

# Assessment of Nutritional Status of Under Five Years Children in Relation to Their Birth Space in Shirqat City

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## Abstract

**Background:** Nutritional status of children who are less than 5 years old is of significant regard as the beginning years of life are important for best development. Childhood malnutrition occurs due to several reasons, but spacing of birth is frequently unnoted even if it is accompanied with stunting which reflect chronic malnutrition. **Aims:** To assess the nutritional status of children less than 5 years old, and its relationship with birth interval, and associated factors. **Materials and Methods:** It was a cross sectional study was carried on children of 0-5 years age groups of both sexes. Data was collected using predesigned and pretested questionnaire, face to face interview with the mothers and anthropometric measurements of children were performed. **Results:** Most of undernourished children were with birth space less than 24 months. The frequency of stunting and wasting was the highest among children with birth interval less than 24 months, it was (14.5%) and (6.8%) respectively as compared to those with birth interval 24-59 months were frequency of stunting and wasting was found to be the lowest, it was (11.2%) and (2.2%) respectively. **Conclusion:** This paper draws attention to significant linkages between birth spacing and child nutritional status. Most of undernourished children were with birth space less than 24 months.

**Keywords:** birth interval, nutritional status, under five.

## Introduction

Nutritional status and the health of child population is a true indicator of the overall health and economic development of the community. Children that are under 5 years old are considered the most vulnerable sector of the community, and malnutrition among this sector is one of the important health problems in developing countries(1) ,Birth spacing might have an impact on the nutritional status of the child as it leads to preterm delivery. Mothers cannot easily regain their nutritional stores if a pregnancy occurs early after the previous birth, that leads to low birth weight and preterm birth. Birth spacing effects on the nutritional status of the child extend after pregnancy and to infancy as a result of early weaning and insufficient practices of alternative feeding, usually because of a new siblings birth in a short interval. Mothers who have adequate spacing for their

pregnancies are capable to give their children essential nutrition for development success.(2)Interpregnancy interval (IPI) or birth to pregnancy interval(BTP), is defined as the period between a live childbirth and the beginning of the next pregnancy. (3) The World Health Organization (WHO) recommended that couples should rest for at least (2-3 years) between births in order to lower adverse maternal and child health outcome. Some studies found positive relationship, some negative, and some display no effect at all(4)

## Material and Method

It was a cross sectional study conducted in the period from the first of November 2018 to the end of April 2019. Simple random sampling was used to choose the study subjects if he/she met the inclusion criteria. Verbal permission was obtained from Al-Shirqat primary health care sector before dealing with the children and their caregivers and from parents of the study subjects after explaining the aim of the study and procedures. In this study anthropometric measurements were used to assess nutritional status because they provide satisfactory results within the available resources. Data management

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and analysis were done using manual statistical method. Chi-square test was used to test the significance in this study. The level of significance was estimated with 95% confidence interval and p value <0.05.

### Findings

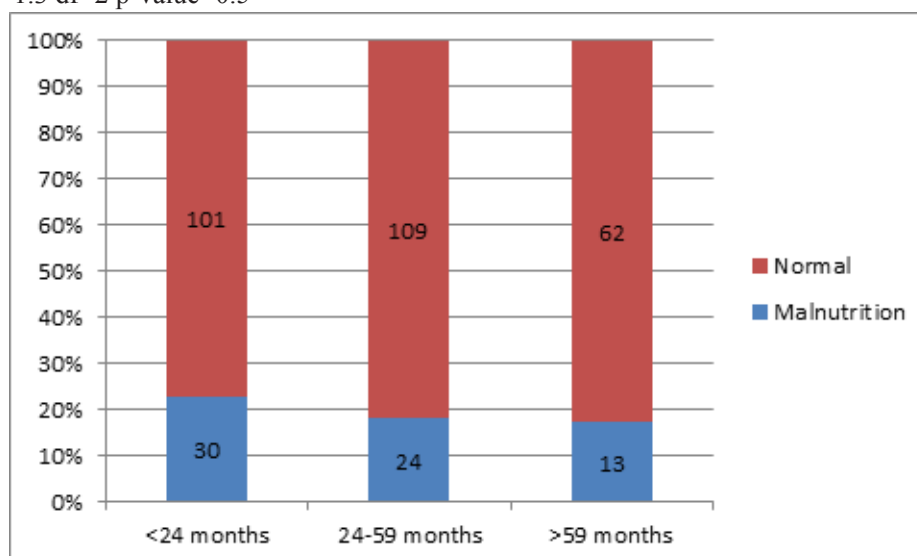
Out of 339 study subjects 131 (38.6%) had birth space of less than 24 months, majority of children 133 (39.2%) had birth interval of 24-59 months, and 75 (22.1%) children had birth space of more than 59 months (Table 1).

**Table( 1 ) :Distribution of children according to their birth interval.**

Birth interval	Male(175)	Female(164)	Total(339)
>24 months	68(38.85%)	63(38.41%)	131(38.64%)
24-59 months	69(39.42%)	64(39.02%)	133(39.23%)
>59 months	38(21.71%)	37(22.12%)	75(22.12%)

Most of undernourished children were with birth space less than 24 months. (Figure1).

Chi-square=1.3 df=2 p-value=0.5



**Figure (1): Association between child nutritional status and birth interval**

Some children who are stunted could be also underweight and/or wasted at the same time. Similarly, children who are wasted and/or underweight may be stunted also. A child either stunted, underweight or wasted or any combination of the three was considered as having malnutrition which comes to be 67 (19.7%). The frequency of stunting and wasting was the highest among children with birth interval less than 24 months, it was (14.5%) and (6.8%) respectively as compared to

those with birth interval 24-59 months were frequency of stunting and wasting was found to be the lowest, it was (11.2%) and (2.2%) respectively. The frequency of underweight was the highest among children with birth interval 24-59 months, it was (9.7%) compared to those with more than 59 months birth interval. This finding was statistically insignificant. (Table 2).

