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**Original Research Article**

# Perceptions of health care providers and parents related to benefits and predisposition factors of skin-to-skin contact

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## ABSTRACT

**Background:** Skin-to-skin contact is often termed as "Kangaroo Care". It is a method of holding a baby skin-to-skin or chest-to-chest with a parent, typically mothers. This nursing intervention helps in establishing a strong bond between a parent and a child, provides adjustment to extra-uterine life, and contributes to the holistic growth and development of the child. Moreover, Kangaroo Care is a key intervention to support the development and nurturing of preterm infants. The study aims to identify the perceptions of healthcare providers pertaining to predisposition factors and the perceived benefits of skin-to-skin contact in times of COVID-19.
**Methods:** A cross-sectional study design was implemented in the study. The data collected from the participants attended the workshop on skin-to-skin from a wide range of health care settings (primary, secondary, and tertiary care hospitals) from Karachi, Pakistan.
**Results:** A total of 126 health care providers participated of which 22.2% were male. Regarding predisposition factors, 112 participants agreed that skin contact enhances a mother's love for the newborn, while 110 participants agreed that it helps the mother to take better care of the child. Additionally, 109 participants agreed that skin contact establishes an emotional bond between parents and the newborn.
**Conclusions:** Skin-to-skin contact is one of the best and safest practices for the baby and the mother. It reduces mortality, severe illness, infection, and length of hospital stay. The evidence-based research suggests that parents and health care providers should strongly promote and implement the concept of Kangaroo Care/skin-to-skin contact.

**Keywords:** Kangaroo care, Skin-to-Skin contact, Health care providers, Parents

## INTRODUCTION

Life in utero and after birth is different. A baby must transition quickly between the states, making it is an overwhelming and vulnerable situation. Similarly, mothers may experience post-partum stress and anxiety, which can severely impact the relationship and wellbeing of both mother and child. Skin-to-skin contact is a necessary intervention to help both the mother and child cope with the rapid changes. Skin-to-skin contact is considered one of the best practices for mother and child. It can offer comfort to both and help initiate and sustain breastfeeding[1]. It may boost the mother's milk supply and soothe the baby in the initial few months after birth. Modern medicine considers skin-to-skin an essential practice in neonatal care, especially in preterm births.[2]

Skin-to-skin is also known as 'kangaroo care,' and helps both parents to bond and support better physical and neurodevelopmental outcomes for the baby.[3] Studies have shown that operative births are related to lower childbirth satisfaction in comparison to vaginal births.[4,1-3] Skin-to-skin stimulates the release of hormones to support breastfeeding and regulates the release of the hormone oxytocin, known to relieve stress and elevate moods, which is essential for postpartum recovery. Holding and cuddling the baby could calm the mother and thus reduce blood pressure. When the mother recuperates and regains physical strength given ample rest, good nutrition, and support, she will feel stronger physically and emotionally to care for her baby, and set a routine for herself in her preferred lifestyle.[5]

Skin-to-skin is also known to increase the father's confidence in caring well for his family.[6] Practitioners will also encourage fathers to get involved in the birthing process and post-delivery care for the child, helping the father bond, and get connected to his family rather than focusing entirely on providing for the family.[7] In a patriarchal society prevalent in Pakistan, redefining gender roles by educating and involving the fathers can have a positive impact on the purpose and objective of skin-to-skin, and by extension, strengthening the family. Research shows that breasts change in temperature to match the needs of the baby's body. This regulation in temperature can help stabilize the heart and breathing rates, improve oxygen saturation rates, and conserve the baby's calories which can assist in redirecting the body's calorie expenditures toward growth and weight gain. A baby typically sleeps longer while snuggling with the mother.

Predisposing factors in the context of this research are those that put a mother and baby at risk of developing a problem. Skin-to-skin is initiated by placing the newborn on the mother's bare chest at birth or soon afterwards. This helps mitigate the mother's post-partum depression and anxiety and helps with the baby's respiration and oxygen levels, especially in preterm births.[8,9] It is known to help initiate breastfeeding.[10] This can happen when midwives and doctors, who understand and support the efficacy of the skin-to-skin intervention, inform and prepare both parents for skin-to-skin. Parenting education, professionalism of the birthing facility, guidance and counselling are some of the predisposing factors that can either facilitate or inhibit skin-to-skin. Lack of professional competence and quality antenatal programs that lack improvement in monitoring and compliance and a genuine sense of service and care, can inhibit a good start for the mother and child.

