

A COMPARATIVE STUDY ON PHYSICAL GROWTH AND BEHAVIOURAL PROBLEMS AMONG LOW BIRTHWEIGHT AND NORMAL BIRTHWEIGHT CHILDREN IN ANGANWADI AT MYSORE

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ABSTRACT

The main aim of this study was to Comparative Study on Physical Growth and Behavioral Problems Among Low Birth weight and Normal Birth Weight Children in Anganawadi at Mysore.

Objectives

1. To assess the physical growth of low birthweight and normal birthweight children.
2. To assess the behavioral problems of low birthweight children and normal birthweight children.
3. To compare the physical growth and behavioral problems of low birthweight children and normal birthweight children with selected socio demographic variables.

Method: The research design adopted for the study was descriptive comparative study design. The study was conducted among 60 anganawadi children (2-4 years) was selected by purposive sampling technique, 30 low birthweight and 30 normal birthweight children of Anganawadi in Mysore city was selected as samples. Section I: Demographic Performa was used to know the socio demographic details of the samples. In section II: Anthropometric measurements were taken to assess the physical growth of children. In section III: Standardized tool was used to assess the level of behavioral problems among children. **Results:** The findings of the study results revealed that the physical growth of low birthweight children was lesser compared to normal birthweight children. LBW children have a mean weight of 11.990 kg, which is significantly lower than the mean weight of NBW children at 12.490 kg. The t-test confirms a highly significant difference between the two groups ($p < 0.001$). This finding is expected, as birth weight influences subsequent weight gain and growth patterns. The mean height of LBW children (88.70 cm) is significantly lower compared to NBW children (91.43 cm). The t-test result ($p < 0.001$) shows a highly significant difference. This reflects the impact of initial low birth weight on growth in height. LBW children have a higher mean score (20.77) for behavioral problems compared to NBW children (14.97). This indicates that LBW children are reported to have more behavioral problems on average than their NBW counter parts .LBW infants have a higher standard deviation (5.406) compared to NBW children (4.08). This suggests that there is greater variability in behavioral problem scores among LBW children, which could imply that while LBW children on average have more behavioral problems, the degree of these problems varies more widely than in NBW children. **Conclusion:** Based on the findings, the researcher concludes that the lesser physical growth and higher behavioral problems were observed among low birthweight children compared to normal birthweight children.

KEYWORDS: Low birthweight, normal birthweight, physical growth and behavioral problems.

INTRODUCTION

Physical growth and development are often used as an indicator of child development., because they are sensitive to nutritional deficiencies and infections. Physical development supports other developmental

domains like cognitive and social development and its foundation for learning through exploration.^[1]

Developments during the preschool age is crucial and its influences the growth and development throughout the

life span. This age range is considered vital time for physical, cognitive and social growth.^[2]

Birthweight is the single most predictor for the children growth and development. Incidence of LBW especially in developing countries like India is much higher and the poor conditions can become aggravating factors for biological vulnerability for development of LBW children. The NFHS-3 reported the proportion of LBW babies about 23% for rural and 19% for urban population. As per NFHS-3 data, the infant mortality rate is 49/1000 live birth for an average or large size baby, but it is 62/1000 live birth for a smaller than average baby and 129/1000 live birth for a very small baby.^[3]

Need for the study

Incidence of LBW especially in developing countries like India is much higher and the poor conditions can become aggravating factors for biological vulnerability for developm Ent of LBW children. The NFHS-3 reported the proportion of LBW babies about 23% for rural and 19% for urban population. As per NFHS-3 data, the infant mortality rate is 49/1000 live birth for an average or large size baby, but it is 62/1000 live birth for a smaller than average baby and 129/1000 live birth for a very small baby.^[3]

Major population of LBW children is emerging and the concern has been expressed over quality of the survivor and their developmental outcome. LBW children are at increased risk for health, neurological and developmental delays during childhood through adulthood period. There is a need to identify factors that have detrimental effects on developmental outcomes among LBW children. Low birth weight children are shorter and lighter than controls, and also have smaller heads and the lowest IQ in the LBW group.^[4]

The percentage of children born underweight is 18.24% in Mysore district and in Mysore taluk alone 44.01% of children are born underweight.^[16] The child mortality rate (50 in 2011-12) of Mysore district is much greater than the state average (37 in 2013) and one of the main causes for child mortality especially among under fivers is low birth weight. Overall, health index of Mysore district at the state level is 20th ranking which is very poor by the standard.^[5]

OBJECTIVES

1. To assess the physical growth of low birth weight and normal birthweight children.
2. To assess the behavioral problems of low birth weight children and normal birth weight children.
3. To compare the physical growth and behavioral problems of low birth weight children and normal birth weight children with selected socio demographic variables.

