Supplemental Material I

Table 1 Variables included in Direct Acyclic Graph

Category	Variables	Definition
Maternal background characteristics	Maternal age at birth of the index child (in years)	Maternal age at birth of the index child, which was considered as a continuous variable. It was also categorized the descriptive section of the results (1=≤19, 2= 20-24, 3=25-29, 4=30-34, and 5= ≥35).
	Educational level	Maximum educational level (1= Uneducated, 2=Primary and 3=Secondary+)
	Employment status	Maternal employment status (1=Not Employed; 2=Employed))
	Place of residence	Place of residence (1=Urban; 2=Rural)
	Region	Region of residence (1=Tigray, 2=Afar, 3=Amhara, 4=Oromia, 5=Somali, 6=Benishangul-Gumuz, 7=SNNPR*, 8=Gambella, 9=Harari, 10=Addis Ababa, 11=Dire Dawa) *SNNPR= Southern Nations, Nationalities, and Peoples' Region
	Decision making autonomy	Coded as 'yes' if the women were involved in all decisions regarding their own health care, major household purchases and visits to her family or relatives (1=Yes, 2=No).
Husband background characteristics	Husband's education	Maximum educational level of the husband (1= Uneducated, 2= Primary, 3= Secondary+)
	Husband's occupation	1= Not employed, 2=Employed
Household characteristics	Access to media	1=Access to media, 2= Have no access to media
	Wealth index	The wealth index provided with the dataset was used. DHS program provides a composite index of household amenities based on the principal component analysis (PCA) and classified the population into quintiles: (1st quintile (Poorest); 2nd quintile; 3rd quintile; 4th quintile and 5th quintile (Richest). A quintile is used as a measure of its relative socioeconomic level (i.e., 1=Poorest; 2=Poorer; 3=Middle; 4=Richer; 5=Richest)

Maternal health status and healthcare-related variables	Antenatal care	Women's antenatal care utilization categorized as 1=No visit, 2=At least one visit, 3= ≥ Four visits
	Place of delivery	1= Health facilities, 2=Home
	Postnatal care	Women received check-up at least once within 48 hours after delivery by a skilled provider; categorized as 1=Yes, 2=No
	TT vaccination	Women received at least two doses of the immunization during pregnancy (1=Yes, 2=No)
Neonatal, infant and child characteristics	Sex	Child sex (1=Male, 2=Female)
	Multiple pregnancy	1=Yes, 2=No
	Birth weight	1=Below average, 2=Average, 3=Above average
	Mode of delivery	1= Caesarean section, 2= Non caesarean section
	Survival status of the preceding child	1= Yes, 2=No
	Total number of children born before the index child	Total number of children born before the index child was considered as a continuous variable. For the descriptive statistics, this variable was categorized into 1= ≤2, 2= 3-4, and 3= ≥5. This was done after checking for the linearity assumption with the log-odds of short birth interval, which is a binary response variable. Multicollinearity was also checked among the exposure variables using the variance inflation factor (VIF). When the values of VIF were lower than 10, then the collinearity problem was considered unlikely. The VIF for birth order was 18.15 and for the total number of children born before the index child was 16.26, which indicates the presence of collinearity. Therefore, we removed the variable birth order from the model and the VIF became less than 3 for each variable included in the model.
	Birth order	Birth order is the order number of the births from first to last. Twins are given the same birth order, but the birth order of a child born after twins will be the total number of births preceding plus one.
	Diarrhoeal Disease	1= Yes, 2=No
	Fever	1=Yes, 2=No
	Respiratory infection	1=Yes, 2=No

Environmental factors	Source of water	1= Piped water, 2= Other improved (protected spring and well, and rain water), 3= Unimproved (river, pond, unprotected spring and well).
	Latrine facility	1 = Improved (access to flush toilet, ventilated improved pit latrine, traditional pit latrine with a slab, or composting toilet and does not share this facility with other households), 2=unimproved.