Estimation of Factors Associated with Health Seeking Behaviour

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ABSTRACT: *PCA method in Factor analysis is used for data reduction and to estimate factor describing the variability among variables. The overall objective of this paper is to measure the factors associated with health seeking behavior. Madurai urban slum areas out of 12 Municipal Corporations in Tamil Nadu were selected as the study area. Probability proportional to size sampling method was adopted and the sample size was fixed as 270. Socio economic, demographic and other characteristics data was collected from women living in urban slums in the reproductive age group of 15-49 years. The KMO is greater than 0.5 and the Bartlett's Test of Sphericity is significant. There are 23 variables which are loaded in 9 factors.*

Keywords: Factors, Health seeking behaviour, slums, Factor analysis

INTRODUCTION:

Various statistical methods are available to measure the strength of variability among variables. Factor analysis is one of the best methods used for data reduction and to measure the strength of variables which are highly significant. To perform factor analysis there must be univariate and multivariate normality within the data (Child, 2006) and necessary to have absence of univariate and multivariate outliers (Field, 2009). Factor analysis uses variances to produce communalities between variables. The variance is equal to the square of the factor loadings. Principal Components analysis is an useful method to extract maximum variance from the data set with each component which will reduce a large number of variables into smaller number of components (Tabachnick & Fidell, 2007).

GENERAL OBJECTIVE

The overall objective of this paper is to measure the factors associated with health seeking behavior.

METHODOLOGY:

This study adopted an analytical study design. Madurai urban slum areas out of 12 Municipal Corporations in Tamil Nadu were selected as the study area. Probability proportional to size sampling method was adopted and the sample size was fixed as 270. Data was collected from women living in urban slums in the reproductive age group of 15-49 years. Factor analysis was carried out using SPSS 16 and the principal component method is adopted to measure the strength of variables and the extracted factors which are highly significant.

RESULTS AND DISCUSSION:

Factor analysis is a statistical technique used for data reduction and to estimate factor describing the variability among variables and this principal component method is adopted to measure the strength of variables and the extracted factors which are highly significant. In the first stage, correlation matrix is generated for all the variables, factors are extracted from the correlation matrix based on the correlation coefficients in the second stage and in the third stage, the factors are rotated in order to maximize the relationship between the variables.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test measures the strength of relationship among variables. Communalities accounted for the higher percent of variability among variables by the extracted factors. The KMO measures the sampling adequacy which should be greater than 0.5 for a satisfactory factor analysis to proceed which is 0.590. Bartlett's test is another indication of the strength of the relationship among variables which is significant.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.590
Bartlett's Test of Sphericity	Approx. Chi-Square	1454.678
	Df	253
	Sig.	.000