In Pakistan, mothers and fathers could be combatting a complex array of factors including mental, emotional, physical, societal and systemic issues to provide skin-to-skin contact to their babies.[9,11] Social pressures and household setup could also strongly influence the need to show care for the newborn. Both mothers and fathers should be sensitized, and the community empowered to provide support of skin-to-skin intervention. The knowledge, attitudes, and beliefs of people should be changed to create a sustainable impact.[12] The Baby-Friendly Initiative and mother-friendly hospitals are also predisposing factors in initiating skin-to-skin contact. The maternity clinic and birthing facility should be a conducive environment for the mother to relax and feel comfortable giving skin-to-skin to her baby. Proper ventilation, heating, and privacy are critical predisposing factors in providing skin-to-skin.[13] Skin-to-skin intervention may also be a challenge, especially after caesarian section births, which face novel challenges, including post-operation recovery, possible need for neonatal intensive care, and other complexities due to post-operative discomfort.[4] Skin-to-skin can help initiate and sustain breastfeeding or exclusive breastfeeding. Breastfeeding is significantly related to a baby's strong immunity and optimal brain development.[14] The importance of breastfeeding is underestimated, and unhealthy practices prevail in Pakistan. Lack of breastfeeding knowledge and healthy practices denies babies their basic right to mother's milk, which is considered the best start in life. Pakistan has high child morbidity, mortality, and malnutrition rates.[15]

### *Aim and objectives*

Objectives of current study were to determine; what are the perceptions of healthcare providers pertinent to predisposing factors of skin-to-skin contact? what are the gender differences in perceived predisposition factors on the skin-to-skin contact? and what are the perceived benefits of skin-to-skin contact?

## METHODS

A cross-sectional study design was used for this study. The data was collected from the participants of the workshop on skin to skin from wide range of health care settings from Karachi, Pakistan. The healthcare workers were from all levels including primary, secondary and tertiary care hospitals. A total of 126 participants (22.2% male; 77.8% female) filled the survey form and provided their consent (Table 1).

**Table 1: Gender-wise distribution of the studied population.**

| Gender | N | % |
|---|---|---|
| **Male** | 28 | 22.2 |
| **Female** | 98 | 77.8 |

The study received an Ethical Review Committee's (ERC) exemption from the Aga Khan University Hospital, Karachi (number 2021-5887-15504). The gender distribution of the included participants is depicted in (Table 1). Out of the total number of participants, the majority were females i.e., 77.8% and only 22.2% were males.

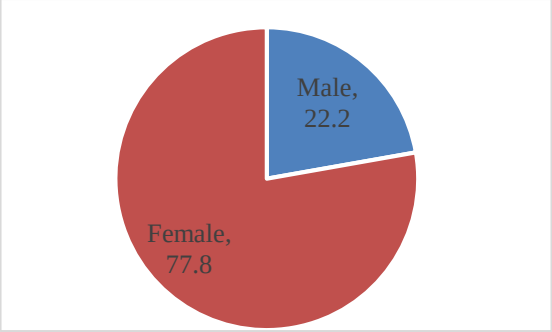


**Figure 1: Gender-wise distribution of the studied population.**

**Table 2: Mean scores of MSSQ sub-scales.**

| Sub-scales of MSSQ | Mean±SD |
|---|---|
| **Midwife's Attitude** | 19.60±3.02 |
| **Newborn's Health** | 12.30±2.42 |
| **Mother's Physical Health** | 6.37±2.01 |
| **Midwife's Belief about obstacles of performing skin contact** | 6.90±2.39 |
| **Midwife's belief in self-efficacy** | 12.72±2.17 |
| **Mental Health** | 7.39±1.24 |

Universal sampling method was used. The participants who attended the workshop on skin-to-skin contact were provided a pre-survey form and asked to provide their consent to use the data for scholarly and research purposes. The data was collected in June 2020 using a google link form due to COVID-19 pandemic lockdown. The form was divided into two sections; quantitative survey predisposition factors; and qualitative viewpoints on benefits of skin-to-skin contact. For the quantitative survey, we used one of the sub-scales on predisposition factors from the mother skin-to-skin contact questionnaire (MSSCQ). The subscale on predisposition factors consisted of six facets of midwifes' attitudes, newborns' health, mothers' physical health, midwifes' beliefs about obstacles of performing skin contact, and midwifes' beliefs in self-efficacy, cumulatively comprising of 38 items with a three Likert scale response category from agree to disagree. The data was analyzed using the Statistical Packages for Social Sciences (SPSS™). The data was analyzed using SPSS™ Version 22.0, the categorical variables were displayed using frequency and percentages while all the continuous variables were given as mean±standard deviation. The gender-wise differences in the perceptions on predisposing factors for skin-to-skin care support were assessed using Chi-square test, where $p<0.05$ was considered significant.

