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From Constrain to Capability: Factors Driving Tribal Women Empowerment Through SHGs

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Abstract

In the current scenario, the empowerment of tribal women holds significant importance in confronting enduring inequalities and propelling the attainment of sustainable development objectives. Indigenous communities frequently encounter socio-economic marginalisation, with tribal women disproportionately affected by this disparity. Empowering tribal women is fundamental in fostering gender parity, given their pivotal contributions to their families, communities, and customary livelihoods. Moreover, amidst escalating globalisation and environmental crises, the imperative to empower tribal women intensifies, ensuring their inclusion in decision-making concerning land rights, natural resource management, and adaptation to climate change. Self-help groups are instrumental in empowering tribal women as they provide a platform for collective action, economic self-reliance, and community support. By participating in SHGs, tribal women gain access to financial resources, skill development initiatives, and valuable networks, enabling them to improve their socio-economic standing and advocate for their rights within their communities. Moreover, SHGs nurture leadership abilities and decision-making skills among tribal women, empowering them to confront challenges such as gender inequality and social exclusion. The paper aims to explore the perceptions of SHG members from five scheduled areas in Himachal Pradesh regarding 49 statements related to various aspects of tribal women's empowerment. It seeks to consolidate these numerous statements into groups based on their intercorrelation using the PCA method of factor analysis, to gain meaningful insights into the role of SHGs in the lives of these tribal women. The results of the systematic factor analysis using Principal Component Analysis and Varimax Rotation with Kaiser Normalization identify ten key factors. The most significant factor in empowering tribal women works out to be the improvement in skills, awareness, and knowledge. Other major factors include enhanced family conditions through better access to facilities, financial independence, and greater involvement in financial decisions. Additionally, community engagement, economic advancement, self-awareness, political awareness, knowledge of rights, and education and training are crucial components for analysing the impact of Self-Help Groups on tribal women's empowerment. By further analysing the ten driving factors identified in this study, a more systematic approach can be developed to assess the capability of these social groups to impact the lives of tribal women. This will allow for a precise evaluation of their overall empowerment through participation in SHGs.

Keywords: Tribal Women Empowerment, Socio-Economic Marginalisation, Self-Help Groups, Principal Component Analysis, Gender Parity and Sustainable Development.

1. Introduction

Former secretary general of the United Nations, Mr. Kofi Annan's quote, "When women thrive, all of society benefits, and succeeding generations are given a better start in life," highlights the crucial importance of gender equality and women empowerment for societal advancement. This assertion illustrates that empowering women generates extensive social benefits and enhances future opportunities for subsequent generations. Women's Empowerment is essential for promoting global social, economic, and political progress. It enables women to participate fully in societal processes, leading to more inclusive and equitable growth. Research shows that gender equality significantly boosts economic development and reduces poverty (Duflo, 2012). Additionally, empowered women are more likely to invest in their children's education and health, improving outcomes for future generations (World Bank, 2011). Specifically, empowering tribal women is critical, as they often face multiple layers of disadvantage due to both gender and ethnic discrimination. Enhancing the empowerment of tribal women can support the preservation and advancement of indigenous cultures, enhance livelihoods, and strengthen community resilience (UN Women, 2020). Addressing the unique needs and challenges of tribal women ensures that development initiatives are more comprehensive and equitable.

The concept of drivers for empowering tribal women covers a spectrum of intricate factors and mechanisms that facilitate the advancement of Indigenous women within their communities, enabling them to overcome historical marginalisation and achieve elevated levels of autonomy and socio-economic progress (Smith & Johnson, 2020). These drivers encompass a variety of dimensions, including economic opportunities, social support systems, psychological empowerment, political consciousness, access to education, institutional backing, and cultural integration. Each of these aspects plays a crucial role in fostering an environment that promotes the empowerment of tribal women (Brown & White, 2018). Self-help groups play a pivotal role in driving positive transformations by empowering tribal women and offering platforms for collective action and economic advancement within Indigenous communities (Sinha & Rani, 2019). Participation in SHGs provides tribal women with access to financial resources, skill-building opportunities, and supportive networks, enabling them to improve their socio-economic standing and assert their rights (Kaur & Sodhi, 2018). Moreover, SHGs serve as channels for political engagement and advocacy, elevating the voices of tribal women in local and regional decision-making processes (Mishra & Nayak, 2020). In essence, SHGs serve as catalysts for the empowerment of tribal women, nurturing their agency, self-reliance, and socio-economic prosperity within their societies.

