

RESEARCH ARTICLE

Exploring the Relationship between nutritional knowledge of parents and malnutrition status of children in Lanao del Sur

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ABSTRACT

Background and Objective: The nutritional status of any population is a vital factor in its development. Children's poor nutritional status or malnutrition has been one of the world's most serious developmental problems. This study aimed to determine the significant relationship between the respondent's nutritional knowledge and malnutrition status of the child participants residing in the province of Lanao del Sur, Philippines. This study can contribute to the eradication of malnutrition in Lanao del Sur by educating the parents about the nutrition of their children. Programs about child health promotion can also be conducted to enhance the knowledge of the community especially on malnutrition.

Methodology: The study employed a descriptive-correlational design utilizing a quantitative approach in interpreting data. A total of 178 malnourished children were identified from the Operation Timbang program of the Department of Health. Convenience sampling was used to narrow down the sample size to 123. A self-made questionnaire was given to the participants. The data was analyzed through frequency, percentage distribution, and chi-square correlation using manual computation and SPSS.

Results: The findings revealed that the respondents' knowledge about the causes of malnutrition and prevention of malnutrition has a remarkable relationship with the nutritional status of their children. Correlation analysis revealed that knowledge on the causes and prevention of malnutrition has a significant relationship with the malnutrition of the children.

Conclusion: The study concluded that immediate health interventions through awareness and health education for parents and guardians be done to reduce the heightened rate of malnutrition among children in Lanao del Sur.

Keywords: *Nutritional knowledge, malnutrition, children's health, Lanao del Sur*

Introduction

The world is now experiencing rapid changes that directly influence the dietary habits and nutritional status of people. Malnutrition that causes illness and premature morbidities is a global public health concern.

Asia has the highest share of malnutrition bearing 70% of malnourished children in the world [1]. A case-control study conducted by Iqbal *et al.* was carried out among 400 mothers from February 2016 to July 2016 in a primary health care center located in a peri-urban community in Pakistan. Most of the mothers of malnourished children were uneducated with 168 (42.0%) while only 116 (29.0%) fathers were uneducated. About 226 (56.5%) of the children had a

normal nutritional status while 102 (25.5%) had first-degree malnutrition, 52 (13.0%) had second-degree malnutrition, and 20 (5.0%) had a third-degree malnutrition [2].

Another study conducted by Tommy *et al.* assessed malnutrition as a cause of infant and child mortality rate in Torbu community in Bo city, Sierra Leone [3]. The researchers used a community-based cross-sectional survey for a total of 80 mothers with children under five years. The findings showed that 48 (60%) of the respondents had never been sensitized nor had any knowledge about malnutrition, of which 16 (50%) were informed via radio while 50 (63%) were not aware of any nutrition facility around the community.

Besides, 56 (70%) of the respondents did not practice exclusive breastfeeding, 64 (80%) fed their children carbohydrates mainly in the form of rice, and 26 (32.5%) had one meal per day. Sixty four (80%) reported their children to have been admitted due to malnutrition (with mainly protein-energy malnutrition), while over a half 46 (57%) reported having lost a child to malnutrition [3].

According to the National Nutrition Survey, the Bangsamoro region has the highest prevalence of stunting in the Philippines at 45.2%. This means that an estimated 230,000 children, or at least 1 in every 2 children under 5, are stunted and deprived of achieving their full potential in life [4].

Findings from literature and studies are consistent with the results which show that parent's education factors in and affect their children's malnutrition level. However, most studies focus on studying a wide variety of factors in general. This study sought to address how the nutritional knowledge of parents specifically affects the malnutrition levels of children, a factor which seems to have not been studied previously. Furthermore, the research also extended its scope to include children aged up to 71 months. Parents have a crucial part in shaping the nutrition of their children. Building on this premise, this study aimed to discover the level of nutritional knowledge of the parent respondents and whether there is a relationship between the nutritional knowledge of parents and the malnutrition status of their children.

