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## Ethnic Differentials in Beliefs and Practices during Pregnancy in Nagaland, Northeast India

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**Abstract :** The objective of the study is to examine cultural practices by different ethnic women during pregnancy on food, sexual behavior and physical mobility from primary data collected in Dimapur, Nagaland, 2014, a sample of 203 women (15-49) years who had given birth in the last three years preceding the survey. Study found out that ethnicity determines the belief and practices by women during pregnancy on food taboos and cultural practices. There is a need on intervention program regarding nutrition, counseling on physical exercise and sex education among pregnant women for safe and healthy pregnancy.

### Introduction

The need for culturally appropriate health facilities is core to WHO's mandate on Health For All, and considered pertinent to care during pregnancy, childbirth and in the postnatal period (WHO, 2015), as for some women Traditional Birth Attendant (TBA) are the only source of care during pregnancy and childbirth (WHO, 2004). The cultural aspect of pregnancy is important and the indigenous beliefs and practices take shape around the cultural traits that are passed from one generation to the next.

All over the world, indigenous beliefs and practices among pregnant women have an influence on their attendance of antenatal clinics and also women use herbs to protect and preserve the unborn child (Ngomane & Mulaudzi, 2010; Liamputtong *et al.*, 2005). Examples can be seen in many different cultures and countries. For instance, in china women usually practice *Zuo Yuezi* which includes certain restriction and observation during pregnancy like dietary, behavioral and hygiene, women were avoided to eat more food or cold food often food which are rich in protein, avoiding the visitors and limiting household work, which includes symbols, values and beliefs from ancestors (Kuzma *et al.*, 2013; Geckil *et al.*, 2009). In South Eastern Turkey the most popular practices among new mothers were eating a kind of dessert called *bulamac*, while in Oyo state of Nigeria during wife's postpartum abstinence period, men were more likely to have other partners (Lawoyin & Larsen, 2002). Also, in Canada many pregnant women avoid sexual intercourse with their husbands as they are concerned regarding complications in pregnancy (Bartellas *et al.*, 2000).

In case of India also, diversity in culture and societies is rampant (Nag. 1994), which reflects food habits in which certain items are considered harmful to pregnant women. Fruits considered harmful are papaya, banana, jackfruit and pineapple. In case of food items, those made of wheat, rice, millets which are considered hot food in Andhra Pradesh, Karnataka, Tamil Nadu, and Uttar Pradesh but considered as cold food in Gujarat. Many women still have no knowledge about the nutrition needs during pregnancy, as among Khasi women in Meghalaya (Murugkar & Pal, 2004). Likewise, pregnant women were consuming low iron rich food intake. Women in Sikkim up to six weeks of post partum period observe taboo on food such as milk, eggs, fish, meat, pulses, green vegetables and fruits, as they are most perceive as hot and sour foods (Mukhopadhyay & Sarkar, 2009). This study attempts to

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understand extent of cultural beliefs and ethnic affiliation determination on practices during pregnant by taking into account women belonging to four tribes of Nagaland, viz. Angami, Ao, Lotha, and Sema.

## **Materials and methods**

The state of Nagaland lies in the extreme Northeastern part of India and is one of the smallest state in India dominated by Christian tribal population with a total area of 16,579 sq.km. The state has as many as 16 different ethnic groups that have their own separate identities including customs, dresses and languages. Nagaland consists of 11 districts with a total population of 19,80,602 (Census 2011). The study uses data collected from households in Dimapur town, Nagaland during March-July 2014.

The study group consists of 203 women who had given birth in the last three years preceding the survey and whose head of household belonged to four tribes namely Ao, Angami, Sema and Lotha. From the eight circles in Dimapur town four circles has been selected based on the dominance of the tribe, the selected circles are Kuhoboto, Medziphema, Chumukedima and Dimapur Sadar, from these four circles ten villages has been selected based on the dominance of the concerned tribe.

Three-stage sampling has been applied; firstly the district has been selected purposively as the district has a heterogeneous population with majority comprising of Naga tribes from all over Nagaland. In the second stage, stratification has been applied on the basis of the different tribes and make four strata comprising of dominant groups such as Ao, sema, Angami and Lotha and in the third stage households has been selected from each strata of dominant tribes. PPS was used to ensure selection of households from the respective strata. Since the number of household in each strata is more than required, house listing had done to identify the respective tribes and finally households was selected who speaks mother tongue of the dominant tribe by systematic circular random sample to meet the required sample.

Information on food practices included household prescribed and prohibited food items during pregnancy was collected, each mother was interviewed in the local language and prior consent was obtained from each study participant before the data collection. With few selected women, in-depth interviews carried out and the narratives of women on specific health care issues used to complement the quantitative findings.

Univariate analysis and logistic regression carried out to analyze the determinants of the outcome variables by socio- economic and demographic characteristics of the women.

## **Findings**

### **Characteristics of women respondents**

Table 1 shows the distribution of women respondents in this study by selected background characteristics. One defining factor of the selected women has been those who had given birth in the last three years. Most women in the study population in age group 25-29 (40%), with education of high school level (37%), housewives (83%), with birth order upto 4 or more, and belonging to four tribes (Sema, Angami, Lotha and Ao). Since maximum of the women are in the age group 25-29, the birth order is two or less (67%).

Table 1: Percentage showing background characteristics of the study population

<b>Age</b>	N	%
19-24	34	16.6
25-29	81	39.9
30-34	60	29.6
35-49	28	13.8
<b>Education</b>		
Primary	26	12.9
Middle	39	19.4
High school	75	37.3
Secondary	39	19.4
Higher	22	11.0
<b>Occupation</b>		
Working	35	17.2
Housewife	168	82.8
<b>Birth order</b>		
One	68	33.5
Two	69	34.0
Three	41	20.2
>Four	25	12.3
<b>Tribe</b>		
Ao	38	18.7
Angami	43	21.2
Sema	56	27.6
Lotha	54	26.6
Others	12	5.9
*Mean age=29.2, S.D=5.3		
Total	203	

### Embodied knowledge

Traditional wisdom seems to prevail among women to know the signs of pregnancy, rather than using modern knowledge such as use of pregnancy tests (urine, etc), or consulting health personnel such as auxiliary-midwives (ANMs), gynecologists, or even any family doctors. To understand this aspect, women were asked how they came to know about their pregnancy status. Women across the four ethnic groups (Sema, Angami, Lotha and Ao) gave various signs/symptoms they associate with pregnancy. Their responses were further re-grouped as shown in Table 2.

Table 2: Percentage showing embodied knowledge about pregnancy by the women

	N	%
Feel Nausea	7	3.5
Gain weight	2	1.0
Vomit	126	62.1
Missed period	68	33.5

From table 2 it is clear that women usually come to know about their pregnancy by signs such as vomiting (62%), missed monthly period (33.5%), feel nausea (3.5%), and gaining weight (1%). The two most common signs reported by women of pregnancy (vomit and missed period) were also complemented by the narratives of women from different tribes, as illustrated below:

*“I vomit a lot even food doesn't taste good usually I lost my appetite so in this way I came to know about my pregnancy”* [25 years, Lotha tribe]

*“usually I come to know about my pregnancy through missed period so if I missed my period I used the pregnancy test kit to confirm my pregnancy, so in this way I come to know about my pregnancy”* [32 year, Ao tribe]

### **Food taboos, physical restriction and sexual relations among women during pregnancy**

The impact of role of culture and beliefs has on health status of women and children become challenging and promising as most women tend to practice culturally accepted norms including food items to be taken rather than the information and advice from the health care facilities. To understand this aspect of beliefs, women were asked about their diet or restricted food items during pregnancy. It was found that there are some very specific rules to observe in case of food items (fruits, vegetables, meat, etc) to be eaten or avoid during pregnancy (Table 3).

Table 3: Women’s perceptions on food taboos, physical restriction and sexual relations during pregnancy

<b>Food taboos</b>	N	%
Pineapple	60	29.6
Crab or snail	51	25.1
Papaya	56	27.6
White gourd/Ash Gourd	14	6.9
Wild animal meat	21	10.3
Insects	18	8.9
Oily/spicy food	13	6.4
<b>Physical Activity</b>		
Carrying water	91	44.8
Lifting heavy objects	119	58.6
Gardening	40	19.7
Looking at unpleasant photo/animals	104	51.2
Not allowed to Sleep during day time	86	42.4
Not allowed to attend marriages	14	6.9
Not allowed to attend funerals	67	33.0
Confined at home	63	31.0
Not allowed to go alone at night	98	48.3
<b>Sexual relations</b>		
Stop sex from the month of conception	32	15.8
Stop sex from 4/5 month	38	18.7
Stop sex from 6 month	50	24.6
Stop sex from 8 month	2	0.99

From table 3 it shows the food taboos by women during pregnancy, it was found out that maximum of the women replied that eating pineapple, crab or snail and papaya were while other food such as white gourd/ash gourd, unusual animal, insects and oily/spicy food were believed to have less taboo, around half of the women replied that during pregnancy carrying water is restricted, more than half of the responded that carrying heavy objects and seeing any unpleasant photos/animals during pregnancy is also restricted. One third of the women were restricted against sleeping too much during daytime, attending funerals, confining at home and going out alone at night. Only few of the respondent replied that gardening and attending marriages were restricted, 60% of the women abstain from sexual activity during pregnancy out of which about 25% of the women abstains sex from the month of conception of pregnancy. Some of the beliefs mentioned by women are given below:

*“Traditionally papaya fruit is restricted during pregnancy because if we eat this fruit during the first trimester of pregnancy I will have miscarriage, even we are restricted to eat wild meat or anything fruit or vegetables which are grown together (twins)” [25 years, Ao tribe]*

*“during my pregnancy I was restricted to eat taro from elders because it was believed that it will make the baby dirty as taro is slippery in texture it will cover the body of the baby if I eat that and thus will make the baby very dirty” [28 years, Sema tribe]*

*“I don't know anything about which food are nutritious during pregnancy, as doctor told me to eat whatever I feel like to eat, I have no idea about proper diet as well as exercise to be taken during pregnancy, so for me pregnancy was just normal, I do all the household chores, eat anything I feel like to eat....” [23 years, Sema tribe].*

*“during our pregnancy husbands were not allowed to hunt for animals in the jungle because we were told by elders that baby will look like the hunted animal” [40 years, Angami tribe].*

The narratives of women clearly illustrate restrictions on food items and physical activities during pregnancy. However, in the case of food items, the culturally restricted items included some nutritious items necessary to supplement the protein or energy requirements. The presence of restrictive food intake *per se* suggests the lack as well as need for nutritional education and related information for health pregnancy and safe delivery.

Similarly, sexual abstinence is also practiced by women across the communities based on their beliefs, and culturally defined reasons are given for such act of abstinence (Fig.1).

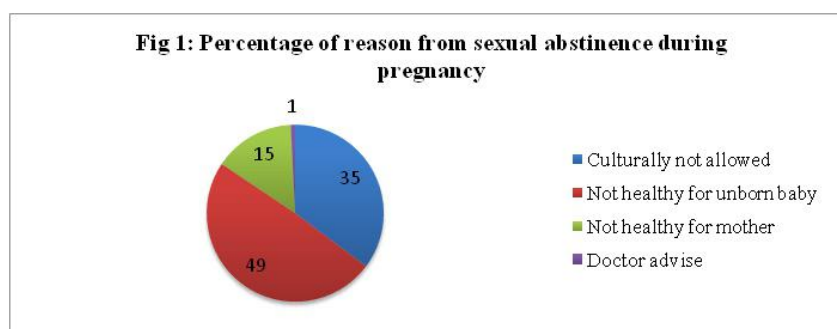


Fig 1 shows the reasons of abstaining sex during pregnancy, it was found out that majority of the women

believed that sexual activity during pregnancy will lead to unhealthy baby or with deformities, while 35 percent of the women believed that it was culturally not allowed.

*“we did not have sex since the inception of my pregnancy because it might cause miscarriage as I was told by my elders that it is better to stay away from sexual intercourse”* [19 years, Ao tribe]

*“I went to medical doctor for my ANC check up but regarding the sexual intercourse I had never discussed neither the doctor told me about it”* [49 years, Angami tribe].

Based on the above responses by women on restrictions related to physical activities, food items and sexual relation, a logistic regression is attempted to understand the direction and association with selected socio-demographic and economic characteristics of women such as age, education, occupation, birth order, ANC visits, economic status and ethnic affinity (Table 4).