2. Drivers for Tribal Women Empowerment

The existing literature on women empowerment in tribal areas highlights several critical drivers of this process. Education is identified as a fundamental factor in equipping women with the knowledge and skills necessary for both personal and community development (Subrahmanian, 2005). Access to healthcare is another pivotal element, as it directly influences women's physical well-being and their ability to engage in economic and social activities (Jejeebhoy & Zavier, 2005). Economic empowerment, facilitated through microfinance and self-help groups, significantly enhances the status and autonomy of tribal women by providing financial resources and entrepreneurial opportunities (Panda, 2014). Additionally, social and cultural capital, including family and community support, is crucial for the sustainable empowerment of tribal women (Mohanty, 2001). Addressing these factors through targeted policies and programs can lead to more effective empowerment initiatives in tribal regions. Legal awareness and access to justice are crucial for women to assert their rights and shield themselves from exploitation and violence (Agarwal,

1997). Likewise, technological access and digital literacy are becoming significant modern empowerment tools, allowing tribal women to engage with broader markets, access vital information, and participate in e-governance initiatives (Patil, 2019). Implementing targeted policies and programs that address these factors can significantly enhance the effectiveness of empowerment initiatives in tribal regions.

3. Methodology

To understand the current status of the tribal women being studied and the potential changes resulting from their participation in Self-Help Groups, this research analyses the responses of 400 SHG women selected through multistage purposive sampling from five specific regions: Kinnaur, Lahaul, Spiti, Bharmour, and Pangi, which span across seven administrative blocks in Himachal Pradesh. These regions are designated as scheduled areas under the Fifth Schedule of the Indian Constitution due to their predominantly tribal populations. The study focuses on the perspectives of SHG members, gathered through personal interviews, using a well-structured schedule to identify the factors driving tribal women's empowerment through SHG participation. This is achieved by using factor analysis, specifically the PCA technique and varimax rotation, to distil a large set of inter-correlated statements on tribal women's empowerment into distinct factors.

4. Analyses and Interpretation

As pointed out earlier, the factor analysis technique has been used to reduce a large set of inter-correlated empowerment measures to a few representative components or factors that can be used for subsequent analysis to facilitate interpreting the level of tribal women empowerment achieved through SHGs. To measure the responses on the 49 variables, a 5-point Likert scale has been employed, which ranges from 1 to 5, where 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, and 5. Strongly Agree.

4.1 Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin measure of sampling adequacy has been performed as a prerequisite for conducting factor analysis to test the suitability of the sample size. The KMO value varies from 0 to 1 (Hair et al., 2010). A value between 0.8 and 1 indicates that the sample size is adequate; concretely, if the value is more than 0.9, adequacy is meritorious (Kaiser & Rice, 1974). If the value is less than 0.5, then the factor analysis results will not be very useful to analyse the data. The result of the Kaiser-Meyer-Olkin test shows a value of .946, considered large enough to indicate the adequacy of the sample size for conducting factor analysis.

Table 1 KMO and Bartlett's Test Result

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.946
Bartlett's Test of Sphericity	Approx. Chi-Square	11999.200
	df	1176
	Sig.	.000

Source: Primary Probe

Likewise, Bartlett's test of sphericity tests the null hypothesis Ho: The variables are orthogonal, i.e., the original correlation matrix is an identity matrix indicating that the variables are unrelated and thus are not suitable for the structure detection, whereas the alternate hypotheses H_1: The variables are not orthogonal and are correlated enough, where the correlation matrix diverges significantly from the identity matrix. A significance value of less than .05 indicates that a factor analysis may be worthwhile for the given data set

(Guttman, 1954). The calculated significance value of Bartlett's test is very small, i.e., .000, which is less than .05, accepting the alternate hypotheses that the correlation matrix is not an identity matrix and the variables are highly correlated; thus, conducting factor analysis on the dataset would be appropriate.

