A prospective cross-sectional analysis on the adherence to the four time-bound interventions of the essential intrapartum and newborn care program (EINC) in a private tertiary hospital in Metro Manila*

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ABSTRACT

Background: The fourth Millennium Development Goal set out by the United Nations in 2000 aims to reduce under-five mortality globally, of which the major contributor is neonatal mortality. Aside from the direct causes of neonatal deaths, newborns may die due to lack of access to the basic care. The World Health Organization started Essential Intrapartum and Newborn Care (EINC), an evidenced-based program that adapts safe and quality care for newborns and mothers. In response to this call, the Philippine Department of Health under Administrative Order 2009-0025, instituted *Unang Yakap*, a protocol comprised of four time-bound interventions. These are immediate drying, uninterrupted skin-to-skin contact, delayed cord clamping and early initiation of breastfeeding. This should be performed immediately and sequentially upon birth up to the 1st hour of life.

Objective: It is the aim of this study to assess the adherence of the obstetricians to performing these time-sensitive interventions during deliveries and to uncover substandard practices.

Methods: This prospective, cross-sectional, single-center study was conducted for 1 year. The birthing process was observed from pushing up to the 1st hour after birth. The timing and sequence of each newborn care intervention was recorded in a standardized assessment tool as they were performed. Other interventions not specified in the tool were also recorded.

Results: The steps of EINC were performed in 100% of deliveries. However, total adherence to the 4 time-bound interventions was less than 50%.

Conclusion: This direct observational study shows that obstetricians were compliant to EINC in all the deliveries but adherent to the protocol in less than half only. Unnecessary interventions were observed although substandard practices were not demonstrated. The compliance of all birthing events to the protocol implies that EINC is a simple and uncomplicated procedure. Full adherence can be accomplished if physicians are re-oriented to the benefits of EINC.

INTRODUCTION

The United Nations set out a series of time-bound targets in 2000 known as the Eight Millennium Development Goals (MDGs). These aimed to eradicate extreme poverty, reduce hunger, and promote health and education worldwide. The fourth MDG aims to reduce the under-five mortality rate by two thirds from 1990 until 2015.

There was a substantial decline in under-five mortality in developed regions from 90 to 48 deaths per 1,000 live births in 1990 and 2012, respectively.[1,2] However, in 2012, the under-five mortality rate was 13 times more in low-income countries than the average rate in high-income countries.[1,2] Neonatal mortality comprises the bulk of under-five mortality. Although neonatal mortality is decreasing globally, its decline is slower compared to the under-five mortality rate computed at 37% and 47%, respectively. Moreover, neonatal deaths have increased from 37% in 1990 to 44% in 2012.[2]

The Philippines is one of the countries listed that account for 90% of under-five mortality worldwide. A total of 82,000 Filipino children under 5 years-old die every year.[3,4] In 2012, 48% of children who die under the age of 5 years in the Philippines are newborns and 39% of these die from preterm complications.[5] In addition to the direct causes of deaths, newborns may die due to lack of access to essential newborn care. For the past 20 years, the Philippines has a consistently high rate of neonatal mortality despite previous efforts in improving

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health status indicators. Mortality rates for 1990 and 2012 were observed to be 23 and 14 per 1000 live births, respectively.[2,3]

To achieve the goal of MDG4, the Department of Health, in cooperation with the World Health Organization (WHO), launched the *Unang Yakap* Campaign in 2009, mandated under the Administrative Order (AO) 2009-0025, to adapt the Essential Intrapartum and Newborn Care (EINC). It is a simple, brief, low-cost guideline focused on the provision of care during birth until the first six hours of life. Comprised of four time-bound interventions performed immediately and sequentially on delivery of the baby up to the 1st hour of life, this program corrected previous insufficient interventions in newborn care through evidence-based protocols.

