THE EFFECT OF TYPE OF ANTENATAL AND DELIVERY CARE PROVIDERS ON BREASTFEEDING IN SOUTH AND SOUTHEAST ASIA COUNTRIES

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The effect of type of antenatal and delivery care provider on exclusive breastfeeding in South and Southeast Asian countries

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Abstract

Countries in the South and Southeast Asian region vary tremendously in their rates of breastfeeding and the region has both some of the lowest and highest rates of breastfeeding reported worldwide. For example, breastfeeding rates are 23% in Thailand, 65% in Cambodia and 82% in Sri Lanka[6]. These countries also vary in the type of antenatal and delivery care provider[9]. The objective of this study was to determine what association, if any, exists between a woman's type of antenatal care or delivery provider and her duration of breastfeeding. A secondary objective was to look at the association between type of provider and time after birth before breastfeeding was initiated. We hypothesized that having a skilled provider as the antenatal or delivery care provider will be associated with an increased duration of breastfeeding and shorter time after birth before initiation of breastfeeding. A cross-sectional analysis was performed on data from Demographic Health Surveys conducted from 2015 and 2018 in ten South and Southeast Asian countries. This included Afghanistan, Bangladesh, India, Indonesia, Cambodia, Myanmar, Maldives, Nepal, Pakistan and Timor Leste.The analysis revealed that having a doctor as an antenatal or delivery care provider was associated with statistically significant decrease in duration of breastfeeding when compared with nurse/midwife and traditional birth attendant in Bangladesh and Afghanistan. Having a nurse/midwife in Afghanistan was also associated with decreased duration of breastfeeding. In contrast, having a nurse/midwife was associated with statistically significant increase in duration of breastfeeding in Cambodia, Myanmar and Timor Leste. There was also a significant increase with use of a traditional birth attendant in Cambodia, Indonesia, Myanmar and Timor Leste. Our secondary objective analysis showed a statistically significant increase in time before initiation of breastfeeding with use of a doctor as the provider in Bangladesh and Nepal and with use of a traditional birth attendant as the provider in Afghanistan and Nepal. These findings suggest that there is a negative association in duration of breastfeeding with use of a doctor and a positive association with use of nurse/midwife or traditional birth attendant in some, but not all, countries in this region. Further investigation would be necessary to confirm these findings and determine why this negative association may exist.

Introduction

It has been proven countless times that breastfeeding is associated with improved short-term and long-term health outcomes for both the child and the mother [1,2]. Exclusive breastfeeding is defined as only providing the child with breast milk from birth to 6 months of age [3]. It has a large impact on child mortality, especially infection-related child mortality, compared to any preventative interventions [4]. Due to this benefit, in 2012, the World Health Organization (WHO) included exclusive breastfeeding as one of six global nutrition targets to achieve by 2025. The goal is to increase the rate of exclusive breastfeeding up to at least 50% globally [5]. This fifth target is important to achieve because improved rates of exclusive breastfeeding can help drive progress against the other global nutrition targets such as stunting, anemia in women of reproductive age, low birth weight, childhood overweightness or obesity and childhood wasting.

Interestingly, South and Southeast Asian region has countries with some of the highest and lowest rates of exclusive breastfeeding. For example, countries like Thailand, Philippines, and Pakistan have rates as low as 23%, 33%, and 37%, respectively. While countries like India, Cambodia, and Sri Lanka have higher rates of 55%, 65%, and 82%, respectively [6]. Not only do countries in this region have vastly different percentages of exclusive breastfeeding but they also have many different types of antenatal care and delivery providers. Types of providers include doctors, nurses, midwives (formally trained and untrained), and traditional birth attendants (TBAs). There have been only a few studies that looked at the prevalent type of provider for antenatal care and/or delivery care in this region and most only focused on one country or the region as a whole. For instance, one study conducted in Bangladesh showed home deliveries by TBAs remains the first choice for type of delivery care provider [7]. Another study investigated type of provider in Myanmar and found that midwives were the key type of antenatal and delivery care provider [8]. Moreover, UNICEF and WHO conducted a trends analysis on antenatal care data collected between 1990-2001 in developing countries. They found that in Asia a little over half of the women in this region received antenatal care from a doctor [9].

Studies demonstrate that an antenatal care provider does influence duration of breastfeeding. A prospective cohort study published by the American Academy of Pediatrics indicated that pediatric and obstetric providers' (doctors, nurse practitioners, and nurse midwives) positive advice about the importance of breastfeeding is associated with increased likelihood that mothers will exclusively breastfeed[10]. Another study showed that mothers who perceived that their obstetric provider favored exclusive breastfeeding were significantly more likely to exclusively breastfeed their infants at one and three months[11].