4.2 Communalities

The communality of a variable represents the proportion of the variance in that variable that can be accounted for by all (common) extracted factors. It is also the total variance, an original variable shares, with all the other variables included in the analysis. In Principal Component Analysis, it is assumed that the communalities are initially 1 (for correlation analysis) or the variable's variance accounted for by the factors (or components) in the factor solution.

Table 2 Communalities

Sr. No.	Statements	Initial	Extraction
1.	My income has increased significantly	1.000	.645
2.	Knowledge of formal institutes of credit improved	1.000	.685
3.	My savings have improved	1.000	.594
4.	My asset ownership has improved	1.000	.631
5.	I can handle income shocks	1.000	.660
6.	More comfortable in mingling with others	1.000	.657
7.	I now take significant monetary decisions	1.000	.557
8.	Reduced dependency on male members regarding income earned	1.000	.740
9.	Reduced dependency on male members regarding savings	1.000	.731
10.	My expenditure has increased significantly	1.000	.583
11.	I can move freely without male members' consent	1.000	.584
12.	Command more respect among community members now	1.000	.642
13.	Increased involvement in community development activities	1.000	.637
14.	Increased status in the community	1.000	.652
15.	Improved knowledge about various Govt Welfare Schemes/ Programmes	1.000	.552
16.	Skills and training need to be imparted among tribal women	1.000	.695
17.	Increased social acceptance	1.000	.671
18.	I can express my views freely in the family and neighbourhood	1.000	.547
19.	Increased mutual help and support	1.000	.676
20.	Increased participation in cultural activities and festivals	1.000	.626
21.	Have become capable of managing social and religious pressures and resisting blind beliefs	1.000	.507
22.	Increased self-worth	1.000	.703
23.	I have developed a positive attitude towards myself	1.000	.796

24.	My self-confidence has grown	1.000	.757
25.	Increased ability and involvement in decision-making	1.000	.491
26.	Improved managerial skills	1.000	.644
27.	My general awareness has improved	1.000	.658
28.	Improvement in technical skills and ability	1.000	.656
29.	My communication skills are better now	1.000	.671
30.	My computer and internet skills have improved	1.000	.499
31.	Increased support from the spouse	1.000	.693
32.	Improvement in family relationships	1.000	.730
33.	Providing better education to children	1.000	.739
34.	Better medical care for family members	1.000	.720
35.	Ability to provide nutritious food	1.000	.668
36.	Improvement in basic facilities and amenities	1.000	.694
37.	Improvement in standard of living	1.000	.729
38.	I have become more aware of the constitutional rights of women	1.000	.527
39.	I cast my vote alone as per my will	1.000	.623
40.	I now participate in political campaigning or rallies	1.000	.734
41.	I now take part in public protests	1.000	.630
42.	I am ready to join local politics if needed	1.000	.730
43.	My participation in panchayat meetings has increased	1.000	.636
44.	Illiteracy is the main cause of oppression of women	1.000	.691
45.	Tribal women should go for secondary and higher education	1.000	.714
46.	Educated tribal women possess greater self-confidence	1.000	.556
47.	Educated women manage households better	1.000	.575
48.	I can independently support my family financially	1.000	.544
49.	I can talk to public officials more confidently	1.000	.699

Extraction Method: Principal Component Analysis

Values smaller than .5 are considered low and do not fit well with the factor solution. Therefore, the variables with communalities less than .50 should possibly be dropped from the analysis. All the initial and extracted values of communalities have been presented in Table 2, and none of the extracted values is less than .50. Hence, all 49 variables seem fit for the analysis.

4.3 Total Variance Explained

Eigenvalues and total variance explained for our factor solution have been demonstrated in Table 3. The extraction method for factor analyses used in this study is principal component analyses. Before extraction, 49 linear components are identified within the data set. The first panel shows us the initial eigenvalues, and there are as many factors or components as the variables. The eigenvalues compute the variation calculated by each factor (Kaiser, 1974). The amount of variance in the observed variables accounted for by each factor or component is shown by the "Total" column. The "% age of variance" column explains

the percentage of variance accounted for by each specific factor or component relative to the total variance in all the variables. The "cumulative %" gives the percentage of variance accounted for by all factors or components up to the current factor.