According to the protocol, immediate drying should be performed within the 1st 30 seconds of delivery. During this time, the baby is dried thoroughly while simultaneously assessing the newborn's breathing. No ventilation is performed unless the baby is limp or is not breathing. After 30 seconds of thorough drying, direct skin-to-skin contact (SSC) of the mother and baby is done if the baby is crying and breathing normally. The newborn is placed prone on the mother's abdomen or chest with skin-to-skin contact. The newborn's back is covered with a blanket and the head with a bonnet. Likewise, routine suctioning is to be avoided. After 1 to 3 minutes of birth or until pulsations stop, the umbilical cord is clamped and cut. Lastly, the newborn is left on the mother's chest with skin-to-skin contact to initiate breastfeeding within 90 minutes of age.[6,7]

Various randomized controlled trials provided evidence proving the benefits of each time-bound intervention to the mother and the neonate. Immediate drying facilitates the newborn's thermoregulation, prevents hypothermia, lessens vulnerability to infection and stimulate breathing.[8] Uninterrupted skin-to-skin contact results in early recognition of mother's milk odor and longer breastfeeding duration.[9] SSC promotes maternal attachment and lessened hypoglycemia in infants 75 to 90 minutes following birth.[10] Delayed cord clamping increases hemoglobin, hematocrit and ferritin levels in term infants while reducing the risk of intraventricular hemorrhage or the need for blood transfusion in preterm infants.[11,12] Exclusive early initiation of breastfeeding can significantly reduce the burden of infectious disease-related mortality.[13] Early breastmilk provides immunocompetent factors that may stimulate humoral or cell-mediated immune systems and may prime the gastrointestinal tract and decrease intestinal permeability and translocation of infectious pathogens.[14]

The success of such campaign lies on proper implementation. The WHO standardized the sequence and timing of EINC for a universal and consistent implementation in all health facilities. Although standards have already been set, a direct observational study may uncover substandard practices.

The obstetrician being the captain of these deliveries has the authority to direct the flow of EINC into its full realization or failure. It is therefore the aim of this study to assess the adherence of obstetricians to the established time-bound interventions during the 1st hour postpartum and to quantify the timing and correct performance of various interventions in the ideal setting of the delivery room units in a tertiary hospital in Metro Manila.

OBJECTIVES

General objective

The purpose of this study is to assess the adherence of the obstetricians to the 4 time-bound interventions of the Essential Intrapartum and Newborn Care Program (EINC or Unang Yakap) from delivery to the 1st hour of birth in the ideal setting of the delivery room units in a tertiary hospital in Metro Manila.

Specific objective:

1. To characterize the interventions performed immediately upon the delivery of a newborn up to the 1st hour of birth.
2. To determine the sequence and timing of newborn care interventions performed immediately upon delivery up to the 1st hour of birth.
3. To observe and record inappropriate interventions performed, if any, on delivery up to the 1st hour of life.
4. To determine patient characteristics or circumstances that may affect performance of EINC

METHODOLOGY

Study Design

This is a prospective, cross-sectional, single-center study conducted in the Delivery Room of a tertiary hospital in Metro Manila from October 2014 to November 2015

Study Population

Inclusion Criteria

1. Patients, aged 20 and above, who gave birth at a tertiary hospital in Metro Manila from October 2014 to November 2015.
2. Adolescent pregnancies, aged 19 and below, with assent and parental consent.

Exclusion Criteria

1. Patients who presented to the delivery room in

the second stage of labor (full cervical dilatation up to fetal expulsion)[15]
2. All very preterm pregnancies (28-32 weeks gestation) and extremely preterm (<28 weeks gestation)[16]
3. All patients whose newborns had obvious physical deformities.
4. All patients who refused consent or patients unable to give consent i.e. those with mental illness, unconscious patients, or those with the following findings deemed for emergency deliveries: eclampsia, cord prolapse, abruptio placenta, non-reassuring fetal status.

Survey Proper

Orientation

Upon securing the approval to conduct research from the Institutional Review Board, the primary investigator and the co-author held orientation sessions on the process of data collection with the OB-GYN residents and interns acting as research assistants.