The study is anchored on the Health Promotion Model Theory by Nola J. Pender. She defines health as a positive dynamic state rather than simply the absence of disease. Increasing the level of patient well-being is directed to promoting health [7]. The health promotion model describes the multidimensional nature of persons as they link to their environment to attain health [7]. This model is concentrated on the following fields: characteristics of the individuals and their experiences, behavior-specific cognitions, and affect the behavioral outcomes. The behavior, commitment, and desire of the parents to improve the well-being and health of their children are very important. This is the reason why the knowledge of the parents relates to the promotion of the health of their children.

The purpose of this study was to evaluate the level of nutritional knowledge of parents and to determine whether there is a significant relationship between their level of nutritional knowledge and the malnutrition level of the children 0-71 months old. For this study, nutritional knowledge refers to the information that the mother, father, or primary

caregiver has about the causes of malnutrition in children and of the methods of prevention of child malnutrition. The mother, father, or primary caregiver were classified as "*knowledgeable*" or "*not knowledgeable*" conditional on his or her ability or inability to answer all possible causes of malnutrition in children and to mention at least one way of preventing child malnutrition.

Methodology

Study Design

This was a quantitative study that used a descriptive-correlational approach. Descriptive statistic was used in the study as the data gathered was quantitatively described or summarized. Correlational approach was also used as this study tried to find out the significant relationship of the variables [8]. Descriptive research determines and reports the way things are and is primarily concerned with describing the nature or conditions of the present situation [9]. A quantitative approach is thought to produce a hard science that involves rigor, objectivity, and control.

The study was conducted in a municipality in Lanao del Sur. During the first quarter of 2016, there were 3,396 children aged 0-71 months old registered in this municipality. It was chosen as the locale of the study due to its high number of malnourished children which was reported at 178 despite the many health campaigns, programs, and projects being implemented in the area. The researcher is also a health worker in this community and has observed a need to conduct a study in this area for assessment and to know the factors that affect malnutrition.

Participants

The study population included infants and children aged 0 to 71 months who have been diagnosed with malnutrition in the Rural Health Unit of Lanao del Sur, as well as their parents or guardians. There were inclusion criteria utilized in the study such as (1) the malnourished child should be living in Lanao del Sur with the respondents, the child's parents, for at least three months; (2) the respondent must have a child or children between 0 to 71 months of age diagnosed with malnutrition at the Rural Health Center; and (3) the respondents with more than one (1) child with malnutrition were counted as one respondent. Excluded from this study were children who were found to have stayed less than three months in the area.

Out of the 3,396 total population of infants and children aged 0-71 months, 178 were diagnosed with malnutrition

from the records of the municipal health office. The first level of sampling method used was total enumeration. The 178 malnourished children were identified using the records from the health office. The second level of sampling used was purposive sampling which resulted in a smaller sample size of 123 children represented by their parents (father/mother) or guardian as the actual respondents. As some respondents were not at home during the data gathering, a purposive instead of probability sampling was used.

Instrument

The study utilized a self-developed closed-ended questionnaire consisting of four parts: (1) the parent or guardian's socio-demographic profile, (2) the demographic profile of the child participants in terms of age, sex, weight, height, and birth order, (3) the nutritional knowledge of the respondents on the causes of malnutrition and the methods to prevent malnutrition, (4) malnutrition status of the child participant in terms of the following indicators: weight for age, length/height for age, and weight for length/height.

Validity and Reliability of the Instruments

To ensure the validity and reliability of the instrument, the researcher tapped three experts. Pre-testing was conducted using Cronbach's Alpha (result=0.751). The study variables, respondent's availability, respondents' acceptance of the study, time factor, resources adequacy, applicability of the questions, sequence and comprehensibility of the questions, and accuracy of the respondent's interpretation of the questions were the elements of the research proposal that were already pre-tested.