Table 3 Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.	18.681	38.124	38.124	4.780	9.756	9.756
2.	2.104	4.294	42.418	4.402	8.984	18.739
3.	1.972	4.024	46.442	3.970	8.101	26.841
4.	1.757	3.586	50.028	3.795	7.744	34.585
5.	1.483	3.027	53.054	3.418	6.976	41.560
6.	1.314	2.681	55.735	3.124	6.376	47.936
7.	1.165	2.378	58.113	2.759	5.630	53.566
8.	1.134	2.314	60.427	2.013	4.109	57.675
9.	1.123	2.292	62.719	1.849	3.773	61.448
10.	1.046	2.135	64.854	1.669	3.407	64.854
11.	.950	1.939	66.794			
12.	.848	1.731	68.524			
13.	.832	1.699	70.223			
14.	.800	1.634	71.857			
15.	.760	1.551	73.408			
16.	.722	1.473	74.881			
17.	.697	1.421	76.303			
18.	.673	1.374	77.676			
19.	.651	1.328	79.004			
20.	.618	1.261	80.265			
21.	.596	1.217	81.482			
22.	.565	1.152	82.634			
23.	.550	1.123	83.758			
24.	.526	1.072	84.830			
25.	.513	1.047	85.877			
26.	.494	1.008	86.885			
27.	.452	.922	87.807			
28.	.438	.893	88.700			
29.	.433	.884	89.584			
30.	.401	.819	90.402			
31.	.364	.743	91.145			
32.	.359	.732	91.877			
33.	.342	.699	92.576			
34.	.331	.676	93.251			

35.	.325	.663	93.915			
36.	.306	.625	94.540			
37.	.291	.594	95.134			
38.	.267	.546	95.680			
39.	.262	.534	96.214			
40.	.248	.507	96.721			
41.	.237	.484	97.205			
42.	.219	.447	97.652			
43.	.198	.403	98.056			
44.	.190	.387	98.443			
45.	.171	.348	98.791			
46.	.165	.337	99.128			
47.	.159	.324	99.451			
48.	.147	.301	99.752			
49.	.121	.248	100.000			

Source: Primary Probe

Extraction Method: Principal Component Analysis

After extraction, ten distinct linear factors or components have been identified within the data set with eigenvalues of > 1. For principal component analyses, the extraction sums of squared loading values are the same as reported under the initial eigenvalues; thus, these values have not been reported in the table. The ten factors extracted account for 64.854% of the total variance. It is suggested that the proportion of the total variance explained by the retained factors should be at least 50% (Noora, 2021). Our results show that ten factors can account for 64.854% of the common variance shared by all 49 variables, which is reflected by a good KMO value of .946 and indicates that factor analysis is useful for the given variables. Thus, ten factors can be chosen to represent the level of empowerment gained by the tribal women after joining the SHGs.

The second panel gives us the "Rotation Sums of Squared Loadings" values. It represents the distribution of variance after varimax rotation. Varimax rotation helps to maximise the variance of each factor; thus, the total amount of variance accounted for is redistributed over all the ten factors extracted. The first factor accounts for 9.756% of the total variance, the second factor 8.984%, the third factor 8.101%, the fourth factor 7.744%, the fifth factor 6.976%, sixth factor 6.376, the seventh one 5.630%, eighth factor 4.109%, ninth factor 3.773% and the tenth factor accounts for 3.407% of the total variance. The initial and rotated values for % of variance may vary, but the cumulative percentage of the variance for the set of extracted factors is always the same**.**

