

# An Exploratory Study on Socio Economic Status Scales in a Rural and Urban Setting

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## ABSTRACT

**Background:** There are many different scales to measure socioeconomic status (SES). The present study was conducted with the objective to compare the most commonly used SES in rural and urban setting. **Materials and Methods:** This exploratory study was conducted in the rural and urban field practice area of a medical college situated in Bangalore for a period of 3 months between January and April 2010. **Statistical Analysis Used:** To measure the agreement between the scales spearman's rank correlations was applied. **Results:** A total of 120 families were included in the study. Among the 60 families surveyed at rural setting, it was observed that, majority 40 (67%) belonged to high class when the Standard of Living Index (SLI) scale was applied. Among the 60 families surveyed at urban setting, majority 30 (50%) belonged to high class when the SLI scale was applied. **Conclusions:** The SLI scale gives a more accurate and realistic picture of the SES of the family and hence should be the scale recommended for classification of SES in urban and rural setting.

**Keywords:** Modified Kupuswamy scale, pareek scale, prasad scale, socioeconomic status scale, standard of living index

## Introduction

The socio economic status (SES) is an important determinant of health, nutritional status, mortality and morbidity of an individual. SES also influences the accessibility, affordability, acceptability and actual utilization of available health facilities.<sup>[1]</sup>

There has been a lot of discussion of late in the country regarding the number of people living below the poverty line (BPL families). They vary from 42% and 26% in rural and urban India.<sup>[2]</sup> They also differ based on the different committees that had been formed to look into the problem. There is a need to identify the actual beneficiaries who will be benefitted by the government programs/subsidies. One of the tools available to measure the problem is the identification of SES of the family by applying the SES scales.

There are many different scales to measure the SES of a family. B G Prasad classification proposed in the year 1961 is a scale based on per capita monthly income (modified in 1968 and 1970), and has been used extensively in India.<sup>[3]</sup> In rural areas Pareek classification based on nine characteristics viz. caste, occupation, education, level of social participation of head of the family,

landholding, housing, farm power, material possession and total members in the family is widely used.<sup>[4]</sup> Modified Kuppuswamy scale is commonly used to measure the SES in the urban communities. The scale includes the education, occupation of head of the family and income per month from all sources.<sup>[5]</sup> To get current income group, a conversion factor calculated based on current All India Consumer Price Index (AICPI) is applied.<sup>[5]</sup> The Government of India in the National Family Health Survey (NFHS - II) had used the Standard of Living Index (SLI) scale which contains 11 items viz. house type, source of lighting, toilet facility, main fuel for cooking, source of drinking water, separate room for cooking, ownership of the house, ownership of agricultural land, ownership of irrigated land, ownership of livestock, ownership of durable goods for measuring the SES both urban and rural areas for the entire country.<sup>[6]</sup> However each of these scales available for measurement have their own advantages and disadvantages. The question asked is which of these classifications best measures SES of the population.

The present study had explored the usefulness of SLI scale as a tool for measuring SES of the family in both urban and rural areas.

In this background the present study was conducted with the objective to compare the most commonly used SES scales in rural and urban setting

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## Materials and Methods

This exploratory study was conducted in the rural and urban field practice area of the department of Community Medicine, in a medical college situated in Bangalore for a period of 3 months between January and April 2010. A total of 120 families were included in the study; of which 60 were from the rural setting (Tagachakuppe village) and 60 from urban setting (Parvathipura). The study subjects were the permanent residents of the area. The families were selected by using systematic random sampling technique (every 5<sup>th</sup> house). All sections of the society living in these areas were included. Those families who were cooperative and willing to participate were included in the study. The data was collected by interviewing the adult responsible respondent in the family.

For comparison of the scales, in the rural area three commonly used SES scales were applied on the same family at the same time one after the other by the investigator; viz. SLI, Pareekh scale and Prasad scale. Similarly in urban areas three commonly used SES scales viz. SLI, Modified Kuppuswamy scale and Prasad scale were applied. The correction factor for Prasad and Modified Kuppuswamy classification were calculated by taking All India Consumer Price Index (AICPI) as on 31<sup>st</sup> December 2009. The data was entered in Microsoft excel-2007 and the analysis was done using SPSS 16.0v. To measure the agreement between the scales, Spearman's rank correlation was applied. However the only limitation of the study was that the scale could not be applied to families living in some sections of the society (slums, migrant families, etc) as they were not available in the rural and urban setting where the study was conducted.