## RESULTS

Regarding the predisposing factors for skin-to-skin care support, a majority of midwives (n=112) agreed that skin contact enhances a mother's love for the newborn, while 110 agreed that skin-to-skin contact makes a mother take better care of the child. While relating to newborn's health, 109 agreed that skin contact establishes an emotional bond between parents and the newborn, 15 neither agreed nor disagreed, and 2 completely disagreed. The insight regarding mother's physical health was not well established, 86 agreed that skin-to-skin contact promotes oxytocin release in mother, while 35 neither agreed nor disagreed, and 5 disagreed. Furthermore, the midwife's beliefs about obstacles of performing skin contact greatly varied; 58 believed that the skin contact is not feasible for ill mothers, whereas 55 did not respond and 13 disagreed. The perceptions regarding self-efficacy and mental health were better as compared to other comparative subscales measured, as 110 believed that skin-to-skin contact entails positive results and 109 believed that skin-to-skin contact establishes an emotional bond between mother and newborn (Table 3). Mean score of the subscale relating attitude of midwives towards skin-to-skin contact benefits was 19.60±3.02, while mean perceived self-efficacy in implementing skin-to-skin contact was 12.72±2.17. The mean scores of other sub-scales of MSSQ are given in (Table 2). More female midwives (92.9%) agreed that skin contact enhances mother's love for the newborn than male midwives (75.0%) ($p=0.014$) (Table 4). Furthermore, a significant difference was observed in the perceptions of female and male midwives regarding the importance of skin-to-skin contact ($p=0.008$) with 90.8% vs. 71.4%, respectively (Table 4).

## DISCUSSION

The goal of this study was to explore the outlooks that healthcare workers have regarding skin-to-skin contact, particularly during the midst of the COVID-19 pandemic. As per the data gathered, there is an indication that most healthcare workers who participated in the study believed skin-to-skin contact to be essential to the health and wellbeing of both the mother and the neonate. This, however, is not generalizable to healthcare workers internationally as some research indicates that not all healthcare workers have the same perception about skin-to-skin contact.

Some healthcare workers either doubt the ability of skin-to-skin contact in its benefits to the neonate, consider it to be a potential burden to the mothers or even think of it to be unsafe.[16] In fact, 25-33% of the respondents (composed of nurses) in a study conducted by Franck et al indicated that staff nurses and doctors did not condone a parent holding their child. Though the afore-mentioned studies took place prior to the COVID-19 outbreak, it is possible that these beliefs still stand amongst the medical community.[17] On the other hand, in a quantitative study done with Irish neonatal nurses, slightly over 90% of the neonatal nurses believed in the benefits of "kangaroo care" on both the neonates and the parents.[18] In the context of a healthcare setting, the healthcare workers who participated in this study likely believed that skin-to-skin contact had a positive impact could be because they wanted to promote breastfeeding.