Subject recruitment and informed consent process

Although EINC was a practice already instituted in this tertiary hospital, mothers admitted during the randomly pre-selected days of observation were informed of the study and consent forms were secured. Likewise, child assent and parental consent forms were secured for subjects below 20 years old. All the obstetricians were informed of the study prior to its commencement and consents were secured collectively.

Data collection tool and methods

The patient's general information was taken. The investigator directly observed the birthing process up to the 1st hour of birth and filled up a standardized assessment tool. The data collection tool was previously validated and used in a large multicenter study in the Philippines by the WHO in 2011 that uncovered substandard immediate newborn care practices causing the delay of thermoregulation and breastfeeding initiation.[4] The timing and sequence of execution of each newborn care intervention was recorded as they were performed. Observations were documented in writing only. Video and audio were not allowed for research purposes.

The following interventions were observed and timed using a stopwatch or the radiant warmer's clock:

1. Time (in seconds) of drying
2. Time (in seconds) of cord clamping
3. Time (in minutes) of skin-to-skin contact (SSC)
4. Time (in minutes) early initiation of breastfeeding
5. Interventions other than the 4 time-bound step observed within the first hour of life, such as weighing, transfer to the neonatal warmer and photography.

Statistical Analysis Plan

Sample size

The average number of births in this tertiary hospital was 2000 per year or 5-6 births in a day. Of these, 90% are uncomplicated and were eligible for EINC. From the expected population of 900 eligible births in six months, the minimum sample size required was 270 births to be representative of the adherence rate. Ten observation days were required per month or 50 births per month to complete the sample size. The sample size was computed at 5% margin of error, 95% confidence interval and assumes a 50% response (adherence) rate.

Plan of analysis

All valid data from evaluable subjects were included in the analysis. Summary statistics for the general characteristics were presented in tables or graphs as mean ± SD, median (IQR) or counts and percentages as applicable.

The median time and interquartile range of time in performance of each time-bound intervention was computed. The adherence of the EINC stakeholders in performing the interventions of EINC was determined from these values. Adherence was classified according to the number of interventions performed as directed in the protocol.

Completed : all of the four EINC time-bound interventions done
Partially : less than four EINC time-bound interventions done
None at all : no intervention done

The percentage of newborns that received appropriate interventions and the percentage of newborns that were given inappropriate interventions were computed.

Statistical analysis

Descriptive statistics was used to summarize the demographic and clinical characteristics of the patients. Frequency and proportion was used for nominal variables, median and range for ordinal variables, and mean and SD for interval/ratio variables. All valid data were included in the analysis. Missing variables were neither replaced nor estimated. STATA 12 was used for data analysis.

Ethical issues

The study was approved by the Institutional Review

Board and adhered to the ethical considerations and ethical principles set out in in the Declaration of Helsinki, WHO guidelines, International Conference on Harmonization-Good Clinical Practice, and National Ethics Guidelines for Health Research.

RESULTS

Demographics

A total of 299 deliveries were observed (Table 1). Most of the mothers were 17 to 34 years-old (73%) while the rest were 35 years-old and above (22%). Majority of the mothers were Filipino (95%) and were married (81%). More than half were multigravids but almost half were nulliparous (48%). Of the 299 observed deliveries, 270 gave birth to term pregnancies, with the average age of gestation at 38 weeks. Only 29 deliveries were less than 37 weeks gestation. None were below 34 weeks. Fifty-seven percent of the observed births were spontaneous vaginal deliveries while 42% were cesarean section. The ambient temperature recorded in the delivery room units fell below 25^{0}C in 260 observed births. The radiant warmer used was consistently between 28-32^{0}C.

