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A Study on Nutrition Education for Mothers and Children Living in Underprivileged Circumstances in India

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The objective of this study was to educate underprivileged mothers on nutrition through an educational musical video. The setting was in Kolkata, India. There were 30 mothers from accessible population, living in a 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 diets, especially during pregnancy for mothers. The mothers were very focused and eagerly paid attention to the video. Then the video was repeated and was often paused for discussion. Results revealed that the posttest answers were much richer than the pretest answers. From the interview, it was evident that the mothers retained information from the video. The frequency count of the healthy food items mentioned in the survey questionnaire was analyzed using percentage. Then 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 regarding diet increased. Since poor nutritional outcomes of Indian children are steadily increasing, this project addressed the importance of nutritious diet and the significance of maternal autonomy regarding health and nutrition.

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

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 mothers living in underprivileged circumstances were educated through a musical video, developed by the researcher

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as part of the intervention and how much the mother's retained 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 the International Food Policy Research Institute (2016). Studies indicated low birth weight is an outcome of poor socio-obstetric interaction (Dhar, Shah, Bhat, & Butt, 1991). 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). Stunting and underweight among children living in low socio-economic area in India is a critical issue. In 2016, India had about 62 million stunted children, accounting for 40% of the global share of stunting (Khan & Mohanty, 2018). Bhalotra, Valente, and van Soest (2010) indicated that the 29% difference in stunting between two groups is mainly attributable to maternal education, maternal age at parturition, and child's birth year, while the 20% gap in wasting is primarily explainable by maternal education and the issue of sanitation in the residence. Similarly, Chalasani (2012) identified mother's education as one of the largest contributors to severe stunting and severe underweight inequality.

Literature Review of the Support Received

Pahwa, Kumar, and Toteja (2010) carried 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 with two groups, one was the control group and the other treatment group who received intervention. One hundred and ninety-five mothers from the treatment group were provided health and nutrition education through two approaches developed for the study: "personal discussion sessions" and "lane approach". Results indicated that after the intervention, there was a significant improvement in all the areas that the mothers' received interventions. The intervention improved the knowledge and attitudes of mothers. Further, the results suggested that there is a need for intensive programs, especially for the urban slums. Another initiative was the Village Health and Nutrition Day (VHND) which has been observed in India, mainly 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 care workers,

reallocation and infrastructure development may help in organizing quality village health and nutrition.

To measure the gap in under-five child undernutrition between poor and non-poor households in urban India, Kumar and Singh (2013) applied the Blinder-Oaxaca decomposition method to 2005–2006 NFHS data. The authors identified the main contributing factors as underutilization of health care services, undernutrition, poor maternal body mass index (BMI), and low levels of parental education among impoverished urbanists. The authors also suggested the education level of the mothers living in poor and urban neighborhoods can improve the negative effect of poverty in childhood undernutrition.

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

In another study, Sivaramakrishnan and Patel (1993) examined reasoning about the cause and treatment of three types of childhood protein energy malnutrition (PEM) by 108 mothers in rural South India. All the mothers were interviewed, and they explained about their childhood nutritional problems. All interviews were verbally recorded, transcribed, and then analyzed using cognitive methods of analysis. The results indicated that knowledge and practices associated with traditional systems of Indian medicine prevalent in rural areas greatly influenced the mothers' reasoning. The mothers' explanations were shown to have story-like structures, with sequences of events linked by strong causal explanations. However, the mothers with higher levels of formal education indicated greater verbal use of concepts related to biomedical theories of nutritional disorders but their interpretations of these concepts were still based on the traditional theory. The study results indicated both positive and negative aspects of traditional knowledge and beliefs for adequate child nutrition and health. The authors stated that future studies should develop improved instructional strategies for nutrition and health education in relation to knowledge organization. Very interestingly, in another research with The NNEdPro Core Team, Bhavishya Shakti Researchers and Inner Wheel Club of Greater Calcutta launched Mobile Teaching Kitchens as a nutritional education tool in two Indian slum areas to improve awareness of diet diversity and disease prevention through education and using locally sourced foods and cooking skills. Local volunteers, who were trained in healthy cooking, transferred the core nutritional principles by cooking sustainable, nutritional and affordable meals. They had a model which was "See one, Do one and Teach one" model to transfer knowledge to their peers. The markers of malnutrition were assessed before and after this program. The team evaluated longitudinally the efficacy of using mobile teaching kitchens to provide nutrition education through cooking, teaching healthy eating to a disadvantaged community in the urban slums of India. Results indicated that there was a mean change of 2.75cm growth in height in children. Other markers of nutritional status such as weight did not significantly change. Statistically significant changes were seen in self-perceived nutritional knowledge about dietary protein sources, where the median response increased from 2 to 3 out of 5 (5 indicating excellent understanding) ($P < .05$). In one area of a slum, 57% of mothers showed 2 or more signs of micronutrient deficiency pre-intervention, with all other mothers having one sign. Although after post-intervention, no mother had any sign of micronutrient deficiency showing improvement in nutritional status, an overall improvement in clinical status and nutritional knowledge was seen using Mobile Teaching Kitchens as an educational tool. The authors recommended that further evaluation of this teaching method is needed with larger sample size.