4.4 Rotated Component Matrix

The rotated Component Matrix is pivotal for interpreting the results of PCA as it simplifies the relationship between the original variables and principal components through the orthogonal rotation method employing varimax with Kaiser normalisation, which makes the results more interpretable. Loadings of this matrix assist in identifying the most strongly associated variables with each principal component. As per Smith (2018), the Rotated Component Matrix illustrates the configuration of factors subsequent to rotation, exhibiting the loadings of individual variables on each factor. This matrix streamlines

comprehension by accentuating the variance of variables with high loadings on each factor while reducing cross-loadings. It assists in discerning the fundamental structure of the dataset by highlighting the variables that exhibit the strongest associations with each factor, thereby easing the interpretation of the factors. The results of the Rotated Component analysis are elucidated in Table 4. The variables with a factor loading of .4 or above were supposed to be accepted (Tabachnick, 2019) and taken further for the purpose of this research and the rotated component matrix clearly indicates that all the 49 variables exhibit a loading of .4 or greater with their associated component and thus all the existing variables can be taken further and there is no need to eliminate any variable from the study.

Rotation of the components provides a clearer and more meaningful representation of the underlying factors by maximising the variance of the loadings. This way, the rotated component matrix offers a refined and more interpretable structure of factors, facilitating a deeper understanding of the underlying patterns in the analysed data. The following table showcases the rotated component matrix. It brings forth the ten prime factors or components playing a substantial role in analysing the level of empowerment attained by tribal women through SHGs. Also, the ten factors that were finally extracted can be used in carrying out the subsequent research related to analysing SHGs' role in tribal women empowerment.

Table 4 Rotated Component Matrix

Sr. No	Variables	Component									
		1	2	3	4	5	6	7	8	9	10
1.	Improvement in technical skills and ability	**.659**	.145	.229	.173	.172	.232	.035	.087	.003	.162
2.	Improved managerial skills	**.627**	.236	.202	.122	.219	.183	.127	.134	.039	.148
3.	My computer and internet skills have improved	**.626**	.087	.065	.115	.089	.103	.238	.018	.032	.073
4.	My general awareness has improved	**.498**	.328	.131	.161	.278	.290	.077	.152	-.217	.148
5.	My communication skills are better now	**.491**	.148	.193	.374	.254	.327	.059	.167	.037	.166
6.	Improved knowledge about various Govt Welfare Schemes/ Programmes	**.457**	.271	.266	.332	.242	.122	.129	-.206	-.117	-.042
7.	Better medical care for family members	.220	**.771**	.125	.130	.048	.150	.075	.119	-.007	.011
8.	Providing better education to children	.280	**.713**	.134	.195	.139	.195	.120	.116	.099	-.035
9.	Improvement in family relationships	.311	**.634**	.202	.072	.279	.151	.014	.006	.291	.005
10.	Increased support from the spouse	.290	**.614**	.219	.063	.332	.090	.005	.092	.221	.068
11.	Ability to provide nutritious food	-.051	**.580**	.254	.324	.085	.305	.145	.154	-.048	.116
12.	Improvement in basic facilities and amenities	.081	**.491**	.276	.319	.131	.375	.226	.111	-.090	.198

13.	Improvement in standard of living	.097	**.454**	.268	.346	.200	.412	.170	.169	-.063	.224
14.	I can support my family financially independently	.342	.136	**.478**	-.066	.089	-.003	.269	.238	.111	-.164
15.	Reduced dependency on male members regarding savings	.071	.160	**.695**	.340	.227	.097	.083	.152	-.012	.104
16.	Reduced dependency on male members regarding income earned	.166	.261	**.665**	.300	.181	.071	.058	.209	.053	.159
17.	I can handle income shocks	.288	.129	**.646**	.198	.019	.083	.279	-.097	.079	.047
18.	My expenditure has increased significantly	.062	.108	**.589**	-.013	.188	.237	.292	.164	.131	.010
19.	I now take significant monetary decisions	.193	.142	**.577**	.197	.214	.199	.176	.039	.044	.087
20.	Increased mutual help and support	.056	.139	.265	**.685**	.188	.202	.123	-.098	-.042	.107
21.	Increased participation in cultural activities and festivals	.296	.138	.265	**.550**	.160	.181	.164	.132	.209	-.007
22.	Have become capable of managing social and religious pressures and resisting blind beliefs	.292	.142	.112	**.549**	.159	.110	-.011	.189	.117	-.020
23.	My participation in panchayat meetings has increased	.319	.320	.194	**.474**	.117	-.025	.139	.355	.089	.033
24.	I can express my views freely in the family and neighbourhood	.171	.231	.440	**.453**	.223	.054	.064	.013	-.029	-.087
25.	Increased social acceptance	.326	.197	.177	**.451**	.404	.273	.154	.042	.164	-.031
26.	Improved status in the community	.151	.195	.220	.117	**.669**	.011	.156	-.010	.233	-.055
27.	Command more respect among community members now	.155	.086	.151	.203	**.662**	.182	.100	.200	-.153	.039
28.	Increased involvement in community development activities	.133	.144	.149	.211	**.632**	.263	.188	.144	-.075	.026
29.	More comfortable in mingling with others	.079	.276	.192	.347	**.539**	.207	.200	-.036	.196	.060
30.	I can move freely without male members' consent	.279	.064	.322	-.017	**.490**	.048	.072	.385	-.020	.051