Table 4: Odds ratio for taboos on physical activities, food and sexual relations during pregnancy by background characteristics among Naga women

Age	Physical Activities	Food taboos	Sexual relation
19-24 <sup>®</sup>			
25-29	1.79	1.14	1.34
30-34	1.18	1.77	1.74
35-49	1.26	1.14	1.89
<b>Education</b>			
Middle <sup>®</sup>			
High school	1.42	1.29	0.50 *
Higher	2.44	1.42	0.80
<b>Occupation</b>			
Working <sup>®</sup>			
Housewife	2.34	1.21	0.44 *
<b>Birth order</b>			
One <sup>®</sup>			
Two	0.81	1.61	1.06
>Three	0.50	1.41	1.54
<b>ANC visits</b>			
One <sup>®</sup>			
Two	1.18	4.11 *	2.27
Three	0.42	1.98	0.85
>Three	0.81	3.02	1.08
<b>Wealth index</b>			
Poor <sup>®</sup>			
Non poor	0.66	0.79	0.69
<b>Tribe/Ethnicity</b>			
Ao <sup>®</sup>			
Angami	0.50	2.57 *	0.26 ***
Sema	0.31	2.35 *	0.41 *
Lotha	0.68	1.76	1.50

Note: <sup>®</sup> = reference category; \* $p < 0.10$  \*\* $p < 0.05$  \*\*\* $p < 0.01$  (level of significance)

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From table 4 it is evident that the direction of taboos such as physical activities, food and sexual relations has a certain path/direction. For instance, it is found significant that women accessing or visiting ANC more than once shows taboos on food than others. Similarly, by tribe also, women belonging to Angami and Lotha tribes are more than twice for likely than Ao tribe to observe the food taboos during pregnancy ( $p < 0.10$ ). In case of sexual relation, women who had middle school education and housewife are less likely to have sexual relation during pregnancy compared to lower educated and working women ( $p < 0.10$ ). Again, among the different communities it is indicated that women belonging to Angami ( $p < 0.01$ ) and Sema ( $p < 0.10$ ) are less likely to have sexual restriction compared to women belonging to Ao tribe.

The analysis, as shown in different tables above, highlights the influence of cultural norms and beliefs during pregnancy among women in Nagaland. Clearly, the fact that women rely more on beliefs and cultural norms on health care instead of government recommendations for expecting mothers is a challenge, and reflected in low ANC, underweight, immunization, etc., in the state. In this context, changing mindset of women through sensitizing about benefits of government programmes can make a huge difference.

### **Discussion and conclusion**

Culture, beliefs and traditional practices during pregnancy differ from society to society; in some culture there were taboos on food, physical mobility as well as on sexual behavior during pregnancy and post partum period. The study highlights that there are cultural beliefs and practices among Naga tribal women during pregnancy to preserve the unborn child as well as for the mother. In Nagaland also fruits such as papaya and pineapple are avoided by women during pregnancy to avoid miscarriage. There are similar examples observed across India and oversea. In Karnataka food such as brinjals and Papaya were avoided during the post partum period (Rao *et al.*, 2014). In Egypt, pregnant woman avoid eating salty or spicy food like hot pepper, salty cheese and pickles (Kavle. *et al.*, 2014), while in Tamil Nadu, eating customs and economy appeared to influence the women's food choice negatively in relation to recommendations (Andersen *et al.*, 2003). In China, pregnancy restriction were adhered by women in order to protect the unborn child from danger such as miscarriage, stillbirth and imperfections and confinement of one month (Lau, 2012; Raven, *et al.*, 2007). It was also found out that women usually carry out normal activities as also found in a similar study among (Santos *et al.*, 2016).

Findings from our study revealed that women avoid attending funerals as well as going out alone late in the night, as the belief is that women at this time are fragile and the spirit might attack her and the baby. Study also found sexual abstinence during pregnancy as found in other study (Lewis & Black, 2006). The study confirmed that many women were not aware about the sexual activities during pregnancy and women visit traditional practitioner at least once for easing their doubts similar study also found that (Titaley *et al.*, 2010; Kyomuhendo, 2003).

This study indicates concern on the part of the provider to provide information about diet during



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pregnancy, sexual activities, as well as need for physical exercise during pregnancy. Clearly, Naga women are not aware about the basic education about health during pregnancy. Even among educated and working women were not aware about the proper sexual relations to be maintained during pregnancy. The study shows that ethnic differentials in beliefs during pregnancy on food and sexual relations, which conforms to other studies in India and overseas. The presence and influence of cultural beliefs and taboos have made the state to perform lowly in terms of government recommended programmes such as at least four ANC visits, institutional delivery, post-natal care, child health indicators, etc.

Policy makers need to provide rigorous awareness campaign to pregnant women or lactating women about proper diet, physical activities as well as sex education during pregnant so as to ensure a women a safe and healthy pregnancy. One best strategy would be to sensitize adolescent girls and expecting mother about the benefits of government programmes during the stages of pregnancy and need for them to own these programmes through community leaders and peer-educators.

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## Priority for Expenditures on Health and Education from Remittance: Exploring the SES Differentials among Remittance Receiving Households in India

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***Abstract :** Apart from other households' needs like food, housing, marriage, debt-payment, etc., remittances can be considered as a significant booster for human capital formation in the Indian context. This study examines priorities for expenditures on health and education while utilizing remittances among different SES (Socio-economic status) subgroups of remittance receiving households in India. This study is based on the data from National Sample Survey, 64th round, conducted during 2007-08. Using binary as well as multinomial logistic regression, this paper shows that factors such as place of residence, type of occupation, household size, religion, social groups, and economic strata affect the decision of giving top three preferences in utilizing remittances on health and education. Findings suggest that households belonging to the urban area or self-employed in agriculture or having large family size have less priority to health and high priority to education while utilizing remittances. Poor households first meet their health needs from remittances while richer households give priority to education. Between health and education, health covers the maximum priorities of the household in remittance utilization. Around one-fourth of the households, irrespective of their background characteristics, do not give priority to health or education.*

### Introduction:

India is the largest recipient of the international remittances in the world (World Bank, 2010). The National Sample Survey Organization defines remittance as “transfers, either in cash or kind, to the households by their former members who had migrated out” (NSSO 2010, p.14). A study found that estimated domestic remittance market in India is about 10 billion US dollar in 2007-08, where 60 percent being Inter-State transfers, and 80 percent directed towards rural households (Tumbe, 2011). Kerala, Punjab, and Goa in India alone accounts for 40 percent of international remittance flow and among the top remittance-dependent economies in the world (Tumbe, 2011). In Kerala and Tamil Nadu remittances are used to pay the debt whereas most of the North Eastern States use it for education. Goa and other Union territories reported using the remittances for the purpose of saving or investments (NSSO, 2010, p.157). A major proportion of amount received from the remittances goes towards family maintenance while the rest goes in saving. According to NSS report, the primary use of remittances is on household consumption expenditure which is around 90 percent. The remittances are used for spending on food, education, purchasing durable goods, on marriage and ceremonies, cover health care expenditure and other items (Tumbe, 2011). Recent studies highlighted the positive impacts of domestic remittances on increasing teen schooling attendance. Mueller & Shariff (2011) argues that the money received from the remittances are often used to fulfil the basic consumption need of the family including nutritious food, health, education, and housing with some basic minimum comforts. Therefore, it is not surprising fact that they are left with no or little investment or saving. According to the Reserve Bank of India (2010), more than half of these remittances are utilized for family maintenance, i.e., to meet the requirements of migrant's families regarding food, education, health, and other needs. The remaining

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money is either deposited in bank accounts or invested in land, property, and securities. But sometimes the economic conditions of households receiving domestic remittances are not necessarily better than that of non-remittances households in India. However, many studies claim that the marginal budget share on health, education and consumer durables of remittance-receiving households is higher than that of not-remittance-receiving households (Mohanty, Dubey, and Parida, 2014). Evidence revealed that with rising income, migrant remittances can encourage investment in human capital formation, particularly increased expenditure on health, and to some extent on education (UNESCO-UNICEF, 2012).

### **Remittances, education, and health: some empirical studies**

Extant literature on the association between remittances, education, and health show that remittances increase health care expenditure and education of children in remittance-receiving households. This optimistic approach was supported by Kifle (2007) in Eritra, South Africa using primary data. They find that remittances receiving households spend a significant proportion of remittances received on children education. Similarly, Edwards and Ureta (2003) revealed that many remittances receiving households utilized remittances on the education of children and on their health. This line of argument is supported by many scholars like Kanaiupuni and Donato (1999), and Hildebrandt et.al. (2005), Yang and Martinez (2006), Gubert (2007). Various studies suggested that the remittances received by households are spent for the purpose of long-term benefits such as education and health care needs of the family members (Airola, 2007; Castaldo and Reilly, 2007; Conway and Cohen, 1998; Mohanty, Dubey, and Parida, 2014). A study in selected sub-Saharan African countries reveals that remittances have a positive and significant impact on health and education outcomes (Amakom&Iheoma 2014). Augusto Lopez-Claros, Director of the World Bank's Global Indicators Group said “Remittances are an important and fairly stable source of income for millions of families and of foreign exchange to many developing countries. However, if remittances continue to slow, and dramatically as in the case of Central Asian countries, poor families in many parts of the world would face serious challenges including nutrition, access to health care and education....” (World Bank, 2016). In addition, studies from India in the last few decades indicates that like other developing countries the remittances in India are largely directed towards education, health and invested to improving the socio-economic conditions of the migrant households (Kapur, 2003; Adams and Page, 2005; De and Ratha, 2012; Dey, 2015; Mohanty, Dubey, and Parida, 2014; Ali and Bhagat, 2016). There are studies which shows higher share of remittances contributed for education (Edwards and Ureta, 2003; Cardona Sosa and Medina, 2006; Kifle, 2007), whereas there are few studies which claim that remittance has less or limited influence on investment in education (Airola, 2007; Cattaneo, 2010). In developing countries where most of the health care expenditure is still an out-of-pocket affair, remittance has a significant effect on health care expenditure (Cardona Sosa and Medina, 2006; Catalina and Pozo, 2011; Valero-Gil, 2009). Although remittances receiving households spend remittances on health care but a huge state-wise difference exists in spending remittances on education in north India compared to South India (Mahapatro, Bailey, James, and Hutter 2015).

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Thus, the review of the literature suggests that remittance has a positive effect on education and health in the remittance receiving household in most of the developing country including India. There are very few or no study on the household factors that act as the stimulator to spend remittance on education and health in India. The reason for this was lack of large data availability in India for designing such study. However, since the 64<sup>th</sup> round of NSS has added some new questions relate to utilization of remittances which were not present in the earlier rounds of migration survey conducted by NSSO has provided this opportunity for the first time. Thus, this study is an attempt to lessen the gap persisting in the existing literature of migration studies. Hence, the objective of this study is to examine the household factors which affect the utilization of remittances, in particular, on health and education in India.

### **Data and methods**

For the study of migration there are mainly two large scale data available for India. First is 64<sup>th</sup> round of NSS and the second is the latest round of Indian Human Development Survey (IHDS, 2011-12). The later data was not used for the proposed study as the data does not have enough questions on the utilization of remittances in India. So, for analysis purpose this study utilizes data from National Sample Survey on Employment & Unemployment and Migration, 64<sup>th</sup> round conducted during July 2007 to June 2008. The survey has covered a sample of around 125578 households, out of which 17,379 households which have any of its members migrated ever were considered for this study.

Binary logistic regression analysis has been done for two different models to examine the household characteristics affecting the priority given for utilizing remittances on health and on education in the remittance receiving households. Model one analyses the household characteristics which affect the utilization of remittance on health which is a eventual expenditure. Whereas, model 2 analyses the household characteristics which affects the utilization of remittance on education (a compulsory need) as the top three priorities on spending remittance.

A multinomial logistic regression model was used to study the effect of household characteristics on the decision for prioritising utilization of remittances on health and education. The basic assumption of the multinomial logistic regression model is that the categories of the response variable should be mutually exclusive and exhaustive. Using MLR here is necessary to see that which household characteristics determines that remittance receiving household will give top three priorities to health not education, education not health, both health and education and neither health nor education exclusively. For the analysis the utilization of remittances by the households has been categorized into four mutually exclusive and exhaustive categories as mentioned before. Here, no priority given to utilize remittance for either health or education was selected as the reference category. For all statistical analysis for this study, STATA version.11.0 has been used.