According to the World Health Organization (WHO), antenatal care has risen noticeably worldwide[9]. Previous studies have established that the number of antenatal care visits is important in reducing risks associated with pregnancy and improving outcomes for both the mother and the child[9,12]. What has not been established is whether or not the *type* of provider affects these outcomes, specifically with exclusive breastfeeding. Worldwide, only 38% of infants aged 0-6 months are exclusively breastfeeding and recent studies have shown that suboptimal breastfeeding practices (including non-exclusive breastfeeding and initiation at greater than one hour life) contributed to 11.69% of mortality in children under age five which is equivalent to about over 800,000 deaths in 2011[13]. Investigating the association, if any, between the type of provider with the duration of breastfeeding in this region, where the breastfeeding rates vary tremendously, could shed light where to direct efforts to achieve the fifth Global Nutrition Target.

The objective of this study was to determine an association, if any, between type of provider and duration of breastfeeding. A secondary objective was to look at the association between type of provider and time after birth before initiation of breastfeeding. We hypothesized that having a skilled provider as the antenatal or delivery care provider will be associated with increased duration of breastfeeding and shorter time after birth before initiation of breastfeeding.

Methodology

SURVEY

This study used the Standard Demographic and Health Survey (DHS) data of ten countries in the South and Southeast Asian region: Afghanistan (DHS 2015), Bangladesh (DHS 2017), India (DHS 2015-2016), Lao People's Democratic Republic (DHS 2017), Maldives (2016-2017), Myanmar (2015-2016), Nepal (DHS 2016), Pakistan (DHS 2017-2018), Philippines (DHS 2017) and Timor-Leste (DHS 2016). The DHS are nationally-representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition. Respondents included adult male and female members of each household and sample size of each survey can range from 5,000 to 30,000 respondents. The data was downloaded from dhsprograms.com. No IRB approval was required due to the data being public domain. Surveys are conducted at regular intervals and are conducted by ICF International Inc with financial support from USAID.

MEASURES

The latest available DHS reports from each country were reviewed to identify all indicators related to breastfeeding and type antenatal care and delivery care providers. The following variables and its values were decoded using the DHS Recode Manual and extrapolated for analysis: timing of first antenatal check, number of antenatal visits, duration of exclusive breastfeeding, time after birth before initiating breastfeeding and type of provider (physician, nurse/midwife, Traditional Birth Attendant, no one or other health professional). The variable "other health professional" was not explicitly defined in the recode manual.

STATISTICAL ANALYSIS

Population demographic characteristics for each country were reported using means (95% CI) for continuous variables and percentages (95% CI) for categorical variables. For the outcome measures, mean (95% CI) timing of first antenatal visit in months, number of antenatal visits during pregnancy, duration of breastfeeding in months and time to initial breastfeed in mothers who breastfeed in each of the 10 countries was reported. Moreover, the percent each type of provider used in each country was calculated. Lastly, mean differences and 95% CI were calculated using multiple linear regression to ascertain associations between the type of provider (antenatal and delivery care provider) and the dependent variables (the duration of breastfeeding, time after birth before initiation of breastfeeding, respectively). All statistical models were adjusted for age, education, marital status and number of children born. All p-values were 2-sided with an alpha set as 0.05. All analyses were conducted using STATA version 14 (STATAcorp; College Station, TX).

Results

POOLED SAMPLES

The analytic sample consisted of 259, 868 respondents including Afghanistan (n= 19,733), Bangladesh (n = 4,494), India (n = 190,797), Indonesia (n = 15,203), Cambodia (n = 5,898), Myanmar (n = 3,867), Maldives (2,667), Nepal (n= 4,006), Pakistan (n = 8,287) and Timor Leste (n = 4,916). The demographics of respondents are presented in Table 1. Surveys were conducted with participants ranging from age 15-49 years. The mean age for the extracted data ranges from 24.6 – 31.0 years old. Primary school was the highest level of education in majority of participants in Cambodia (49.4%) and Myanmar (43.9%). Secondary school was the highest level of education in majority of participants in Bangladesh (47.4%), India (46.6%), Indonesia (53.5%), Maldives (61.9%), Nepal (34.8%), and Timor Leste (48.4%). Majority of participants in Afghanistan (85%) and Pakistan (50.4%) had no education. Number of children born to each participant was about two in each country except Afghanistan, Pakistan, and Timor Leste in which the number of children was greater than or equal to 3.5 children. Majority of participant's marital status was married in all the countries investigated in this study.