**Table 3: Perceptions on predisposition factors for skin-to-skin care support.**

| Variables | Questions | Disagree | Neither agree nor disagree | Agree |
|---|---|---|---|---|
| **Midwife's attitude** | Skin contact improves mother's physical health | 6 | 26 | 94 |
| | Skin contact improves neonate's physical health | 1 | 18 | 107 |
| | Skin contact makes mother take better care of the child | - | 16 | 110 |
| | Skin contact improves mother's success in breastfeeding | 2 | 15 | 109 |
| | Skin contact improves mother's satisfaction | - | 20 | 106 |
| | Skin contact improves mother's mental health | 2 | 26 | 98 |
| | Skin contact establishes verbal/emotional bonding between midwife & mother | 9 | 38 | 79 |
| | Skin contact creates a sense of security in the newborn | 1 | 20 | 105 |
| | Skin contact enhances mother's love for the newborn | 1 | 13 | 112 |
| | Skin contact reduces mother's stress | 2 | 20 | 104 |
| | Being skilled in performing skin contact by midwife improves the results | 3 | 36 | 87 |
| **Newborn's health** | Skin contact improves newborn's immunity system | 2 | 31 | 93 |
| | Skin contact improves the development of the newborn | 1 | 20 | 105 |
| | Skin contact establishes an emotional bond between parents and the newborn | 2 | 15 | 109 |
| | Skin contact regulates the newborn's blood oxygen level | 4 | 29 | 93 |
| | Skin contact regulates the newborn's heartbeat | 4 | 33 | 89 |
| | Skin contact improves the newborn's breathing | 4 | 27 | 95 |
| | Skin contact regulates the newborn's body temperature | 1 | 22 | 103 |
| **Mother's physical health** | Skin contact accelerates placental delivery | 7 | 35 | 84 |
| | Skin contact accelerates the uterus's return to normal | 7 | 40 | 79 |
| | Skin contact promotes oxytocin release in mother | 5 | 35 | 86 |
| | Skin contact reduces post-labor bleeding | 7 | 43 | 76 |
| **Midwife's belief about obstacles of performing skin contact** | The newborn's ill situation hinders skin contact | 6 | 55 | 65 |
| | Skin contact is not feasible for ill mothers | 13 | 55 | 58 |
| | Problems of mothers undergoing C-section affect skin contact | 14 | 54 | 58 |
| | Problems of neonates born to C-section affect skin contact | 13 | 58 | 55 |
| | Mother's fatigue caused by nonstandard intervention during labor affects skin contact | 7 | 62 | 57 |
| **Midwife's belief in self-efficacy** | I believe skin contact is essential | - | 17 | 109 |
| | I believe skin contact entails positive results | - | 16 | 110 |
| | I believe skin contact is important | - | 17 | 109 |
| | I believe I can perform skin contact with minimum facilities | 2 | 36 | 88 |
| | I believe my recommendations for skin contact are acceptable for the mother | 2 | 36 | 88 |
| | I believe I can use my knowledge to perform skin contact | 1 | 23 | 102 |
| | I believe in positive results of the skin contact and I perform it | - | 21 | 105 |
| **Mental health** | Skin contact establishes an emotional bond between mother and newborn | - | 17 | 109 |
| | Skin contact improves the acceptance of motherhood role by the mother | - | 21 | 105 |
| | Skin contact creates a sense of security in mother and newborn | 1 | 17 | 108 |
| | Skin contact results in future attachment between mother and child | - | 19 | 107 |

As such, the positive correlation between skin-to-skin contact and the health of both the mother and the neonate can be explained by healthcare workers' efforts to promote breastfeeding, thus allowing them to maintain their high regard of skin-to-skin contact even in the midst of the pandemic.

