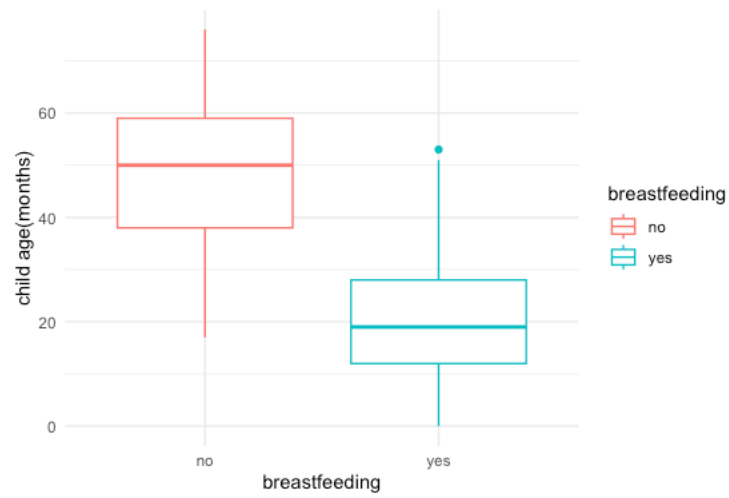
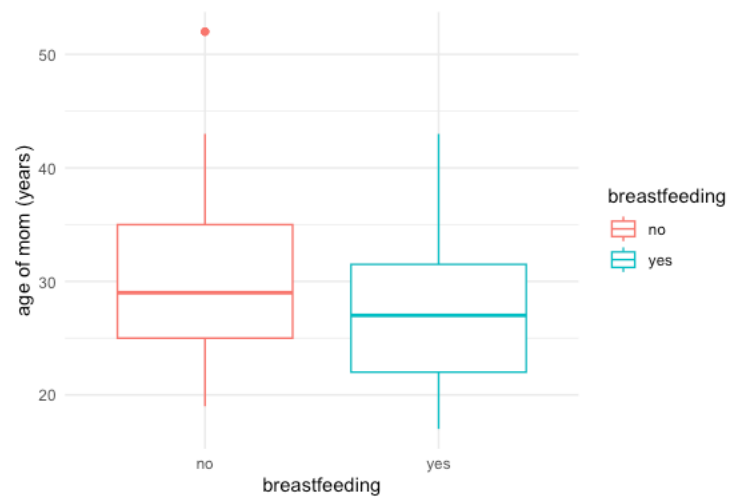


1.

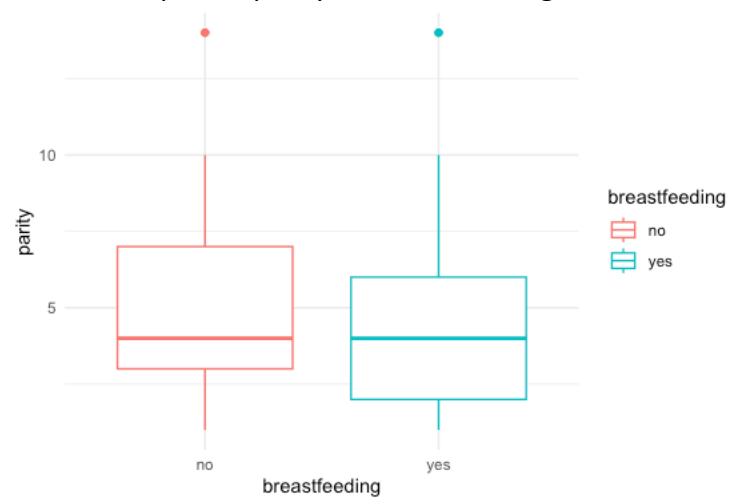
Boxplot of child age on breastfeeding status



Boxplot of mom age on breastfeeding status



Boxplot of parity on breastfeeding status



2.

Number of children breastfeeding stratified by sex

sex_chld		1, breastfeeding	0, not breastfeeding
	1 female	92	128
	0 male	103	149

Proportion of children breastfeeding stratified by sex

Breastfeeding

sex_chld	0 (no)	1 (yes)
0 (male)	0.5912698	0.4087302
1 (female)	0.5818182	0.4181818

OR breastfeeding comparing female to male = odds of breastfeeding for females / odds of breastfeeding for males

$$unadjusted\ OR(f:m) = \frac{0.4181818 / 0.5818182}{0.4087302 / 0.5912698} = 1.0397$$

$$CI = \ln(1.0397) \pm 1.96 \sqrt{\frac{1}{0.409(220)} + \frac{1}{0.591(220)} + \frac{1}{0.418(252)} + \frac{1}{0.582(252)}}$$

$$LL = e(0.0389 - 0.367) = 0.72$$

$$UL = e(0.0389 + 0.367) = 1.50$$

Females have 4% increased odds of being breastfed compared to males.