### **Results**

The percentage distribution of the households receiving remittances is shown in Table 1. Among the remittance-receiving households nearly 34 percent of the households spend remittances on health

and around 27 per cent on education in rural areas while in urban areas, equal proportion of household (32%) spend remittances on education and health. Approximately 15 percent of the households utilize remittances on education and health both in top three priorities. Most of the remittances receiving households prioritised the utilization of their remittances more on health in compared to education. Approximately 10 to 20 percent across all subgroups of migrant's households give priority for spending remittances on health as well as education. Neither health nor education is considered among top three priorities for around 20 to 25 percent of households.

**Table 1:** Percentage distribution of remittance-receiving households which top three priorities for utilizing remittances includes either health or education or both or none of the two by background characteristics of the households in India, 2007-08

Background factors		Priority of spending remittance on health and education			
		None	Only Health	Only Education	Both
<b>Sector</b>	Rural	23.3	33.6	27.5	15.7
	Urban	20.5	31.6	32.2	15.7
<b>Household's occupation</b>	Self-employed / Self-employed in non-agriculture	26.7	33.7	23.2	16.4
	Agricultural Labour / Regular Wage / Salary earner	30.7	37.6	19.7	12.0
	Other / Casual Labour	27.3	40.0	21.9	10.8
	Self-employed in Agriculture	23.1	31.2	27.9	17.8
	Other	16.4	32.5	35.6	15.5
<b>Households Size</b>	Less than 5	25.3	38.7	25.7	10.3
	5 or more	20.2	27.1	30.9	21.8
<b>Religion</b>	Hindu	23.4	33.2	27.8	15.7
	Muslim	18.5	35.2	29.2	17.2
	Others	28.9	29.3	30.8	11.0
<b>Social Group</b>	Scheduled Tribes	21.2	38.4	31.6	8.8
	Scheduled Castes	21.2	36.2	27.2	15.4
	Other Backward Castes	23.8	31.6	27.6	16.9
	Others	22.6	33.8	29.0	14.6
<b>Reason for Migration</b>	Employment	22.7	31.6	29.8	15.9
	Marriage	23.0	39.0	23.0	15.4
	Migration of parent/earning member of the family	24.2	48.8	14.2	12.8
	Forced migration	10.0	39.6	44.6	5.8
	Studies	23.7	36.4	27.9	12.0
	Others	28.2	25.0	35.9	10.9
<b>Expenditure Quintile</b>	1st quintile	19.8	31.9	29.0	19.3
	2nd quintile	24.1	31.0	27.7	17.2
	3rd quintile	22.4	34.9	28.3	14.4
	4th quintile	24.5	34.0	26.9	14.7
	5th quintile	23.0	34.8	28.6	14.2
<b>Total</b>		<b>3,826</b>	<b>5,607</b>	<b>5,480</b>	<b>2,466</b>

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Table 2 presents the results of binary logistic regression with two models. In model 1 the dependent variable is those remittance-receiving households who have listed health among top three priorities for utilizing remittance. In model 2 the dependent variable is those households who have listed education among top three priorities for utilizing remittance. Model 1 found that the households in the urban area are less likely to keep health in top priority than those in the rural area. The households engaged in agricultural labour or regular/casual labour is more likely to give priority for utilizing remittance on health than those who are self-employed in non-agricultural works. Whereas, households which are self-employed in agriculture or involve in other occupations are less likely to give priority for utilizing the remittance on health in compare to those which are self-employed in non-agriculture. Households with larger family size are significantly less likely to give priority to health in utilizing remittances. Families who have a member migrated either due to marriage or due to migration of parents/earning family member more likely to list health in top three priorities for utilizing remittance. Households with more than one migrated family member are significantly more likely to give priority to health. The households are less likely to give priority to health with an increase in expenditure quintile.

Results from Model 2 reveal that the households in the urban area are more likely to give education the top priority than the households in the rural area. The household head engaged in an occupation such as agricultural labour/ regular wage/ salary earner or other/ casual labour are less likely whereas those households who are either self-employed in agriculture or engaged in other occupation are more likely to give priority to utilize remittances on education than those self-employed/ self-employed in non-agriculture. Households with more than five members are significantly and 3.19 times more likely to give priority to education. Households who have migrated member either due to marriage or migration of parents/ earning family member or due to some other reasons is less likely where those migrated due to forced migration (3.2 times) or studies (2.2 times) are more likely to list education on top three priorities for utilizing remittance. Households with more than one migrated household member are significantly less likely to give top three preferences to education.



**Table 2** Binary Logistic Regression Analysis to examine factors responsible for migration and utilization of remittances on health and education by the remittance-receiving households

<b>Background factors</b>		<b>Model 1</b>	<b>Model 2</b>
<b>Sector</b>	Rural®		
	Urban	0.853**	1.337***
<b>Households occupation</b>	Self-employed / Self-employed in non-agriculture®		
	Agricultural Labour / Regular Wage / Salary earner	1.265***	0.801**
	Other / Casual Labour	1.491***	0.724**
	Self-employed in Agriculture	0.806***	1.238**
	Other	0.948	1.685***
<b>Households Size</b>	Less than 5®		
	5 or more	0.565***	3.19***
<b>Religion</b>	Hindu®		
	Muslim	1.019	1.028
	Others	0.677***	1.055
<b>Social Group</b>	Scheduled Tribes®		
	Scheduled Castes	0.997	1.024
	Other Backward Castes	0.953	0.998
	Others	1.078	0.938
<b>Reason for Migration</b>	Employment®		
	Marriage	1.079	0.984
	Migration of parent/earning member of the family	1.363***	0.683***
	Forced migration	0.518	3.211
	Studies	0.770	2.227***
	Others	1.230	0.524**
<b>Total migrated members</b>	One®		
	Two to Three	1.663***	0.516***
	Four and more	2.23***	0.444***
<b>Expenditure Quintile</b>	1st quintile®		
	2nd quintile	0.861	1.087
	3rd quintile	0.826*	1.135
	4th quintile	0.734***	1.057
	5th quintile	0.726***	1.065

Note: \*\*\* p-value<=0.01, \*\* 0.01<p-value<=0.05 and \*0.05<p-value<=0.10®: Reference category for categorical independent variables.

**Model 1:** Health has priority for utilization of remittance;

**Model 2:** Education has priority for utilization of remittances.

Table 3 show the adjusted percentage distribution of remittances spends on health, education, both or none by the remittance-receiving households. It examines the factor that affects the utilization of remittances on health and on education. In urban area high proportion of the households are significantly utilizing remittances on only education (26.2%) and on health and education both (14.9%) compared with those who are living in the rural area. Households with occupation as agricultural labor/

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regular wage earner/ salary earner and other / casual labor are significantly less likely utilize remittances for education than those who are self-employed/ self-employed in non-agriculture. Those households are significantly more likely to use remittances for education that are self-employed in agriculture or in other occupations than those who are self-employed/self-employed in non-agriculture. Utilizing remittances for meeting the health care needs as the top priority is high among all the households compared to those who are self-employed/ self-employed in non-agriculture and is significantly more likely for those who are in other occupations. Households with more than five members are more likely to spend remittance on education and on both health and education and less likely to spend only on health. About 32.2 per cent and 29.2 percent of household belonging to other religion have significant top priority of spending remittance are only health and only education respectively. Nearly 24 per cent Hindu, 23 per cent Muslims and 27 percent of other religion households have listed neither health nor education among top three priorities for utilizing remittances. A small proportion of households belonging to Scheduled Caste, Other Backward Caste, and Other Caste spend remittances on health or in education (statistically significant) or in both. Whereas the adjusted percentage reflects that the households still give significant preference to health and education than utilizing remittances to meet other need and necessities.

A significant proportion of household having a household member migrated due to marriage spent on only health (43.7 per cent), only on education (18.9 percent) and on both health and education (13.7 percent) as the top priority. Similarly, household who has a migrated member due to the migration of parents/earning member approximately 52 percent spend remittance on only health, 14.38 percent give priority only to education, while 8.4 percent top three priority includes spending remittance on both health and education. Approximately half of the households having a forced migrant significantly spend remittance on only education. About 38 to 42 percent of households belonging to any expenditure quintile utilize remittance on health. About 18 to 25 percent of the households belonging to any expenditure quintile utilize remittance for education significantly. Around 23 to 25 percent households do not have top three priorities to utilize remittance for either health or education.

**Table 3:** Multinomial logistic regression analysis for utilization of remittances on health, education, both or none of the two in top priorities by the remittance-receiving households

Background factors		Priority of spending remittance on health and education			
		No	Only Health	Only Education	Both
Sector	Rural	24.4	40.3	22.2	13.1
	Urban	21.9	37.0	26.2***	14.9***
Household Occupation	Self-employed / Self-employed in non-agriculture	24.1	39.7	22.6	13.7
	Agricultural Labour / Regular Wage / Salary earner	27.3	43.5	17.4**	11.8
	Other / Casual Labour	25.5	45.9	16.3**	12.4
	Self-employed in Agriculture	25.0	36.9	24.1***	14.0***
	Other	15.4	35.7***	33.6***	15.3***
Households Size	Less than 5	25.3	45.7	19.5	9.5
	5 or more	22.4	33.1***	26.8***	17.7***
Religion	Hindu	23.8	40.3	22.5	13.4
	Muslim	23.2	37.9	24.3	14.7
	Others	27.4	32.2***	29.2***	11.2
Social Group	Scheduled Tribes	21.7	40.4	24.7	13.5
	Scheduled Castes	24.0	42.3	20.3**	13.4
	Other Backward Castes	25.3	38.7**	23.3*	12.8
	Others	22.4	39.2	24.0***	14.4
Reason for Migration	Employment	24.2	32.6	29.4	13.8
	Marriage	23.7	43.7***	18.9***	13.7***
	Migration of parent/earning member of the family	25.2	52.0***	14.4***	8.4***
	Forced migration	24.1	16.2	48.1*	11.5
	Studies	22.0	33.8	29.5	14.7
	others	26.8	44.1	24.0*	5.2***
Expenditure Quintile	1st quintile	23.5	41.1	19.7	15.7
	2nd quintile	23.9	39.7	22.6***	13.8
	3rd quintile	24.8	41.0	22.0***	12.1
	4th quintile	24.5	39.0**	24.***	12.4
	5th quintile	23.1	38.3**	24.9***	13.7**

**Note:**\*\*\* p-value $\leq$ 0.01, \*\* 0.01<p-value $\leq$ 0.05 and \*0.05<p-value $\leq$ 0.10

### Summary and conclusion

This study empirically investigated about remittance receiving households regarding their priorities in utilizing remittances over health and education. The study advanced a number of significant insights. Since evidences revealed that remittances encourage investment in human capital formation therefore this study examines what factors determine the priorities to invest the remittances on health and education over other needs in Indian context. This study reveals that the remittance-receiving households give priority to utilize remittance for health, education or both which can be supported by

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the results from Mahapatro, Bailey, James & Hutter (2015). The evidences suggest, in Indian context, poor households first meet their health needs with remittances while richer households give priority to education as they enjoy better health relatively. Apart from the above mentioned facts there are still around one-fourth of the households receiving remittance, irrespective of their background characteristics, do not give priority to health and education while utilizing the remittances. This reflects the fact that there are significant proportion of households exist in India which have other basic requirements like food, housing, debt payment etc. which dominates the need of educations and health. Between health and education, health covers the maximum priorities of the household in remittance utilization. This gives the clear indication that education should be given priority in public sector expenditures to enhance human capital formation. And since major priority of most of the households in utilizing remittances goes to health care which certainly indicates the fact that most household which do not receive any such external financial supports must be facing extreme hardship to meet their health needs.

The findings of this study concludes that households belonging to the urban area or self-employed in agriculture or households with large family size have a negative effect on spending remittance on health with priority but a positive and significant effect on giving priority to education. Those households which are mainly engaged in agriculture labour or regular/casual labour shows a positive effect on spending remittances on health and negative effect on utilizing remittance for education. Households with member migrated due to the migration of parents/ earning family member or have more than one migrated member have positive effect on giving the top priorities to utilize remittances on health and negative effect on education. Moving from lower expenditure quintile to higher quintile, the proportion of households giving priority to education in spending remittance increases but at the same time the proportion of households giving priority to health decreases.

This study suggests that the public health care system in India needs to be strengthening so that the poor and marginal people could have better quality of life. Remittances can be used as a source of human capital formation only if the very basic needs of the people like food and shelters are fulfilled either through their personal capacity or through government initiatives. Subsequently, India could rejoice the fruits of remittances from the migrants who send their hard-earned money to their family.