Table 1. Demographic profile of all patients observed (n=299)

	Frequency (%); Mean + SD
Age (years)	**31.18 ± 5.08**
17 to 34	217 (72.58)
35 and up	82 (22.42)
Age of Gestation(weeks)	**38.42 ± 1.23**
34 to 36 6/7	29 (9.7)
37 and up	270 (90.3)
Nationality	
Filipino	285 (95.32)
Others	14 (4.68)
Marital Status	
Married	240 (80.81)
Single	56 (18.86)
Separated	1 (0.34)
No information	2 (0.67)
Mode of delivery	
SVD	172 (57.53)
Cesarean section	127 (42.47)
Gravidity	
Primagravid	134 (44.82)
Multigravid	165 (55.18)
Parity	
Nullipara	143 (47.83)
Primipara	112 (37.46)
Multipara	44 (14.71)
Ambient temperature	
Below 25^o C	260 (86.96)
25 to 28^o C	39 (13.0)
Warmer temperature	
28-32^o C and above	299 (100%)

Adherence to EINC

Based from the observations, EINC was done in all births (Table 2). However, only 34% of the birthing events completely adhered to the four essential steps while, 66% partially adhered to the protocol.

Table 2. Adherence to EINC (n=299)

	Frequency (%)
Complete	103 (34.45)
Partial	196 (65.55)
None at all	0

The rate of adherence to each time-bound intervention during spontaneous vaginal delivery (SVD) and cesarean section (CS) was determined (Table 3). All newborns delivered either via SVD or CS were dried immediately upon birth for more than 30 seconds. Cord clamping after one minute was adhered to in 86% out of 172 vaginal births and in 82% out of 127 abdominal births. Immediate skin-to-skin contact (SSC) was performed in almost all births, 100% in SVD and 99% in CS births. Non-separation of the mother and newborn from birth up to the 1st hour of life for early initiation of breastfeeding was done in 73% for vaginal deliveries and 62% for cesarean births. Breastfeeding was continued for at least an hour in 125 vaginal births and in 79 CS births. Forty-seven babies of vaginal births were separated from their mothers before 1 hour or before the end of the 1st feed and 48 were separated in CS births. There was no statistically significant difference between the SVD or CS group in adherence per intervention. However, there was a trend to less breastfeeding for 1 hour and separation from the mother in the CS group

Sequence of time-bound interventions

The order of execution of the time-bound interventions were recorded with the average time from birth each step was performed (Table 4 and 5). The babies were dried immediately upon birth up to 3 minutes. The cords were clamped at 1 minute. The babies were placed immediately on the mother's abdomen after a vaginal delivery, but at 6

Table 3. Demographic profile of all patients observed (n=299)

	SVD (n=172)	CS (n=127)	P Value
	Frequency (%)		
Immediate Drying (at least 30secs) 30 seconds and more	172 (100%)	127 (100%)	1.00
Delayed cord clamping at least 1 minute before clamping Less than one minute (incomplete) One minute and above (complete)	 24 (13.95) 148 (86.05)	 23 (18.11) 104 (81.89)	0.329
Immediate skin to skin contact (SSC) Yes No	 172 (100) 0	 126 (99.21) 1 (0.79)	0.425
Breastfeeding for 1 hour Separated from the mother before end of 1st breastfeed	125 (72.67) 47 (27.33)	79 (62.20) 48 (37.80)	0.055

*Statistical test used: Chi-square test; * - Fisher's Exact test*

Table 4. Sequences of the EINC time-bound interventions performed upon delivery up to the 1st hour of life

	SVD (n=172)	CS (n=127)
	Frequency (%)	
Drying, Delayed cord clamping, SSC, latching	73 (42.44)	125 (98.43)
Drying, SSC, Delayed cord clamping, latching	99 (57.56)	2 (1.57)

Table 5. Average time (minute) to start of essential time-bound intervention

	SVD (n=172)	CS (n=127)
	Frequency (%) Median (Range)	
Drying (duration)	3:30 ± 1:13	3:28 ± 1:14
Delayed cord clamping	1:06 ± 0:23	1:00 ± 0:20
Skin to skin contact	0:00 (0:00 to 15:00)	6:22 (0:00 to 19:01)
Breastfeeding initiated	6:20 ± 3:34	7:48 ± 3:06

minutes after a CS delivery. Breastfeeding was initiated at 6 minutes in SVDs and on the 7th minute after CS.

