

An Ethnic Study on Nutrition Education for the Underprivileged Mothers and Children in India

The objective of this study was to educate underprivileged mothers on nutrition through an educational video made in Bengali language. The setting was in Kolkata, India. There were 30 mothers from accessible population, lived in low socio-economic neighborhood in Kolkata, India. Data was collected through pre and posttest survey questionnaires, observations, and focused interviews. The mothers were divided into two groups of 15. The return rate of the survey was 100%. The musical video was the intervention. The main feature of the intervention was information about essential diet especially during pregnancy for the mothers. The mothers listened attentively while the video was played. Then the video was repeated and was often paused for discussion. Results revealed that the post-test answers were much richer than the pre-test answers. The mothers retained information from the video. The data was analyzed qualitatively using a thematic approach. Two themes emerged from the data. The mothers gained knowledge about nutritional needs for themselves and their children, and maternal autonomy about diet increased. Since poor nutritional outcomes of Indian children are steadily increasing, this project addressed importance of nutritious diet and significance of maternal autonomy regarding health and nutrition.

Keywords: *nutrition education, underprivileged, mothers, children, India*

Introduction

An ethnic study offers a nation's history, society, and cultural production. It encourages greater understanding of the nation and promotes social justice especially among vulnerable populations. Poor nutritional outcomes of Indian children are occurring in the context of high economic growth rates. The aim of this study was on the importance that nutrition plays a key role in all domains of child development. The scope of the study was to educate the underprivileged mothers living in low socio-economic areas on the importance of nutrition. Educating mothers about the types of food that is needed during pregnancy and for the young children, so that the mothers can take adequate measures for their children's diet and for themselves, especially if they are pregnant. The purpose of this project was to educate the underprivileged mothers on nutrition for themselves and for their children. This paper will discuss how the underprivileged mothers were educated through a musical video, developed by the researcher as part of the intervention and how much did the mothers retain information from the video through discussion.

Background of the Problem

Globally, India performs low across standard child nutritional measures (Haddad et. al, 2014). India ranked 114 out of 132 countries, just ahead of Afghanistan and Pakistan for child malnutrition according to International Food Policy Research Institute. (*Global Nutrition Report, 2016*). Undernutrition or malnutrition puts children at more risk regarding disease vulnerability, and also adversely affects their physical, cognitive, and mental development (Barker, 1995; Sánchez, 2017), it may further adversely impact productivity in later life (Strauss & Thomas, 1995) and also increase economic inequality (Pickett & Wilkinson, 2015). It was observed stunting and underweight among children living in low socio-economic area in India. Studies indicated low birth weight is an outcome of poor socio-obstetric interaction (Dhar, Shah, Bhat & Butt, 1991). In 2016, India had about 62 million stunted children, accounting for 40% of the global share of stunting (Khan & Mohanty, 2018). Inequalities in under-five child mortality and undernutrition outcomes, Chalasani (2012) identified wealth and mother's education are the two largest contributors to severe stunting and severe underweight inequality.

Evident from the literature there were initiatives from the government to address the above issue. One such initiative was the Village Health and Nutrition Day (VHND) has been observed in India, and also in West Bengal. (Biswas, Dasgupta & Ghosh, 2018). The objective was to do an observational study to assess the quality of the health and nutrition of the village in all 12 blocks of North 24 Parganas district in West Bengal. The result suggested that continuous monitoring and supportive supervision at all levels, training of health workers, reallocation and infrastructure development may help in organizing quality village health and nutrition.