3.

Children who are currently breastfeeding are relatively younger, with a median age of 19 months (IQR 16) while children who aren't breastfeeding are older, median age of 50 months (IQR 21).

Children who are breastfeeding have younger mothers with median age of mother at 27 years (IQR 9.5) while children not breastfeeding have relatively older mothers with median age at 29 years (IQR 10).

Parity of the mother is not associated with breastfeeding with both groups having mothers with median parity of 4 (IQR 4).

About 41% of male children are being breastfed while 42% of female children are being breastfed. Females have 4% increased odds of being breastfed compared to males. There is a small association but this may be confounded by age of child.

4.

Call:

```
glm(formula = bf ~ sex_chld + agechld_cen, family = binomial(link = "logit"),
    data = nepalibf)
```

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	-0.9132	0.2249	-4.060	4.91e-05 ***
sex_chld	-0.3111	0.3159	-0.985	0.325
agechld_cen	-0.1868	0.0176	-10.613	< 2e-16 ***

	estimate	LL	UL
Intercept	0.4012338	0.2544071	0.6163963
Sex_chld	0.7326530	0.3913900	1.3560343
Agechld_cen	0.8296270	0.7992131	0.8565351

Sex\_chld = binary sex of the child. Reference value is male

Agechld\_cen = continuous age of the child (centered at the mean of 37.3months).

Regression model

Log odds (bf=1 | sex, age\_cen) =  $B_0 + B_1\text{sex} + B_2\text{age\_cen}$

$B_0$  = log odds of breastfeeding for a male child who has this cohort's average age.

The exponentiation gives the odds of breastfeeding for a male child who has the mean age of the children (37months).

$B_1$  = the difference in log odds of breastfeeding between female and male children, controlling for age.

The exponentiation gives the odds ratio of breastfeeding comparing female to male, controlling for age. Females have a 27% reduced odds of being breastfed, after controlling for age.

$B_2$  = the difference in log odds of breastfeeding associated with a 1 month increase in age controlling for sex of child.

The exponentiation gives the relative change in odds ratio of breastfeeding associated with a 1 month increase in age, controlling for sex of child. For every 1 month increase in age, there is a 17% reduction in odds of being breastfed when looking among children of the same sex.

5.

Call:

```
glm(formula = bf ~ agechld_cen * sex_chld, family = binomial(link = "logit"),  
    data = nepalibf)
```

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	-0.84860	0.22417	-3.785	0.000153 ***
agechld_cen	-0.17177	0.02169	-7.921	2.36e-15 ***
sex_chld	-0.52017	0.38428	-1.354	0.175860
agechld_cen:sex_chld	-0.03725	0.03699	-1.007	0.313921

B3 = difference in the change in log odds of breastfeeding for a 1month increase in age comparing females to males.

$e^{-0.03725}$  = difference in change in odds ratio of breastfeeding comparing females to males.

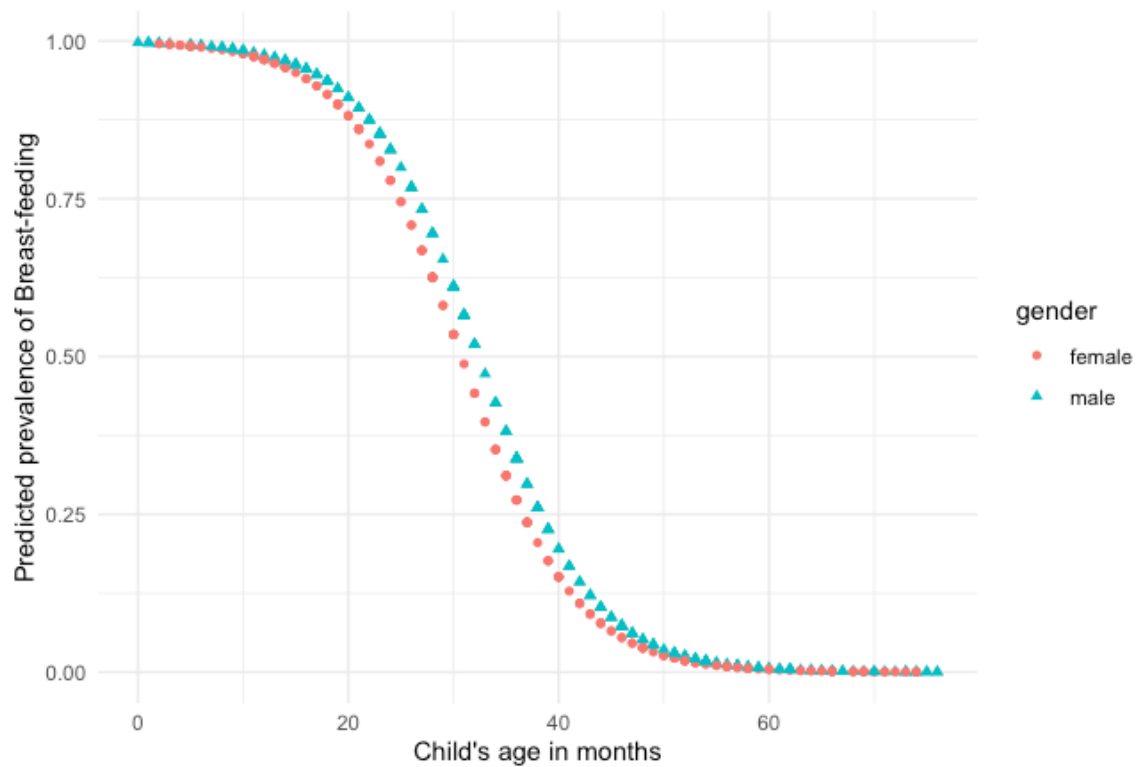
There is a small reduction in the change in log odds of breastfeeding for a 1month increase in age for females compared to males.