## Results

In the present study 120 families were visited and interviewed; of which 60 were in rural and 60 in urban settings. Among the 60 families surveyed at rural setting, it was observed from Table 1 that, majority 40 (67%) belonged to high class when the SLI scale was applied. When for the same families Pareek scale was applied, majority 30, i.e., (50%) belonged to the middle class and similarly majority 38 (63%) belonged to upper and lower middle class when Prasad scale was applied.

Among 60 families surveyed at urban setting, it was observed from Table 2 that, majority 30 (50%) belonged to high class when the SLI scale was applied. When for the same families Modified Kuppuswamy scale was applied, majority 50 (83%) belonged to the upper lower and lower class of and similarly maximum 32 (53%) to upper middle and lower middle class of Prasad scale.

From Table 3 in the rural setting, among the 40 (67%) families classified as high class in the SLI scale, high class was observed in only 6 (15%) families by Pareek's scale and only 2 (5%) family by Prasad scale. A rank correlation computed between SLI and Pareek's classification in the above data shows that there is a medium degree negative correlational disagreement ( $R = -0.424$ ,

$P = 0.243$ ) between them. There was also a similar observation between SLI and Prasad's classification

Similarly when the different scale was applied on the same families, it was observed out of the remaining 34 (SLI had classified 40 families as high class) families classified as high class, 22 (55%) families were classified as middle class by Pareek's scale and 24 (60%) families belonged to upper middle and lower middle class of Prasad scale.

Again from Table 3, 18 (30%) families were classified as medium class in the SLI scale. However among them only 8 (44%) families (other scales applied on the same families) had belonged to the middle class of Pareek's scale and 12 (67%) belonged to upper middle and lower middle of Prasad scale. A rank correlation computed between SLI and Pareek's classification in the above data shows that there is a low degree of negative correlational agreement ( $R = -0.227$ ,  $P = 0.488$ ) between them.

Lastly there was only 2 (3%) families which was classified as low class in SLI, the same two families had also belonged to low class in Pareek's scale and upper lower class of Prasad's scale.

When the z scores of Prasad scale, Pareek scale and SLI for each household were compared with one way ANOVA there was no statistically significant difference observed ( $F = 0.074$ ,  $P = 0.929$ ).

From Table 4 in the urban setting, among the 30 (50%) families classified as high class in the SLI scale, only 8 (27%) families belonged to the high class of Prasad's scale which shows that there is low degree positive correlational agreement ( $R = 0.166$ ,  $P = 0.845$ ). There was no family classified in the upper class when modified Kuppuswamy classification was used.

**Table 1: Comparison of SES scales in rural setting (n = 60)**

SLI	Frequency	Pareek classification	Frequency	Prasad classification	Frequency
High	40 (67)	Upper	6 (10)	Upper	2 (3)
Medium	18 (30)	Middle	30 (50)	Upper middle	8 (13)
				Lower middle	30 (50)
Low	2 (3)	Lower	24 (40)	Upper lower	20 (34)

Note: Figures in parenthesis indicate percentage

**Table 2: Comparison of SES scales in urban setting (n = 60)**

SLI	Frequency	Modified Kuppuswamy classification	Frequency	Prasad classification	Frequency
High	30 (50)	Upper	-	Upper	8 (13)
Medium	26 (43)	Upper middle	4 (7)	Upper middle	10 (17)
		Lower middle	6 (10)	Lower middle	20 (33)
Low	4 (7)	Upper lower	46 (76)	Upper lower	22 (37)
		Lower	4 (7)	Lower	-

Note: Figures in parenthesis indicate percentage

**Table 3: Comparison of individual family scores of SES scale in rural setting (n = 60)**

SLI		Pareek's classification		Prasad's classification	
Class	Frequency	Class	Frequency	Class	Frequency
High	40	High	6 (15)	Upper	2 (5)
		Middle	22 (55)	Upper middle	4 (10)
Medium	18	Low	12 (30)	Lower middle	20 (50)
			8 (44)	Upper lower	14 (35)
		Middle	8 (44)	Upper middle	4 (22)
Low	2	Low	10 (56)	Lower middle	8 (44)
		Low	2 (100)	Upper lower	6 (34)
				Upper lower	2 (100)