[INSERT Table 1]

ANTENATAL CARE AND BREASTFEEDING

Mean timing of first antenatal visit in months, number of antenatal visits during pregnancy, duration of breastfeeding in months and time to initial breastfeed in mothers who breastfeed in each of the ten countries was found (see Figure 1). Mean timing of first antenatal check in Afghanistan was during the third trimester at 7.73 months (CI 7.38, 8.07). However, the mean number of antennal visits was 6.49 visits (CI 6.14, 6.79). In Myanmar, the mean timing of the first antenatal visit was during the second trimester at 4.54 months (CI 4.28, 4.80) with total mean of 6.32 (CI 6.00, 6.65) visits during the pregnancy. The rest of the countries, India, Indonesia, Cambodia, Maldives, Nepal, Pakistan, and Timor Leste, had a mean timing of first antenatal visit during the first trimester. Of those countries, the mean number of antenatal visits was 6.29 (CI 6.24, 6.35) for India, 8.53 (CI 8.37, 8.68) for Indonesia, 5.71 (CI 5.54, 5.88) for Cambodia, 9.81 (CI 9.66, 9.96) for Maldives, 4.51 (CI 4.45, 4.58) for Nepal, 5.04 (CI 4.88, 5.20) for Pakistan, and 6.28 (CI 6.12, 6.44) for Timor Leste. Bangladesh could not be evaluated for this because the variables were not included in the surveys done in this country.

Mean duration of breastfeeding in participants who breastfed their children ranged from 11.7 months (CI 11.4, 12.0) in Pakistan to 20.1(CI 19.6, 20.6) months in Nepal. Of the mothers who decided to breastfeed, the mean time after birth in which the child was breastfed was the shortest in Timor Leste with 1.93 hours (CI 1.56, 2.29) and the longest in Indonesia with 21.8 hours (CI 20.8, 22.8) after delivery.

[INSERT Figure 1]

CARE PERSONNEL

Moreover, the percent each type of provider used in each country was calculated. In Afghanistan, majority of mothers had no help (47.3%) with antenatal care. In Bangladesh (54.9%), India, (42.1%) and Pakistan (78.6%) majority of mothers saw a physician for antenatal care. For Indonesia (92.5%), Cambodia (92.5%), Myanmar (62.4%), Maldives (87.3%), Nepal (69.3%), and Timor Leste (74.9%) majority of antenatal care was provided by a nurse/midwife (see Figure 2.

For delivery care (see Figure 3), majority of mothers in Pakistan (39.0%) had a physician as the provider. In Afghanistan (38.9), India (37.1%), Indonesia (75.7%), Cambodia (83.2%), Myanmar (39.7%), Maldives (88.3%), Nepal (42.6%), and Timor Leste (51.8%), a majority of mothers had a nurse/midwife as delivery care provider. In Bangladesh (42.9%), majority of mothers had another type of health professional that provided delivery care. This "other" category is not explicitly defined in the surveys and is recoded as "other country specific health professional". To note, Afghanistan, Myanmar, and Pakistan had high use of traditional birth attendant as the delivery care provider at 28.5%, 28.9%, and 29.8%, respectively.

[INSERT Figure 2]

[INSERT Figure 3]

ASSOCIATION BETWEEN VARIABLES

After multiple logistic regression with adjustment for all other variables in the model with further adjustment of age, education, marital status and number of children born, the analysis revealed that having a doctor as an antenatal or delivery care provider was associated with statistically significant decrease in duration of breastfeeding (see Table 2) when compared with nurse/midwife and traditional birth attendant in Bangladesh (Beta -1.75: CI -2.48, -1.03) and Afghanistan (Beta -3.23: CI -6.14, -0.31). Having a nurse/midwife in Afghanistan was also associated with decreased duration of breastfeeding (Beta -3.71: CI -6.54, -0.89). In contrast, having a nurse/midwife was associated with statistically significant increase in duration of breastfeeding in Cambodia (Beta 3.62: CI 0.68, 6.56), Myanmar (Beta 2.23: CI 0.59, 3.86) and Timor Leste (Beta 2.03: CI 0.18, 3.88). There was also a significant increase with use of a traditional birth attendant in Cambodia (Beta 22.8: CI 5.48, 40.2), Indonesia (Beta 8.03: CI 1.21, 14.8), Myanmar (Beta 6.42: CI 1.35, 11.5) and Timor Leste (Beta 5.49: CI 0.58, 10.4). Our secondary objective analysis showed a statistically significant increase in time before initiation of breastfeeding (see Table 3) with use of a doctor as the provider in Bangladesh (Beta 2.05: CI 0.06, 4.05) and Nepal (Beta 8.46: CI 3.66, 13.3) and with use of a traditional birth attendant as the provider in Afghanistan (Beta 2.77: CI 1.08, 4.46) and Nepal (Beta 13.8: CI 8.23, 19.4).