Review of Literature

Gastro-intestinal infections are a major leading cause of death worldwide and is taking a high toll on children's health. Due to urbanization, slums developed, and diarrhea became one of the biggest public-health challenges in metropolitan cities in India. The objective of the study by Pahwa, Kumar & Toteja (2010) was to carry out a community-based health and nutrition-education intervention, focusing on several factors influencing child health with special emphasis on diarrhea, in a slum of Delhi, India. Three hundred and seventy mothers of children aged more than 12 and 71 months were identified, and they were surveyed from a large urban slum. They were enrolled in the study in two groups, one was the control group and the other received intervention. One hundred and ninety-five mothers from the intervention area were provided health and nutrition education through two approaches developed for the study: 'personal discussion sessions' and 'lane approach'. The mothers (n=175) from the control group were not contacted. Results indicated that after the intervention, there was a significant improvement in all the areas that the mothers' received interventions. The results indicated that

1 health and nutrition-education intervention improved the knowledge and attitudes
2 of mothers. Further, the results suggested that there is a need for intensive
3 programs, especially for the urban slums to further improve the usage of oral
4 rehydration therapy.

5 Puri & Mehta's (1994) study of 155 pre-school children belonging to low
6 socio-economic group in villages around Chandigarh, were imparted nutrition and
7 health education (NHE) for one year. The researchers focused on three aspects,
8 i.e., personal hygiene (PH), food hygiene (FH) and recognition of foods (RF) and
9 that was imparted by Balsevikas (BSs) incharge of the creches, daily in a non-
10 formal manner, for one year and evaluated periodically. They developed
11 appropriate teaching material like songs, rhymes and roleplays for the treatment.
12 The authors had objective tools in the form of checklists for impact evaluation.
13 Only on personal hygiene, the children of the lowest income group improved
14 significantly. On food hygiene and recognition of food, all children registered
15 significant improvement. The researchers inferred that on food hygiene and
16 recognition of food the children improved as these two aspects were under the
17 direct control of Balsevikas who enthused and involved the children by providing
18 an interacting and stimulating environment. The results also indicated a positive
19 impact on the pre-school children when appropriate material and methods are
20 used. In the similar area, the objectives of the research by D'Alimonte, Deshmukh,
21 Jayaraman, Chanani & Humphries (2016) was to examine that well-nourished
22 children living in disadvantaged area to understand local growth-promoting
23 behaviors. This study explored the factors that influence the infant and young child
24 feeding behaviors among mothers. Children were purposefully selected from
25 households enrolled in a community management of acute malnutrition program
26 in an urban slum of Mumbai, India. Qualitative methods were employed by means
27 of semi-structured key informant interviews with both positive and non-positive
28 deviant mothers. An observation checklist assessed household hygiene. Data
29 analysis was based on the Grounded Theory of qualitative research. The results
30 indicated that positive deviant mothers (those with children with a HAZ > 0)
31 largely exhibited optimal infant and young child feeding practices explained by
32 maternal information seeking behaviors; mothers were acknowledging the
33 importance of maternal health, and social support. Interestingly, the relationship
34 between mother and health worker seemed to influence how well they listened to
35 the health workers' recommendations. It was found that across all households, the
36 daily consumption of high-energy, processed foods was very much apparent. The
37 recommendation was to tailor the programs to include social support and
38 counseling training for health workers to engage more closely with mothers,
39 exploring the feasibility of a women's social group for mothers to share
40 information on child rearing; and further teaching mothers about healthy eating
41 and the link between nutrition and health.

42 In another study, Sivaramakrishnan & Patel (1993) examined reasoning about
43 the cause and treatment of three types of childhood protein energy malnutrition
44 (PEM) by 108 mothers in rural South India. All the mothers were interviewed, and
45 they explained about their childhood nutritional problems. All interviews were
46 verbally recorded, transcribed, and then analyzed using cognitive methods of