31.	I can talk to public officials more confidently	.368	.218	.076	.334	**.452**	.100	.319	-.015	.284	-.033
32.	My self-confidence has grown	.273	.250	.143	.178	.163	**.683**	.186	.108	.166	-.022
33.	I have developed a positive attitude towards myself	.380	.297	.133	.108	.203	**.682**	.080	.095	.113	-.009
34.	Increased self-worth	.352	.218	.138	.129	.214	**.636**	.069	.066	.179	-.071
35.	Increased ability and involvement in decision-making	.008	.191	.346	.221	.075	**.434**	-.011	.234	.189	-.039
36.	Knowledge of formal institutes of credit improved	.186	.031	.195	.097	.123	.047	**.746**	.007	.038	.165
37.	My income has increased significantly	.321	.052	.101	.033	.100	.021	**.677**	.131	.202	.035
38.	My savings have improved	.001	.154	.202	.220	.195	.134	**.644**	.018	-.092	-.036
39.	My asset ownership has improved	.178	.190	.474	-.003	.169	.147	**.499**	.144	.115	-.066
40.	I am ready to join local politics if needed	.338	.278	-.006	.331	.101	.021	.158	**.607**	.138	-.083
41.	I cast my vote alone as per my will	.195	.371	.080	.360	.113	.170	.266	**.428**	.093	.084
42.	I have become more aware of the constitutional rights of women	.094	.122	.150	.047	.098	.155	.029	**.663**	-.001	.065
43.	I now participate in political campaigning or rallies	.371	.392	.112	.292	.172	.169	.261	**.452**	.116	.027
44.	I now take part in public protests	.403	.297	.021	.262	.223	.191	.201	**.414**	.092	.064
45.	Educated women manage households better	.432	.223	.143	.072	-.042	.164	.085	-.076	**.479**	.206
46.	Illiteracy is the main cause of oppression of women	.089	.058	.031	.028	.039	.122	.107	.047	**.772**	.229
47.	Educated tribal women possess greater self-confidence	-.058	.092	.192	.333	.073	.381	.024	.099	**.481**	.069
48.	Tribal women should go for secondary and higher education	.023	.110	-.014	-.040	.099	.070	.053	-.062	.218	**.794**
49.	Skills and training need to be imparted among tribal women	.213	-.018	.160	.099	-.094	-.109	.049	.180	.068	**.744**

Source: Primary Probe

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
Rotation converged in 11 iteration

The first factor, **'Augmented Skills and Knowledge,'** represents the six associated variables, with the most critically influencing variable being the 'Improvement in technical skills and knowledge' exhibiting a factor loading of .659. The second and third most influencing variables turn out to be 'Improved managerial skills', containing a factor loading of .627, and 'Improved computer and internet skills', which carry a factor loading equal to .626. The other three variables which are loaded under this factor are 'Improvement in general awareness' with a .498 factor loading, 'Better communication skills' displaying a factor loading of .491 and 'Improved knowledge of various Govt. schemes and programs' presenting a factor loading of .457. This implies that efforts should be made to elevate the tribal women's existing technical, managerial, computer, and internet-related skills to empower them. Also, improving their general awareness, communication skills, and knowledge about various Government schemes can contribute significantly to empowering these women by augmenting their skills and expertise in multiple fields through the SHGs.

