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An intervention approach for improving nutritional status of mothers and children in Kashmir (India)

Iffat ghani and Muzamil Jan

Abstract
The survival of Indian children is a matter of concern because they are far behind in availing health care, nutrition and education facilities. Besides, endemic diseases and government's limited public health spending, malnutrition and lack of awareness among mothers related to childcare, and nutrition also contribute to infant and maternal mortality. The package of services provided by Integrated Child Development Services Scheme (ICDS) is well-suited to addressing the immediate causes of undernutrition, improving the knowledge of women beneficiaries related to childcare and nutrition, inadequate dietary intake and childhood infections. In this context an intervention was provided for sample women by the investigator in two ways by preparing and using a module keeping in view its effectiveness. The module comprised of a video film and role play supported by visuals. The intervention was provided in two phases. Module was devised with focused attention on the understanding and comprehension levels of sample women to bring about harmony and compatibility in search and sought. Comparing between the means of intervention, more effective was found to be Role play which helped in capturing full attention of the target beneficiaries. They perceived and related the problem by identifying with the characters performing play. The next effective Audio-Visual Aid being Video films, which fascinated the women beneficiaries to acquire knowledge. The pictorial messages (Posters, Charts) also helped the majority of the beneficiaries to understand by recognizing the items and making the message interesting and material more understandable. However, some of the sample beneficiaries were not able to recognize and remember the pictorial messages properly.

Keywords: pregnant women, lactation, breast feeding, supplementary nutrition

Introduction
Nutrition and lifestyle before and during pregnancy, lactation, infancy, and early childhood have been shown to induce long-term effects on later health of the child, including the risk of common non-communicable diseases such as obesity, diabetes, and cardiovascular disease [1–5]. Apart from a healthy diet during pregnancy there is a need for certain additional nutrients and micronutrients which directly or indirectly affect the growing fetus. As it is a known fact that micronutrients are censorious for normal pregnancy outcomes and various metabolic activities that are necessary for proper growth and development of the fetus. And their deficiency can cause serious problem for both mother and the fetus. Anemia, commonly caused by iron deficiency, is associated with increased risks of maternal mortality, perinatal mortality and low birthweight [6, 7, 8]. Similarly, the deficiency of Folate and iodine can cause severe impairment of fetal development, leading to neural tube defects (NTDs) and an increased risk of mental retardation and cretinism, respectively [9, 10]. Insufficient calcium during pregnancy is linked to the development of hypertension, which is a leading cause of maternal mortality, morbidity, fetal growth restriction and preterm birth [11, 12]. Similar to calcium, vitamin D deficiency can lead to pre-eclampsia, and subsequently increase the risks of preterm birth, small-for-gestational age (SGA) and perinatal mortality [13, 14, 15]. While the effects of maternal zinc deficiency are not well established, it has been suggested that maternal zinc supplementation can reduce preterm birth [16].
Likewise, after birth proper care is to be taken of both mother and the baby. First and the foremost requirement after birth is the early initiation of breast feeding, which has different health benefits like it increases the immunity of a baby to fight against infections and increase the survival rate of children [17, 18]. Neonatal mortality can be prevented by 33% if early initiation of breast feeding is practiced by mothers [19]. A study conducted in Zimbabwe has revealed that delayed breastfeeding increases the risk of developing neonatal sepsis within the first 1 week of life [20]. Neonatal morbidity and mortality of infants who didn't feed breast milk

within 1 h is increased by threefold when compared to infants who fed breast milk with 1 h of birth [21–24]. Furthermore, colostrum is the first milk that is very important for newborns in protecting infections. Since the first milk is rich in immunoglobin G, colostrum has a great role in disease resistance. According to different studies, it has been observed that those children who were not fed colostrum more likely develop many infections, stunting, underweight, and wasting [25–28].

Throughout the world breastfeeding is considered as a best source of nutrition for infants and beneficial for lactating mothers too [29]. Breast milk is full of antibodies that help an infant to fight against viruses and bacteria and it also takes down the baby's risk of having asthma or allergies. And those children who are breastfed exclusively for the first 6 months, without any formula, have very little chances of having ear infections, respiratory illnesses, and bouts of diarrhea. Appropriate nutrition during early childhood is very essential for proper growth and development of a baby [30].