Data Collection

After ensuring the validity and reliability of the instrument, a review of records and a survey was done. Some information and data such as the population statistic and current nutritional level status of children were taken from the Rural Health Unit of the municipality. The researcher asked permission from the Municipal Health Officer of Lanao del Sur for access to the information. After which, the second approach, which was a survey, was conducted. The survey involved a face-to-face distribution of the self-made questionnaire to the parents or guardians of the children selected to participate in the study. Informed consent was secured from the respondents. Anthropometric measurements of the child participants were taken to determine their malnutrition status. The data was filed and kept under the care of the researcher.

Data Analysis

In this study, Statistical Product and Service Solutions (SPSS) program was used to perform all the data computations. The use of Software SPSS is the commonly used program for quantitative data analysis in the social sciences. For this study, both univariate and multivariate logistic regression were used to know the factors for malnutrition. The nutritional status of children was studied by using three sets of logistic regression models for three dichotomous dependent variables (underweight, stunting, and wasting). Descriptive and inferential statistics were used to achieve the study objectives. Data cleaning was also performed by double checking for inaccuracy, incompleteness, and incorrectness. The p-value between the nutritional knowledge on the causes of malnutrition and malnutrition status of the children was 0.001 which implies a significant relationship. Moreover, the p-value of the respondent's nutritional knowledge on the prevention of malnutrition and the malnutrition status of the children was 0.009 indicating that the two have a significant relationship.

Ethical Consideration

All procedures conducted in this study were in accordance with the ethical standards of the university, as well as international and national standards. The appropriate approval and ethical clearance were obtained from the university ethics committee before the researcher commenced the study.

Results

Socio-Demographic Profile

The table below describes and discusses the socio-demographic profile of the respondents (parent or guardian) such as sex, age group (in years), ethnicity, religion, highest educational attainment, type of education, marital status, family headship, employment status, and monthly family income.

Table 1 shows the frequency and percentage distribution of the respondents' socio-demographic data of the studied sample. Majority (117) of the respondents were females who comprised 91.5 percent of the population. As seen in the table, most of the respondents were between the ages of 32 to 38 years (40.7%) followed by the age bracket of 25 to 31 (29.3%). Relatively, they represent the majority (70%) of the respondents. Within this age range of 25-38 years, it is expected that they may already have more than 2 or 3 children who are qualified as subjects of the study. The

minority of the respondents belonged to the 18 to 24 age group (22%) and 39 to 45 age group (8.1%). This result is expected since they represent young and old mothers (or guardians) who may have few children that were not within the target age group of the study.

The table shows that there were a few single parents (4.9%) but the majority of the respondents live together with their partners (95.1%), the mother heading the family (95.1%). It is the typical Meranao family structure or setting where the mother is responsible for doing household chores and child-rearing while the father is away from home to work and sustain the needs of the family. Most of the mothers were also found to be unemployed (88.6%). As shown, majority of the respondents had a family monthly income within the P1,000 to P5,000 range (84.6%) which is below the standard cost of living in the Philippines.

Table 2 shows the frequency and percentage distribution of the profile of child participants in terms of sex, age, weight, height, and birth order. It reveals that of the 123 samples, 65 or 52.8% of the child participants were females while and 58 or 47.2% were males.

In terms of age, results show that the variations of weight as indicators of malnutrition occurred during the childhood development process as evidenced by the upsurge of weight as correlated to increasing age. It is consistent with the results of Operation Timbang conducted by the Municipal Health Office that among the 3,396 children within the age range of 0 to 71 months old, 91 were underweight, 25 severely underweight, and 32 wasted or had low weight-for-height.

The height or length (cm) of the child participants was also taken to infer the actual Basal Mass Index as basis for identifying the severity or status of malnutrition. It reveals that most of the child participants were 74 to 89 cm tall (45 or 36.6%) followed closely by those who were 58 to 73 cm tall (42 or 34.1%). With this, findings suggest that the median age range falls within 74 to 89 cm of height. Substantially, height and weight of the child participants were interrelated findings. It also bears relation to the findings of the MHO which showed that 18 of 3,396 children were stunted.

