Development & standardization of a scale to measure socio-economic status in urban & rural communities in India

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Background & objectives: The commonly used available scales for measurement of socio-economic status (SES) with some cross regional applicability are old and have lost their relevance. There is a need for the development of a valid and reliable instrument for measurement of SES in rural and urban communities in India. The present study was undertaken to develop a cross regionally applicable scale for the purpose of enlisting true measures of socio-economic items applicable in multilingual, multicultural, multireligious, setting of the country.

Methods: For developing the scale, seven indicators (house, materials possession, education, occupation, monthly income, land, social participation and understanding), presumably determining the socio-economic status were selected. These indicators were named as profiles. Thus, initially the scale had seven profiles and every profile contained five alternatives. This instrument was prepared on a 10-point scale. Weightage system of scoring (varying from 2 to 10) was followed from first to sixth profile while the additive pattern of scoring was followed in seventh profile. The final version of the scale was arrived at through three trial administrations on rural and urban families. The basis of selection of the families for the first two trials was stratified random. The validity and reliability of the scale was established through a defined visual analogue scale (VAS) and test-retest methods.

Results: Both the initial version as well as the final version of the scale for the measurement of SES of incumbents had seven profiles. The difference between the two versions was in terms of contents and range of items in different categories of SES. The final version was arrived at through field trials and suggestions of the experts. The reliability of the scale was high with a correlation coefficient of 0.998.

Interpretation & conclusion: The new scale appears to be a valid and reliable instrument for the assessment of socio-economic status of the families/individuals from urban as well as rural areas in India.

Key words Family - indicator - socio-economic status - visual analogue scale
and execution of developmental programmes and, therefore, there is a need for the development of a valid and reliable instrument for the measurement of SES. Socio-economic status of a family would mean the ranking of the family in the milieu to which the family belongs, in respect of defined variables viz., physical assets, economic status, education, occupation, social position, social participation, caste, muscle power, political influence, etc. Some elements of the above variables have a tendency to go together.

It was felt that the currently available scales were either outdated or there was a need for redefinition of some relevant items for indicating the SES accurately. Moreover, these scales were developed on smaller samples drawn from sub-strata of population and not on larger representative cross-section of the community, (for example-Bharadwaj scale on students; Srivastava scale, Kulshrestha scale and Jalota scale on urban families; Shirpurkar scale and Rahudkar scale on farm families). So, with a purpose of developing a reliable and valid instrument for measuring the SES, a field study was planned and carried out in the urban and rural areas of Lucknow district, Uttar Pradesh to identify and group the elements, which have a tendency to go together. The exercise of grouping the items/elements was done with the help of available experts (psychiatrists, psychologists, sociologists) as well as available standard SES assessment scales. The draft outline of thus reached scale was launched for finalization of the scale through field trials.

Material & Methods

Formulation of the scale: The study was conducted by the Department of Psychiatry, King George’s Medical University, Lucknow during August 2002 to March 2004. For formulating the scale at initial stage, some known indicators of socio-economic status such as house, material possession, education, occupation, income, land, caste and social participation were listed with the help of available scales. The prepared list of SES indicators was submitted to experts to comment on the relevancy of those indicators in the present context. There was a general agreement among the experts for seven indicators, which were considered relevant in measuring the SES of any family. These indicators were named as profiles. With every profile, some alternatives were added and then resubmitted to experts. It was pointed out that with every profile, only 5 alternatives should be contained and every alternative should be given the weighted score. Many indicators and their alternatives, which were not approved by the experts or found to be insignificant in measuring the SES, were subsequently discarded.

The weighted score for every alternative of the profile was determined on the basis of recommendation given by the experts, the experience of the researcher and the importance given by the community. Thus, the first draft had seven profiles deciding the SES. These profiles were: house profile, material possession profile, education profile, occupation profile, economic profile, cultivated land profile, and social profile. The first and second profiles were divided in two sub-parts. House profile was divided into land area and house type while material possession profile was divided into household gadgets and conveyance facility.