Note: Figures in parenthesis indicate percentage

**Table 4: Comparison of individual family scores of SES scale in urban setting (n = 60)**

SLI		Modified Kuppuswamy classification		Prasad classification	
Class	Frequency	Class	Frequency	Class	Frequency
High	30	Upper middle	4 (13)	Upper	8 (27)
		Lower middle	4 (13)	Upper middle	16 (53)
				Lower middle	4 (13)
Medium	26	Upper lower	22 (74)	Upper lower	2 (7)
		Lower middle	2 (8)	Upper middle	10 (38)
		Upper lower	24 (92)	Lower middle	6 (24)
				Upper lower	10 (38)
Low	4	Upper lower	2 (50)	Upper lower	4 (100)
		Lower	2 (50)		

Note: Figures in parenthesis indicate percentage

Similarly when the different scale was applied on the same families, it was observed that out of the remaining 22 (SLI had classified 30 families as high class) families classified as high class, majority 22 (74%) families were classified as upper lower class of modified Kuppuswamy scale and 20 (66%) family belonged to upper middle and lower middle of Prasad's scale.

Again from Table 4, 26 (43%) families were classified as medium class according to the SLI scale. However among them only 8% families had belonged to the lower middle class of modified Kuppuswamy scale and 62% belonged to upper middle and lower middle of Prasad's scale. A rank correlation computed between SLI and Prasad's classification in the above data shows that there is a medium degree positive correlational agreement ( $R = 0.676$ ,  $P = 0.154$ ) between them.

Lastly out of the 4 (7%) families which was classified as low class in SLI, 2 families each had belonged to upper lower and lower class in modified Kupusamwy scale and 4 (100%) families had belonged to the upper lower class of Prasad's scale.

When the z scores of Prasad scale, modified Kuppuswamy scale and SLI of each household were compared using one way ANOVA there was no statistically significant difference observed ( $F = 0.074$ ,  $P = 0.929$ ).

A rank correlation computed between SLI and modified Kuppuswamy classification, SLI and Prasad's classification in the above data shows that there is a positive correlational agreement; however as the sample size is very small, statistical conclusion drawn cannot be generalized.

## Discussion

In the rural areas, the SLI was compared with Pareek's scale and Prasad scale. Out of the families compared in the rural setting, it was observed that the SLI had categorized majority (67%) of the families as high class; however, majority of the same families were grouped as middle class when Pareek's scale and Prasad's (upper and lower middle) scale was applied. NFHS-II had shown 18% of Indian households had a high standard of living, 44% had a medium standard of living, and 36% had a low standard of living.<sup>[6]</sup> A new instrument developed for measuring SES of rural area had observed that 86% of the study subjects belonged to high SES, 9% belonged to upper high, 5% to upper middle categories in the rural areas. No family belonged to lower middle or poor, only one family belonged to very poor SES category.<sup>[1]</sup> Similarly 15% of the families who had belonged to low class in Pareek scale and upper lower class of Prasad scale had also been placed under high in SLI.<sup>[6]</sup> This implies that B G Prasad scale and Pareek's scale which were focused on income and possessions did not give the realistic picture of living standards. We can conclude from the above observations that families will be classified inappropriately by using different scales. Thus, SLI stands out as a unique reliable measure of SES at rural setting by taking into consideration the wealth possession.