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## Impact of Gym Exercises on Multi Dimensional Body Image and Self -Esteem of Adults

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**Abstract :** *Today's youth are more fascinated by Gym classes as they feel that it will help them to improve them psychophysically. Thus the present study is taken up with main objective of investigating the impact of gym exercises and BMI on multidimensional body image and self-esteem of adults. The selected sample of 60 gym practioners and 60 non practioners were administered Multidimensional Body Self Relations Questionnaire (Thomus Cash 1994 and self-esteem scale (Rosenberg 1965). The obtained data was subjected to 't', ANOVA and Post Hoc Multiple Comparison tests. The results revealed that gym practicing adults have significantly higher body image interms of Appearance Evaluation and Fitness Orientation as well as in overall self image. Further it is also noticed that under weight adults have significantly higher appearance orientation , fitness orientation than normal and over weight adults respectively. Overweight adults have significantly higher subjective weight self image compared to underweight adults.*

Body image is the picture of our own body which we form in our mind, the way in which the body appears to ourselves ( Paul Schilder 1950, 1999).Cash & Pruzinsky (1990) defined body image as “a person's thoughts, feelings, and perceptions about their body, overall including appearance, age, functions and sexuality”. They discussed body image as being multidimensional, consisting of a cognitive body image includes beliefs and self-statements about the body. Body image may be conceptualized as a multi-dimensional construct that represents how individuals think, feel, and behave with regard to their own physical attributes (Muth & Cash, 1997).

Body image is a multi faceted psychological experience of embodiment that encompasses evaluative thoughts, beliefs, feelings, and behaviors related to one's own physical appearance (Cash, 2000). According to Lightstone (2001) body image involves our perception, imagination, emotions and physical sensations o about our bodies. It is not static, but ever changing; sensitive to changes in mood, environment, and physical experience.

Gardner (2011) stated that body image is “the mental picture that we have about our bodies thus reflects a perceptual component and the feelings about our body corresponds; to an attitudinal component.”

Self-esteem is the evaluative aspect of the self –concept that corresponds to an overall view of the self as worthy or unworthy (Baumeister, 1998). This is embodied in Coopersmiths (1969) classic definition of self-esteem. “The evaluation which the individuals makes and customarily maintains with regard to himself , it expresses an attitude of approval and indicates the extent to which an individual believes himself to be capable, significant successful and worthy. In short, self-esteem is personal judgement of the worthiness that is expressed in the attitudes the individual holds towards himself.”

Self-esteem is how we value and respect ourselves as a person, it is the 'real' opinion that we have about ourself. Self-esteem impacts how we take care of ourself emotionally, physically and spiritually.

Body mass index (BMI) is an anthropometric index of weight and height (that is calculated and

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defined as body weight in kilograms divided by height in meters squared.) BMI is the commonly accepted index for classifying adiposity in adults and it is recommended for use with children and adolescents. Like weight-for-height, BMI is a screening tool used to identify individuals who are underweight or overweight.

According to the University of Arizona's Bone Builders program gym exercises help to build muscle size, strength and endurance. Exercise and post-workout stretching also help improve muscle flexibility. Resistance and weight-bearing exercise also help to improve bone density. In addition to building muscle and losing weight, gym workouts can help to improve or maintain balance, gait and agility. Joining a gym adds a social element that can help motivate to work harder to meet goals.

Tigman & Williamson (2000) investigated the relationship between the amount of exercises and psychological well-being in a broadly based sample. Significant negative relationships between amount of exercise and body satisfaction and self-esteem were observed for young women and positive relationships for the remainder of the sample. Women exercised more for weight control and mood enhancement than men. For the whole sample, these reasons were associated with lower body satisfaction.

Heather & Elizabeth (2007) reviewed the literature to integrate research findings examining the impact of exercise on body image. Primary study results were coded, and meta-analytic procedures were conducted. Studies were grouped into intervention (i.e., exercise vs no exercise group post-exercise intervention body-image scores), single group (i.e., pre vs post exercise intervention body-image scores), and correlation (i.e., exercisers vs no exercisers body-image scores) effect sizes. Small effect sizes (that were weighted by sample size), that were significantly different from zero, indicated that: (a) exercisers had a more positive body image than no exercisers; (b) exercise intervention participants reported a more positive body image post intervention compared to the no exercising control participants; and (c) exercisers had a significant improvement in body image scores following an exercise intervention. They concluded that exercise was associated with improved body image.

Elizabeth Anne Hubbard (2013) examined the effects of three different modalities of acute exercise on state body image in women. This study aimed to determine which modality, if any, is more effective in increasing state body image. It was found that participation in the aerobic and resistance sessions significantly improved body image from pre- to post-exercise. Resistance exercise was the only research modality that yielded significantly higher post exercise state body image as compared to the control session. Thus, a single resistance exercise session may help individuals to improve their state body image.

Idalina Shiraishi Kakeshita; Sebastião de Sousa Almeida (2003) assessed the relationship between body mass index and self-perception of body image. They observed that overweight women were more concerned and uncomfortable with their own body. Both men and women had a distorted self-perception of body image, underestimating or overestimating it. The study results suggested dissatisfaction of subjects with their body image as they desire to have leaner bodies.

Jackie Frost and Stuart J. McKelvie (2005) found a positive relationship between exercise

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activity and the dependent variables considered together, but that it was only significant for self-esteem and body build, not for body image or weight satisfaction. More specifically, this study suggests that a higher level of exercise activity is associated with a higher level of self-esteem, It was also found that men and boys who exercised more reported a more positive evaluation of different aspects of their bodies (body-cathexis) than those who exercised less.

Most of the above reviewed studies have been conducted in western societies as well as showing differential impact of gym exercise and BMI on body image and self esteem. However, it is felt that there is dearth of such investigations in our society. Thus the present study is taken up with main objective to assess the impact of gym exercises and Body Mass Index (BMI) on multidimensional body self image and self-esteem of adults.

### **Method :**

Based on objective the following research questions are raised:

- 1) Do the gym practicing adults differ significantly from those non practicing adults in their multidimensional body image and self-esteem?
- 2) Does BMI has any significant impact on multidimensional body image and self- esteem of adults?

Further it has led to the formulation of following hypotheses:

**Ha<sub>1</sub>:** Gym practitioners and non practitioners differ significantly from each other in their multidimensional body image and self-esteem.

**Ha<sub>2</sub>:** BMI has significant influence on multidimensional body image and self-esteem.

**Sample:** A total sample of 120 male adults has been randomly selected for the study. These selected adults in the sample are above 20 years of age, coming from different socio-economic background. Among the total sample of 120 male adults; 60 are practicing gym where as remaining 60 adults are not practicing.

### **Measures used:**

#### **1. Multidimensional body self relation questionnaire:**

MBSRQ developed by Thomas F. Cash was used to measure body image perceptions of adolescents. This questionnaire is a 46-item self-report inventory for the assessment of self-attitudinal aspects of the body-image construct. The MBSRQ measures satisfaction and orientation with body appearance, fitness. In addition to its six factor subscales(Appearance Evaluation, Appearance Orientation, Fitness Evaluation, Fitness Orientation, Subjective Weight, Body Area Satisfaction).The MBSRQ is intended for use with adults & adolescents. The MBSRQ has been used extensively & successively in body-image research.

The MBSRQ employs two items with which people categorise their body weight and others' perception of their weight, on a 5 point Likert scale ranging from very underweight to overweight. The reliabilities of the subscales range from 0.83 to 0.92, which shows a high level of internal consistency

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(Cronbach's Alphas) and from 0.85 to 0.91, depending on a high level of temporal stability over one month (Winstead & Cash, 1984). All subscales possess acceptable internal consistency and stability. The MBSRQ is unique in its multidimensional assessment and has been used extensively and successfully in body-image research therefore it confirms the MBSRQ's strong, convergent, discriminant and construct validities (Cash, 1997).

## **2. Body mass index:**

BMI is a summary measure of an individual's height and weight, calculated by dividing a person's weight in kilograms by the square of their height in metres. Measure; such as BMI allows for a person's weight to be standardised for their height, thus enabling individuals of different heights to be compared.

## **3. Rosenberg self-esteem scale:**

A 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be uni-dimensional. 5 items are positive whereas remaining 5 items are negative items. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree.

The Rosenberg Self-esteem Scale presented high ratings in reliability areas; internal consistency was 0.77. A varied selection of independent studies each using such samples as – parents, men over 60, high school students, and civil servants – showed alpha coefficients ranging from 0.72 to 0.87 (all fairly high). Test-retest reliability for the 2-week interval was calculated at 0.85, the 7-month interval was calculated at 0.63 (Silber & Tippett, 1965, Shorkey & Whiteman, 1978). This scale is closely connected with the Coopersmith Self-Esteem Inventory.

## **Data collection:**

Primary data was collected by administering the above mentioned two scales on randomly selected 120 adults out of which 60 are gym practitioners and 60 are not practicing gym. The investigator explained the purpose of the study and instructed the sample properly as well as administered Multidimensional Body Self Relation questionnaire and Rosenberg's Self-esteem Scale. In addition to the above data the information related to demographic factors and other necessary information were also collected in the bio-data sheet.

## **Scoring:**

Each response sheet is hand scored as per the instructions given in the manual of respective measures.

### **1. Multidimensional body-self relations questionnaire:**

The first step is to reverse the score (5 = 1, 4 = 2, 3 = 3, 2 = 4, and 1 = 5) for the following items: 6, 11, 12, 15, 17, 21, 22, 23, 26, 28, 29, 31, and 32. After reversing the appropriate items, one can find his score on six subscales by finding the total for the items on that scale. The subscales are: Appearance Evaluation (AE) 5, 7, 13, 19, 25, 28, and 31; Appearance Orientation (AO) 1, 2, 8, 9, 14, 15, 20, 21, 26, 27, 32, and 33; Fitness Evaluation (FE) 16, 22, and 34; Fitness Orientation (FO) 3, 4, 6, 10, 11, 12, 17, 18, 23, 24, 29, 30, and 35; Subjective Weight (SW) 36 and 37; and Body Areas Satisfaction (BAS) 38, 39, 40, 41, 42, 43, 44, 45, and 46.

## 2. Interpretation of different BMI levels for adults:

For adults 20 years and older, BMI is interpreted by using standard weight status categories that are the same for all ages and for both men and women. The standard weight status categories associated with BMI for adults are as follows.

BMI	Weight status
Below 18.5	Under weight
18.5-24.9	Normal
25.0-29.9	Over weight
30.0 and Above	Obese

## 3. Rosenberg self-esteem scale:

Items 2, 5, 6, 8, 9 are reverse scored. Giving “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Summing up scores for all ten items.. Higher scores indicate higher self-esteem.

**Statistical; analysis:** The obtained scores of the scales were analyzed by using 't' test to verify the  $H_{a1}$ . ANOVA and Post hoc Scheffe's test were used to verify the  $H_{a2}$ .

### Results :

**Table 1. Showing mean difference, std. error and t-value for multidimensional body image and self-esteem of gym practicing and non practicing adults**

Variables	Mean Difference	Std. Error Difference	t- value
Appearance Evaluation	52.27-47.72= 4.55	1.77	2.56 **
Appearance Orientation	51.27-48.83= 2.43	1.83	1.33
Fitness Evaluation	51.43-48.82= 2.62	1.84	1.42
Fitness Orientation	52.22-47.77= 4.45	1.79	2.50 **
Subjective Weight	48.47-51.60= -3.13	1.81	-1.73
Body Area Satisfaction	50.68-49.22= 1.47	1.83	.80
Total Body Image	52.50-47.42= 5.08	1.78	2.85 **
Self-esteem	51.15-48.62= -2.53	1.83	1.38
** P<0.01 Highly Significant			

An observation of above table reveals that the difference between gym practitioners and non practitioners is significantly high ( $P < 0.01$ ) in the dimensions such as appearance evaluation ( $t = 2.56$ ), Fitness Orientation ( $t = 2.50$ ) and overall body image (2.85). However the two groups are not differing in remaining dimensions and self-esteem. More specifically, those who are attending to gym exercises have shown significantly higher body image interms of appearance evaluation and fitness orientation as well as in overall scores also.