1 analysis. The results indicated that knowledge and practices associated with
2 traditional systems of Indian medicine prevalent in rural areas greatly influenced
3 the mothers' reasoning. The mothers' explanations were shown to have story-like
4 structures, with sequences of events linked by strong causal explanations.
5 However, the mothers with higher levels of formal education indicated greater
6 verbal use of concepts related to biomedical theories of nutritional disorders but
7 their interpretations of these concepts were still based on the traditional theory.
8 The study results indicated both positive and negative aspects of traditional
9 knowledge and beliefs for adequate child nutrition and health. The authors stated
10 that future studies should develop improved instructional strategies for nutrition
11 and health education in relation to knowledge organization. Very interestingly, in
12 another research with The NNEdPro Core Team, Bhavishya Shakti Researchers
13 and Inner Wheel Club of Greater Calcutta launched Mobile Teaching Kitchens as
14 a nutritional education tool in two Indian slums areas to improve awareness of diet
15 diversity and disease prevention by educating and using locally sourced foods and
16 cooking skills. Local volunteers, who were trained in healthy cooking, transferred
17 the core nutritional principles by cooking sustainable, nutritional and affordable
18 meals. They had a model which was "See one, Do one and Teach one" model to
19 transfer knowledge to their peers. They assessed the markers of malnutrition were
20 assessed before and after this program. The team evaluated longitudinally the
21 efficacy of using mobile teaching kitchens to provide nutrition education through
22 cooking, teaching healthy eating to a disadvantaged community in the urban slums
23 of India. Results indicated that there was a mean change of 2.75cm growth in
24 height in children. Other markers of nutritional status such as weight did not
25 significantly change. Statistically significant changes were seen in self-perceived
26 nutritional knowledge about dietary protein sources, where the median response
27 increased from 2 to 3 out of 5 (5 indicating excellent understanding) ($P < .05$). In
28 one area of slum, 57% of mothers showed 2 or more signs of micronutrient
29 deficiency pre-intervention, with all other mothers having one sign. Although after
30 post-intervention, no mother had any sign of micronutrient deficiency showing
31 improvement in nutritional status, however, overall improvement in clinical status
32 and nutritional knowledge was seen using Mobile Teaching Kitchens as an
33 educational tool. The authors recommended that further evaluation of this teaching
34 method is needed with more sample size.

35 Literature suggested that India needs improvements to solve the problem of
36 undernutrition or malnutrition among children. One of the main factors of
37 undernutrition could be low levels of maternal autonomy. The other cause could
38 be lack of education. Maternal autonomy and education both play relatively
39 important roles. An improvement in maternal autonomy is expected to improve a
40 mother's ability to make decisions regarding her children's health and nutrition;
41 and a more autonomous mother is also likely to have greater access to resources,
42 may lead to the adoption of healthy and diversified diets, improve the nutritional
43 content of diets, contribute to better food hygiene and sanitation, and thereby
44 reduce the risk of infection and disease in the family, especially with young
45 children.

1 Maternal autonomy plays an important role in improving child undernutrition.
2 Since undernutrition is the outcome of insufficient nutritious food intake and as a
3 result suffer from continuous infectious diseases (United Nations Development
4 Programme, *Human Development Report, 2006*). Therefore, it is imperative to
5 make a connection between household-level socio-economic factors and in
6 particular the role of maternal autonomy and the extent to which it manifests into
7 poor nutritional outcomes for children. Most studies supported an association
8 between child nutrition and maternal autonomy.

9 Another major problem of poor child nutrition among Indian children is in
10 terms of sanitation, arguing that environmental threats from open defecation and
11 exposure to fecal germs reduce nutrient absorption, while exposure to early life
12 disease leads to undernutrition, stunting, and diarrhea. Using data from the NFHS,
13 Spears (2013) shows that open defecation remains exceptionally widespread in
14 India and sanitation has not improved substantially despite rapid economic
15 growth. Bhalotra et al. (2010) applied a non-linear decomposition technique
16 (Fairlie, 2006) to the three waves of the NFHS (1992/1993, 1998/1999, and
17 2005/2006) to measure the Hindu-Muslim gap in under-five undernutrition among
18 children. They showed that the 29% difference in stunting between these two
19 groups is mainly attributable to maternal education, maternal age at parturition,
20 and child's birth year, while the 20% gap in wasting is primarily explainable by
21 maternal education and the issue of sanitation in the residence. Similarly, Kumar
22 and Singh (2013) applied the Blinder-Oaxaca decomposition method to 2005–
23 2006 NFHS data to measure the gap in under-five child undernutrition between
24 poor and non-poor households in urban India. The authors identified the main
25 contributing factors as underutilization of health care services, undernutrition, poor
26 maternal body mass index (BMI), and low levels of parental education among
27 impoverished urbanists. The authors also suggested the education level of the
28 mothers living in poor and urban neighborhood can improve the negative effect of
29 poverty in childhood undernutrition.