**Table 4: Gender differences in perceptions on predisposition factors for skin-to-skin care support.**

| Variables | | | Gender | | P value |
|---|---|---|---|---|---|
| | | | Males (n=28) | Females (n=98) | |
| Midwife's attitude | Skin contact improves mother's physical health | Disagree | 1 (3.6) | 5 (5.1) | 0.942 |
| | | Neither agree nor disagree | 6 (21.4) | 20 (20.4) | |
| | | Agree | 21 (75.0) | 73 (74.5) | |
| | Skin contact improves neonate's physical health. | Disagree | - | 1 (1.0) | 0.709 |
| | | Neither agree nor disagree | 3 (10.7) | 15 (15.3) | |
| | | Agree | 25 (89.3) | 82 (83.7) | |
| | Skin contact makes mother take better care of the child. | Neither agree nor disagree | 4 (14.3) | 12 (12.2) | 0.775 |
| | | Agree | 24 (85.7) | 86 (87.8) | |
| | Skin contact improves mother's success in breastfeeding. | Disagree | - | 2 (2.0) | 0.423 |
| | | Neither agree nor disagree | 5 (17.9) | 10 (10.2) | |
| | | Agree | 23 (82.1) | 86 (87.8) | |
| | Skin contact improves mother's satisfaction. | Neither agree nor disagree | 8 (28.6) | 12 (12.2) | 0.037 |
| | | Agree | 20 (71.4) | 86 (87.8) | |
| | Skin contact improves mother's mental health. | Disagree | 1 (3.6) | 1 (1.0) | 0.132 |
| | | Neither agree nor disagree | 9 (32.1) | 17 (17.3) | |
| | | Agree | 18 (64.3) | 80 (81.6) | |
| | Skin contact establishes verbal/emotional bonding between midwife and mother. | Disagree | 1 (3.6) | 8 (8.2) | 0.662 |
| | | Neither agree nor disagree | 8 (28.6) | 30 (30.6) | |
| | | Agree | 19 (67.9) | 60 (61.2) | |
| | Skin contact creates a sense of security in the newborn. | Disagree | - | 1 (1.0) | 0.290 |
| | | Neither agree nor disagree | 7 (25.0) | 13 (13.3) | |
| | | Agree | 21 (75.0) | 84 (85.7) | |
| | Skin contact enhances mother's love for the newborn. | Disagree | 1 (3.6) | - | 0.014 |
| | | Neither agree nor disagree | 6 (21.4) | 7 (7.1) | |
| | | Agree | 21 (75.0) | 91 (92.9) | |
| | Skin contact reduces mother's stress. | Disagree | 1 (3.6) | 1 (1.0) | 0.064 |
| | | Neither agree nor disagree | 8 (28.6) | 12 (12.2) | |
| | | Agree | 19 (67.9) | 85 (86.7) | |
| | Being skilled in performing skin contact by midwife improves the results. | Disagree | 2 (7.1) | 1 (1.0) | 0.047 |
| | | Neither agree nor disagree | 11 (39.3) | 25 (25.5) | |
| | | Agree | 15 (53.6) | 72 (73.5) | |
| Newborn's health | Skin contact improves newborn's immunity system. | Disagree | - | 2 (2.0) | 0.244 |
| | | Neither agree nor disagree | 10 (35.7) | 21 (21.4) | |
| | | Agree | 18 (64.3) | 75 (76.5) | |
| | Skin contact improves the development of the newborn. | Disagree | - | 1 (1.0) | 0.826 |
| | | Neither agree nor disagree | 5 (17.9) | 15 (15.3) | |
| | | Agree | 23 (82.1) | 82 (83.7) | |
| | Skin contact establishes an emotional bond between parents and the newborn. | Disagree | 1 (3.6) | 1 (1.0) | 0.123 |
| | | Neither agree nor disagree | 6 (21.4) | 9 (9.2) | |
| | | Agree | 21 (75.0) | 88 (89.8) | |
| | Skin contact regulates the newborn's blood oxygen level. | Disagree | - | 4 (4.1) | 0.047 |
| | | Neither agree nor disagree | 11 (39.3) | 18 (18.4) | |
| | | Agree | 17 (60.7) | 76 (77.6) | |
| | Skin contact regulates the newborn's heartbeat. | Disagree | - | 4 (4.1) | 0.434 |
| | | Neither agree nor disagree | 9 (32.1) | 24 (24.5) | |
| | | Agree | 19 (67.9) | 70 (71.4) | |
| | Skin contact improves the newborn's breathing. | Disagree | - | 4 (4.1) | 0.354 |
| | | Neither agree nor disagree | 8 (28.6) | 19 (19.4) | |
| | | Agree | 20 (71.4) | 75 (76.5) | |
| | Skin contact regulates the newborn's body temperature. | Disagree | - | 1 (1.0) | 0.721 |
| | | Neither agree nor disagree | 6 (21.4) | 16 (16.3) | |
| | | Agree | 22 (78.6) | 81 (82.7) | |

Continued.