**Table 2. Showing the ANOVA results for multidimensional body image and self-esteem scores of adults in relation to their BMI**

Variables	Sources of Variance	Sum of Squares	DF	Mean Square	F
Appearance Evaluation	Between Groups	32.54	2	16.28	.16
	Within Groups	11867.49	117	101.44	
	Total	11900.00	119		
Appearance Orientation	Between Groups	778.37	2	389.19	4.09**
	Within Groups	11121.64	117	95.06	
	Total	11900.00	119		
Fitness Evaluation	Between Groups	381.94	2	190.97	1.94
	Within Groups	11518.07	117	98.45	
	Total	11900.00	119		
Fitness Orientation	Between Groups	619.85	2	309.93	3.21**
	Within Groups	11280.15	117	96.42	
	Total	11900.00	119		
Subjective Weight	Between Groups	850.64	2	425.33	4.50**
	Within Groups	11049.36	117	94.44	
	Total	11900.00	119		
Body Area Satisfaction	Between Groups	110.96	2	55.48	.551
	Within Groups	11789.04	117	100.77	
	Total	11900.00	119		
Overall Body Image	Between Groups	418.18	2	209.09	2.13
	Within Groups	11481.89	117	98.14	
	Total	11900.00	119		
Overall Self-esteem	Between Groups	101.09	2	50.55	.501
	Within Groups	11798.91	117	100.85	
	Total	11900.00	119		
** $p < 0.01$ significance					

An observation of Table 2 reveals that the three group of adults with underweight, normal weight, and overweight differ significantly among themselves in their Appearance orientation ( $F = 4.09$ ;  $p < 0.01$ ), Fitness orientation ( $F = 2.31$ ;  $p < 0.01$ ) and Subjective weight ( $F = 4.5$ ;  $p < 0.01$ ), of multidimensional body image. However the difference among the groups is not significant ( $P < 0.05$ ) in remaining dimensions and self-esteem.



**Table 3. Showing the Scheffe's test results for multidimensional body image and self-esteem of adults in relation to their BMI**

Variables	Groups Compared		Mean Difference	Std. Error	S Value
	Under Weight	normal weight			
Appearance Evaluation	Under Weight	normal weight	-.727	2.269	0.32
	Under Weight	over weight	-1.407	2.484	0.57
	normal weight	over weight	-.679	2.185	0.31
Appearance Orientation	Under Weight	normal weight	5.977	2.197	2.72*
	Under Weight	over weight	2.060	2.405	0.86
	normal weight	over weight	-3.917	2.116	1.85
Fitness Evaluation	Under Weight	normal weight	4.391	2.236	1.96
	Under Weight	over weight	3.084	2.447	1.26
	normal weight	over weight	-1.307	2.153	0.06
Fitness Orientation	Under Weight	normal weight	3.603	2.213	1.63
	Under Weight	over weight	6.122	2.422	2.52*
	normal weight	over weight	2.519	2.131	1.17
Subjective Weight	Under Weight	normal weight	-2.858	2.190	1.3
	Under Weight	over weight	-7.090	2.397	2.95*
	normal weight	over weight	-4.232	2.109	2.01
Body Area Satisfaction	Under Weight	normal weight	2.373	2.262	1.04
	Under Weight	over weight	1.478	2.476	0.60
	normal weight	over weight	-.896	2.178	0.41
Total Body Image	Under Weight	normal weight	4.608	2.232	2.06
	Under Weight	over weight	2.949	2.443	1.20
	Normal Weight	over weight	-1.659	2.150	0.77
Overall Self-esteem	Under Weight	normal weight	1.913	2.263	0.84
	Under Weight	over weight	2.297	2.477	0.97
	normal weight	over weight	.384	2.179	0.18
* p<0.05 Significant					

Subjects with underweight, normal weight, and overweight based on their BMI are compared with each other by performing post hoc Scheffe's test of multiple comparison. It is clear from the above table that adults with underweight and normal weight differ significantly ( $p<0.05$ ) in the area of appearance orientation ( $s=2.72$ ) of multidimensional body image. Specifically, under weight adults have shown significantly higher appearance orientation than normal weight adults.

Subjects with underweight and overweight are differing significantly ( $p<0.05$ ), in the area of fitness orientation ( $S=2.52$ ), and subjective weight ( $S=-2.95$ ) of multidimensional body image. It can be understood that underweight adults have significantly higher fitness orientation and lesser subjective weight compared to overweight adults.

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## Discussion

The obtained findings that gym practising adults showing significantly higher appearance evaluation and fitness orientation is endorsing the earlier studies conducted by Tigman & Williamson (2000) and Jackie Frost and Stuart J. McKelvie (2005). They stated that although caution must also be exercised about the causal direction of this relationship, it is consistent with the possibility that exercise activity makes people feel better about their bodies. In turn, this may make them feel better

Physical activity stimulates various brain chemicals that help adults to feel happy and more relaxed. They may also feel better about their appearance and themselves when they exercise regularly. It is true that gym practitioners naturally feel positive and satisfied with their appearance because of well and proportionately built body. Similarly they also engage in extensive physical exercises to maintain their athletic body shape as well.

Further underweight adults showing high appearance orientation due to their desire to go for grooming behaviours as they give more importance for look and appearance. Even these adults higher at fitness orientation which shows that they are more concerned about enhancing or maintaining their fitness level. However, on the contrary overweight adults are high in subjective orientation which reflects that they perceive themselves as more overweight compared to underweight adults.

**Conclusion:** Gym practising adults have significantly higher body self image in terms of appearance evaluation, fitness orientation and overall body image than those who are not practising gym. BMI has significant influence on body self image of adults. Specifically, underweight adults have significantly higher appearance orientation fitness orientation than normal weight and over weight adults respectively. Whereas overweight adults have significantly higher subjective weight than under weight adults.

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## Emerging Patterns in Developmental Expenditure, Social Sector Expenditure and Health Expenditure in Punjab and India: A Comparison of Pre-Reforms (1981-91) and Post-Reforms (1991-2016) Periods

Rajesh Kumar Aggarwal\*

*Abstract* : The year 2016 commensurate the completion of 25 years of India's economic reforms. The present paper attempts to study the developmental expenditure, social sector expenditure and health expenditure within the total expenditures both on revenue and capital accounts besides aggregate of the two for Punjab as well as All-India. The paper highlights the lower share of developmental expenditure within the total expenditure, and further shows the low social sector expenditures within the developmental expenditure and still further, how the health expenditures are abysmally low within the social sector expenditure especially on capital account. Despite these declines trends in developmental and social sector expenditure, the percentage share of Total Health Expenditure (THE) in Punjab continued to be slightly higher than all-India level and declined sharply only recently and calls for introspection

### Introduction and background

India completed 25 years of economic reforms this year. World Development Report (1993), Dreze and Sen (1997), Human Development Reports indicates that a high rate of economic growth depends on both the economic and social factors and there is a significant relationship between the rate of economic growth, levels of social infrastructure, and human development. Social sector development has both intrinsic and instrumental values and the links among incomes, distribution and social development are strong (Dev, 2003). Development of human capital by way of increasing social sector expenditure has a significant impact on economic growth and social priority and human expenditure ratios are indicators of the government's commitment to the cause of human development. (Prabhu and Kamdar, 2000) Likewise, Dr. Brundtland, WHO's Director General, points out that investing in Health accelerates economic growth and is one of the very few viable approaches to rolling back poverty. (WHO, 2009) Dev and Mooij (2002) in their study point out that one of the aims of the economic reforms process is to withdraw the state from some economic activities, in order to step up expenditure for, and increase state involvement in, the social sector (Mahendra and Mooij, 2002). In other words, states must withdraw from the non-strategic sectors like hotels, consumer goods sector, etc. to augment investment in social sector. Per capita government expenditure on sectors of social priority is taken as an indicator of the extent of political commitment of the various state governments (Prabhu, 2001). From the above, it is clear that social sector expenditure has strong linkages with the human resource development, productivity, economic growth, which consequently has an important bearing on reducing the poverty levels. It becomes imperative to study the patterns of social sector expenditure, particularly for the post-reforms period, to gauge the practical relevance of the proclaimed emphasis on adopting a strategy of structural adjustments with a human face, as advocated by different studies and viewpoints.

This paper analyzes the expenditure patterns for Social Sector as well as Health Sector during a period of 35 years for Punjab and India. The analysis is divided into a decade of pre-economic reforms

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period (1981-91) and 25 years of post-economic reforms period (1991-2016). The paper is based on data compiled and provided by Reserve Bank of India from budget documents of all state governments. The study examines the revenue and capital expenditure data for Punjab and India to draw inferences. For the purposes of analysis, data has been compiled and grouped with a class interval of five years. The entire analysis is done based on different ratios rather than actual time series data in order to understand the broader patterns of expenditure among the total expenditure, total developmental expenditure, total social sector expenditure and total health expenditures. Such analysis is helpful in knowing and understanding the broader picture. Since the data was available on current prices, ratio analysis also saved the hassles of data conversion on current prices.

Before going into actual analysis, it is worthwhile to understand the general patterns of expenditures. Total Expenditure is simply the addition of developmental and non-developmental expenditure. The distinction between the developmental and non-developmental expenditure is important to understand since the latter include expenditure on general services (such as defense services, fiscal and administrative services, interest payment, etc.), which are largely non-productive in nature while developmental services are by enlarge grouped into three categories (i) social and community services, (ii) economic services and (iii) grants-in-aid to states and union territories. The largest component in this group is economic services. Similarly, the expenditures are customarily divided into two distinct heads namely the Revenue Expenditure and Capital Expenditure<sup>1</sup> and are shown under the revenue account and the capital account respectively. Further, there is a further distinction of Plan<sup>2</sup> and Non-Plan<sup>3</sup> Expenditure within these two categories.

### **Expenditure patterns based on revenue account**

Tables 1-3 discuss the share of Total Developmental Revenue Expenditure (TDRE) as a percentage of Total Revenue Expenditure (TRE), Total Social Sector Revenue Expenditure (TSSRE) as a percentage of Total Developmental Revenue Expenditure (TDRE) and Revenue Expenditure on Health (REH) as a percentage of Total Social Sector Revenue Expenditure (TSSRE).

#### **TDRE/TRE**

Table 1 show that the share of plan Total Developmental Revenue Expenditure (TDRE) as a percentage of Total Revenue Expenditure (TRE) in Punjab declined initially on the onset of economic reforms (from 97.3% during 1986-91 to 94.5% during 1991-96) but regained in subsequent years. However, non-plan TDRE in Punjab declined sharply after the initiation of economic reforms (from 61.7% during 1986-91 to 45.6% during 1991-96). It continued to decline further during the next one

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- 1 Capital expenditure is made to enhance the overall quality of assets and may result in acquiring newer assets such as land and buildings to be used in the long run.
  - 2 Central government incurs various expenditures under plans. Some of this expenditure is directly incurred by the Centre on central plans and some in the form of central assistance to the states and UTs' plans. Again the expenditure that creates assets is called plan capital expenditure and the expenditure that does not create any asset is called plan revenue expenditure. Thus, the expenditure incurred by the government as a part of this planning process is called plan expenditure. Otherwise, the expenditure is classified as non-plan expenditure.
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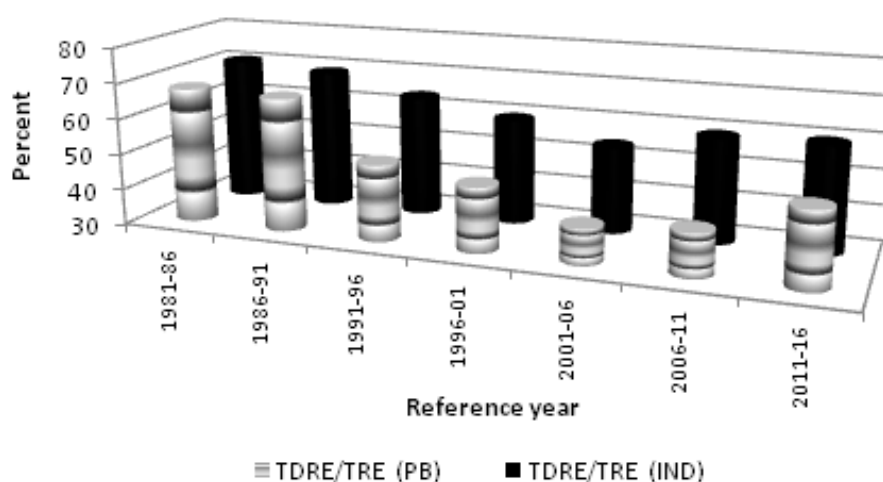
and a half decade though started picking up during the last lustrum (46%), still substantially low what was prior to economic reforms. On the other hand, at all-India level, the share of non-plan TDRE remained always at a higher level, sometimes much larger as compared to Punjab. Likewise, the Total Revenue Expenditure (sum of plan and non-plan) during the period 1980-81 to 2015-16, we find that percent share of developmental expenditure in Punjab is always less than India. The table clearly reveals that Punjab has been spending less on developmental activities compared to all India level. As a result, it can be inferred that India spent more on developmental activities while Punjab spent more on non-developmental activities especially during most years of economic reforms. Figure 1 makes the picture more clear which shows that Punjab has been spending considerably less on developmental activities as compared to all-India level.