[INSERT Table 2]

[INSERT Table 3]

Discussion

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) both recommend early initiation of breastfeeding, exclusive breastfeeding for the first six months of life and continuation of breastfeeding until 24 months of age[1,3]. This is because breastfeeding is one of the few interventions where the survival benefits span the entire continuum of childhood. Investigating the association, if any, between the type of provider with the duration of breastfeeding in this region, where the breastfeeding rates vary tremendously, could shed light where to direct efforts to fulfill the recommendations of WHO and UNICEF.

We found that having a doctor as provider was associated with decrease in duration of breastfeeding in Bangladesh and Afghanistan while having a Traditional Birth Attendant as a provider was associated with an increase in Cambodia, Indonesia, Myanmar, and Timor Leste. There was a significant associated increase in time of initiation of breastfeeding after birth with use of a doctor as the provider in Bangladesh and Nepal and with use of a traditional birth attendant as the provider in Afghanistan and Nepal.

Analysis of the secondary variables showed that majority of the countries in this region used either nurse/midwife or a physician as their antenatal and delivery care provider. Few countries such as Afghanistan, Myanmar, and Pakistan had a very high use of traditional birth attendants as a delivery care provider. Moreover, in respondents that did breastfeed, the mean duration was in all the countries was greater than 11 months and the average time afterbirth in which the child was breastfed was less than nine hours in all countries except Pakistan and Indonesia in which the average time was 17.0 and 21.8 hours respectively.

The greatest strength of this paper is its use of data from a nationally-representative survey, which enhances generalization of results for the entire country. Limitations may occur since not all South Asian countries participate in DHS surveys and this regional aggregate is therefore biased toward countries having a recent DHS survey. Moreover, DHS codes for the variable "urban vs rural" have different meanings in different countries. Therefore, an urban/rural analysis was not included in this study. As a result, there may be aspects of wealth status that might be missing from the results.

In summary, these findings suggest that there is a negative association in duration of breastfeeding with use of a doctor and a positive association with use of nurse/midwife or traditional birth attendant in many but not all countries in this region. Further investigation would be necessary to confirm these findings and determine why this negative association may exist.

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Figures and Tables

	Afghanistan	Bangladesh	India	Indonesia	Cambodia
Age, years (mean, 95% CI; N=259,868)	28.9 (28.8, 29.0)	24.6 (24.4, 24.7)	27.3 (27.3, 27.3)	29.9 (29.8, 30.0)	28.8 (28.6, 28.9)
Highest Level of Education (%, 95% CI; N=259,868)					
None	85.0 (84.5, 85.5)	13.5 (12.5, 14.5)	28.8 (26.7, 29.1)	2.78 (2.53, 3.04)	13.6 (12.7, 14.5)
Primary	7.10 (6.75, 7.48)	27.5 (26.2, 28.8)	13.9 (13.8, 14.1)	30.8 (30.0, 31.5)	49.4 (48.1, 50.6)
Secondary	6.31 (5.98, 6.66)	47.4 (45.9, 48.8)	46.6 (16.3, 46.7)	53.5 (52.7, 54.3)	33.3 (31.2, 35.6)
Higher	1.53 (1.37, 1.71)	11.6 (10.7, 12.6)	10.6 (10.4, 10.7)	12.9 (12.4, 13.5)	3.66 (3.21, 4.17)
Total Number of Children Born (mean, 95% CI; N=259,868)	4.29 (4.25, 4.33)	2.16 (2.11, 2.19)	2.37 (2.36, 3.39)	2.37 (2.34, 2.39)	2.34 (2.30, 2.38)
Marital Status (%, 95% CI; N=259,868)					
Never Married	0	0	0.16 (0.14, 0.18)	0.08 (0.04, 0.314)	0
Married	98.9 (98.7, 99.1)	98.8 (98.4, 99.1)	98.3 (98.2, 98.4)	95.8 (95.5, 96.1)	94.2 (93.6, 94.8)
Other	1.07 (0.94, 1.23)	1.18 (0.90, 1.54)	1.54 (1.48, 1.59)	4.05 (3.75, 4.39)	5.81 (5.24, 6.44)