'Elevated Family Conditions' is the second factor uncovered and comprises seven underlying variables related to assessing the improvement in the family conditions of the SHG members. The variable that comes across as the most potent one is 'Better medical care for the family members' and has the strongest factor loading of .771. The next highest loading of .713 is displayed by the variable, 'Able to provide better education to children'. 'Improvement in family relationships' follows with a factor loading of .634. Also, the variable 'Increased support from the spouse' comes across as a major underlying variable for this factor, unveiling a loading equal to .614. The fifth most influential variable is the 'Ability to provide nutritious food', exhibiting a factor loading of .580. The last two underlying variables for this factor are 'Improvement in basic facilities and amenities', displaying a factor loading of .491, and 'Improvement in family's standard of living', which accounts for a factor loading of .454. Thus, enabling SHG members to offer nourishing food, enhanced health services, essential amenities, and an elevated standard of living for their family members, along with improved education for children and increased spousal support, contributes to achieving empowerment at the family level within the Self-Help Group. This empowerment is fostered by cultivating stronger family relationships.

The third factor, **'Gaining Economic Sovereignty**,' incorporates six related variables that are consequential for judging the economic freedom of the respondents. 'Reduced dependency on male members regarding savings' was found to be the most correlated variable, exhibiting a factor loading of .695. The second highest loading value, .665, is possessed by the variable 'Reduced dependency on male members regarding income earned', whereas the third strongest association has been found with the variable 'Can handle income shocks' with a loading equal to .646. The next significant variable has been 'My expenditure has increased significantly' with a loading of .589. 'Now I take significant monetary decisions' and 'Can support my family financially independently' remain the last two underlying variables, with .577 and .478 factor loadings. On that account, it can be inferred that variables like an increase in expenditure, taking significant monetary decisions, supporting the family financially independently, ability to face income shocks and gaining more independence about savings and income earned, etc., are some of the suitable variables to analyse the economic empowerment and freedom gained by the tribal women after associating with the SHGs.

'Enriched Social Engagement' is unveiled as the fourth factor or component by the rotated component matrix. Again, it constitutes six principal elements, the most effective being 'Increased mutual help and support' with loading as strong as .685 followed by 'Increased participation in cultural activities and festivals' showcasing a loading of .550. The third most associated variable is 'capable of managing social and religious pressures and resisting blind beliefs' carrying a loading of .549. The next two primary variables are 'Increased participation in panchayat meetings' and 'Ability to express views freely in family and neighbourhood', putting forward a factor loading equal to 474 and .453, respectively. The sixth and last variable unearthed is 'Increased social acceptance' with a loading of .451. Hence, mutual help and support, coping with social pressures, participating more in cultural activities and panchayat meetings, expressing your views freely in society and getting accepted by society are some of the inherent contributors to adjudge the level of social engagement the members have attained, and how empowered, they feel socially.

The next factor which the rotated component matrix extracts is **'Greater Community Involvement',** which encompasses six other related variables. The first one is the 'Improved status in the community', which has a factor loading of .669. 'Gained more respect among community members' is the second most associated underlying variable with a loading equal to .662. The third is 'Increased involvement in community development activities' with a factor loading of .632. The variable with the fourth highest factor loading of .539 is 'More comfortable in mingling with others.' The two remaining variables are 'Can move freely without male members consent' with a factor loading of .490 and 'Can talk to officials more confidently', which showcases a factor loading of .452. The results suggest that greater involvement in the community and its activities, feeling comfortable in mingling with others and moving freely without asking the male members of the family, etc., can be great motivators and parameters to judge the community-level empowerment of tribal women.

'Attaining Personal Insight' is also a key factor the analysis highlights. It involves only four associated variables, like 'Gaining self-confidence', which has the highest value of factor loading, which is .683. Secondly, it constitutes the variable 'developing a positive attitude towards yourself' with factor loading equal to .682. The third important variable is 'Increased self-worth' with a factor loading around .636. At last, 'increased ability and involvement in decision making' also comes under this factor and possesses a loading of .434. All four principal elements will help get an insight about oneself, which is an important prerequisite for learning about the overall empowerment of tribal women, as empowerment is not merely an external concept; rather, it also greatly focuses on feeling confident and valued from within.