HYPOTHESES

H₁: There will be significant difference between physical growth and behavioral problems among low birthweight children and normal birth weight children.

H₂: There will be significant association between physical and behavioral problems of low birth weight children and normal birth weight children with selected sociodemographic variables.

OPERATIONAL DEFINITION

1. COMPARATIVE

It is measured or judged by estimating the similarity or dissimilarity between one thing and another; relative.

2. PHYSICAL GROWTH

In this study it refers to an increase in body size(length or height and weight).

3. BEHAVIOURAL PROBLEMS

In this study it refers to unwanted behavior which needs changing. Also, a pattern of hostile, aggressive, or disruptive behavior which goes beyond societal norms.

4. NORMAL BIRTH WEIGHT (NBW)

In this study it refers to the first weight of the new born measured within the first hour of life before significant postnatal weight loss has occurred. The average birth weight for babies is around 3.5 kg (7.5 lb), although between 2.5 kg (5.5 lb) and 4.5 kg (10 lb) is considered normal.

5. LOW BIRTH WEIGHT(LBW)

In this study LBW refers to weight at birth is less than 2500 grams or 5.5. pounds regardless of gestational age.

6. ANGANWADI

In this study anganawadi refers to a type of rural child care center in Mysore.

ASSUMPTION

The findings of the study will reveal

1. Birthweight will have the effect on physical and behavioral problems of children in later years.
2. Sociodemographic factors will have influence on physical and behavioral problems of children born with low birthweight and normal birthweight.

DELIMITATIONS

The study is delimited to,

- 1) Age group of 2 to 4 years
 - 2) Selected Anganwadi at Mysore
 - 3) Anganwadi Children only
- Sixty samples only study is limited to 60 samples

CONCEPTUAL FRAME WORK

A concept is an abstract idea or normal image of phenomena or reality. Conceptualization is a process of forming idea which utilizes and forms conceptual framework for development of research design. The Biopsychosocial Model was used as the overall

theoretical frame work guiding the present study. The Biopsychosocial model was proposed by Geroge I. Engel in 1977. This model focuses on the understanding of health and wellness are caused by a complex interaction of biological, psychological, and socio-cultural factors. This model states mind, body and environment interact in causing disease.

METHODOLOGY

Research approach

The research approach adopted for this study was survey approach.

Research Design

Descriptive comparative study design was used for this study.

VARIABLES

Independent variable: Birth weight and socio demographic condition of normal birthweight and low birthweight children.

Dependent variables: Physical growth and behavioral problems of normal birthweight and low birthweight children.

Demographic variables: were age, gender, birth weight, Type of Delivery, Mother's age at conception, Monthly Income, religion, Monthly Income, Birth order of current child, Term of delivery, Place of delivery, Health status of child at birth, Exclusive breastfeeding given upto, History of Genetic Disorder, Dietary Pattern.

SETTING OF THE STUDY

The present study was conducted in selected Anganwadi of Mysore. Manchegowdana Koppalu, anganawadi center, anganawadi Kendra which is located in Mysore district.

Population

School Children in selected urban school Mysuru and who full fills the inclusion criteria of sample selection.

SAMPLE AND SAMPLING TECHNIQUES

In this study researcher selected the samples by Purposive sampling technique.

SAMPLE SIZE

The sample size was 60 comprising of 30 children born with low birthweight and 30 children born with normal birth weight.

CRETERIA FOR THE SAMPLE COLLECTION INCLUSION CRITERIA

- Low birth weight children
- Full-term Normal Birth weight children
- Children in the age group of 2+ years to 4 years
- Both boys and girls in Anganawadi of Mysore.
- The preschool children of LBW and NBW who were willing to participate in the study.
- Single ton babies

EXCLUSION CRITERIA

- Anganwadi children residing outside of Mysuru city jurisdiction.
- Children above 5 years.
- NBW children admitted to NICU
- Macrosomia Children born with more than 4kg
- Children with disability
- The children who are not willing.