**Table 1 : Share of total developmental revenue expenditure in total revenue expenditure (1981-2016) (in percent)**

Year	Punjab			INDIA		
	TSSRE/TDRE			TSSRE/TDRE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	45.5	61.3	58.3	44.3	63.1	57.8
1986-91	41.3	66.8	61.1	43.4	63.2	57.2
<b>Post-reform</b>						
1991-96	32.5	54.4	49.7	45.0	60.6	56.3
1996-01	58.9	55.1	55.7	54.7	63.5	61.2
2001-06	51.0	53.9	53.6	55.4	63.0	61.0
2006-11	57.2	50.8	51.7	64.7	62.4	63.2
2011-16	78.4	54.1	58.5	66.1	61.6	63.4

Source: Reserve Bank of India, various documents related to state budgets

**Figure 1 : Developmental revenue expenditure as percentage of Total Capital Expenditure (Plan, Non-Plan and Total), Punjab and India, 1981-2016**



PDRE: Plan Developmental Revenue Expenditure, PTRE: Plan Developmental Total Expenditure

Source: Reserve Bank of India, various documents related to state budgets

## TSSRE/TDRE

Table 2 shows the share of Total Social Sector<sup>4</sup> Revenue Expenditure (TSSRE) within the Total Developmental Revenue Expenditure (TDRE). The share of plan social sector expenditure fell (32.5% during 1991-96 from 41.3% during 1986--91) during the initial years of post-reform period but started increasing thereafter in case of Punjab while it continued to rise all the times at all-India level. Throughout the post-reforms period, the percentage share of non-plan TSSRE continued to be less than all-India level. If we examine the total (sum of plan and non-plan data), we arrive at a similar conclusion. Thus, from the two tables discussed here, it can be safely inferred that Punjab spent less on developmental activities (Table 1) and at the same time, Punjab spent less on social sector within the developmental activities.

**Table 2 : Share of total social sector revenue expenditure in total developmental revenue expenditure (1981-2016), (in percent)**

Year	Punjab			INDIA		
	TSSRE/TDRE			TSSRE/TDRE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	45.5	61.3	58.3	44.3	63.1	57.8
1986-91	41.3	66.8	61.1	43.4	63.2	57.2
<b>Post-reform</b>						
1991-96	32.5	54.4	49.7	45.0	60.6	56.3
1996-01	58.9	55.1	55.7	54.7	63.5	61.2
2001-06	51.0	53.9	53.6	55.4	63.0	61.0
2006-11	57.2	50.8	51.7	64.7	62.4	63.2
2011-16	78.4	54.1	58.5	66.1	61.6	63.4

Source: Reserve Bank of India, various documents related to state budgets

## REH/TSSRE

Table 3 show the share of Revenue Expenditure on Health (REH)<sup>5</sup> within the Total Social Sector Revenue Expenditure (TSSRE). In Punjab, share of plan health expenditure fell drastically during the post-reforms period and continued at the same level and fell more drastically after the second generation economic reforms of economic reforms were introduced in the Indian economy during the year 2000-2001. The similar patterns were also observed at all-India level. The percent share of non-plan health expenditure improved marginally for Punjab while it deteriorated marginally at All-India level. The overall picture showed a slight improvement in health expenditure in Punjab compared to all-India level

4 For the purposes of this section the social sector is described as including 12 services namely Education, Sports, Arts and Culture; Medical and Public Health; Family Welfare; Water Supply and Sanitation; Housing; Urban Development; Welfare of Scheduled Castes/Scheduled Tribes and Other Backward Classes; Labour and Labour Welfare, Social Security and Welfare; Nutrition; Relief on account of Natural Calamities and Others (includes expenditure on Information and Publicity, Secretariat- Social Services, Other Social Services, etc.

5 Includes expenditure on family welfare.



which showed a decline. The table clearly shows that the percentage expenditure on health within different components of social sector was not altered much by Punjab despite an indicative decline at all-India level.

**Table 3 : Share of revenue expenditure on health in total social sector revenue expenditure (1981-2016), (in percent)**

Year	Punjab			INDIA		
	REH/TSSRE			REH/TSSRE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	53.5	16.4	21.8	41.9	17.7	23.0
1986-91	25.0	15.5	16.9	22.9	14.9	16.7
<b>Post-reform</b>						
1991-96	24.9	17.1	18.2	22.5	14.7	16.4
1996-01	25.8	18.8	19.9	19.9	13.8	15.2
2001-06	24.9	17.9	18.6	17.1	13.3	14.2
2006-11	10.2	17.3	16.2	10.1	13.5	12.3
2011-16	17.2	16.8	16.9	12.3	13.3	12.9

Source: Reserve Bank of India, various documents related to state budgets

### **Expenditure patterns based on capital account**

Tables 4-6 discuss the share of Total Developmental Capital Expenditure (TDCE) as a percentage of Total Capital Expenditure (TCE), Total Social Sector Capital Expenditure (TSSCE) as a percentage of Total Developmental Capital Expenditure (TDCE) and Capital Expenditure on Health (CEH) as a percentage of Total Social Sector Capital Expenditure (TSSCE).

### **TDCE/TCE**

The share of TDCE/TCE within the plan expenditure increased during the initial years of economic reforms but was abysmally low during 2011-16, mostly because of the repayment of internal debts and other suspense and miscellaneous activities. In Punjab, the share of non-plan expenditure started declining even prior to the period of economic reforms and was in fact negative during 1986-91, showed a marginal improvement after the economic reforms were initiated but started declining during early 2000 and continued for the entire decade. Only recently, it was about 4.5 percent of the total. Even at all, India level this shares remains low but never became negative. Overall, developmental capital expenditure in Punjab increased during the initial decade of economic reforms (1991-2001) but was substantially reduced thereafter (from 38.9 percent during 1996-2001 to 3-4% after the year 2001). This tremendous decline in developmental capital expenditure reveals the reality that there was virtually no

money available for developmental activities in Punjab. On the other hand, if we examine the all India trend, the developmental capital expenditure was always higher at all-India level compared to Punjab during the pre-reforms period. Even when, Punjab showed an improvement (1991-2001), the improvement was much larger at All-India level. Though developmental capital expenditure also declined at All-India level after 2001 yet the percentage developmental capital expenditure was less in Punjab compared to All-India.

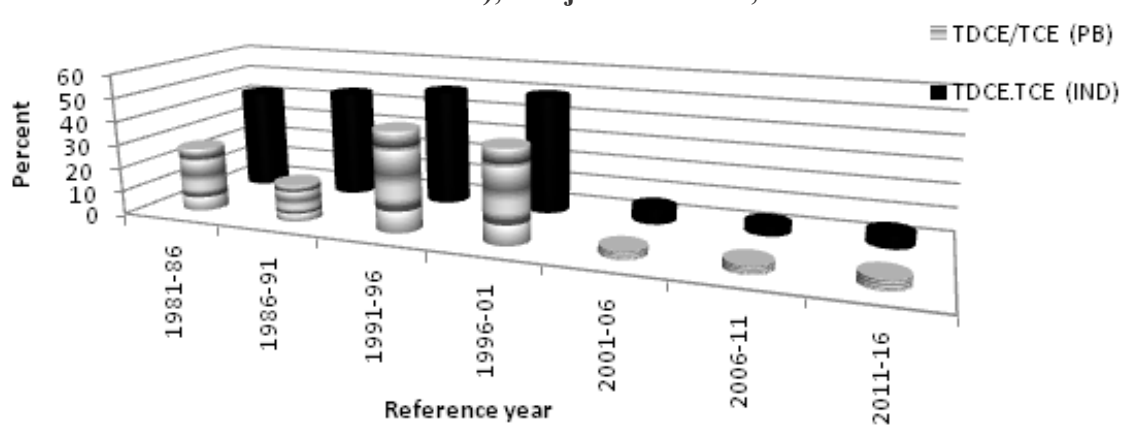
**Table 4: Share of Total developmental capital expenditure in the total capital expenditure (1981-2016) (in percent)**

Year	Punjab			INDIA		
	TDCE/TCE			TDCE/TCE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	41.6	14.4	27.1	66.1	4.2	42.9
1986-91	30.2	(-) 34.8	15.4	64.9	2.5	45.5
<b>Post-reform</b>						
1991-96	57.5	8.0	41.9	69.6	5.8	49.3
1996-01	77.4	8.1	38.9	71.6	9.4	50.2
2001-06	70.2	(-) 0.2	3.5	82.4	1.0	6.3
2006-11	96.5	0.3	3.6	89.6	0.3	4.1
2011-16	3.9	4.5	4.3	83.9	0.2	5.5

Source: Reserve Bank of India, various documents related to state budgets

Figure 2 clearly reflects the gap between India and Punjab so far as total developmental capital expenditure is concerned. The developmental expenditure was much less for Punjab both during the pre-reforms and post-reforms periods.

**Figure 2 :Developmental capital expenditure as percentage of total capital expenditure (Plan, Non-Plan and Total), Punjab and India, 1981-2016**



TDCE: Plan Developmental Capital Expenditure, TDCE: Total Developmental Capital Expenditure

Source: Reserve Bank of India, various documents related to state budgets

## TSSCE/TDCE

The plan social sector expenditure as a percentage of planned total developmental capital expenditure was relatively more for Punjab compared to all India, became nearly same when economic reforms were initiated and reduced a large extent as economic reforms flourished. It is only during the year 2006 onwards the plan social sector expenditure started to increase. The non-plan expenditure showed an erratic behavior during the entire period but was mostly less than all-India level. It is worthwhile to mention that non-plan expenditure became negative several times (e.g. during 1981-86 and 2001-06) for Punjab but never at all-India level. If we look at the aggregate percent expenditure, TSSCE/TDCE ratio showed an improvement both for Punjab and all India during the pre-reforms period (much larger for Punjab), started declining at the initiation of economic reforms for both Punjab and all-India, fell much more sharply for Punjab during 1996-2006 thereafter showed some remarkable improvement for Punjab compared to all-India. Despite an increase in developmental capital expenditure during 1991-2001 (table 4), the share of Total Social Sector Capital Expenditure (TSSCE) to Total Developmental Capital Expenditure (TDCE) continued to fall (21.9 percent during 1986-91 to 6.7% during 1996-01) for Punjab) and remained nearly static at all-India level. The sharp rise in TSSCE/TDCE ratio during 2001-2016 may be attributed to the fact that the share of TDCE/TCE had already declined so much that further cut in proportion of social expenditure would have stopped all type of assets building for social sector services.

**Table 5 : Share of total social sector capital expenditure in total developmental capital expenditure (1981-2016) (in percent)**

Year	Punjab			INDIA		
	TSSCE/TDCE			TSSCE/TDCE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	15.6	(-) 4.3	10.0	13.9	20.7	14.1
1986-91	18.3	11.4	21.9	15.3	34.6	15.6
<b>Post-reform</b>						
1991-96	15.2	12.0	15.0	15.0	14.3	15.0
1996-01	7.6	0.1	6.7	18.6	6.9	17.9
2001-06	9.6	(-) 17.5	10.9	22.3	4.5	19.7
2006-11	30.9	8.8	29.4	21.4	8.9	20.6
2011-16	34.0	30.5	31.3	25.3	13.3	24.9

Source: Reserve Bank of India, various documents related to state budgets

## CEH/TSSCE

Table 6 reveals that in Punjab, health was never considered a priority within the other social sector components. The plan capital expenditure on health in Punjab continued to decline on the onset of economic reforms till 2006-11 whereas it showed a better pattern at all-India level. Similarly, non-plan capital expenditure on health in Punjab was zero from 1981-2001, which includes both periods while no such zero pattern was shown at all-India level. Overall CEH/TSSCE started declining sharply even prior to onset of economic reforms (1986-91) both in Punjab and All-India level. The situation further deteriorated in post-reforms era for Punjab and the CEH/TSSCE ratio was much lower (7.3% against 14.6 during 1996-2001, 2.4% against 11.0% during 2001-06, 2.7% as against 14.3% during 2006-2011) and 5.9% as against 15.7% in Punjab compared to all-India levels). Thus, this table clearly brings forth the fact that asset formation in health sector within the social sector was abysmally low and desired proportions were never spent on health sector.