This first draft of the scale was administered on 25 families selected on stratified random basis, from urban and rural areas of Lucknow district. In course of administration of the scale, it was found that the range of the land area in house profile was not appropriate. Therefore, in final draft it was expanded. Moreover, the alternatives in the house type of the same profile were also redefined in the final draft. In the sub-section of the material possession profile, some more household gadgets, which reflect SES, were added. The sixth profile i.e., cultivated land profile in the first draft was renamed in the final draft as possessed land/house cost profile. In this profile, cost of the possessed land/house was divided into five categories and weighted accordingly. The final draft of the scale was again administered on 20 families from rural and 10 families selected on stratified random basis from urban areas of Barabanki district, UP. The participants expressed their willingness to co-operate with the study which was done with the twin objective of cross checking the validity of the contents and elements of items in each of the seven profiles of the scale as well as to assess its reliability by re-administering the scale on the same families after a gap of 45 days.

The final draft: The administration and re-administration of the final draft of SES scale on 20 rural and 10 urban
families of Barabanki district resulted in necessitating no changes in the basic structure of the scale. It only required some additions in the contents/elements of the specific profiles of the scale. These contents/elements had local relevance.

Arriving at final version of the scale: The final draft of the scale was sent to 55 experts through author’s network and personal contact across all the five zones of country with the objective of making the scale culture-free in multilingual, multicultural and multi-religious settings of our country. The experts were requested to contribute in this venture by administering the scale on 50 families (25 from rural, 25 urban areas inclusive of 5 families each from 5 defined strata i.e. - upper, upper-middle, middle, lower-middle, and lower) from the local region. Of the 55, only 12 experts (4 from North zone, 3 from South zone, 2 each from East and West zones and 1 from Central zone) responded. Thus the scale was re-administered on 610 families (238 from rural and 372 from urban areas) across the country in addition to 80 families from Lucknow centre (N=690). All the 12 experts were of the opinion that the scale was a useful, valid and reliable instrument and according to current need except one expert who had problems in rating ‘house profile’ in respect of no provision for ‘no land area’ for the incumbents in the final draft of the scale. Useful suggestions were incorporated and necessary modifications were done in the final draft to make it culture-free, standard and countrywide applicable scale both in urban and rural areas. After all these exercises, the final version of the scale was developed.

Visual analogue scale ratings: An additional exercise of classifying the families on visual analogue scale (VAS) according to their SES was done by the interviewer on the basis of his/her opinion/judgment. VAS is a horizontal scale and is divided into five sections which indicate different SES class of the scale as upper, upper-middle, middle, lower-middle, and lower.

In this method, the interviewer has to rate the SES of the family based on his/her observations, discretion and judgment in the context of local setting. At the end, the two ratings i.e., rating of the SES scale and VAS rating given by the interviewer, were matched with each other. If these were similar, it was taken as final SES category. In case of difference, the rating exercise on SES scale and on VAS was repeated till they matched.

Testing of the final draft: The final draft of the developed scale was tested in terms of reliability and validity.

Reliability: The reliability of the scale was determined by test-retest method. This method consists of submitting a group of individuals/candidates of above SES scale and compiling their respective scores. After some time, the same test is repeated on the same population and then scores are noted again. The two series of scores are arranged pair-wise, a pair being the scores of the candidate in two repetition of the test. Karl-Pearson’s coefficient of co-relation between the two series is taken as the measurement of reliability.

For finding the reliability of the scale, it was administered on a sample of 30 families (10 from urban and 20 from rural areas) of Barabanki district. After an interval of 45 days, it was again re-administered on the same sample. The co-relations between the two scores were calculated by Karl-Pearson’s coefficient of correlation.

Validity: The concurrent validity was tested on the final draft. The usual way of testing concurrent validity is by finding out how well scores correspond to some outside criterion of variable being measured. The relationship of the scale scores with identifiable groups (known groups) was used as the criterion for this purpose.