The literature indicated that although India needs improvements to solve the problem of undernutrition or malnutrition among children, there were some support given. The literature indicated that one of the main factors of undernutrition could be low levels of maternal autonomy. The other cause could be lack of education. Maternal autonomy and education both play relatively important roles. An improvement in maternal autonomy is expected to improve a mother's ability to make decisions regarding her children's health and nutrition; and a more autonomous mother is also likely to have greater access to resources, may lead to the

adoption of healthy and diversified diets, improve the nutritional content of diets, contribute to better food hygiene and sanitation, and thereby reduce the risk of infection and disease in the family, especially with young children.

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

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

Purpose and Research Question

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

Methodology

Participants

There were 30 mothers from Kolkata, India living in the underprivileged area, participated in this research project. The study took place in South Kolkata, India in the West Bengal State. It is situated in the southern part of the state. The sample was selected from a low socio-economic area, from an accessible population on a voluntary basis. The participants had minimal schooling, they had some reading and writing skills, and their income was below poverty level. Table 1 refers to demographic information.

Table 1. Summary of Characteristics

Characteristic	Mean	Standard Deviation
1. Age of the Mothers	26.3 years	4.59
2. Number of Children	1.167	0.78
3. Age of the Children	3.78 years	3.86

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 *WhatsApp* 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 a convenient time for the mothers.

Procedure

A community center was rented for the afternoon. A projector and screen, a sheet for 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. Fifteen mothers were randomly selected and requested to come at a certain time. The survey questionnaires were distributed to 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 about 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. The video was 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 from a restaurant, water and gift items. Then the second group of fifteen mothers, did the same exact process.

Data Collection and Procedure for Data Analysis

Data was collected through a pre and posttest survey questionnaire, observation and interviews (Table 2).

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

Table 2. Pre/Post Test Questionnaires

1. What type of food should pregnant mothers eat? Name some of the food.
2. Why should pregnant mothers eat healthy and nutritious food?
3. How would you get or prepare nutritious food?
4. What kind of food would you give to your children for the children's growth and development?
5. What kind of produce can they grow in their homes or in a pot?

When the mothers arrived at the community center, they were told that there was a survey questionnaire (which they referred to as "form") that they had to complete. There were two words in the questionnaire that they had a difficult time understanding so those were explained to them. The mothers were also told that after watching the video they would have to complete the same "form" to examine how much information they retained. The video was only 6 minutes long and was shown twice. The mothers were asked to volunteer to stay back for the interview. From both the groups, five mothers were randomly selected and requested to stay back for the interview. Throughout the process, the researcher and another observer, who has earned a doctorate in humanities recorded their observation in notebooks. Later they transcribed and compared their notes.

The frequency count of the healthy food items from the pre and posttest survey questionnaires were analyzed using percentage. The data were analyzed qualitatively using a thematic approach.