It has been observed and compared by certain researchers that, to children with EBF (Exclusive Breastfeeding) during the first six months of life, non-breastfed children have almost fifteen times more mortality from pneumonia. And among children between the ages of six and 23 months who were receiving complementary foods, those who were fed formula had twice the mortality from pneumonia as those who maintained BF for up to two years of life [31]. Furthermore, children fed with any volume of breast milk have a 23% lower risk of developing acute otitis media; for those with EBF for at least three months, the risk is reduced by 50%, and if prolonged for up to six months, the risk is reduced by 63% [32]. These results are also valid for children living in developed countries [33, 34]. Finally, a dose response has been observed between the type of feeding (EBF, mixed breastfeeding and exclusive formula) and the risk of infectious diseases such as diarrhea, acute febrile illness, and respiratory Infections during the first two years of life [35, 36, 31].

Although the educated mothers are aware of breastfeeding advantages and disadvantages, but we need to make aware those women also who are uneducated, underprivileged, and unaware of the exclusive breastfeeding, its advantages its duration, its quality and nutritional importance and moreover, it is also necessary that women be aware of nutritional requirement during pregnancy and lactation. Because, only when mothers are healthy then only a healthy baby is born, and healthy nutrition reaches to him/her in the form of quality milk. In consideration to above facts the study was conducted with the objectives:

Objectives

- To Plan an intervention programme based on identified gap areas.
- Conducting the planned action oriented intervention programme.
- To assess the effectiveness of intervention provided to improve the knowledge of sample women.

Methodology

Primary data was collected directly from pregnant and lactating women. Such data proven helpful in understanding the nutrition education gap which adversely affects their as well as children's health. The present study was conducted in Kashmir region of Jammu and Kashmir State. As per census 2011, there are 10 districts in the Kashmir region namely, Srinagar (summer capital of the state), Baramulla, Badgam, Kupwara, Pulwama, Kulgam, Shopian, Bandipora, Ganderbal and Anantnag. 200 respondents were selected for the study, which included 100 pregnant women; out of which 50 were from rural areas and 50 from urban area Moreover 100 lactating women were selected out of which 50 are again from rural areas and 50 from urban areas. The present study was investigated through multi-stage sampling technique.

The study was based on an extensive field work. The reason for selection of blocks, tehsils and/or districts is sociological and methodological. The tools used to facilitate collection of data include questionnaire and checklist of nutrition education items. Content analysis using quantitative as well as qualitative approach were done to understand the research study. Data was scrutinized and analyzed, keeping the objectives in view and was presented in suitable tables, in order to determine inherent facts and meanings. The assembled data was properly scrutinized. Numbers were assigned to all the items, according to the class or category in which they fall. The basic purpose of it was to facilitate greatly the task of tabulation of responses in Computer Software Programmes. *Coding* was done at data collection stage, as well as at the time just prior to tabulation of data. Data having numerical responses were coded as well as put in actual scores in order to obtain enough information from such data. Appropriate statistical techniques were employed in order to understand the problem under consideration and attempt was made to draw right inferences out of it. Such statistical analyses was done on computer using software programmes namely SPSS.

Results and Discussion

Important messages transmitted during intervention

After identifying the major gap areas, it was also observed that respondents were lacking knowledge regarding various minor aspects of pregnancy and childcare. As such the investigator provided a verbal intervention by discussing regarding these issues, their outcome and remedy about which the sample women were unaware. Further, they were made to understand about the importance of such issues during pregnancy and childcare through open discussion and questioning.

Importance of weight monitoring during pregnancy

It's important to gain the right amount of weight for your body during pregnancy. Doing so can help protect the health of your baby. Compared to women, who gain a healthy amount of weight during pregnancy. Women who gain too little are more likely to have a baby with low birth weight (less than 5 pounds, 8 ounces). Women who gain too much are more likely to have a large baby or a premature baby. It was assessed through interview and verbal feedback that the knowledge of sample Kashmiri women considerably improved after the intervention. Majority of the beneficiaries were convinced and concepts made clear about the importance of weight monitoring during pregnancy.