Nutrition Level

Table 3 shows the child's nutritional level in the context of weight for age which pertains to body's weight relative to the child's age; weight for height (or length) which pertains to

body weight in lined to attain length or height; and height for age which pertains to growth in length or height at the child's age. It serves as the basis for computing the Basal Mass Index of the child participants to diagnose their category or degree of malnutrition level. It reveals that the weight for age was about 88 or 71.5 percent, the weight for length or height was 25 or 20.3 percent, and length or height for age was 10 or 6.2 percent. The drawn categorization for the malnutrition level is presented in the table below.

Malnutrition Level

Table 4 above shows the child's malnutrition level as categorized. It reveals that more than half (70 or 56.9 percent) of the child participants were underweight. An obvious number of severely underweight and wasted or thin which comprised 18 or 14.6 percent and 23 or 18.7 percent, respectively, was also noted. There were only a few who fell in the severely wasted, stunted, and severely stunted who comprised 2 or 1.6 percent, 9 or 7.3 percent, and 1 or 0.8 percent, respectively.

Nutritional Knowledge of Parents

The following table discusses the knowledge of the parents on the causes and methods of prevention of malnutrition that serves to assess their level of health promotion and prevention affecting the nutritional status of children. Respondents were asked if they knew the facts regarding the causes and prevention that were listed in the questionnaire as stated by the researcher. If they knew at least five, they were categorized as knowledgeable, if below five, they were categorized as not knowledgeable. Table 4 shows the frequency and percentage distribution of the nutritional knowledge of the parents on the causes and prevention of malnutrition. It reveals that parents were not knowledgeable on the causes (74 or 60.2%) and prevention (78 or 63.4%) of malnutrition. Only a few, knew the causes (49 or 39.8%) and prevention (45 or 36.6%).

Correlation between Nutritional Knowledge and Malnutrition Status

Table 6 presents the correlational analysis of the independent and dependent variables. Contextually, it infers to correlate the independent variable nutritional knowledge of the parents to the malnutrition status of the child within the 0 to 71-month old age range as participants of the study.

Table 6 shows the relationship between the nutritional knowledge of the respondents and the malnutrition status of

the child using chi-square correlation test under 0.05 alpha level of significance to determine the relationship between the two categorical variables. It reveals that the independent variable which is the knowledge of the parent respondents on the causes of malnutrition and knowledge on its prevention have a p-value of 0.001 and 0.009, respectively.

Therefore, there is a significant relationship between the nutritional knowledge of respondents and the malnutrition status of child participants. The alternative H4 is accepted.

Discussion

The findings show that females make up most of the sample at 91.5%. Only a few male respondents participated in the study, the implication being that the traditional role the father takes is still prevalent in families. The high proportion of female respondents in every household is an indication of child rearing, an expected role of mothers. Since the mother is known to have direct contact with their children, it could be safely asserted that they play a great role in the nutrition status of the family members, especially among children.

According to a study in Pakistan by Iqbal *et al.*, higher paternal educational status and maternal educational status were found to be significantly associated with normal child nutritional status. This is consistent with the results of the study of Nzala *et al.* which revealed that mothers' knowledge in child rearing is of utmost importance in influencing the nutritional status of their child [4]. Several studies also revealed that the mother's role is significant in combatting malnutrition [4-6]. This also reflects the results of this study. The parent's knowledge about the causes and prevention of malnutrition has a significant relationship to the malnutrition status of their children.

Majority of respondents attained only elementary-level education (41.5%), with a few having attained high school level education (30.1%). The study of WHO about the educational attainment of parents showed that malnutrition was highly attributed to low educational attainment [11]. Similarly, Turyashemererwa *et al.* shows that the education level of the mother/caretaker significantly corresponds with child stunting [3]. Mahgoub *et al.* shows similar findings which revealed that the higher the mother's level of education, the lower the level of child underweight status of malnutrition [5]. This implies that the education level among mothers or parents/guardians is very crucial to the children's nutritional status. This also means that enriching education, particularly knowledge in nutritious foods, hygiene, breastfeeding, and

promotion of a healthy lifestyle could decrease cases of malnutrition.