Results

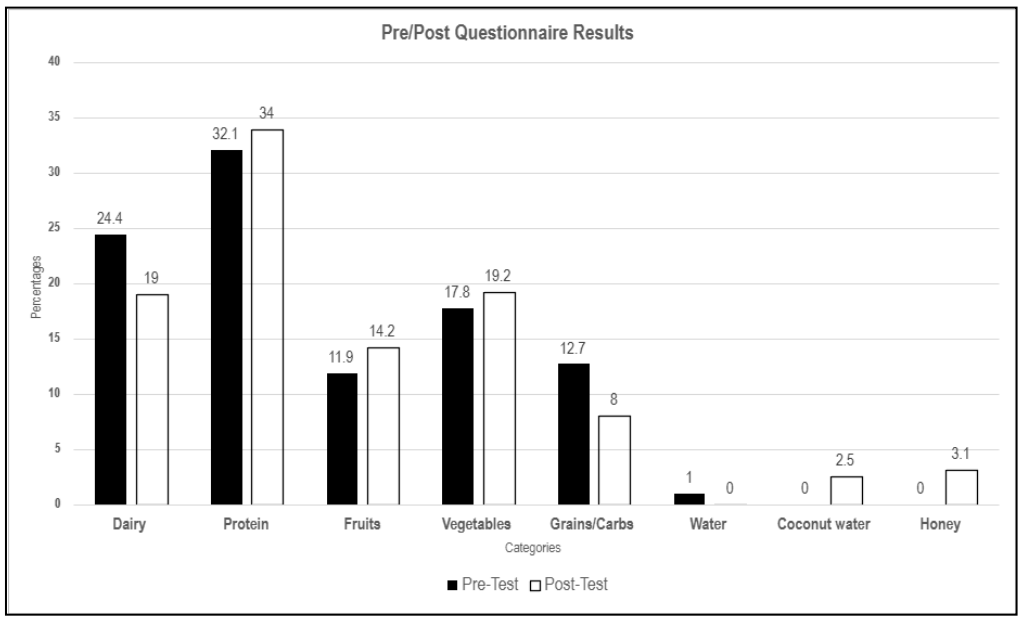
Mothers were very eager to learn about nutritious food for their children, and the mothers were empowered to make decisions as they learned more about nutrition during pregnancy and about nutritious food for their children.

Survey Questionnaires

The answers in the posttest survey questionnaire were much richer than the pretest. Two themes emerged from the survey questionnaires, informal interviews and observations. The first theme was mothers gained knowledge of health and nutrition for themselves and their children and the other theme was maternal autonomy increased. The mothers were able to write some information about the importance of nutritious food. In the pretest, most of the mothers said that their children's weight will increase with nutritious food but mentioned healthy development in the post test. Further, they mentioned fish, meat and milk are some of the foods they should eat in the pretest questionnaire. However, they mentioned vegetables, nuts, and coconut water in the post test questionnaire after watching the video. Moreover, the mothers in the pretest mentioned that they would buy food from the store. In the post test they mentioned that they will buy nutritious produce but will cook at home and would also grow some herbs and plants in the pot. Therefore, by watching the informational video and through interactive discussion the mothers gained knowledge in nutrition. They all agreed that they would feed nutritious food to their children and eat nutritious food during pregnancy.

Specific results from the pre- and post-test survey questionnaires with graphical representation are shown in Figure 1.

Figure 1. Pre/Post Test Results from Q 1 and 4



The data from Q 1 and 4 were collapsed due to their similar focus on identifying healthy foods recommended for pregnant mothers and their children.

The pretest survey results reveal that dairy products made up 24.4% of all responses, with milk being the most frequently mentioned at 21.4%. Other dairy items such as butter (1.1%), ghee (0.76%), and a popular ethnic food, cream of wheat (1.1%) were less commonly noted in the pretest. The posttest survey results revealed a

decrease in the responses for dairy. Despite the decline, dairy items such as butter and ghee were still mentioned many times. Mother's milk became a significant new mention in the posttest, accounting for 17% of the milk-related responses.

Protein emerged as the most popular category, accounting for 32.1% of all responses. Within this category, eggs were mentioned at 16.3%, followed by fish at 7.9%, meat at 6.06%, and nuts at 1.51%. Soy was only noted in 0.38% of responses. In the posttest there was a slight increase within the protein section. Eggs and nuts were the most frequently mentioned items, together making up about 20% of the category.

In the pretest, fruits accounted for 11.9% of all responses. Bananas were the most frequently mentioned fruit at 2.27%, followed by lemons at 1.14%. Other fruits like apples, oranges, and guavas were also mentioned. Vegetables were highlighted by 17.8% of respondents, with carrots and herbs dominating the category, collectively making up 10% of the total vegetable mentioned. Spinach was noted only once, representing 0.38% of the overall responses.

In the posttest, there was a noticeable increase in responses to the fruits and vegetables. The fruits section reflected greater diversity, with new mentions such as pineapple, mango, clementine, and a frequent response of amloki (gooseberry), an ethnic food, contributing to a total of 14.2% of responses. Similarly, the vegetables category saw an expanded variety compared to the pretest results. Beans and spinach were mentioned more frequently, along with green herbs for brain health, cilantro, and herbs, having red leaves, an ethnic plant.

The grains/carbs category accounted for 12.7% of all responses in the pretest. Lentils, ethnic food items, were the most frequently mentioned item in this group, making up 6.78% of responses, followed closely by rice at 3.03%. More ethnic food like gram flour, cracked wheat and wheat tortillas were also noted. In the posttest, grains/carbs category saw a decrease in response, with lentils leading at 4.3% of responses, followed by rice at nearly 2%.