| Variables | | | Gender | | P value |
|---|---|---|---|---|---|
| | | | Males (n=28) | Females (n=98) | |
| Mother's physical health | Skin contact accelerates placental delivery. | Disagree | 2 (7.1) | 5 (5.1) | 0.740 |
| | | Neither agree nor disagree | 9 (32.1) | 26 (26.5) | |
| | | Agree | 17 (60.7) | 67 (68.4) | |
| | Skin contact accelerates the uterus's return to normal. | Disagree | 3 (10.7) | 4 (4.1) | 0.386 |
| | | Neither agree nor disagree | 9 (32.1) | 31 (31.6) | |
| | | Agree | 16 (57.1) | 63 (64.3) | |
| | Skin contact promotes oxytocin release in mother. | Disagree | 1 (3.6) | 4 (4.1) | 0.568 |
| | | Neither agree nor disagree | 10 (35.7) | 25 (25.5) | |
| | | Agree | 17 (60.7) | 69 (70.4) | |
| | Skin contact reduces post-labor bleeding. | Disagree | 3 (10.7) | 4 (4.1) | 0.401 |
| | | Neither agree nor disagree | 9 (32.1) | 34 (34.7) | |
| | | Agree | 16 (57.1) | 60 (61.2) | |
| | The newborn's ill situation hinders skin contact. | Disagree | 2 (7.1) | 4 (4.1) | 0.736 |
| | | Neither agree nor disagree | 11 (39.3) | 44 (44.9) | |
| | | Agree | 15 (53.6) | 50 (51.0) | |
| Midwife's Belief about obstacles of performing skin contact | Skin contact is not feasible for ill mothers. | Disagree | 5 (17.9) | 8 (8.2) | 0.202 |
| | | Neither agree nor disagree | 9 (32.1) | 46 (46.9) | |
| | | Agree | 14 (50.0) | 44 (44.9) | |
| | Problems of mothers undergoing C-section affect skin contact. | Disagree | 3 (10.7) | 11 (11.2) | 0.997 |
| | | Neither agree nor disagree | 12 (42.9) | 42 (42.9) | |
| | | Agree | 13 (46.4) | 45 (45.9) | |
| | Problems of neonates born to C-section affect skin contact. | Disagree | 4 (14.3) | 9 (9.2) | 0.729 |
| | | Neither agree nor disagree | 12 (42.9) | 46 (46.9) | |
| | | Agree | 12 (42.9) | 43 (43.9) | |
| | Mother's fatigue caused by nonstandard intervention during labor affects skin contact. | Disagree | - | 7 (7.1) | 0.335 |
| | | Neither agree nor disagree | 14 (50.0) | 48 (49.0) | |
| | | Agree | 14 (50.0) | 43 (43.9) | |
| Midwife's belief in self-efficacy | I believe skin contact is essential. | Neither agree nor disagree | 5 (17.9) | 12 (12.2) | 0.443 |
| | | Agree | 23 (82.1) | 86 (87.8) | |
| | I believe skin contact entails positive results. | Neither agree nor disagree | 6 (21.4) | 10 (10.2) | 0.116 |
| | | Agree | 22 (78.6) | 88 (89.8) | |
| | I believe skin contact is important. | Neither agree nor disagree | 8 (28.6) | 9 (9.2) | 0.008 |
| | | Agree | 20 (71.4) | 89 (90.8) | |
| | I believe I can perform skin contact with minimum facilities. | Neither agree nor disagree | 1 (3.6) | 1 (1.0) | 0.545 |
| | | Agree | 9 (32.1) | 27 (27.6) | |
| | | Disagree | 18 (64.3) | 70 (71.4) | |
| | I believe my recommendations for skin contact are acceptable for the mother. | Neither agree nor disagree | 7 (25.0) | 18 (18.4) | 0.438 |
| | | Agree | 21 (75.0) | 80 (81.6) | |
| | I believe I can use my knowledge to perform skin contact. | Neither agree nor disagree | - | 1 (1.0) | 0.248 |
| | | Agree | 8 (28.6) | 15 (15.3) | |
| | | Disagree | 20 (71.4) | 82 (83.7) | |
| | I believe in positive results of the skin contact and I perform it. | Neither agree nor disagree | 6 (21.4) | 15 (15.3) | 0.443 |
| | | Agree | 22 (78.6) | 83 (84.7) | |
| Mental Health | Skin contact establishes an emotional bond between mother and newborn. | Neither agree nor disagree | 5 (17.9) | 12 (12.2) | 0.443 |
| | | Agree | 23 (82.1) | 86 (87.8) | |
| | Skin contact improves acceptance of motherhood role by the mother. | Neither agree nor disagree | 6 (21.4) | 15 (15.3) | 0.443 |
| | | Agree | 22 (78.6) | 83 (84.7) | |
| | Skin contact creates a sense of security in mother and newborn. | Disagree | - | 1 (1.0) | 0.116 |
| | | Neither agree nor disagree | 7 (25.0) | 10 (10.2) | |
| | | Agree | 21 (75.0) | 87 (88.8) | |
| | Skin contact results in future attachment between mother and child. | Neither agree nor disagree | 5 (17.9) | 14 (14.3) | 0.641 |
| | | Agree | 23 (82.1) | 84 (85.7) | |