30 The above records identified the causes of undernutrition or malnutrition
31 among children from low socio-economic areas. Although there are some
32 programs initiated by the government, the population is too large to take active
33 measures on this issue. The above literature indicated that nutrition education is
34 important for low-income mothers, and they indicated growth in learning after
35 intervention. However, there are many more interventions needed for the mothers
36 living in slums. Further, it is also important who is delivering the interventions as
37 the worker or researcher needs to engage more closely with mothers on a personal
38 level. This project targeted pregnant mothers and/or mothers of young children
39 living in urban poor communities, to be educated so that they can help each other
40 and gain maternal autonomy to make decisions for their children's nutrition. The
41 significance of this project is to offer a helping hand to underprivileged mothers to
42 learn about the importance of nutrition and how to acquire a nutritious diet for
43 their children.

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Purpose and Research Question

The purpose of this research was to educate underprivileged mothers on health and nutrition and to encourage the mothers to make decisions about their own diet and the diet of their children. Through a musical video the intervention was administered. The video had two parts. The first part was information about specific nutritious diet during the three trimesters of the pregnancy. The second part was the musical portion for the young children. The objective was to use names of different fruits and vegetables in the lyric and composed with an entertaining tune that the children could remember the lyric and sing along. Further, the mothers were educated about how to grow the crops starting with herbs and easy to grow plants. The research question was “to what extent did the mother’s gain knowledge about diet for themselves and their children and how much they feel empowered to make their own decision”.

Methodology/Materials and Methods

Participants

There were 30 mothers who participated in this research project. The researcher appointed an assistant from the underprivileged community of mothers who helped the project. The assistant was also a mother in the same community. She made an announcement to the mothers living in slums through a what’s app group and asked for volunteers to take part in a nutrition program. Mothers who volunteered became participants in the study. Most of the mothers were maids in different households and assisted in cooking and cleaning daily. The time that the mothers were available was after lunch around 2 to 5 pm. The intervention took place in a community room during the mothers’ convenient time.

Procedure

A community center was rented for the afternoon. A projector and screen, a sheet for the mothers to sit on the floor, two tables and four chairs were rented. The mothers preferred to sit on the floor as they could carry their young children to sit beside them. The mothers were grouped in two because of space issues and management. The first fifteen mothers were requested to come at a certain time. The survey questionnaires were distributed to the mothers. Then the mothers were shown a video on nutrition and health. This video was specially prepared for this project.

The content of the video was the type of food that pregnant mothers should consider eating during each trimester of their pregnancy. This was followed by a children’s song. The researcher was the narrator and the singer in the video and specially made for mothers and children. This video was shown again and paused frequently for discussion. Then the posttest questionnaire was distributed. Once all the questionnaires were collected, the mothers were given nutritious food prepared

1 from a restaurant, water and gift items. Then the second group of fifteen mothers
2 did the same exact process. The mothers were asked to volunteer to stay back for
3 the interview. Five mothers from both the groups stayed back for the interview.

4 Data was collected through a pre and posttest survey questionnaire,
5 observation and interviews. Pictures were taken throughout, especially during
6 observation. Then the data were analyzed qualitatively using thematic approach.