**Table 6 : Percent share of capital expenditure on health from total social sector capital expenditure (1981-2016)**

Year	Punjab			INDIA		
	CEH/TSSCE			CEH/TSSCE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	29.7	0.0	33.3	56.1	16.7	54.0
1986-91	15.1	0.0	19.1	18.2	7.9	17.8
<b>Post-reform</b>						
1991-96	17.2	0.0	16.4	15.2	7.3	15.0
1996-01	7.3	0.0	7.3	14.8	10.0	14.6
2001-06	1.7	10.5	2.4	11.2	3.6	11.0
2006-11	2.4	15.1	2.7	14.7	1.8	14.3
2011-16	13.8	3.0	5.9	15.8	6.7	15.7

Source: Reserve Bank of India, various documents related to state budgets

## Expenditure Patterns based on aggregate of revenue and capital account

The previous two sections described the analysis of revenue expenditure and capital expenditure separately. However, this section brings out the overall expenditure patterns by summing up the both the revenue and capital expenditure. This is necessary in order to understand a holistic picture of expenditure patterns in the State of Punjab compared to all-India patterns.

## TDE/TE

The share of plan developmental expenditure remained high both for Punjab and all-India. It is the non-plan developmental expenditure which fell sharply after the initiation of second generation economic reforms from the year 2000-2001. Interesting, the overall developmental expenditure in Punjab was always less than the percentage developmental expenditure at All-India level (table 7) from 1981-2006. The share became equivalent during 2006-2011 and now it has started increasing indicating that Punjab has started focusing on developmental activities since 2011.

**Table 7 : Share of total developmental expenditure in the total expenditure (1981-2016) (in percent)**

Year	Punjab			INDIA		
	TDE/TE			TDE/TE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	57.8	48.4	50.9	80.5	54.0	62.7
1986-91	50.9	51.3	51.2	82.0	54.9	63.6
<b>Post-reform</b>						
1991-96	72.9	42.6	49.5	84.5	52.4	61.0
1996-01	87.7	40.2	46.5	85.6	49.2	58.0
2001-06	80.8	14.9	18.1	89.9	14.8	21.7
2006-11	97.3	10.9	14.4	93.4	8.1	14.3
2011-16	22.3	22.7	28.7	91.7	9.9	15.3

Source: Reserve Bank of India, various documents related to state budgets

#### TSSE/TDE

Punjab used to spend a little more towards social sector from the total developmental expenditure immediately during the pre-reforms period (1998-1991) compared to all-India level. But, the percentage share of TSSE/TDE started declined in Punjab compared to all-India level immediately after the initiation of economic reforms and Punjab started spending less on social sector and much less as compared to all-India level (table 8)

**Table 8. Share of Total social sector expenditure in the total developmental expenditure (1981-2016) (in percent)**

Year	Punjab			INDIA		
	TSSE/TDE			TSSE/TDE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	30.0	55.4	47.6	30.4	62.6	49.1
1986-91	31.9	70.8	57.4	32.5	63.1	50.4
<b>Post-reform</b>						
1991-96	24.5	53.8	44.0	33.1	60.1	49.8
1996-01	33.9	53.9	48.8	40.7	62.6	54.9
2001-06	28.4	54.5	48.7	40.7	60.3	52.7
2006-11	41.5	50.1	47.7	44.8	60.7	53.2
2011-16	72.2	51.5	56.6	50.8	61.3	56.2

Source: Reserve Bank of India, various documents related to state budgets

## THE/TSSE

Table 9 shows that despite a decline in the proportion of Total Social Sector Expenditure (TSSE), the percentage share of Total Health Expenditure (THE) in Punjab continued to be slightly higher than all-India level and declined only after 2011. This shows a healthy pattern that despite limitation of declining social sector expenditure, the percentage share of health remained static and health resources were not diverted to other sector especially till 2011. It is only a recent phenomenon that share of health within the social sector declined sharply after the year 2011.

**Table 9 : Share of total health expenditure in the total social sector expenditure  
(1981-2016) (in percent)**

Year	Punjab			INDIA		
	THE/TSSE			THE/TSSE		
	Plan	Non plan	Total	Plan	Non plan	Total
<b>Pre-reform</b>						
1981-86	47.0	16.5	22.4	44.8	17.7	24.7
1986-91	22.7	15.7	17.0	22.1	14.8	16.8
<b>Post-reform</b>						
1991-96	22.7	17.1	18.1	21.2	14.6	16.3
1996-01	23.8	18.8	19.6	19.0	13.8	15.2
2001-06	20.6	17.9	18.2	15.7	13.3	14.0
2006-11	6.8	17.3	17.6	11.1	13.5	12.5
2011-16	17.0	16.5	11.2	12.9	13.1	12.4

Source: Reserve Bank of India, various documents related to state budgets

## Conclusions :

Within the revenue account, Punjab spent less on developmental activities than non-developmental activities. Further, Punjab has been spending less on social sector within the developmental activities. However, the structure of expenditure on health sector was not altered much by Punjab despite an indicative decline at all-India level. On the other hand, an analysis of capital expenditure data reveals that there was a tremendous decline in developmental capital expenditure which points at the harsh reality that there was virtually no money available for developmental activities in Punjab whereas if we examine the all India trend, the developmental capital expenditure was always higher at all-India level compared to Punjab during the pre-reforms period. Even when, Punjab showed an improvement (1991-2001), the improvement was much larger at All-India level. Though developmental capital

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expenditure also declined at All-India level after 2001 yet the percentage developmental capital expenditure was less in Punjab compared to All-India. The planned TSSCE/TDCE was relatively more for Punjab compared to all India, became nearly same when economic reforms were initiated and reduced a large extent as economic reforms flourished. It is only during the year 2006 onwards the plan social sector expenditure started to increase. The non-plan expenditure showed an erratic behavior during the entire period but was mostly less than all-India level. It is worthwhile to mention that non-plan expenditure became negative several times for Punjab but never at all-India level. Aggregate of TSSCE/TDCE ratio showed an improvement both for Punjab and all India during the pre-reforms period, started declining at the initiation of economic reforms for both Punjab and all-India, fell much more sharply for Punjab during 1996-2006 thereafter showed some remarkable improvement for Punjab compared to all-India. CEH/TSSCE reveals that in Punjab, health was never considered a priority within the other social sector components. The plan capital expenditure on health in Punjab continued to decline on the onset of economic reforms till 2006-11 whereas it showed a better pattern at all-India level. Similarly, non-plan capital expenditure on health in Punjab was zero from 1981-2001, which includes both periods while no such zero pattern was shown at all-India level. Finally, an examination of aggregate expenditure data, adding both the revenue and capital account, we find that the share of plan developmental expenditure remained high both for Punjab and all-India. It is the non-plan developmental expenditure which fell sharply after the initiation of second generation economic reforms from the year 2000-2001. Interesting, the overall developmental expenditure in Punjab was always less than the percentage developmental expenditure at All-India level from 1981-2006. The share became equivalent during 2006-2011 and now it has started increasing indicating that Punjab has started focusing on developmental activities since 2011. Percentage share of TSSE/TDE started declined in Punjab compared to all-India level immediately after the initiation of economic reforms and Punjab started spending less on social sector and much less as compared to all-India level. However, despite a decline in the proportion of Total Social Sector Expenditure (TSSE), the percentage share of Total Health Expenditure (THE) in Punjab continued to be slightly higher than all-India level and declined only after 2011. This shows a healthy pattern that despite limitation of declining social sector expenditure, the percentage share of health remained static and health resources were not diverted to other social sectors especially till 2011. It is only recently (after 2011) that that share of health within the social sector fell sharply and calls for introspection.



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## Fertility Status of Muslim Women: An Overview of Karnataka

Shabana Yasmeen Shaikh<sup>1</sup> and Shaukath Azim<sup>2</sup>

**Abstract :** Elsewhere in the country, Muslims in Karnataka are the second largest religious groups. They constitute 15.69 % of the total population. Publication of Census Report over the decades in India always attracted the attention of policy makers, researchers and political leaders. Most of the Census reports also reveals that Muslims in India growing at faster rate than other religious groups. This trend led to negative feeling among the majority. They started commenting that Muslims in India outnumber Hindus, that they will become majority no sooner than later, that Muslims produce number of children and the like. It is disheartening to note that the growth rate of Muslim population is still very high and it is higher than the national average. The fertility rate among Muslims is also higher than the other religious groups. Why is that even after 60 years of Independence Muslims growing at faster rate than other religious groups? Why Muslims in India losing sympathies from non-Muslims? Why in India Muslim women bear more number of children? Are Muslims in India showing negative attitude towards family planning methods? What is their present fertility rate? Keeping these questions in mind an attempt has been made through this paper to find out the fertility differentials of Muslims and non-Muslims in Karnataka. This study is based only on secondary data especially NFHS Reports.

### Introduction :

Population growth, under or over affects the overall socio-economic development of country. Most of the developing countries of the world today are tottering under the problem of over population. However, the European countries today are facing the problem of zero population growth. There is a serious crisis in the growth rate among Europeans. These countries have severe dearth of young population. Hence, it is an irony that most of the European countries do require population growth but developing country like India would not. In recent times in our country growth of population is affected not only by high fertility but due to lowering morality. But, with the growth in rate of population in India is not uniformly distributed in India. Most of the northern states are directly causing the rapid population growth. Same is true with different castes and communities in India. Rate of fertility is higher among marginalized groups in our country. And, it is universally now accepted that fertility rate among Muslims in India is the highest than any religious groups. Many studies in India revealed the lower contraceptive use rates and higher fertility rates among Muslims than among Hindus and people of “other” religions are well documented (IIPS and ORC Macro 2000; Ramesh et al. 1996; Gulati 1996; IIPS 1995; Bhatia 1990; ORG 1990). Variety of reasons for lower contraceptive use and higher fertility among Muslims are highly debated in both academic and political circles (Pai Panandiker and Umashankar 1994). Some argue that lower contraceptive use and higher fertility among Muslims is mainly due to their lower socioeconomic status (Iyer 2002; Mistry 1999; Shariff 1995; Sharma 1994; Johnson 1993; Ghosh and Das 1990; Singh 1988; 1987; Krishnan 1984; Chaudhary 1982; Khan 1979), Among other explanations, some argue that lower contraceptive use and higher fertility among Muslims in India is due to their differential marriage patterns (e.g., early age at marriage and greater remarriage rates) (Bhagat and Unisa 1991; Krishnan and Yeung 1984; Davis 1951) and gender roles (e.g., seclusion and low status of women) (Mistry 1999; Krishnan and Yeung 1984). Others argue that it is due to economic and political interests and positions of different religious communities in India (Jeffery and Jeffery 1997).

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In this background, an attempt has been made in this paper to examine the fertility status of Muslim in Karnataka. It is strongly believed that Muslim families are child breeding centers, that Muslims produce more children, that Muslims never practice family planning, that Muslim population is growing faster than Hindus in India, that Muslim will become majority in India, that Muslims accept religious gurus orders and the like. Is it true that Muslims in India practice family? Are they not in favour in reducing their family size, what are their untold demands? These are the prime concern of this paper. This study is based only on secondary data predominantly NFHS and DLHS reports.

### Fertility by background characteristics

Fertility is one of the ways for biological replacement of human being in order to continue its existence on earth. If the human society is prevailing, it is through fertility only as one cannot control the death. That is why, among the three main aspects of demography namely fertility, mortality and migration, fertility always occupies a central position in population study. However, in human population with limited natural resource available, there arises a common concern not to take full advantage of human fertility. At the same time, fertility is not free from biological and social or environmental factors. The fertility rate of any population is always influenced by various factors directly or indirectly. The degree of influence of these factors on fertility may differ from population to population or from society to society. This is evident from the data shown in Table 1.