Another important component affecting tribal women empowerment comes across as **'Upgraded Fiscal Consciousness and Standing'** with the underlying variables, namely, 'Knowledge of formal institutes of credit improved' with loading as strong as .746, which signifies that the variable is strongly correlated with the component under which it falls. The second most closely related variable is 'My income has increased significantly', which enjoys a factor loading of .677. The third affiliated variable for this factor is 'Improvement in my savings', which carries a loading of .644, and the last variable that can be assigned to this factor based on the value of its loading is 'Improvement in asset ownership' with a factor loading equal .499. Therefore, to assess the level of economic health and prosperity of our tribal women, gaining knowledge of formal institutes of credit, improvement in income levels, savings, and asset ownership are some good foundational variables to work upon.

'Developing Political Acumen' stands firm as the eighth factor with five coherent root variables. The most correlated variable appears to be 'I have become more aware of the constitutional rights of women'

and has a factor loading of .663. Next is the 'I am ready to join local politics if needed' with a factor loading of .607, followed by the variable 'I now participate in political campaigning and rallies' showcasing a factor loading of .452. The last two associated variables are 'I cast my vote alone as per my will' and 'I now take part in public protests' with loading of .428 and .414, respectively. The rotated component matrix result confirms that the above-mentioned five variables are sufficiently correlated with their linked component or factor and can be used further to analyse the improvement in the political acumen of the respondents after joining the Self-help Groups.

Among the final factors unveiled by the rotated component matrix, one significant aspect is **the 'Realizing the Role of Education'**. This factor encompasses only three interconnected variables. The primary variable, 'Illiteracy is the main cause of oppression of women,' holds a loading value of .772. The second associated variable is 'Educated tribal women possess greater self-confidence' with a loading of .481, followed by the variable 'Educated women manage household better,' which carries a loading of .479. Analysing the factor loadings of these three variables, it can be concluded that each of them contributes to comprehending the importance of education in the lives of tribal women.

The final factor extracted is the **'Stance on Higher Education and Training'**. This factor is defined by two key underlying variables: 'Tribal women should go for secondary and higher education,' with a loading of .794, and 'Skills and training need to be imparted among tribal women,' demonstrating a strong and direct association with a factor loading of .744. Consequently, the significance of the viewpoints expressed by tribal respondents regarding the pursuit of secondary and higher education, along with the emphasis on skills and training for tribal women, is essential for understanding their stance on the factors associated with skills, training, and higher education.

4.5 Instrument Reliability

In order to adjudge the validity and dependability of the instrument, a reliability test has been performed on the construct. Reliability refers to the consistency and stability of a measuring instrument or tool. It indicates the degree to which the instrument produces consistent and dependable results across different situations, times, and observers. The internal consistency method, using Cronbach's Alpha measure, has been applied to estimate the reliability of the instrument. The result shows that the scales developed for this study are very reliable as the calculated value of Cronbach's Alpha for the construct works out as .964, which is quite close to 1.

Table 4.4.6 Reliability Statistics of the Instrument

Cronbach's Alpha	No. of Items
.964	49

Source: Primary Probe

5. Conclusion

In essence, amongst the ten factors deduced after carrying out a systematic Factor Analysis using Principal Component Analysis and Varimax Rotation with Kaiser Normalisation, improvement in skills, awareness, and knowledge has surfaced as the most effective factor to adjudge the role of SHGs in empowering tribal women in the study area. Also, the upgradation in family conditions brought forth on account of being able to get better access to facilities and amenities and gaining greater financial independence and say in financial matters have also emerged as some of the most significant components that can be used further

to analyse the intensity of the impact these groups have made in the area of tribal women empowerment. Community and social involvement, moving towards better economic standing, improved self-awareness and realisation, etc., can also be analysed as contributing factors to the tribal women's upliftment. Lastly, the analysis also underscores the importance of considering political awareness, knowledge of self-rights, and the potency of education and training as some of the few factors that can supplement the various dimensions of women empowerment in this study.

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