7 The survey questionnaire consisted of two parts. The first part was the
8 demographic information, and the second part had the questions. In the
9 demographic information, names of the mothers, their age, number of children and
10 children's age(s) were asked. There were five questions asked. The first question
11 was *the type of food pregnant mothers should eat and to name some of the food*.
12 The second question was to provide reasons *why pregnant mothers should eat*
13 *healthy and nutritious food*. The third question was about the source of food and
14 *how you would get or prepare nutritious food*. The fourth question was about the
15 type of food and *what kind of food you would give to your children for the*
16 *children's growth and development*. The fifth and the last question was *what kind*
17 *of produce they can grow in their homes or in a pot*.

18 When the mothers arrived at the community center, they were told that there
19 was a survey questionnaire (which they referred to as "form") that they have to
20 complete. There were two words in the questionnaire that they had a difficult time
21 understanding so those were explained to them. The mothers were also told that
22 after watching the video they will have to complete the same "form" to examine
23 how much information they retained. The video was only 6 minutes long and was
24 shown twice. The first time when the video was shown, all the mothers were very
25 attentive to listen to the video. The next time the video was often paused, and time
26 was given for discussion, explaining and reiterating the main points and the
27 mothers were quite eager to interact and discuss. Then the researcher discussed
28 with the mothers and summarized the main points from the video. The video was
29 given to the assistant to share with all the mothers.

30 The observation report indicated that all the mothers were very attentive and
31 eager to learn about this topic. Since the researcher was also the narrator in the
32 video, and the researcher was present there, she spoke to the mothers, discussed
33 and explained each point. The researcher said that she too was a mother of two
34 children and her personal experience drew the mothers closer to the researcher. A
35 good relationship and trust was developed between the mothers and the researcher.
36 After the discussion, the researcher handed the mothers the same questionnaire
37 again and they gladly completed the questionnaire.

38 The interviews revealed that the mothers learned a great deal from this video.
39 They valued the topic as they believed it was for their good health and for their
40 children's health. The mothers said that they did not know this information before.
41 They admitted that they knew food was important as they became hungry but did
42 not know to this extent that nutrition plays an important role for their babies during
43 and after pregnancy. One mother said she regretted not knowing about these diets
44 earlier. They also mentioned that they are going to grow crops in pots and prepare
45 food more often than buying food from the store. One mother mentioned that her
46 child always wants to eat street food and another mother nodded her head in

1 affirming that. All the mothers stated that they liked the musical part of the video
2 for their children and said that their children will sing and remember the songs.
3 The overall impression recorded that the intervention was a great success.

4 After the end of the project, food, water and gift items were given to the
5 mothers. Some took more food packets to bring to their family members. Then the
6 next group came, and the same process was repeated.

9 Results

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11 The themes that emerged from the observations, pre and posttest survey
12 questionnaires and informal interviews were as follows:

13 Mothers were very eager to learn about nutritious food for their children, and
14 the mothers were empowered to make decisions as they learned more about
15 nutrition during pregnancy and about nutritious food for their children.

16 **Observation:** The mothers came in to the community center in small groups
17 or individually. Few mothers had young children in their arms. Similar results
18 were found from both the groups. All the mothers knew each other as they were
19 from the same community. The informal interviews revealed that they tirelessly
20 work at people's home cleaning or cooking and then again work in their home.
21 Their day started early in the morning and ended late at night. Some are pregnant
22 and some have young children. The mothers were very eager to listen to what the
23 researcher had to say. They were serious about their children's health and
24 nutrition. When the video was on, all their attention was on the video and what
25 was discussed. Not a single time did they show restlessness, rather they wanted
26 more information.