Performance of non-time bound intervention

Of the 299 deliveries observed whose newborns were spontaneously breathing or crying, 184 were suctioned using a bulb due to excessive nasal secretions (Table 6). After thorough drying, bonnets were placed in 280 newborns. Newborns were placed in a warmer at different times during the observations, mostly were at less than 5 minutes from birth, an event observed before starting breastfeeding. Birth weights were taken less than 60 minutes from birth in 194 deliveries. Newborn pictures were taken in 179 births.

Adherence to Drying, Delayed Cord Clamping, SSC, Latching and Rooming-In based on Demographics (Table 7-11)

There was no significant difference between the adherent and non-adherent group based on the subjects' demographics in adherence to drying and skin-to-skin contact (Table 7 and 8). In delayed cord clamping (Table 9), there was a significant difference between adherent and non-adherent group based on marital status and parity. A single woman was more likely to have delayed cord clamping as was a multipara. There was significant difference in terms of adherence to latching wherein preterm gestations were not latched appropriately versus

Table 6. Non-time bound interventions performed from birth up to the 1st hour of life (n=299)

	Frequency (%)	
Suctioning	184 (61.54)	
Placed in Radiant Warmer from time of birth	SVD (n=172)	CS (n=127)
Less than 5 minutes	115 (66.86)	122 (96.06)
5 to 30 minutes	42 (24.42)	2 (1.57)
30 minutes or more	11 (6.40)	3 (2.36)
NO	4 (2.33)	0
Wearing of Bonnet	280 (93. 65)	
Weighing/ Anthropometrics		
Less than 60 mins. after birth	194 (64.88)	
1 hour or more	105 (35.12)	
Photography	179 (59.87)	
Roomed In	202 (67.56)	
Separated	104 (34.78)	

term gestations (Table 10). Preterm babies were more likely not to be roomed in (Table 11).

DISCUSSION

The time-bound procedures specified in the EINC protocol of the World Health Organization that should routinely be performed immediately and sequentially were complied to by the obstetricians and pediatricians. However, adherence to the 4 time-bound steps of EINC was only partial, specifically 66% in all births (Table 2). The execution of the 4th step (early initiation of breastfeeding with non-separation of the newborn and the mother up to the 1st hour of life or until after the 1st breastfeed) contributed largely to the partial adherence to EINC. Twenty-seven percent of the newborns delivered via SVD and 39% of the newborns delivered via CS were separated from their mothers (Table 3). Based on the observations, separation was done 30 minutes into latching or before the 1st breastfeed ends. Early separation may be associated with the mother's choice of non-rooming in that was observed in 35% of deliveries. Transfer of newborns to the transitional care unit was requested by the mothers themselves prior to delivery.

Placing the newborn in a warmer instead of directly over the mother's chest or abdomen after cutting of the cord interrupted skin-to-skin contact in most deliveries. The warmer was noted to be an area of transition where pediatricians took the anthropometric measurements (including weighing) of the newborn for mothers that did not opt rooming in.

Anthropometrics including weighing were done within 60 minutes from the time of birth in 65% of all deliveries. Although done inside the delivery room unit beside the mother, this step is non-essential. It interferes with continuous skin-to-skin contact and delays the opportunity for early breastfeeding. It was observed that most obstetricians ask for the baby's weight right after delivery, a habit to satisfy the whim of the parents. Moreover, it has been a practice of the pediatricians to interrupt skin-to-skin contact for anthropometrics especially for babies whose mothers opted rooming in.

Another contributor to partial adherence was routine suctioning by the pediatrician observed in 61% of all newborns despite vigorous crying or active movements. This intervention is not time consuming and does not break the chain of the time-bound steps. It, however, is not included in the EINC protocol. This intervention is in fact considered unnecessary if done in newborns that immediately cry or are observed to be breathing.

Photography, on the other hand, did not interrupt the timely and sequential performance of EINC. Taking pictures of the mother and newborn was done in over 60% of the deliveries. It was observed that the execution of each time-bound step took precedence and that the mothers and fathers did not interfere with the obstetricians and pediatricians in providing the essential care.