Additionally, most of the participants in this study not only believed that skin-to-skin contact was essential to the health and wellbeing of the mother and the neonate, but they also considered skin-to-skin contact to have a strong impact on early childhood development. Research indicates that this is, in fact, is true. Skin-to-skin contact does impact early childhood development. For example, a study conducted in Israel examined the effects of skin-to-skin contact on neurological development in premature infants.[19] Thirty-five of the seventy infants received the skin-to-skin intervention during an average of 24-31 days.[20] The infants who received the intervention demonstrated maturation in habituation, orientation and vagal tone among other developmental markers at thirty-seven weeks gestational age.[12,2,15,19] As a matter of fact, the impacts of skin-to-skin contact can extend beyond the infant years and into pre-adolescence. A 14-day skin-to-skin intervention of seventy-three premature infants prompted the strengthening of executive functions between the ages of six months and ten years, upon which the children demonstrated improved cognitive control, respiratory sinus arrhythmia, stress response and organized sleep by the age of ten.[13,4,1,2,14] To contextualize this into a healthcare setting, many healthcare workers are educated on the benefits of skin-to-skin contact, especially on early childhood development as per their professional training. The results of this study are reflective of this knowledge as nurses obtain a course on the interplay between skin-to-skin contact and early childhood development, thereby, agreeing to the importance of skin-to-skin contact in the longitudinal impact of child development. In contrast to the prior two results obtained from the qualitative findings of this study, most participants were neither in agreement nor in disagreement pertaining to the benefits of skin-to-skin contact, importantly, in poor healthcare outcome situations where either the mother or the neonate is ill, the mother is fatigued during labor or the mother had a Caesarian-Section delivery. While evidence exists related to the positive health outcomes of skin-to-skin contact, such as enhanced early childhood development and improved maternal and neonatal health, the research surrounding skin-to-skin contact in such situations is limited, if not inconclusive. For example, a post-C-section delivery study surrounding maternal consumption of pain medication following skin-to-skin contact with their child does not show a significant difference between the use of pain medication in the mothers who received the skin-to-skin intervention and those that did not.[21] The research on the effects of skin-to-skin contact on maternal postpartum fatigue is also limited. However, research conducted in Turkey in which women were provided with thirty minutes of skin-to-skin contact in their first hour post-delivery demonstrates that these women had more energy twenty-four hours after their delivery than did those in the control group.[22] Similarly, there is research that addresses the positive outcomes of neonatal skin-to-skin contact for infants with congenital heart disease in terms of improved cognitive and autonomic development, but this research cannot be generalized to all situations in which the neonate presents with an illness.[23] Despite the lack of clinical knowledge pertaining to skin-to-skin contact in such niche situations, there are still efforts to implement skin-to-skin contact after a C-Section as breastfeeding rates for the dyads have been shown to increase as a result of a skin-to-skin intervention.[24] In a Pakistani context, however, there are many challenges to accessing this type of knowledge to then implement policies encouraging skin-to-skin contact. Other medical professionals have also indicated safety, staffing and logistical challenges in adopting practices to encourage skin-to-skin contact, especially after C-Sections.[25] It is likely due to this combination of minimal clinical knowledge and lack of hospital policies to streamline skin-to-skin contact practices and educate their healthcare workers that the healthcare workers in this study were not able to take a stance on the impact of skin-to-skin contact in situations of maternal or neonatal illness, C-Sections or fatigued labor.[11,9-18]

### *Limitations*

There was a female-majority, therefore, the inferences drawn from the gender-based differences in perceptions on predisposition factors displayed here cannot be generalized for other similar studies.

## CONCLUSION

One of the finest and safest practices for the mother and the infant is skin-to-skin contact. It decreases mortality, serious sickness, infection, and hospital stay duration. It is a crucial procedure in newborn care, especially for preterm infants, as it is known to increase the mother's milk production and calm the infant in the first few months after delivery. Parents and healthcare professionals should vigorously encourage and put into practice the idea of kangaroo care/skin-to-skin contact, according to the evidence-based research. Overall, it can be observed that local education and clinical experience serve as a guiding factor in the opinions held by healthcare professionals on skin-to-skin contact. As a result of these measures, healthcare professionals get better information about the topic and gain confidence in their practices and views regarding skin-to-skin contact.

### *Recommendations*

At the organizational level, policies should be made to promote skin-to-skin contact immediately after birth until six months of age. Privacy during skin-to-skin contact should be made and there should be policies regarding this. Moreover, mothers and fathers should be taught to practice skin- to-skin contact after discharge. Hospital should be accredited for Baby Friendly Hospital initiative to promote breastfeeding during skin-to-skin contact as it helps baby to adjust in life outside womb. It also helps parents develop and maintain a loving bond with the child.