**Table (2) : Association between child nutritional status and birth interval.**

Birth interval	Total children	Height for Age		Weight for Age		Weight for Height	
		Stunted	Normal	Underweight	Normal	Wasted	Normal
<24months	131(38.64%)	19(14.50%)	112(85.49%)	12(9.16%)	119(90.83%)	9(6.87%)	122(93.12%)
24-59months	133(39.23%)	15(11.27%)	118(88.72%)	13(9.77%)	120(90.22%)	3(2.25%)	130(97.74%)
>59months	75(22.12%)	10(13.33%)	65(86.66%)	4(5.33%)	71(94.66%)	2(2.66%)	73(97.33%)
Total	339(100%)	44(12.97%)	295(87.02%)	29(8.55%)	310(91.44%)	14(4.12%)	325(95.87%)

Chi-square=0.59 chi-square=1.03 chi-square=4.03 ;

Df=2 df=2 df=2; p-value=0.744 p-value=0.59 p-value=0.133

Among 339 children, 44 (12.97%) were stunted,29 (8.55%) children were underweight and 14 (4.12%) children were wasted. Males were comparatively more malnourished than females. (Table 3).

**Table( 3) :Distribution of study population According to Nutritional Indicators.**

indicators	Male No. (%)	Female No. (%)	Total No. (%)
Stunting	24 (54.54%)	20 (45.45%)	44 (12.97%)
Underweight	18 (62.06%)	11 (37.93%)	29 (8.55%)
Wasting	8 (57.14%)	6 (42.85%)	14 (4.12%)

As per WHO chart: Cut-off is considered as <2 sd

In the study sample, the result of malnutrition by the combinations of birth interval with birth order indicate that the predominance of being malnourished were higher in the combination of birth order 2-3 and <24 months of birth interval (57.5%) in comparison to combination of birth order 2-3 and >59 months (5%) in particular. There were significant differences in the association of birth spacing with malnutrition by birth order (p- value <0.05). (Table 4).

**Table (4): The relationship of birth spacing with malnutrition according to birth order.**

Birth order	Malnutrition by birth interval (in months)			Total Malnutrition
	<24	24-59	>59	
2-3	23 (57.5%)	15 (37.5%)	2 (5%)	40 (59.70%)
4-5	5 (25%)	6 (30%)	9 (45%)	20 (29.85%)
≥6	2 (28.5%)	3 (42.85%)	2 (28.57%)	7 (10.44%)
Total	30 (44.77%)	24 (35.82%)	13 (19.40%)	67 (100%)

Chi-square=16.22 Df=4 P-value= 0.002

## Discussion

The current study found increased frequency of stunting and wasting among children with birth interval less than 24 months as compared to those with birth interval >24 months. The association between birth interval and stunting, underweight and wasting was found to be statistically insignificant ( $p$ -value > 0.05). These results correspond with similar findings from other studies which found increased odds of stunting among children with birth interval less than 24 months as compared to children with birth interval 36-59 months(2) Other study conducted in Bangladesh revealed increase prevalence of stunting among children of birth interval less than two years, the study found significant association between birth interval and stunting. Also the study shows a negative relation between intervals more than 48 months and stunting(5) ,Study from India, Shahjada et al (2014) found that the majority of malnourished children were with birth space less than 24 months. It observed that the prevalence of stunting, underweight and wasting was the highest among children with birth interval less than 24 months and this study showed a positive association between the length of birth interval and child nutritional status(6) ,The current study found that the frequency of stunted children, underweight and wasting was higher in male children than females. This finding was studied and explored by researchers who suggested some explanations. It is expected that male children are more affected by environmental strains than females(7,8).This finding also agrees with a study conducted in Somalia, where it was found that more males had malnutrition than females as their numbers are very in the community(1)

A possible explanation for this result could be due to the fact that males have a tendency to be actively playing outside the house as compared to girls who are always at home spending most of their time eating. The current study found that children with birth interval less than 24 months were more likely to be malnourished in the birth order 2-3 than those with  $\geq$  24 months of birth interval. The result of the present study shows that the children of lower birth order and longer birth interval were less malnourished than those with higher birth order and shorter birth interval. Birth spacing comes to be less effective on a higher birth order to reduce childhood malnutrition. This finding is supported by a similar result from previous study (9) ,Overall, our results suggest that high percentage of malnutrition among low birth order children could be avoided with the improvement of

birth spacing as better nutritional outcome seen among children with lower birth order and longer birth interval. Zajonc (1976) revealed that the negative effect of birth order can be reversed by longer birth interval (10). Although, the finding suggest that the combination of lower birth order(2-3) and lesser birth interval (<24 ) that often considered as a result of lack of family planning, adversely affects child's nutritional status.

## Conclusions

1. This paper draws attention to significant linkages between birth spacing and child nutritional status. Most of undernourished children were with birth space less than 24 months.
2. Males are comparatively more malnourished than females.
3. The predominance of being malnourished were higher in the combination of birth order 2-3 and less than 24 months birth interval.

## Recommendation

- Community and health facility-based birth spacing educational programs are required to enhance birth spacing and encourage post-partum birth control use.
- Health providers and health workers should be educated about informing and counseling women on birth spacing.
- For women who want to get a next pregnancy after a live birth, wait at least 2 years before attempting to become pregnant.
- Strengthening and improve quality of prenatal care services and intensive awareness programs has to be arranged to increase its utilization.

**Conflict of Interest:** None

**Source of Findings:** Self

**Ethical Clearance:** Nil

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