivery ($p < 0.001$). After horizontal position delivery, infant was transferred to procedure station more frequently before full 2 hours of life (87.60%). The correlation between the moment of routine procedure performance and facility's referral level was statistically significant, as well ($p = 0.008$). Infant was transferred to procedure station after 2 hours more frequently in tertiary hospitals (58.86%). Another correlation was related to the person assessing the Apgar score ($p < 0.001$). Infant was transferred to procedure station after 2 hours more frequently in tertiary hospitals if the Apgar score was assessed by a midwife (78.86%) (Tab. 4).

■ Tab. 4. Impact of variation on the moment of routine procedure performance after birth

	After 2 hours		Before 2 hours		P
	N	%	N	%	
Horizontal position delivery	125	71.43	113	87.60	<0.001
Tertiary referral level	103	58.86	73	56.59	0.008
Apgar score assessed by a midwife	138	78.86	49	37.98	<0.001

DISCUSSION

Birth is a meaningful moment for the family, and first hours after being born is the time when the child meets their parents for the very first time outside the mother's body. It is a unique experience and should not be disrupted unless infant or mother require medical intervention. When executing mother-infant first contact after vaginal delivery, it is advised to follow the WHO guidelines and allow for an uninterrupted contact between mother and child immediately after delivery for at least 2 hours [1]. In this study, it was observed that most of infants (96.38%) were placed on mothers' chests immediately after delivery. However, there were cases (3.62%) when healthy infant was placed at the procedure station first, before being transferred to skin-to-skin with their mother. Similarly satisfying results of mother-infant contact initiation were observed in the Childbirth with Dignity Foundation (FRpL) study. The number of 84% of the facilities declared to follow the practice universally [16]. Apart from the moment of contact initiation, another important factor studied was the duration of the contact, which varied. The longest contact (more than 1.5 hours) was registered in 44.74% of cases. Alas, significant percentage of children

(21.71%) were only in contact with their mothers for 1 to 5 minutes. The 'short contact' cases were not evenly distributed among all facilities, but only recorded in 3 specific hospitals and it may be assumed it is part of their routine practice.

When a midwife is a sole provider of care during physiological labour, it affects the correct implementation of mother-infant first contact. A study by Szchindler et al. revealed that skin-to-skin contact and breastfeeding immediately after delivery was more frequently applied if the delivery was assisted by a midwife only [17]. In this study, it was observed that whenever Apgar score was assessed by a midwife (there was no physician present at delivery), infant was more frequently placed on mother's chests immediately after delivery ($p=0.031$) and transferred to procedure station after 2 hours ($p<0.001$). Presumably it stems from the model of care applied by nurses and midwives. When providing care, they exercise a bio-psycho-social (holistic) approach, focused on a woman and her child, supporting their physiology, respecting their feelings, as opposed to a so-called techno-centric model, in which a human is a faulty machine, requiring constant control and intervention, thus focusing on diagnostics and treatment, especially during labour [18]. Similar results were obtained in a group where fewer people were present in the delivery room. Mother-infant contact was longer – between 90 and 120 minutes ($p<0.001$), initiated sooner ($p<0.001$), breastfeeding was longer (21-30 minutes – $p<0.001$), infant was examined later (after 2 hours – $p<0.001$). Presumably it is related to distribution of responsibilities among fewer people, causing higher alert in a person deciding the course of action.

Correlation was also found between giving birth in horizontal position and the duration of first contact, which was shorter in these cases ($p=0.008$), and the moment of infant transfer to procedure station, which took place before 2 hours ($p=0.001$). This position for delivery was universal in 20th century, when this natural process became highly medicine-controlled [19]. When woman was placed in horizontal position during birth (i.e. placed supine on a bed with thighs raised), perineum and crowning head were clearly visible. This position was more comfortable and less demanding for the staff delivering the child. A midwife would sit on a chair or stand, and an infant was being born not as nature intended, descending with gravity, but 'uphill'. Despite numerous studies, recommendations and publications recording the benefits of vertical positions [20,21,22], many facilities still routinely apply horizontal position during labour. Presumably it is a power of habit and applying practice which benefits the staff, not the woman and child.

Another factor affecting the manner of mother-infant first contact was the facility's referral level. In this study, infants in tertiary facilities were placed on mothers' chests immediately after delivery more frequently ($p=0.10$), stayed skin-to-skin with their mothers for more than 91 minutes ($p=0.022$), and were subjected to routine procedures after 2 hours of life ($p=0.008$). In Poland, the division into primary, secondary and tertiary referral level facilities was introduced in 1995. This organisational

scheme was designed in 1970s. It decreased perinatal mortality and premature delivery prevalence [23]. Tertiary facilities care for patients in imminent danger to life or health. Each medical facility's staff should continue professional development, but in tertiary units, staff experience is based on continuous diagnostics and care for mothers and infants in grave condition. Medical personnel is required to participate in courses and internships in finest domestic and foreign facilities in order to prepare to provide the best possible care to mother and infant, whether they are healthy, ill or require intensive care [24]. One can assume that tertiary facility staff often care for the patients with various conditions and it may be easier for them to identify patients with low risk of complications, therefore promote mother-infant contact.

CONCLUSIONS

1. Mother-infant first contact was initiated sooner and lasted longer if there were fewer people present in the delivery room.
2. Horizontal position delivery affected the duration of contact and the moment of first newborn examination. The contact was shorter and the newborn was examined before 2 hours.
3. Infant was placed on mother's chests immediately after delivery, contact was longer and first examination occurred after 2 hours if a midwife was a sole provider of care.

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