SELECTION AND DEVELOPMENT OF THE TOOL

"The tool is an instrument that best obtain data pertinent to the study and at the same time adds to the body of general knowledge in the discipline. The investigator used Structured interview technique to collect the data.

The data collection instruments are.

Section I: Demographic variables.

Section II: Physical Growth of the children

Section III: SDQ (Strengths and Difficulties Questionnaire) scale which is freely available tool developed by WHO to assess the behavioral problems of the children.

Content validity of the tool

"Validity refers to the degree to which an instrument measures what it is supposed to be measure".

The prepared tool, Structured Interview Schedule with objective, scoring key, criteria check list and requisition letter was submitted to 10 experts for content validity in various. The experts were two physicians, seven from Pediatric nursing department and one statistician to establish content validity. For content validity a criteria checklist was prepared, each question consists of response columns for rating in relevant, relevant to some extent, not relevant /needs modification. According to suggestions of the experts the researcher had made necessary correction in the tool. The tool was prepared in English and Kannada language.

Reliability

The reliability of the Structured Interview Schedule was estimated using split half method using Karl Person's correlation co-efficient formula. The reliability of the tool was found to be $r=0.81$. among children born with low birthweight and normal birth weight in anganawadi at Mysore district.

PILOT STUDY

The pilot study is a small-scale version of a preliminary try out method to be used in a large study, which acquaints the research with the research method, tools and problems that can be corrected before assessing out of the large study.

After obtaining the formal permission from principal, college of nursing and ethics committee, Cauvery college of Nursing. The pilot study was conducted in Manchegowdana Koppalu, anganawadi center, anganawadi Kendra which is located in Mysore district,

15 Kilo Meters away from Cauvery College of Nursing, Mysore.

Data collection Method

Data collection is the gathering of information needed to address the research problem. Data was collected from children born with low birthweight and normal birth weight.

- Prior to the data collection, permission was obtained from the concerned authorities and subjects for conducting study.

- Subjects were selected according to the selection criteria.
- Data was collected from 30 children born with low birthweight and 30 children born with normal birthweight.
- The children were selected from anganawadi of Mysore.
- The researcher used the Structured Interview Schedule to collect the data. It took 6 weeks to collect the data.

RESULTS

1. Description of Socio-Demographic profile of the Sample

Frequency and percentage distribution of socio demographic variables

Demographic Variables		LBW		NBW	
		Frequency	Percentage	Frequency	Percentage
Gender	Boys	17	56.7	09	30.0
	Girls	13	43.3	21	70.0
Age	2-3 years	15	50.0	20	66.7
	3-4 years	15	50.0	10	33.3
Type of Delivery	Instrumental	7	23.3	8	26.7
	LSCS	13	43.3	6	20.0
	Normal	10	33.3	16	53.3
Term of Birth	Full Term	15	50.0	17	56.7
	Post term	2	6.7	3	10.0
	Pre term	13	43.3	10	33.3
Health Status at Birth	at risk	24	80.0	10	33.3
	Healthy	6	20.0	20	66.7
Exclusive Breastfeeding	>6 months	16	53.3	23	76.7
	<6months	14	46.7	7	23.3
Mother's Age at conception	<25 years	21	70.0	14	46.6
	25-30 years	5	16.7	8	26.7
	30-35 years	4	13.3	8	26.7
Religion	Hindu	23	76.7	28	93.3
	Muslim	4	13.3	2	6.7
	Christian	3	10.0	0	0.0
Father's occupation	Business	15	50.0	9	30.0
	Daily wages	12	40.0	10	33.3
	Private Sector	3	10.0	11	36.7
Mother's occupation	Business	0	0.0	10	33.3
	Daily wages	6	20.0	7	23.3
	Home Maker	17	56.7	11	36.7
	Private sector	7	23.3	2	6.7
Dietary Pattern	Mixed	15	50.0	18	60.0
	vegetarian	15	50.0	12	40.0
Family monthly Income	<20000	22	73.3	24	80.0
	>20000	8	26.7	6	20.0

N=30+30

2. To assess the physical growth of low birthweight and normal birthweight children.

- Weight - LBW children have a mean weight of 11.990 kg, which is significantly lower than the mean weight of NBW children at 12.490 kg. The t-test confirms a highly significant difference between the two groups ($p < 0.001$). This finding is expected, as birth weight influences subsequent weight gain

and growth patterns.