	Myanmar	Maldives	Nepal	Pakistan	Timor Leste
Age, years (mean, 95% CI; N=259,868)	31.0 (30.8, 31.2)	30.3 (30.0, 30.5)	26.4 (26.2, 26.5)	29.6 (29.4, 29.7)	30.6 (30.4, 30.8)
Highest Level of Education (%, 95% CI; N=259,868)					
None	16.1 (14.9, 17.3)	1.49 (1.10, 2.04)	30.7 (29.3, 32.1)	50.4 (49.3, 51.4)	24.3 (23.1, 25.5)
Primary	43.9 (42.3, 45.4)	19.7 (18.3, 21.3)	19.0 (17.9, 20.3)	13.3 (12.6, 14.0)	18.6 (17.5, 19.7)
Secondary	32.2 (30.7, 33.7)	61.9 (60.1, 63.8)	34.8 (33.3, 36.3)	21.1 (20.2, 21.9)	48.4 (46.9, 49.8)
Higher	7.81 (7.00, 8.69)	16.8 (15.4, 18.3)	15.4 (14.3 , 16.5)	15.2 (14.4, 16.0)	8.76 (8.01, 9.59)
Total Number of Children Born (mean, 95% CI; N=259,868)	2.79 (2.73, 2.86)	2.16 (2.11, 2.21)	2.31 (2.26, 2.36)	3.51 (3.46, 3.56)	3.50 (3.43, 3.56)
Marital Status (%, 95% CI; N=259,868)					
Never Married	0	0.22 (0.10, 0.49)	0.03 (0.004, 0.18)	0	0.55 (0.38, 0.80)
Married	95.2 (94.5, 95.9)	95.0 (94.1, 95.8)	99.0 (98.7, 99.3)	98.7 (98.5, 98.9)	85.6 (84.6, 86.6)
Other	4.75 (4.13, 5.47)	4.76 (4.01, 5.64)	0.92 (0.67, 1.27)	1.27 (1.05, 1.53)	13.8 (12.9, 14.8)

Table 1: Demographics analyzed for this study included age of respondent, highest level of education, number of children born to respondent, and marital status. Mean age ranged from 24.6- 31 years of age. Most respondents highest level of education was secondary school except respondents in Cambodia and Myanmar with primary school level and Afghanistan and Pakistan with no education. Number of children born to each participant was about two in each country except Afghanistan, Pakistan, and Timor Leste in which the number of children was greater than or equal to 3.5. Majority of participant's marital status was married in all the countries investigated in this study.