In the urban areas, the SLI was compared with modified Kuppuswamy scale and B G Prasad scale. It was observed that the SLI had categorized majority (50%) of the families as high class; however, majority of the same families were grouped as lower class (upper lower and lower) when modified Kuppuswamy scale was applied and middle class (upper and lower) when Prasad scale was applied. NFHS-II had observed that 39% of Indian households had a high SLI, 47% had a medium SLI, and 14% had a low SLI.<sup>[6]</sup> However, the present study observation is similar to the findings of another study who had observed an agreement percentage of 21% for low, 85% for upper low, 11% for lower middle and 16% for upper middle when they had compared with modified Kuppuswamy scale.<sup>[7]</sup> 61% belonged to upper high SES, 38% to high and 0.7% to upper middle.<sup>[1]</sup> No family belonged to lower middle, poor or very poor SES.<sup>[1]</sup>

The modified Kuppuswamy scale primarily measures SES of urban population, lays emphasis on professional education and occupation of the head of the family. Thus an uneducated, unskilled member of the family with a high income is likely to be in the upper lower category, even though he has good standard of living and can afford good health care. It therefore does not necessarily reflect the standard of living or other human development indicators such as sanitation and health. Conversely well educated/skilled person may remain jobless

with poor income and poor standards of living. Accurate identification of low category is important to health indices. Modified Kuppuswamy scale is biased to upper low as it gives little importance to possessions and more to level of education.<sup>[7]</sup>

There is a universal relationship between socio-economic position and health, and often that the 'best' measure is the one that produces the strongest association between socio-economic position and health. Investigators wanting to examine the relationship between socio-economic position and health need to decide which health measure to use. If one wishes to demonstrate strong associations between SES and health, it would be better to use limiting long-standing illness, men, income and household rather than individual measures of social position, and older measures of occupational social class.<sup>[8]</sup>

There was no evidence that use of health services varied according to their SES in children and young people and minority ethnic groups received a poorer quality of health care.<sup>[9]</sup> The authors had concluded that in empirical studies household-based measures are appropriate if material resources or the purchasing power of households are depicted. Individual income is a different measure that should be chosen if the individual position in terms of status or material success is to be measured.<sup>[10]</sup> The strengths and limitations of any measure of socio-economic position (SEP) depend on the context and purpose for which it is being used. In these data, the wealth index was strongly influenced by community infrastructure, whereas the subjective SEP measures were not, perhaps allowing analyses using them to disentangle household and community influences.<sup>[11]</sup>

There are still important socio-economic gradients in the use of some health services. Further research needs to focus on socio-economic differences in the reasons, the outcome and the quality of the provided care.<sup>[12]</sup> New Zealand Socio Economic Index can be used on routinely collected occupational data. It has a clear conceptual rationale, updates existing SES scales, and provides a link to international standards in SES and occupational classification.<sup>[13]</sup> There is a need for developing a uniform system of socioeconomic classification of the population universally based on the income with scientific basis and should be applied with ease and simplicity in each sector or strata wise of population.<sup>[14]</sup> The combination that would seem most promising would be either occupational social class or education paired with the Townsend deprivation indicator or perhaps a combination household resource/Townsend deprivation indicator. We would suggest that using a combination of this type in studies of health inequalities and differentials in use of health care would improve our knowledge of the extent, possible causes and consequences of social inequalities in the older population.<sup>[15]</sup> We recommend an outcome- and social group-specific approach to SES measurement that involves (1) considering plausible explanatory pathways and mechanisms, (2) measuring as much relevant socioeconomic information as possible, (3) specifying the particular socioeconomic factors measured (rather than SES overall), and (4) systematically considering how potentially

important unmeasured socioeconomic factors may affect conclusions.<sup>[16]</sup>

To determine the SES of a person or family, knowing the possessions could be sufficient without having to inquire about their monthly earning or education. Moreover, the consumer prize index has to be determined to multiply the income groups to get the appropriate groups for that year. Accurate measurement of family income is also difficult. Similarly to focus only on income in measuring the SES does not give the correct picture.

We can conclude from the above observations that families will be classified inappropriately by using different scales. Thus, SLI stands out as a unique reliable measure of SES at urban setting by taking into consideration the wealth possession. The world bank had used household ownership to assess the SES, standard of living and its impact on health care.<sup>[17]</sup>

The main advantage SLI scale has over other scales is that the same SLI scale can be applied in both rural and urban settings and is based on a scoring system which can be modified depending on the requirements. Thus families classified under SLI are more in touch with reality.

However in the present study as the sample size is small, one needs to conduct similar studies involving a larger population covering all sections of the society and wider geographical area before we can generalize our study results.

## Conclusion

The SLI scale gives a more accurate and realistic picture of the SES of the family and hence should be the scale recommended for measurement of SES in urban and rural setting.

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