27 Survey Questionnaires

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30 The answers in the post test survey questionnaire were much richer than the
31 pretest. The mothers were able to write some information about the importance of
32 nutritious food. In the pre-test, most of the mothers said that their children's
33 weight will increase with nutritious food but mentioned healthy development in
34 the post test. Further, they mentioned fish, meat and milk are some of the food
35 they should eat in the pre-test questionnaire. However, they mentioned vegetables,
36 nuts, coconut water in the post test questionnaire after watching the video.
37 Moreover, the mothers in the pretest mentioned that they will buy food from the
38 store. In the post test they mentioned that they will buy nutritious produce but will
39 cook at home and would also grow some herbs and plants in the pot. Therefore, by
40 watching the informational video and through interactive discussion the mothers
41 gained knowledge in nutrition. They all agreed that they would feed nutritious
42 food to their children and eat nutritious food during pregnancy.

1 **Informal Interviews**

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3 The mothers appreciated the information that was shared with them. Most of
4 the mothers said that they knew that nutritious food was important for their
5 children and during pregnancy but learnt much more in detail and learned the
6 specific food during each trimester and its importance. Further, the mothers
7 appreciated the informational video and the importance of growing herbs and
8 plants for their family. One of the mothers who has a child with her, said she
9 wished she knew about this specific food during her pregnancy and the others
10 nodded in agreement. All the mothers thanked the researcher for this program and
11 asked if they could see the video again. The researcher assured the mothers that
12 she will send the video to the assistant who will share with everyone. They even
13 asked the researcher if she had plans to do similar programs for them again.

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16 **Discussion and Conclusion**

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18 This project helped underprivileged mothers to learn about health and
19 nutrition during pregnancy and for their children. This project addressed the poor
20 nutritional outcomes of Indian children that are occurring in the context of high
21 economic growth rates. Since nutrition plays a key role in all domains of child
22 development, mothers who are underprivileged need to be educated first so that
23 they can take adequate measures for their children's diet and also for themselves,
24 especially if they are pregnant.

25 Previous literature mentioned maternal autonomy and lack of education are
26 the two main reasons of child undernutrition. This project addressed both maternal
27 autonomy and health and nutrition education. Mothers received nutrition education
28 in Bengali, they have the video to refer back and since they came as a group and
29 from the same community, it is expected that the mothers will have more maternal
30 autonomy in making decisions for their children.

31 From this project, the mothers have greater access to resources, knowledge of
32 healthy and diversified diets, and improved nutritional content of diets. Further
33 through the video, they learned about better food hygiene and sanitation, which
34 would hopefully reduce the risk of infection and disease.

35 This study addressed the concern that India performs low across standard
36 child nutritional measures as mentioned by Haddad et. al. (2014). Undernutrition
37 or malnutrition puts children at more risk regarding disease vulnerability, and also
38 adversely affects all domain of development as asserted by researchers like Barker,
39 (1995); Sánchez, (2017), and that may further adversely impact productivity in later
40 life (Strauss & Thomas, 1995). Further, Chalasani (2012) identified mother's
41 education as one of the largest contributors to severe stunting and severe
42 underweight inequality, therefore this research focused on educating mothers
43 living in poor urban community.

44 Similar to the study by Pahwa, Kumar & Toteja (2010), this study also found
45 significant improvement after the mothers' received interventions and that health
46 and nutrition-education intervention improved the knowledge and attitudes of the

1 mothers. This research had a similar type of intervention as Puri & Mehta's (1994)
2 study. They also developed appropriate teaching material like songs, rhymes and
3 roleplays for the treatment and had similar results.

4 Further, literature suggested that India needs improvements to solve the
5 problem of undernutrition or malnutrition among children. One of the main factors
6 of undernutrition could be low levels of maternal autonomy. The other cause could
7 be lack of education. Maternal autonomy and education both play relatively
8 important roles. This study addressed both.

9 The limitation of the study was this study had mothers from one slum
10 community. In future, this kind of project should be replicated with more slum
11 communities throughout India and possibly a follow-up study to find out how the
12 mothers are continuously taking active measures with regard to nutrition and
13 overall health.

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