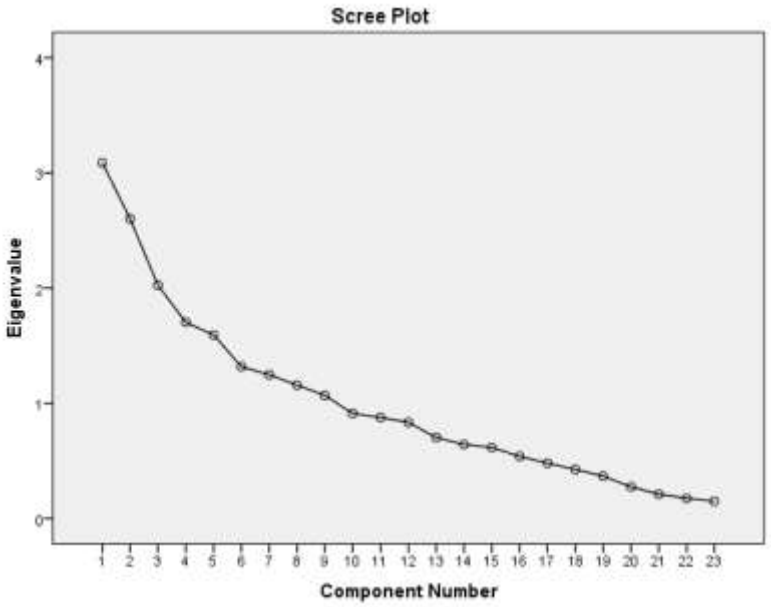
Communalities show how much of the variance in the variables has been accounted for by the extracted factors, 89 percent of variability is accounted for source of information for reproductive health problem and treatment source and 86 percent of variability accounted for type of house etc., The next item shows all the factors extractable from the analysis along with their eigen values, the percent of variance attributable to each factor, and the cumulative variance of the factor and the previous factors. The first factor accounts for 13.43 % of the variance, the second 11.31 %, the third 8.80 %, fourth 7.40 %, fifth 6.93 %, sixth 5.73 %, seventh 5.43 %, eighth 5.03 % and ninth 4.65 % variance respectively. All the remaining factors are not significant.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.089	13.430	13.430	3.089	13.430	13.430	2.534	11.019	11.019
2	2.602	11.312	24.742	2.602	11.312	24.742	2.116	9.198	20.217
3	2.025	8.804	33.547	2.025	8.804	33.547	1.842	8.007	28.224
4	1.703	7.403	40.950	1.703	7.403	40.950	1.822	7.924	36.148
5	1.594	6.928	47.878	1.594	6.928	47.878	1.744	7.582	43.730
6	1.317	5.727	53.605	1.317	5.727	53.605	1.681	7.311	51.041
7	1.248	5.426	59.031	1.248	5.426	59.031	1.518	6.602	57.643
8	1.157	5.032	64.063	1.157	5.032	64.063	1.330	5.783	63.426
9	1.068	4.645	68.708	1.068	4.645	68.708	1.215	5.282	68.708
10	.911	3.960	72.668						
11	.876	3.811	76.479						
12	.834	3.625	80.103						
13	.702	3.053	83.156						
14	.641	2.788	85.944						
15	.616	2.677	88.621						
16	.538	2.340	90.961						
17	.479	2.084	93.045						
18	.425	1.849	94.894						
19	.367	1.595	96.489						
20	.274	1.192	97.681						
21	.210	.912	98.593						
22	.175	.759	99.351						
23	.149	.649	100.000						

Extraction Method: Principal Component Analysis.

The screen plot shows that the eigen value decreases from 10th component onwards and up to 9th component, the eigen value is greater than one and is significant.



After the component matrix, rotated component matrix was generated and the variables under investigation have high loadings and the loadings are suppressed which is less than 0.5. There are 23 variables which are loaded in 9 factors.

Factor	Factor name	Factor variables
Factor 1:	Decision making and treatment seeking	Decision making, Accompany for treatment, Treatment seeking behavior
Factor 2:	Demographic characteristics	Age at marriage, No. of living children, No. of gravida
Factor 3:	Source of information and Mass media exposure	RH problem_source of information, RH Treatment_ source of information, Mass media exposure
Factor 4:	Education and Income	Education of respondent , Annual family income
Factor 5:	Standard of living	Type of house, Standard of living Index
Factor 6:	Age, occupation and empowerment	Age of mother, Empowerment of women, Occupation of mother
Factor 7:	Social characteristics	Religion, Caste,
Factor 8:	Availability, accessibility and RH complication	Availability and accessibility of health services, All RH complication
Factor 9:	Awareness	Awareness about RH services, Awareness about health facility

Rotated Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
Decision making	.859								
Accompany for treatment	.905								
Treatment seeking behaviour	.797								
Age at marriage		-.504							
No. of living children		.892							
No. of gravida		.844							
RH problem source of information			.925						
RH Treatment source of information			.912						
Mass media exposure			.583						
Education of respondent				.681					
Annual family income				.567					
Type of house					.911				
Standard of living					.900				
Age of mother						.501			
Occupation of mother						.693			
empowerment of women						.744			
Religion							.728		
Caste							.730		
Availability and accessibility of health services								.762	
All RH complication								.650	
Awareness about RH services									.687
Awareness about health facility									.701

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 7 iterations.

CONSLUSION :

The variables loaded in each factor are highly associated which are the health seeking behavior indicators. The nine factors are 1. Decision making and treatment seeking behavior, 2. Demographic characteristics, 3. Source of information and Mass media exposure, 4. Education and Income, 5. Standard of living, 6. Age, occupation and empowerment, 7. Social characteristics, 8. Availability, accessibility and RH and 9. Awareness. These variables under each factor can be used for further analysis.

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