For testing the concurrent validity, three resource persons who knew very well about their locality and population, were individually explained the exercise and requested to identify families in their locality who, as per their discretion and judgment, belonged to upper, upper-middle, middle, lower-middle and lower socio-economic groups. Of a total of 50 families there was a total agreement between the resource persons in respect of the SES category to which 39 (25 from rural and 14 from urban) families belonged. Among 11 families where the opinions differed about the SES category of the families, the difference was of only one class (up or down). When the developed scale was applied on these 39 families, it classified all but four families in the category to which they were classified by resource persons. The four families with disagreement were
classified as belonging to middle SES class by the scale, while two each were classified as belonging to upper-middle and lower-middle classes by the resource persons. These findings showed very high validity of the scale, demonstrating its sensitivity to discriminate families between upper, middle and lower classes.

Results & Discussion

The final scale: The final version of the scale consisted of seven profiles. The family could be placed in any of the five mutually exclusive sub-categories of each profile. Each profile contained five alternatives.

The first profile *i.e.*, house profile was divided into two sub parts-land area and house type. The total land area included constructed + unconstructed area, and the house type covered different type walls, floorings and a roof of a house.

The second profile material possession profile was also divided into two sub parts-household gadgets and conveyance facility. The alternatives in household gadget were defined according to the quantity and total cost of the gadgets. Same criteria were adopted with the conveyance facility. In this profile, common household possession and conveyance facility, according to their average cost, were included in the list. There could be other possessions (ornaments, brass or copper utensils *etc.*) which might have local relevance in determining the SES of the family/individual. These items should also be enquired and incorporated in the list according to their average cost.

The alternatives in the third profile were defined according to the educational status achieved by those members of the family who have crossed the school going age. Weighted scores for achieved educational status were given, *e.g.*, ‘0’ for illiterate and ‘10’ for higher studies (Ph.D., M.D., M.S., *etc.*).

The fourth profile was occupational profile. The alternatives in this profile were categorized according to occupation of the family members. This profile related to the primary occupation of the individual. The major source of livelihood was considered as a primary occupation. Weighted scores for achieved occupational status were given, ‘0’ for no gainful employment and ‘10’ for class-I or equivalent jobs (senior professionals, graduate, post graduate teachers, high profile farmers and businessmen, political leaders, *etc.*).

In the fifth profile, the alternatives were classified according to the per capita income of the family. For calculating the per capita income, total family income from all sources was divided by total number of family members. Per capita income of Rs. 500/- and below got a score of 2, and more than Rs. 15,000/- in urban and more than Rs. 10,000/- in rural got a score of 10.

In the possessed land/house cost profile, the alternatives were defined according to the cost of land owned or cultivated by the family. If the respondent was living in the city and had rural farming land/orchard/ponds/any other house *etc.* as well, that was also taken into account for this section. ‘No land/house’ got a score of ‘0’ while the total cost being more than Rs. 50,000/- got a maximum score of 10.

The social profile was also divided into two sub parts-understanding and participation. The alternatives in understanding sub-profile were defined according to the knowledge of social issues while in the participation sub-profile, these alternatives were defined according to their involvement in social activities. The social issues and the activities were classified into five types *viz.* religious-cultural, developmental, educational, health promotional, and political. No participations or understanding individually in the above five types of activities was scored ‘0’ and participation/understanding in them got a score of ‘2’.

Scoring in the scale: Scoring in the scale was easy and of quantitative type. All the seven profiles were equally weighted, each having a maximum score of 10. Upto sixth profile, every alternative had only one weightage score that ranged from 2 to 10. The seventh profile was additive in nature.

Since the first two profiles (house and material possessions profiles) had two sub parts each, the weighted score given against the alternatives in these two sub parts were added first and then divided by 2 to arrive at the final score. For deciding the final score on educational profile, summation of weighted score achieved by individuals was divided by total number of
family members who were getting education or had completed education. Similarly, summation of weighted scores achieved by family members on occupational profile (who were engaged in monetarily gainful activities) was divided by the same number of individuals to arrive at the final score on the occupational profile.