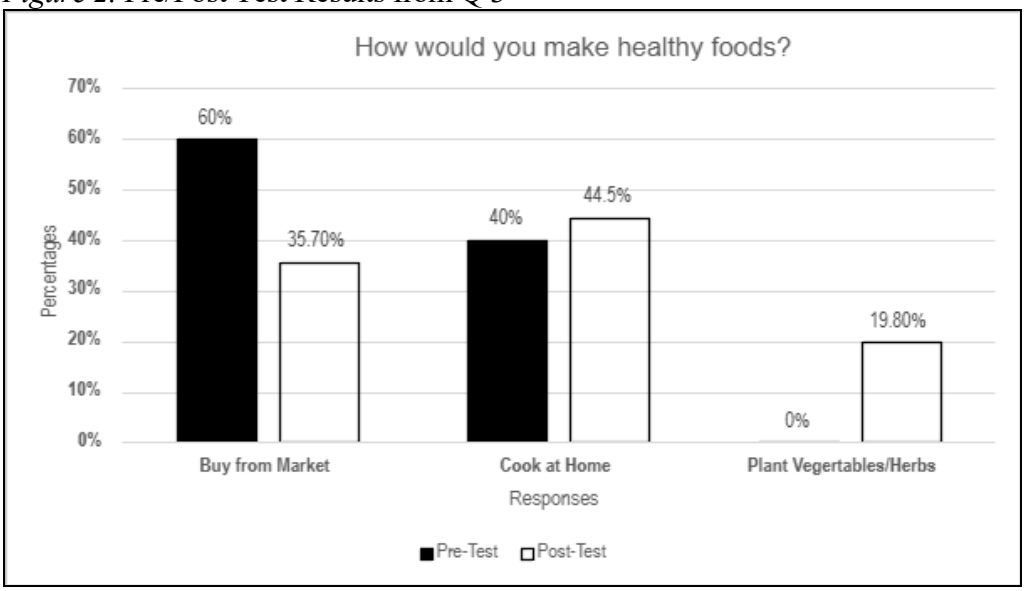
The water category was less prominent, comprising 1% of total responses in the pretest, but limited responses of water were noted in the posttest. The posttest questionnaire and interview yielded a new common category, coconut water, which accounted for 2.5% of the total responses. Honey was also another new common category mentioned several times, making up 3.1% of all responses.

Table 3. Pre/Post Test Results from Q 2

Responses	Pre – Test Results	Post - Test Results
Childs Health/Nutrition	46.6%	51.7%
Both Mother & Child's Heath	43.3%	48%

Table 3 showed the results of Q 2 before and after the study. The data indicated a notable increase in responses related to "Child's Health/Nutrition" and "Both Mother & Child's Health". The percentage of pregnant mothers prioritizing child health and nutrition rose from 46.6% in the pretest results to 51.7% in the post- test results. In addition to the increase in responses related to the health of both the mother and child, it rose from 43.3% to 48%.

Figure 2. Pre/Post Test Results from Q 3



The graph showed the results of Q 3, "How would you make healthy foods?" from the pre-and-post survey questionnaires. Initially, 60% of respondents preferred buying their food exclusively from the market. However, this figure decreased slightly to 35.7% in the posttest, which means mothers are less likely to buy from the market. In contrast, there has been a significant increase in the preference for cooking at home, rising from 40% in the pretest to 44.5% in the posttest. The results indicated that mothers are more likely to cook food at home as opposed to buying ready food from the store. Additionally, the data shows that 19.8% of respondents were then inclined to plant their own vegetables and herbs, whereas it was not mentioned in the pretest.

Table 4. Pre/Post Test Results from Q 5

Vegetables Mentioned in the Pre/Post Test
Spinach, Tomato, Carrots, Cilantro, Green Herbs, Potato, Eggplant, Squash, Beans, Chili, Pumpkin

Table 4 lists the results of Question 5, "What kind of produce can they grow in their homes or in a pot?" This data reveals significant changes in mothers' preferences for growing vegetables and herbs. There is a clear increase in growing herbs, particularly green herbs with 12.1% indicating they would grow in the pretest, rising to 20% in the posttest. Mention of potatoes also saw a slight increase, going from 3.8% in the pretest to 4.5% in the posttest. However, interest in growing chili experienced a significant decline, dropping from 18% in the pretest to 13% in the posttest. Additionally, vegetables such as squash, beans, and pumpkin showed slight increases in preference among mothers.