Null: B3 (log OR of breastfeeding(F:M)) = 0.

B3 = -0.03725 with p value of 0.3139. Fail to reject the null and conclude that there is no significant difference in the change in log odds of breastfeeding for a 1 month increase in age for females compared to males.

Conclusion: the evidence is weak for the different age-prevalence relationship of males and females.

6.



Males have a higher breastfeeding prevalence compared to females by a small amount when looking among children of the same age. The highest difference in prevalence is among children between 20 and 40 months of age where the difference is about 0.1 while outside of this range, there is barely any difference in predicted prevalence of breastfeeding.

7.

Hosmer and Lemeshow goodness of fit (GOF) test

data: nepalibf\$bf, nepalibf\$phat

X-squared = 6.0598, df = 8, p-value = 0.6405

<i>Cutyhat (deciles of predicted probs)</i>	y0 (not breastfeeding)		y1 (breastfeeding)	
	observed	predicted	observed	predicted
[0.000291,0.00245]	48	47.9504680	0	0.0495320
(0.00245,0.0121]	48	47.6775128	0	0.3224872
(0.0121,0.0301]	45	46.0230415	2	0.9769585
(0.0301,0.103]	42	43.9456280	5	3.0543720
(0.103,0.273]	39	38.3778845	9	9.6221155
(0.273,0.535]	32	27.5374715	14	18.4625285
(0.535,0.768]	15	16.3517203	32	30.6482797
(0.768,0.915]	7	6.4522289	40	40.5477711
(0.915,0.971]	1	2.1299058	46	44.8700942
(0.971,0.998]	0	0.5541386	47	46.4458614

Null = the model accurately characterizes the data.

Fail to reject the null and conclude that the model accurately characterizes the data.

8.

#### Introduction:

This study aimed to examine the association between maternal decisions to breastfeed and various characteristics of the child and mother in Nepal.

#### Methods:

A cross-sectional analysis was conducted using data from a nationally representative sample of mothers and infants in Nepal.

To investigate the relationships, statistical techniques such as exploratory analysis, logistic regression, and chi-square testing were used. Potential confounding and effect measure variation by sex were taken into account.

#### Results:

OR of breastfeeding comparing females to males

Outcome	Unadjusted OR [C.I]	Age-adjusted OR [C.I]	p-value
	Male: ref	Male: ref	
breastfeeding	Female: 1.0397 (0.72-1.50)	Female: 0.7327 [0.3914 - 1.3560]	0.325

Exploratory analysis revealed an association between breastfeeding and age of mother and child. Breastfeeding children have lower median age of 19 months (IQR 16) and non-breastfeeding children have median age of 50months (IQR 21). Breastfeeding children had younger mothers with median of 27 years (IQR 9.5) while non-breastfeeding children had older mothers with median age of 29 years (IQR 10). Parity of the mother was not associated with breastfeeding (median 4 [IQR 4]).

The higher the age of the child, the less likely the child is being breastfed and the higher the age of the mother, the less likely she is to breastfeed.

There was a significant association between age of the child and the breastfeeding status after controlling for sex of the child with decreasing prevalence of breastfeeding with increasing age of child (OR 0.83, CI 0.80 – 0.86)

While there was a slightly reduced prevalence for male children compared to females, this difference was not significant and was reversed, after controlling for child age. There was no significant effect measure modification by sex even though the rate of decrease of prevalence of breastfeeding with increasing age was more for females compared to males

#### Conclusion:

These findings emphasize the importance of age-specific interventions to promote breastfeeding across the country. Further research is needed to explore additional factors that may influence breastfeeding patterns and to inform targeted interventions for specific child demographics.