**Table 1 Fertility rate among different religious Communities in India and Karnataka**

Religions	Total Fertility						Mean number of children ever born to women Age 40-49					
	India			KARNATAKA			NFHS India			NFHS Karnataka		
	NFHS-1	NFHS-2	NFHS-3	NFHS-1	NFHS-2	NFHS-3	1	2	3	1	2	3
Hindu	3.30	2.78	2.59	2.73	2.04	2.08	4.78	4.34	3.91	4.57	4.04	3.1
Muslim	4.41	3.59	3.40	3.91	2.84	2.17	5.83	5.72	5.08	5.82	5.77	4.3
Christian	2.87	2.44	2.34	2.25	1.57	--	4.01	3.47	3.06	3.50	2.95	2.6

Sources: NFHS-I,II,&III India & Karnataka

Table 1 reveals the information about the fertility background of Hindu, Muslim and Christians. According to NFHS -I India and Karnataka total fertility rate of Muslims is higher than Hindus and Christians. It also shows that Fertility rate of Muslim is decreasing. It was 4.41 during the period of NFHS I, came down drastically during NFHS III. (3.40). However the rate of decrease is more Karnataka among Muslim women during the same period. (3.91 to 2.17). It is heartening that rate of decrease is more among Muslims in Karnataka than Hindus (see Table1).

### Birth Intervals :

Birth interval means the time elapsed between a full-term pregnancy and the termination or

completion of the next pregnancy. Parents manage the interval between births for personal, psychological, or economic reasons. Intervals of less than 17 months or more than 5 years increase the risk of certain maternal and child health problems, such as preeclampsia, eclampsia, low birth weight, preterm birth, and maternal mortality. A birth interval, defined as the length of time between two successive live births, indicates the pace of childbearing. Short birth intervals may adversely affect a mother's health and her children's chances of survival. Past research has shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between the births is less than 24 months (Pandey et al., 1998; Govindasamy et al., 1993). In this background, nature birth intervals practised among different religious background has been examined. The data pertaining to the same have been displayed in Table 2 to 4.

**Table 2. Birth Intervals among different religious Communities in India and Karnataka Months since Previous Birth**

Religion	18-23		24-35		36-47		48-59	
	India	Karnataka	India	Karnataka	India	Karnataka	India	Karnataka
Hindu	14.7	16.7	33.6	37.4	21.1	18.9	19.1	16.6
Muslim	16.2	16.8	34.6	35.7	20.2	15.9	16.1	14.6
Christian	17.9	18.2	33.6	39.4	18.2	12.1	19.8	15.2

Source: NFHS-I India and Karnataka

**Table 3 : Months since Previous Birth**

Religion	18-23		24-35		36-47		48-59	
	India	Karnataka	India	Karnataka	India	Karnataka	India	Karnataka
Hindu	15.5	20.0	34.2	34.6	20.0	19.2	18.1	15.9
Muslim	16.3	17.0	34.3	40.1	17.6	13.7	17.6	14.2
Christian	18.0	*	33.3	*	18.8	*	18.8	*

Source: NFHS-II India and Karnataka

\*Data not available

**Table 4: Months since Previous Birth**

Religion	18-23		24-35		36-47		48-59	
	India	Karnataka	India	Karnataka	India	Karnataka	India	Karnataka
Hindu	16.5	16.4	33.7	36.8	19.21	18.8	9.3	8.2
Muslim	15.4	17.1	33.3	30.7	19.4	20.7	8.5	7.9
Christian	17.4	*	30.6	*	18.1	*	9.5	*

Source: NFHS-III India and Karnataka

\*data not available

If we examine the data provided in Tables 2 to 4, the birth intervals between children are relatively less compared among Muslims to Hindus and Christians. This is obviously due to socio-economic factors like low level of education and income.

### **Desire to have no more children or desire to limit child bearing by religious community Karnataka**

It is observed that people want to have more male children than female. Most of them have the wrong impression that male child will look after them during old age. It is also observed that some of the women like to limit their child bearing with the concept i.e., that women have been sterilized or whose husbands have been sterilized are considered to not want have more children. The data provided in Tables 5 to 7 on the basis of NFHS I to III however reveals no much difference between Muslims and Hindus.

**Table 5. Percentage of currently married women who want no more children by number of living children according to religious groups in Karnataka NFHS 1**

Religion	0	1	2	3	4+
Hindu	3.2	18.4	68.8	85.5	91.1
Muslim	-	14.5	41.1	71.1	80.6
Christian	-	-	-	-	-

Source: NFHS-I Karnataka

**Table 6 Percentage of currently married women who want no more children by number of living children according to religious groups in Karnataka NFHS II**

Religion	0	1	2	3	4+
Hindu	1.1	22.8	82.0	90.1	86.8
Muslim	(0.0)	17.3	55.1	76.0	82.3
Christian	*	28.7	80.0	*	*

Source: NFHS-II Karnataka

( ) –based on 25-49 unweighted cases

\*- percentage not shown based on fewer than 25 unweighted cases

**Table 7: Percentage of currently married women who want no more children by number of living children according to religious groups in Karnataka NFHS III**

Religion	0	1	2	3	4+
Hindu	-	39.0	89.1	94.2	95.2
Muslim	-	18.4	78.7	91.4	88.0
Christian	-	*	(85.3)	*	*

Source: NFHS-III Karnataka

## Need for Family Planning

Unmet need for family planning is defined as the percentage of women of reproductive age, either married or in a union, who have an unmet need for family planning. Women with unmet need are those who are want to stop or delay childbearing but are not using any method of contraception. The data shown in Table 8 clearly shows that Muslim women have higher unmet need than any other religious groups.

**Table 8 Unmet need for family planning among different religious groups in Karnataka**

Religion	Unmet need for FP NFHS-1	Unmet need for FP NFHS-2	Unmet need for FP NFHS-3
	Total	Total	Total
Hindu	17.1	10.8	9.1
Muslim	26.2	16.8	12.4
Christian	22.6	13.8	17.7

Source: NFHS I, II and III Karnataka

## Family planning

Family planning is not confined to only birth control or contraception. It is important as whole for the improvement of the family's economic condition and for better health of the mother and her children. First of all, family planning highlights the importance of spacing births, at least 2 years apart from one another. According to medical science, giving birth within a gap of more than 5 years or less than 2 years has a seriously affect the health of both the mother and the child. Giving birth involves costs and with an increase in the number of children in a family, more medical costs of pregnancy and birth are involved, along with incurring high costs of bringing up and rearing the children. It's the duty of the parents to provide food, clothing, shelter, education to their children. Family planning, if adopted, has an effective impact on stabilising the financial condition of any family.

**Table 9 Family planning Method among different religious group in Karnataka**

Contraceptive Methods	Hindu			Muslim			Christian		
	NFHS 1	NFHS 2	NFHS3	NFHS 1	NFHS 2	NFHS 3	NFHS 1	NFHS 2	NFHS 3
Any method	50.6	60.1	64.7	36.8	44.2	56.2	47.6	58.2	54.2
Any modern method	48.8	58.4	63.7	35.9	43.5	55.5	39.3	50.6	48.4
Female sterilization	42.8	53.5	59.1	27.7	38.7	46.6	28.6	38.8	40.8
Male sterilization	1.7	0.6	0.2	0.7	0.6	0.0	---	2.1	0.0
Any traditional method	1.8	1.6	1.0	0.9	0.2	0.7	8.3	7.6	5.7
Other Method	0.1	0.0	---	---	0.4	---	---	0.0	---

Source: NFHS I, II and III Karnataka

It is obvious from the table 9 that use of different methods of family planning relatively low among Muslims than their counter parts.

### Age at first Cohabitation :

The number of children that a woman will have in her lifetime is strongly influenced by the age at which she marries. In many parts of India, however, formal marriage is not always immediately followed by cohabitation. Rather, the husband and the wife begin to cohabit only after the *gauna* ceremony. Even in states where *gauna* is not practised, a marriage may not be consummated immediately if it occurs at a very young age. In such instances, there is a difference between age at marriage and age at consummation of marriage.

Table 10, 11, and 12 reveals the information about the age at first cohabitation.

**Table 10 Mean Age at First cohabitation among different religious in India NFHS1**

Current Age

Religion	25-29	30-34	35-39	40-49
Hindu	16.4	16.1	15.8	15.4
Muslim	16.4	16.0	15.8	15.5
Christian	20.4	20.5	19.9	19.4

Source: NFHS 1 India

**Table 11: Age at First cohabitation among different religious in India NFHS 2**

Current Age

Religion	25-29	30-34	35-39	40-49
Hindu	17.4	17.0	16.8	16.7
Muslim	17.3	16.8	16.7	16.6
Christian	21.2	20.2	20.4	20.2

Source: NFHS 2 India

**Table 12: Age at First cohabitation among different religious in India NFHS 3**

Current Age

Religion	25-29	30-34	35-39	40-49
Hindu	20.0	19.6	19.6	20.2
Muslim	19.3	19.0	18.9	19.3
Christian	22.2	23.1	22.3	23.1

Source: NFHS 3 India



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## Conclusions :

From the foregoing analysis we can reiterate positively that Muslims in India also started showing favourable inclination towards reproductive health status. Fertility rate of Muslim women has drastically come down over the years. Muslims are also favoring small family norm by adopting family planning techniques. Though they have fairly higher percentage of unmet family planning desires. It is wrong to conclude Muslim women do not have choice in maintaining family. Poverty, attitude towards secular education, negative attitude of religious leaders blocked Muslim women from adopting small family norms. Conservative attitude towards decreasing family size considerably changed in recent times. This will not only develop Muslims but nation as a whole.

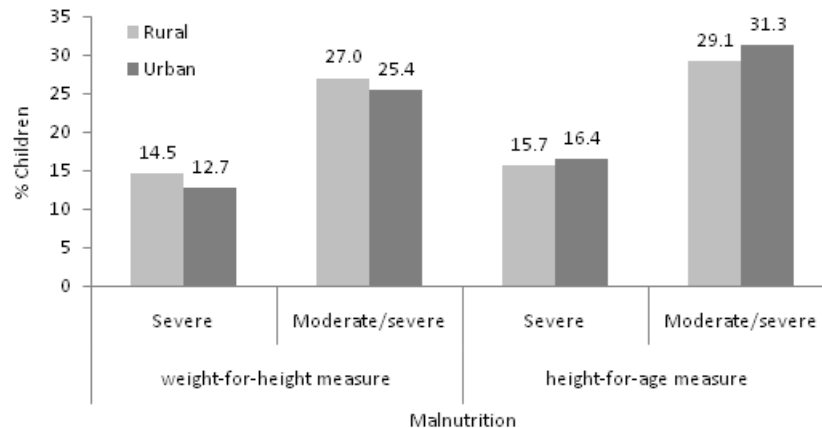
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## CURRENT STATISTICS

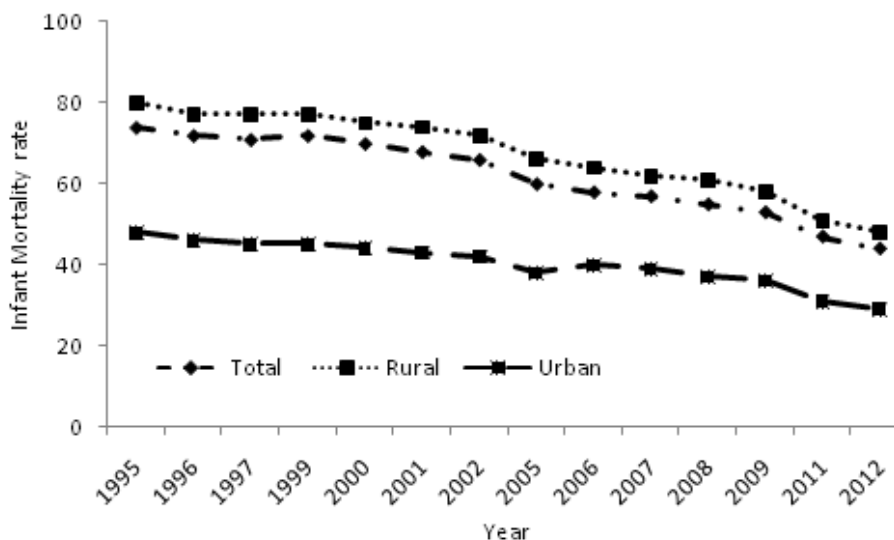
### Percentage malnourished among children younger than five years, according to children's weight-for-height measure and height-for-age measure, by place of residence for Karnataka, 2012-13.



Note: Based on comparison with the WHO Child Growth Standards adopted in 2006. Children two or more standard deviations below the median of the reference are considered moderately or severely malnourished; those three or more standard deviations below the median of the reference are considered severely malnourished.

Source: DLHS-4, 2012-13.

### Infant mortality trends by place of residence and year for India, 1995-2012.



Note: Infant mortality rate - Probability of dying between birth and exactly one year of age expressed per 1,000 live births.

Source: SRS bulletins, 1999-2012.