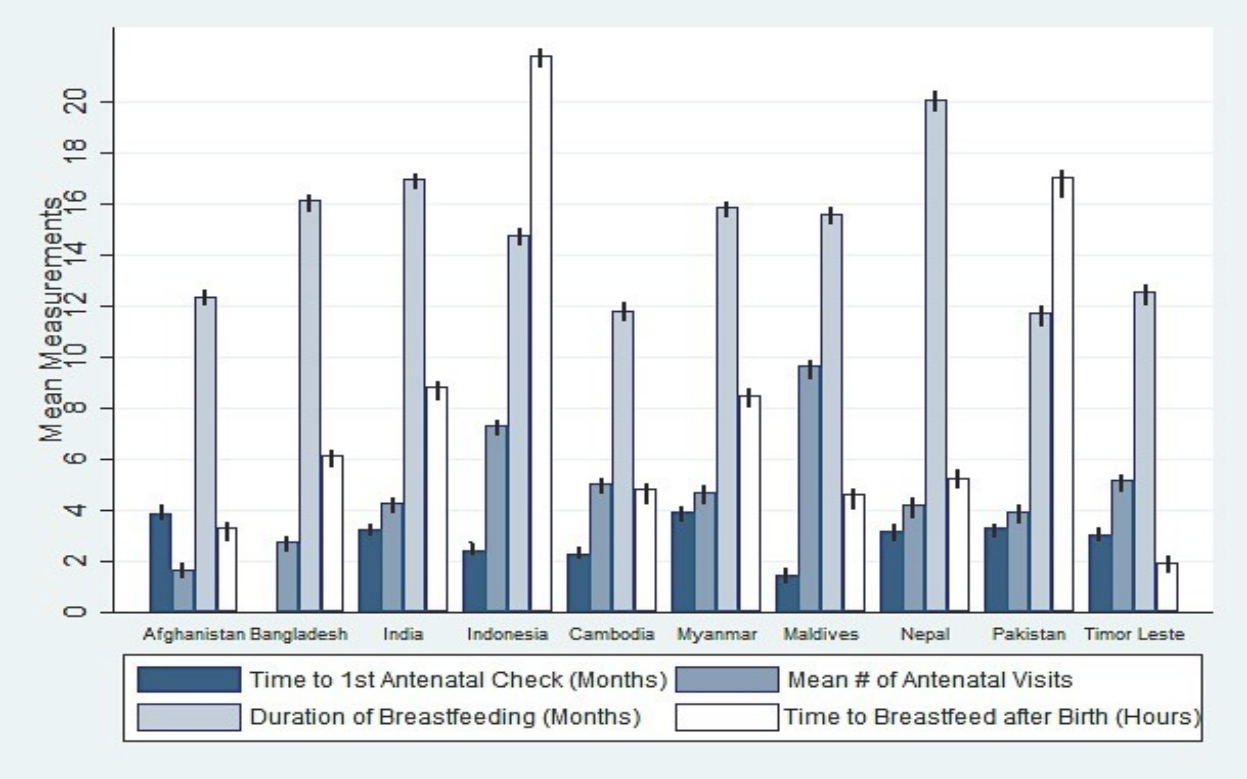

Figure 1: Mean (95% CI) of timing of first antenatal visit in months, number of antenatal visits during pregnancy, duration of exclusive breastfeeding in months and time to initial breastfeed in mothers who breastfeed in 10 countries in South and Southeast Asia. Mean time of first antenatal visit for majority of the countries was during the first trimester with greater than four antenatal visits in all countries. Afghanistan was the only country with the mean first antenatal visit to occur in the third trimester. Of the mothers who decided to breastfeed, the mean time after birth in which the child was breastfed was the shortest in Timor Leste and the longest in Indonesia. Of respondents who decided to breastfeed, mean duration of breastfeeding was greater than 11 months in all countries.

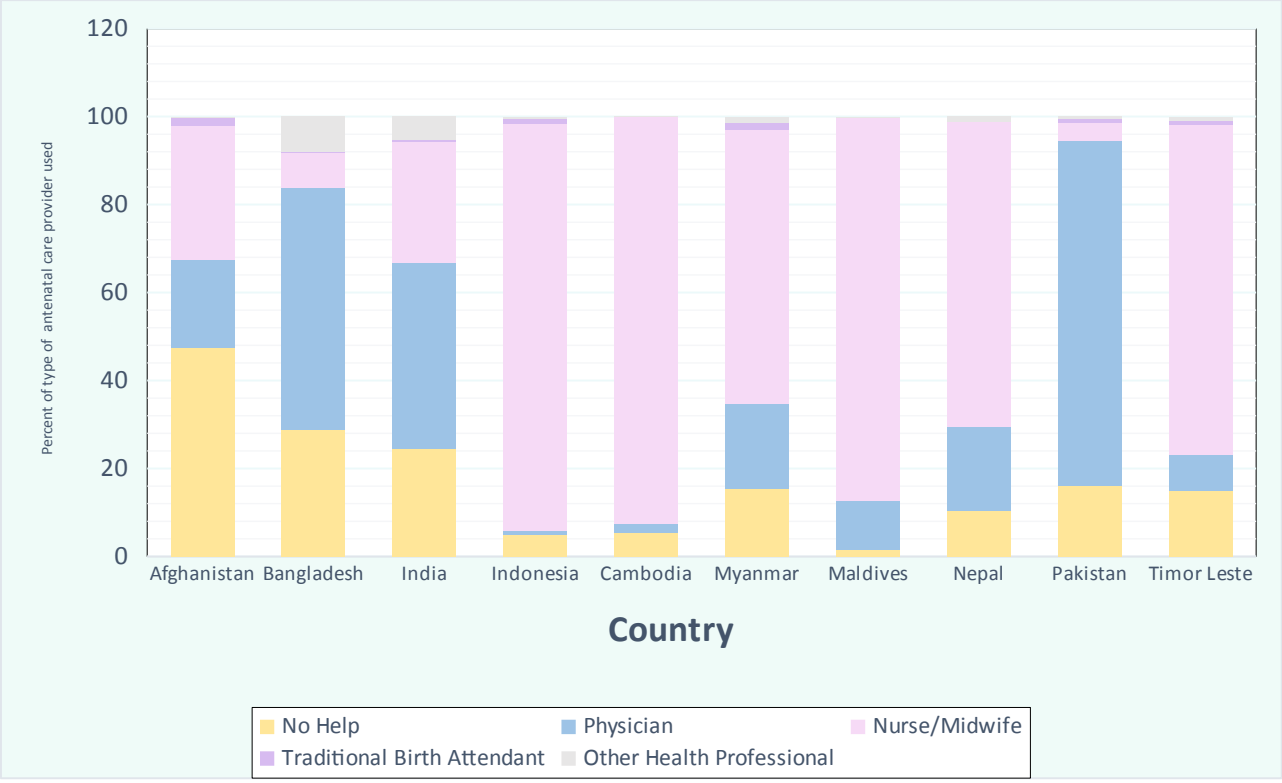

Figure 2: Percent of type of **antenatal** care provider used (None, Physician, Nurse/midwife, Traditional Birth attendant, or Other) in each country. In Afghanistan, majority of mothers had no help with antenatal care. In Bangladesh, India, and Pakistan majority of mothers saw a physician for antenatal care. In the rest of the countries (Indonesia, Cambodia, Myanmar, Maldives, Nepal, and Timor Leste) majority of antenatal care was provided by a nurse/midwife.