Informal Interviews

The interviews revealed that the mothers received knowledge from watching the video and through discussion. They valued the topic as they believed it was for their good health and for their children's health. The mothers said that they did not know this information before. They admitted that they knew food was important as they became hungry but did not know to this extent that nutrition plays an important role for their babies during and after pregnancy. One mother said she regretted not knowing about these diets earlier. They also mentioned that they are going to grow crops in pots and prepare food more often than buying food from the store. One mother mentioned that her child always wanted to eat street food and another mother nodded her head in affirming that. All the mothers stated that they liked the musical part of the video for their children and said that their children will sing and remember the songs. The informal interviews revealed that they tirelessly work at people's home cleaning or cooking and then again work in their home. Their day started early in the morning and ended late at night.

Observation

The mothers came into the community center in small groups or individually. Few mothers had young children in their arms. Similar results were found from both the groups. All the mothers knew each other as they were from the same community. Some are pregnant and some have young children. The mothers were very eager to listen to what the researcher had to say. They were serious about their children's health and nutrition. When the video was on, all their attention was on the video and what was discussed. Not a single time did they show restlessness, rather they wanted more information.

The first time the video was shown, it was observed that all the mothers were very attentive listening to the video. The second time the video was often paused, and time was given for discussion, explaining and reiterating the main points. The mothers were quite eager to interact and take part in the discussion. Then the researcher discussed with the mothers and summarized the main points from the video. The video was given to the assistant to share with all the mothers.

The observation report indicated that all the mothers were very attentive and eager to learn about this topic. Since the researcher was also the narrator in the video, and the researcher was present there, she spoke to the mothers and discussed explaining each point. The researcher said that she was a mother of two children and her personal experience drew the mothers closer to the researcher. A good relationship and trust were developed between the mothers and the researcher. After the discussion, the researcher handed the mothers the same questionnaire again and they gladly completed the questionnaire. All the mothers thanked the researcher for this program and asked if they could see the video again. The researcher assured the mother that she would send the video to the assistant who would share it with everyone. They even asked the researcher if she had plans to do similar programs for them again.

Discussion

This project helped mothers living in underprivileged circumstances to learn about health and nutrition during pregnancy and for their children. This project addressed the poor nutritional outcomes of Indian children that are occurring in the context of high economic growth rates. Since nutrition plays a key role in all domains of child development, mothers who are living in underprivileged areas need to be educated first so that they can take adequate measures for their children's diet and for themselves, especially if they are pregnant. The overall impact of the study indicated that the intervention was a great success.

Previous literature mentioned maternal autonomy and lack of education as the two main reasons for child undernutrition. This project addressed both maternal autonomy, and health and nutrition education. Mothers received nutrition education in Bengali, they had the video to refer and since they came as a group and from the same community, it was expected that the mothers would have more maternal autonomy in making decisions for their children.

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

In general, the results indicated that the mothers gained knowledge of health and nutrition for themselves and for their children. Also maternal autonomy was evident from the mothers confirmation that they would grow plants and would buy some produce from the market and cook more at home. Further, coconut water and mother's milk were often mentioned in the posttest questionnaire confirming maternal autonomy. Ethnic food as gram flour, cream of wheat, herbs with red leaves and green leaves, lentils were stated in posttest questionnaire.

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

Similar to the study by Pahwa et al. (2010), this study also indicated significant improvement in knowledge and attitudes of the mothers. This research had a similar type of intervention to Puri and Mehta's (1994) study. They also developed appropriate teaching material like songs, rhymes and roleplays for the treatment and had similar results.

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

Although the study was administered in depth educating the mothers with discussion and explanation with reference to the video, however, the study involved mothers from only one slum community and the sample size was small with 30 mothers, which were the limitation of the study. In future, this kind of project should be replicated with more sample size and more slum communities throughout India and possibly a follow-up study to find out how the mothers are continuously taking active measures regarding nutrition and overall health.

Conclusion

The objective of this study was to educate underprivileged mothers and children on nutrition through a musical video intervention about essential diets, especially during pregnancy for mothers. Since the mothers listened very attentively while the video was playing, they retained information from the video that yielded to the fact that the posttest answers were much richer than the pretest answers. The significance of the study was that 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. The success of the study recommends that if this kind of video is shown to underprivileged mothers on a large scale, then many of the above diet related issues could be solved. Moreover, the video was focused, brief and could be played as many times as needed. Further, this kind of musical video creates a lasting effect because of music and its captivating nature. The study recommends that active and personal measures must be taken to prevent children from malnutrition so that the children from the very start can lead a healthy life.

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