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## REFERENCES

1. Hung KJ, Berg O. Early skin-to-skin after cesarean to improve breastfeeding. Am J Mat Child Nurs. 2011;36(5):318-24.
2. Hubbard JM, Gattman KR. Parent-Infant Skin-to-Skin Contact Following Birth: History, Benefits, and Challenges. Neonatal Netw. 2017;36(2):89-97.
3. Dabrowski GA. Skin-to-skin contact: giving birth back to mothers and babies. Nurs Womens Health. 2007;11(1):64-71.
4. Kahalon R, Preis H, Benyamini Y. Who benefits most from skin-to-skin mother-infant contact after birth? Survey findings on skin-to-skin and birth satisfaction by mode of birth. Midwifery. 2021;92:102862.
5. Dalbye R, Calais E, Berg M. Mothers' experiences of skin-to-skin care of healthy full-term newborns--a phenomenology study. Sex Reprod Healthc. 2011;2(3):107-11.
6. Helth TD, Jarden M. Fathers' experiences with the skin-to-skin method in NICU: Competent parenthood and redefined gender roles. J Neonat Nurs. 2013;19(3):114-21.
7. Olsson E, Eriksson M, Anderzén-Carlsson A. Skin-to-Skin contact facilitates more equal parenthood - a qualitative study from fathers' perspective. J Pediatr Nurs. 2017;34:e2-9.
8. Badr HA, Zauszniewski JA. Meta-analysis of the predictive factors of postpartum fatigue. Appl Nurs Res. 2017;36:122-7.
9. Lewis TP, Andrews KG, Shenberger E, Betancourt TS, Fink G, Pereira S, McConnell M. Caregiving can be costly: A qualitative study of barriers and facilitators to conducting kangaroo mother care in a US tertiary hospital neonatal intensive care unit. BMC Pregnancy Childbirth. 2019;19(1):227.
10. Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2016;11(11):CD003519.
11. Mathias CT, Mianda S, Ginindza TG. Facilitating factors and barriers to accessibility and utilization of kangaroo mother care service among parents of low birth weight infants in Mangochi District, Malawi: a qualitative study. BMC Pediatr. 2020;20(1):355.
12. Mustikawati IS. Socio-demographic Ractors and Kangaroo Mother Care (KMC) practice among mothers who had low birth weight babies in Cilincing Village, Jakarta. BMC Pediatr. 2020;2:23-8.
13. Judith S, Aimé A, Franck M, Herman T, Gray K, et al. Knowledge and determinants of Mother Kangaroo Care (MKC) at the hospital environment of Lubumbashi in DR Congo: About a survey carried out at Jason Sendwe Hospital. Lib J. 2020;7(5):1-8.
14. Zakar R, Zakar MZ, Zaheer L, Fischer F. Exploring parental perceptions and knowledge regarding breastfeeding practices in Rajanpur, Punjab Province, Pakistan. Int Breastfeed J. 2018;13:24.
15. Asim M, Nawaz Y. Child Malnutrition in Pakistan: Evidence from Literature. Children. 2018;5(5):60.
16. Anderson GC, Chiu SH, Dombrowski MA, Swinth JY, Albert JM, Wada N. Mother-newborn contact in a randomized trial of kangaroo (skin-to-skin) care. J Obstet Gynecol Neonatal Nurs. 2003;32(5):604-11.
17. Franck L, Bernal H, Gale G. Infant holding policies and practices in neonatal units. Neonat Net. 2002;21(2):13-20.
18. Flynn A, Leahy-Warren P. Neonatal nurses' knowledge and beliefs regarding kangaroo care with preterm infants in an Irish neonatal unit. J Neonat Nurs. 2010;16(5):221-8.
19. Feldman R, Eidelman AI. Skin-to-skin contact (Kangaroo Care) accelerates autonomic and neurobehavioural maturation in preterm infants. Develop Med Child Neurol. 2003;45(4):274-81.
20. Feldman R, Rosenthal Z, Eidelman AI. Maternal-preterm skin-to-skin contact enhances child physiologic organization and cognitive control across the first 10 years of life. Biol Psychiatry. 2014;75(1):56-64.
21. Herbert KA, Vamour C, De Jonckheere J, Mestdagh B, Storme L, Richart P, Garabedian C, Rakza T. Impact of skin-to-skin contact on maternal comfort in patients with elective caesarean section: A pilot study. J Gynecol Obstet Hum Reprod. 2019;48(8):663-8.
22. Tosun Güleroğlu F, Mucuk S, Özgürlük İ. The effect of mother-infant skin-to-skin contact on the involution process and maternal postpartum fatigue during the early postpartum period. Women Health. 2020;60(6):707-18.
23. Harrison TM, Chen CY, Stein P, Brown R, Heathcock JC. Neonatal skin-to-skin contact: implications for learning and autonomic nervous system function in infants with congenital heart disease. Biol Res Nurs. 2019;21(3):296-306.
24. Brady K, Bulpitt D, Chiarelli C. An interprofessional quality improvement project to implement maternal/infant skin-to-skin contact during cesarean delivery. J Obstet Gynecol Neonatal Nurs. 2014;43(4):488-96.
25. Balatero JS, Spilker AF, McNiesh SG. Barriers to Skin-to-Skin Contact after Cesarean Birth. Am J Matern Child Nurs. 2019;44(3):137-43.

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