Placing a bonnet on the newborn was included in EINC, a step that is not one of the 4 essential time-bound steps but rather a supplement to immediate skin-to-skin contact for providing warmth and ultimately the newborn's thermoregulation. This was observed in 94% of all births.

EINC proceeded sequentially by 2 manners as shown in Table 4. The route of delivery directed the manner of the protocol's execution. The nature of cesarean section being an abdominal operation and therefore, necessitating a sterile abdominal field dictated the interchanging of the order of the time-bound interventions specifically, skin-to-skin contact and delayed cord clamping. Delayed cord clamping was generally done prior to skin-to-skin contact in 98% of all abdominal deliveries. In 58% of all vaginal deliveries skin-to-skin contact was performed prior to delayed cord clamping. However, in 42% of all vaginal deliveries, the sequence of interventions was done as in a CS delivery. The premature use of the sterile abdominal sheet during vaginal delivery accounted for this inconsistency. After delayed cord clamping, the newborns were handed to the pediatricians and placed in warmers

Table 7. Adherence to Drying based on Demographics

	Adherent (n=252)	Non-adherent (n=47)	P Value
	Frequency (%)		
Age (years)			0.751*
17 to 34	182 (72.22)	35 (74.47)	
35 and up	70 (27.78)	12 (25.53)	
Age of Gestation (weeks)			0.597
34 to 36 6/7	26 (10.32)	3 (6.38)	
37 and up	226 (89.68)	44 (93.62)	
Nationality			0.468
Filipino	241 (95.63)	44 (93.62)	
Others	11 (4.37)	3 (6.38)	
Marital Status			1.000
Married	202 (80.80)	38 (80.85)	
Single	47 (18.80)	9 (19.15)	
Separated	1 (0.40)	0	
No information	2 (0.79)	0	
Mode of delivery			0.630
SVD	143 (56.75)	29 (61.70)	
Cesarean section	109 (43.25)	18 (38.30)	
Gravida			0.490
Primagravid	113 (44.84)	21 (44.68)	
Multigravid	129 (51.19)	26 (55.32)	
Grand multi gravid	10 (3.97)	0	
Parity			1.000*
Nullipara	121 (48.02)	22 (46.81)	
Primipara	92 (36.51)	20 (42.55)	
Multipara	39 (15.48)	5 (10.64)	

*Statistical test used: * - Chi-square test; Fisher's Exact test*

briefly, bonnets placed and subsequently positioned over the mother's chest for skin-to skin contact and latching.

It is important to note that the delivery room units in this tertiary hospital have an average temperature of 190 C. The ambient temperature in 87% of all the deliveries observed were below 25^0C, a temperature not favorable for the newborns' thermoregulation. Of note, warmers used in all deliveries were warm at 28^0C and above.

Adherence to drying, delayed cord clamping, skin-to-skin contact, latching and rooming-in were analyzed if affected by demographics. It was observed that the patient's characteristics did not affect drying or skin-to-skin contact. However, marital status and parity affected the adherence to delayed cord clamping for which no association was found. Adherence to latching and rooming-in was affected by the gestational age due to the necessity of close observation of premature neonates in the transitional care units.

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CONCLUSION

Despite the Hawthorne effect (modified behavior upon observation) expected in a direct observational study, the true practice of EINC was observed. The obstetricians were compliant to the EINC steps in all the deliveries. However, complete adherence was low. Although substandard practices have already been eradicated since the implementation of the protocol, some habits deter the timely execution and sequence of EINC's time-bound interventions. Nevertheless, the 35% adherent deliveries out of all the birthing events observed proves that the protocol of EINC is a simple and uncomplicated procedure that can be implemented permanently. Continuous reinforcement with random evaluation of its execution may improve adherence to this advocacy.