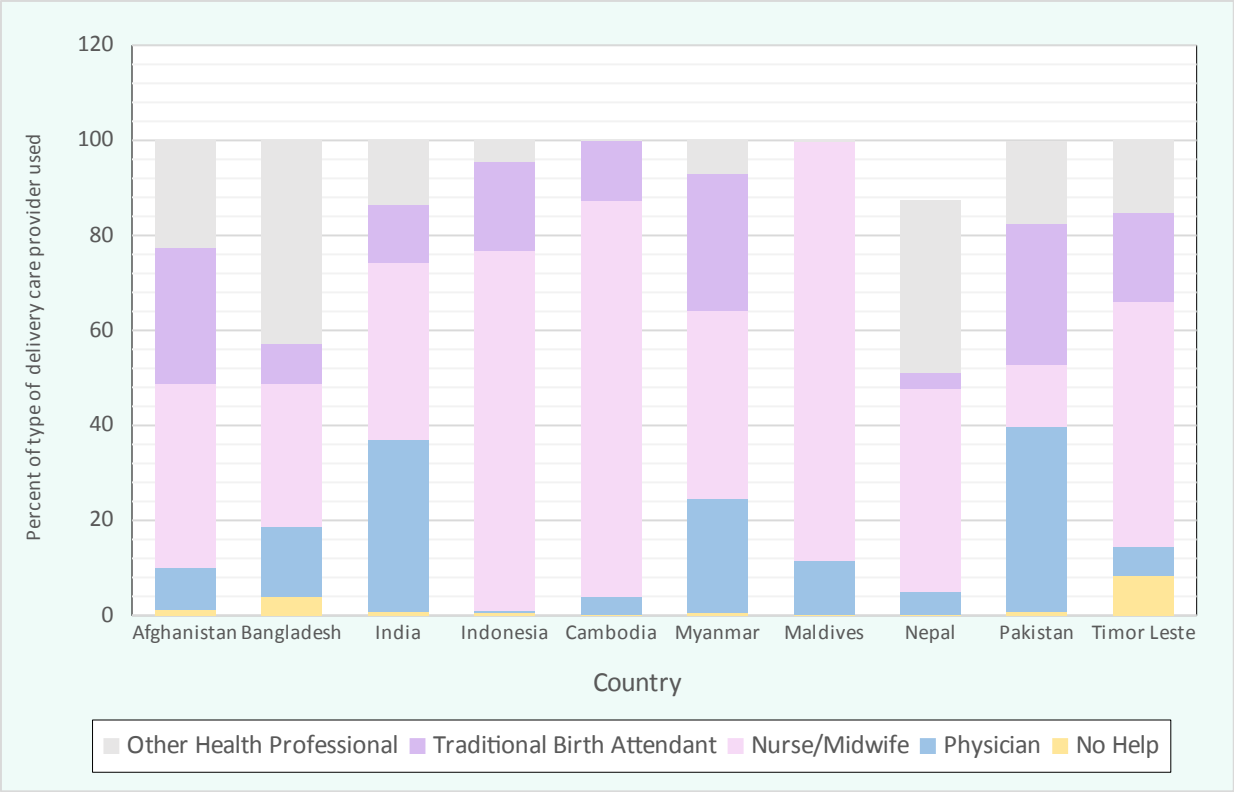

Figure 3: Percent of type of **delivery** care provider used (None, Physician, Nurse/midwife, Traditional Birth attendant, or Other) in each country. For delivery care, majority of mothers in Pakistan had a physician as the provider. In Afghanistan, India, Indonesia, Cambodia, Myanmar, Maldives, Nepal, and Timor Leste, a majority of mothers had a nurse/midwife as delivery care provider. In Bangladesh, majority of mothers had another type of health professional that provided delivery care. There were less mothers with "no help" when it came to delivery care.