Scoring on the economic and possessed land cost profile directly gave the final score. Scoring on the social profile was additive in nature. This profile was divided into two sub-parts. The score obtained on every reported alternative in each sub-profile was first added up. The added scores of both these two sub-profiles were again added and divided by 2 to arrive at the final score.

**Instructions to the users of the scale:** The following instructions were drafted for the users of the scale –
(i) The scale can be self-administered with literate subjects as well as administrable by interviewer, preferably later. Group administration should be avoided. In every situation, the interviewer must ensure ratings on visual analogue scale; (ii) the information should preferably be collected from the key informant(s) from the family who can provide first hand information on items/variables; (iii) the socio-economic status of an individual should be deemed to be the same as the SES of family to which this individual belongs; (iv) from first to sixth profile, every alternative has only one weighted score ranging between 2 to 10 (in even numerals) which has to be ticked (√) by the interviewer/rater; (v) for giving the score on seventh profile, the interviewer has to ask about every alternative from the respondent(s) and then to tick the weighted score shown below the alternatives in each sub-profile, as reported by the respondent(s) or entered by the respondent(s); (vi) from profile one to four and in profile seven, the ticked score has to be calculated according to the formulae given below that profile to arrive at the final score; (vii) the ticked score in profiles five and six directly gives the final score; (viii) the final score in every profile should be written in the box given against the same; (ix) if any person is not able to give the information in terms of sq.ft. in land area of house profile and in possessed land/house cost profile, it can also be obtained in biswas or beeghas. Since measurement of biswas or beeghas many vary from region to region, please ask the local measurement unit of biswas or beeghas in terms of sq.ft. and convert it into standard scale given below:

1 Biswa = 1361 sq.ft. = 126.60 sq.mt.

1 Beegha (pucca) = 20 Biswa = 27,220 sq.ft. = 2,532.09 sq. mt.

1 sq. mt. = 10.75 sq. ft.

(x) if any person is living in a rented house and has intentions of permanent settlement there, the land area and house type of that rented house should be considered for collecting the information on house profile; (xi) for collecting the information on material possession profile, the average cost given against every item listed should be updated from time to time. If the cost of individual item increases or decreases, the total cost range given in the alternatives should accordingly be revised. As there may be some cultural differences from region to region, there might be some other important possession (for example - copper or brass utensils or ornaments) which play a dominant role in determining the SES of the family/individual in that region. These possessions should also be included in the list given against the same profile according to their quantity and cost; (xii) if any person is illiterate, he/she will also be counted in number of index family members for giving the final score on educational profile. The number of those family members who have not yet reached the school going age, will not be considered for scoring in the same profile; and (xiii) primary occupation is to be considered in case of a person if he/she has more than one occupation for giving the scores in occupational profile. To give the score to the retired persons/pensioners, he/she should be placed in the appropriate category (for example class-I, class-II, class-III, class-IV and others) mentioned against the same profile, according to the amount of pension he/she is getting. Defence personnel should also be ranked according to their class for scoring in the same profile.

**SES categories and the score range:** Once the information on the seven profiles was collected, scored and added, the SES categories could be derived by the score range using inclusive method. Since the cost of living index varies from city to city, to make this scale applicable countrywide, the score range was classified into five types according to the different categorization of the city based on Central Govt. city compensatory allowance rules.

**Updation of the scale:** To keep this scale valid for a long period, the alternatives given in the series profiles of the scale should be redefined from time to time.
preferably after every five years. The items incorporated in the list given against the house hold gadgets and conveyance facility in the material possession profile might be included or dropped from time to time considering its importance in defining the SES. The per capita income range in the economic profile should also be updated. Keeping in view these updations, it can be expected that the developed scale would remain valid for a long period of time. The scale had a high reliability with a coefficient of correlation 0.998.

In conclusion the developed scale was found to be a valid, reliable and culture free instrument which could be used for assessment of socio-economic status of the families/individuals from urban as well as rural areas across the country.

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