Table 8. Adherence to Skin-to-skin contact based on Demographics

	Adherent (n=298)	Non-adherent (n=1)	P Value
	Frequency (%)		
Age (years)			1.000*
17 to 34	216 (72.48)	1 (100)	
35 and up	82 (27.52)	0	
Age of Gestation (weeks)			0.097
34 to 36 6/7	28 (9.40)	1 (100)	
37 and up	270 (90.60)	0	
Nationality			1.000
Filipino	284 (95.30)	1 (100)	
Others	14 (4.70)	0	
Marital Status			1.000
Married	239 (80.20)	1 (100)	
Single	56 (18.79)	0	
Separated	1 (0.34)	0	
No information	2 (0.67)	0	
Mode of delivery			0.425
SVD	172 (57.72)	0	
Cesarean section	126 (42.28)	1 (100)	
Gravidity			0.482
Primagravid	133 (44.63)	1 (100)	
Multigravid	155 (52.01)	0	
Grand multi gravid	10 (3.36)	0	
Parity			1.000*
Nullipara	142 (47.65)	1 (100)	
Primipara	112 (37.58)	0	
Multipara	44 (14.77)	0	

Statistical test used: Fisher's Exact test

LIMITATIONS

This was a direct observational study and as such the observers were not blinded. Likewise, the attending obstetricians and the patients recruited were aware of the observations during the birthing process.

RECOMMENDATIONS

Observations done randomly from the obstetrics side in addition to the nurses' and pediatrics' daily monitoring may uncover non-adherence or complete non-compliance to the protocol. Non-institutional observers may be an option to eliminate observational bias. ■

Table 9. Adherence to Delayed Cord Clamping based on Demographics

	Adherent (n=252)	Non-adherent (n=47)	P Value
	Frequency (%)		
Age (years)			1.969 *
17 to 34	183 (72.62)	34 (72.34)	
35 and up	69 (27.38)	13 (27.66)	
Age of Gestation (weeks)			0.790
34 to 36 6/7	24 (9.52)	5 (10.64)	
37 and up	228 (90.48)	42 (89.36)	
Nationality			0.705
Filipino	239 (94.84)	46 (97.87)	
Others	13 (5.16)	1 (2.13)	
Marital Status			**0.044**
Married	199 (79.60)	41 (87.23)	
Single	51(20.40)	5 (10.64)	
Separated	0	1 (2.13)	
Mode of delivery			0.425*
SVD	148 (58.73)	24 (51.06)	
Cesarean section	104 (41.27)	23 (48.94))	
Gravida			0.358
Primagravid	117 (46.43)	17 (36.17)	
Multigravid	126 (50)	29 (61.70)	
Grand multi gravid	9 (3.57)	1 (2.13)	
Parity			**0.030***
Nullipara	122 (48.41)	21 (44.68)	
Primipara	88 (34.92)	24 (51.06)	
Multipara	42 (16.67)	2 (4.26)	

*Statistical test used: * - Chi-square test; Fisher's Exact test*

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Table 10. Adherence to Latching based on Demographics

	Adherent (n=204)	Non-adherent (n=95)	P Value
	Frequency (%)		
Age (years)			0.098
17 to 34	154 (75.49)	63 (66.32)	
35 and up	50 (24.51)	32 (33.68)	
Age of Gestation (weeks)			**0.000**
34 to 36 6/7	8 (3.92)	21 (22.11)	
37 and up	196 (96.08)	74 (77.89)	
Nationality			0.385
Filipino	196 (96.08)	89 (93.68)	
Others	8 (3.92)	6 (6.32)	
Marital Status			0.290*
Married	159 (77.94)	81 (85.26)	
Single	43 (21.08)	13 (13.68)	
Separated	1 (0.49)	0	
No information	1 (0.49)	1 (1.05)	
Mode of delivery			0.055
SVD	125 (61.27)	47 (49.47)	
Cesarean section	79 (38.73)	48 (50.53)	
Gravidity			0.921*
Primagravid	93 (45.59)	41 (43.16)	
Multigravid	104 (50.98)	51 (53.69)	
Grand multi gravid	7 (3.43)	3 (3.16)	
Parity			0.793
Nullipara	96 (47.06)	47 (49.47)	
Primipara	79 (38.73)	33 (34.74)	
Multipara	29 (14.22)	15 (15.79)	

*Statistical test used: * - Fisher's Exact test; Chi-square test*

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