- Height-The mean height of LBW children (88.70 cm) is significantly lower compared to NBW children (91.43 cm). The t-test result ($p < 0.001$) shows a highly significant difference. This reflects the impact of initial low birth weight on growth in height.
- LBW children have a slightly larger mean head

circumference (49.10 cm) compared to NBW children (48.37 cm), though the difference is not large. Despite this, the t-test result indicates a highly significant difference ($p < 0.001$), suggesting that even small differences in head circumference are statistically significant.

- The mean chest circumference for LBW children (48.70 cm) is slightly less than that of NBW children (49.17 cm). The t-test indicates a highly significant difference ($p < 0.001$), reflecting differences in physical development associated with birth weight.
- LBW children have a mean mid-upper arm circumference of 14.27 cm, which is slightly less than that of NBW children (14.40 cm). The highly significant p-value ($p < 0.001$) confirms that even minor differences in arm circumference are statistically significant.

3. To assess the behavioral problems of low birthweight children and normal birthweight children

- LBW children have a higher mean score (20.77) for behavioral problems compared to NBW children (14.97). This indicates that LBW children are reported to have more behavioral problems on average than their NBW counterparts.
- LBW infants have a higher standard deviation (5.406) compared to NBW children (4.08). This suggests that there is greater variability in behavioral problem scores among LBW children, which could imply that while LBW children on average have more behavioral problems, the degree of these problems varies more widely than in NBW children.
- The t-test results for both LBW and NBW groups show highly significant p-values ($p < 0.001$), indicating that the differences in behavioral problem scores between LBW and NBW children are statistically significant.
- Majority of LBW (46.7%) children were noticed very high behavior problem and Majority of NBW (46.7%) NBW children were observed under close to average level of behavior. This depicts that LBW children are reported to have more behavioral problems than LBW children.
- The χ^2 results for birthweight groups show highly significant p-values ($p < 0.001$), indicating that the association with level of behavioral problem between LBW and NBW children are statistically significant.

4. To compare the physical growth and behavioral problems of low birthweight children and normal birthweight children with selected socio demographic variables

- With regard to the demographic variables and physical growth of low birthweight and normal birthweight children, Even though there was a slight difference noticed in mean score and standard deviation of weight, height, head circumference,

chest circumference and mid upper arm circumference with regard to age, gender, family income, mother's age at conception, type of delivery demographic variables, but there was no statistical significant difference was observed between gender, family monthly income, mothers age at conception.

Highly statistical significant difference was observed with weight, age group and normal birthweight children ($\chi^2 = -3.72$, $p < 0.001$). Highly statistical significant difference was observed with height, age

- group and normal birthweight children ($\chi^2 = -5.566$, $p < 0.000$). This depicts normal birthweight children had normal growth difference according to the age of children. Whereas proper / age appropriate growth was not observed with low birthweight children.
 - Majority of LBW (46.7%) children were noticed very high behavior problem and Majority of NBW (46.7%) NBW children were observed under close to average level of behavior. This depicts that LBW children are reported to have more behavioural problems than low children.
 - With regard to the demographic variables and behaviors problem of low birthweight and normal birthweight children, even though there was a variation was noticed in level of behavior problems with regard to age, gender, family income, mother's age at conception, type of delivery demographic variables, but there was no statistical significant association was observed between age, gender, family monthly income was noticed. This indicates birthweight of the baby itself is a predictor for children growth and development as well as behaviours.
5. **Statistically highly significant association was found between level of behaviour problems and low birthweight groups** ($\chi^2 = 19.301$ at $p < 0.002$) with mothers age at conception. This depicts mothers age at conception either early pregnancy or geriatric pregnancy will leads to low birthweight and problem behaviours among the children.
 6. **Statistically highly significant association was found between level o behaviour problems and low birthweight groups** ($\chi^2 = 11.69$ at $p < 0.030$) with regard to type of delivery. This explains maternal history and birth history of any deviance / complications during prenatal and perinatal period have a higher influence on children growth and development including behaviours.

CONCLUSION

The present comparative study findings shows, there was less physical growth was observed among low birthweight children when compared to normal birthweight children. The majority of low birthweight children were had very high level behavioural problems whereas majority of the normal birthweight children were close to average level of behavioural problem. It

means low birthweight children were in pathetic condition in terms of growth and development. The other socio demographic conditions like family income, mothers age at conception and parents occupation was also influencing factors for children care and development.

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