Table 2: Multiple linear regression analysis showing the association between **duration of breastfeeding** and antenatal, delivery providers adjusting for age, education, marital status, number of children, time between birth and 1st antenatal check, and time between birth and was

baby breastfed. (*P<0.05 **P<0.01 ***P<0.001). Having a doctor as a provider was associated with decrease in duration of breastfeeding in Bangladesh and Afghanistan while having a Traditional Birth Attendant as a provider was associated with an increase in Cambodia, Indonesia, Myanmar, and Timor Leste.

Variables	Afghanistan Beta (95% CI)	Bangladesh Beta (95% CI)	India Beta (95% CI)	Indonesia Beta (95% CI)	Cambodia Beta (95% CI)
Antenatal care					
No one	REF	REF	REF	REF	REF
Doctor	N/A	2.05 (0.06, 4.05)*	N/A	N/A	N/A
Nurse / Midwife	0.32 (-0.34, 0.98)	-0.81 (-4.02, 2.39)	1.19 (0.67, 1.71)***	-8.88 (-20.6, 2.83)	4.08 (-0.56, 8.73)
Birth Attendant	2.77 (1.08, 4.46)**	-2.82 (-25.2, 19.6)	-1.43 (-4.50, 1.62)	-13.3 (-28.5, 1.91)	-0.37 (-22.4, 21.7)
Other	-1.21 (-7.36, 4.94)	0.29 (-2.93, 3.51)	-1.59 (-2.48, -0.70) ***	-10.3 (-30.3, 9.68)	32.1 (1.29, 62.9)*
Delivery Personnel					
No one	REF	REF	REF	REF	REF
Doctor	-2.57 (-5.66, 0.51)	-5.79 (-15.9, 4.34)	-2.07 (-6.02, 1.89)	1.38 (-25.3, 28.1)	13.7 (-16.8, 44.4)
Nurse / Midwife	-3.65 (-6.63, -0.67)*	-9.01 (-18.6, 0.55)	-2.97 (-6.92, 0.98)	5.07 (-13.8, 23.9)	0.91 (-29.5, 31.3)
Birth Attendant	2.70 (-5.74, 0.33)	-10.8 (-21.8, 0.15)	-1.05 (-5.06, 2.95)	8.55 (-10.4, 27.5)	3.83 (-26.7, 34.3)
Other	-2.64 (-5.70, 0.40)	-7.80 (-17.2, 1.61)	0.95 (-3.05, 4.96)	2.69 (-30.3, 9.68)	-1.65 (-37.6, 34.3)

	Myanmar Beta (95% CI)	Maldives Beta (95% CI)	Nepal Beta (95% CI)	Pakistan Beta (95% CI)	Timor Leste Beta (95% CI)
Antenatal care					
No one	REF	REF	REF	REF	REF
Doctor	N/A	N/A	N/A	N/A	N/A
Nurse / Midwife	-1.99 (-5.31, 1.33)	-1.57 (-6.21, 3.07)	-0.73 (-3.00, 1.54)	-3.28 (-7.67, 1.11)	0.97 (-0.60, 2.56)
Birth Attendant	-3.28 (-12.5, 5.96)	N/A	N/A	-3.04 (-11.8, 5.75)	1.42 (-2.92, 5.75)
Other	0.78 (-9.53, 11.1)	14.1 (-13.6, 41.7)	9.90 (1.80, 18.0)*	-2.30 (-13.2, 8.60)	0.94 (-4.03, 5.91)
Delivery Personnel					
No one	REF	REF	REF	REF	REF
Doctor	-1.88 (-24.5, 20.7)	-0.26 (-32.3, 31.8)	8.46 (3.66, 13.3)**	-0.12 (-16.8, 16.5)	3.81 (1.13, 6.50)
Nurse / Midwife	-5.75 (-28.2, 16.7)	1.98 (-29.8, 33.7)	-0.03 (-3.05, 2.99)	-0.54 (-17.4, 16.3)	-1.27 (-3.32, 0.78)
Birth Attendant	-2.79 (-25.3, 19.7)	N/A	13.8 (8.23, 19.4)***	2.14 (-14.6, 18.9)	-1.14 (-3.37, 1.07)
Other	-5.97 (-28.9, 16.9)	-2.39 (-42.6, 37.8)	1.69 (-1.33, 4.73)	-1.19 (-18.1, 15.7)	-1.48 (-3.77, 0.79)

Table 3: Multiple linear regression analysis showing the association between **time after birth in which child was breastfed** and antenatal, delivery providers adjusting for age, education, marital status, number of children, time between birth and 1st antenatal check. (*P<0.05 **P<0.01 ***P<0.001). There was a significant associated increase in time of initiation of breastfeeding after birth with use of a doctor as the provider in Bangladesh and Nepal and with use of a Traditional Birth Attendant as the provider in Afghanistan and Nepal.