Importance of balanced diet during pregnancy and lactation

It is important to eat foods that provide all the nutrients required for the increased needs of mothers and babies during pregnancy. It is important to take in enough calories, vitamins and nutrients to support the growing baby and to meet

mothers' demands experienced as a result of pregnancy. A healthy diet is the best way to assure good nutrition. Similarly, lactation is another very important period for both the mother and the baby that should not be taken lightly. Though it is not different from pregnant women, the only difference is that the lactating mother should take two additional complete meals to give her more milk for the baby.

It was found that in terms of conceptual understanding the respondents showed improved knowledge after intervention with respect to importance of balanced diet during pregnancy and lactation. They agreed that balanced diet during pregnancy is good for the health of the mother and health of the baby. And that balanced & nutritious diet during lactation helps in increased and quality milk production.

Table 1: Intervention related to Nutritional Supplements and Breastfeeding

Variable	Responses	Intervention				χ^2 Analysis
		Pre-Intervention (n=200)		Post-Intervention (n=200)		
		f	%	f	%	
Knowledge related to nutritional supplements	Folic acid, iron& calcium	137	68.50	178	89.00	25.11_1^{**} p=0.000
	Supplements not required	63	31.50	22	11.00	
	Total	200	100.00	200	100.00	
Knowledge related to feeding of colostrum	Doctors' advice	44	22.00	9	4.50	199.22_2^{**} p=0.000
	Contains substances which improve immunity of a child.	32	16.00	173	86.50	
	No Idea	124	62.00	18	9.00	
	Total	200	100.00	200	100.00	
Importance of Breastfeeding	Adequate diet for a baby.	62	31.00	9	4.50	143.52_4^{**} p=0.000
	Provides all nutrients in early months.	34	17.00	6	3.00	
	Gives resistance against diseases.	53	26.50	95	47.50	
	All above	15	7.50	85	42.50	
	Did not know the importance.	36	18.00	5	2.50	
	Total	200	100.00	200	100.00	

Column percentage df in subscripts of χ^2 values *denotes significant at 0.05 level ** denotes significant at 0.01 level

As shown in table 1 there is highly significant increase ($p<0.01$) in knowledge of all the variables among the sample beneficiaries in comparison of pre-intervention and post intervention favoring intervention process. Awareness regarding importance of nutritional supplements during pregnancy was initially fair, which was increased in post-intervention from 68 per cent to 89 per cent with significant($p>0.01$) difference statistically. Colostrum, the human breast milk has high protein content and is also loaded with Vitamin A and sodium chloride (salts) and contains lower amounts of carbohydrates, fats and potassium. This is a good thing because an infant's digestive system isn't developed enough to digest normal milk. As such it becomes quite necessary that mothers should be made aware related to this aspect of breastfeeding. Knowledge of Kashmir women beneficiaries under study also improved significantly with respect to importance of colostrum from 16 per cent to 86.5 per cent. Breastfeeding is crucial in the first six months and should continue up to two years along with regular food. It contains nutrients that are vital for the infant in the first few months. The significant improvement was also found in sample beneficiaries in context to importance of breastfeeding which increased from 7.5 per cent to 42.5 per cent with significant differences favoring post intervention results.

Conclusion

Post intervention analysis conducted using the tools used in Phase I of the study has shown a significant improvement in knowledge in almost all aspects in which intervention was provided, the most important aspects being knowledge related to nutritional supplements during pregnancy, importance of breastfeeding and feeding of colostrum. Comparing between the means of intervention, more effective was found to be Role play which helped in capturing full attention of the target beneficiaries. They perceived and related the problem by identifying with the characters performing play. The next effective aid being Video film, which fascinated the women beneficiaries to acquire knowledge, though the researcher on spot cleared confusion and queries raised after watching the film.

After providing intervention in the identified gap areas, the same interview schedule was administered to collect post intervention data which was already used for assessing knowledge of women beneficiaries. It was observed after post intervention analysis that there was a significant improvement in knowledge in almost all aspects in which intervention was provided, the most important aspects being knowledge related to nutritional supplements during pregnancy, reasons for breastfeeding and feeding of colostrum.

A gap was also observed with respect to minor issues related to prenatal care and childcare. However, this gap was bridged by providing open discussion and interaction with the respondents, particularly related to importance of weight monitoring and balanced diet during pregnancy.

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