Subsequently, having limited resources deprives the family of the chance to acquire nutritious food, medical and health services, and other related opportunities and advantages. This can be supported by studies that families with low monthly income can lead to child malnutrition such as stunting. Monthly family income has a direct proportional relationship with the nutritional status of the child [5].

Child's Profile

Most of the child participants were females, who comprised 65 or 52.8%, outnumbering males with 58 or 47.2% out of the total 123 sample. The findings above correspond to the study conducted by Shargi, Kamram, and Faridan in Iran which manifest that malnutrition (underweight) was highly related to the female gender [2]. In contrast, a cross-sectional study among children 5 years old below in Zambia found malnutrition mostly with males [4]. Findings of studies in Iran and Zambia are consistent with the findings of this study since the ratio of male and female participants with malnutrition was almost equal. It implies that malnutrition occur regardless of sexual orientation.

Most of the respondents who were considered to be malnourished were newborns aged 12 months or one year. These results imply that cases of malnutrition occur more in infants. The first year of life is a vital time because the child's body and brain are developing fast. An infant's body develops much during the first year as it will be for the rest of his/her life. Poor nutrition during this age can easily lead to malnutrition.

Nutrition Status

More than half (70 or 56.9 percent) of the child participants were underweight. It could imply that the child participants (0 to 72 months old) could be undernourished or receive insufficient nutritious food or vitamins. The findings are consistent with the OPT program outcome. This condition on one hand may consequently lead them to contracting health problems because of malnutrition [5]. The World Health Organization associated child's malnutrition with the global incidence of death among children. Thus, conducting health programs, such as the OPT, are essential interventions that could prevent or decrease the worst consequences of malnutrition [13]. There are still numbers of malnourished children despite the many programs made by the

Department of Health to address the problem such as micronutrient supplementation and immunization programs.

Nutritional Knowledge of Parents

The findings reveal that parent-respondents were not knowledgeable on the causes (74 or 60.2%) and prevention (78 or 63.4%) of malnutrition. Only a few, on the other hand, had knowledge of the causes (49 or 39.8%) and prevention (45 or 36.6%).

It means that the gaps in the knowledge of parents about malnutrition could derail the functional ability and better quality of life among their children. Several studies revealed that knowledge about health has a significant relationship with the quality health status of the family [3-6]. This study also revealed that the nutritional knowledge of the parents has a relationship with the nutritional status of their children. The correlation between parents' inadequate knowledge and the rising case of malnutrition implies a need for information dissemination and regular health teachings to the parents, particularly on issues of food and nutrition.

Overall, the study shows that there is a significant relationship between the nutritional knowledge of parents and malnutrition of their children. Knowledge of the causes and prevention of malnutrition is significant in enhancing the nutritional status of the children.

Conclusion

This study shows that malnutrition occurs in children in Lanao del Sur as evidenced by the data gathered through categorization based on the age, height, and weight of the child participants. The researchers conclude that the cases of malnutrition must be cautiously and seriously tackled and given immediate intervention to prevent possible mortality. Health programs against malnutrition emphasizing educating the parents about malnutrition must be strengthened and heightened both in the rural and urban areas. Based on the conclusion, some implications can be generated. It can be inferred that since most of the respondents were not knowledgeable on the causes and prevention of malnutrition, they were unaware of the nutrition of their children. They could not comply with the health needs of their children which led to their being malnourished. Those with limited knowledge on nutrition who possibly practice unhealthy diet with not enough nutrients, vitamins, and minerals are at high risk for malnutrition. The study revealed there was a lack of parental knowledge about malnutrition which significantly

affected the malnutrition status of the children in the community. This problem should be given attention. There should be more programs about health education especially for parents with young children. The nutritional awareness of the parents should be strengthened in each community in Lanao del Sur to eradicate malnutrition.

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