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ABSTRACT

Household headed by women are appearing to be on the rise both in developed and developing countries. As per census 2011, Kerala rank top in female headship (23%). Owing to this substantial increase of female headship, this study focuses on the socio economic vulnerabilities of female headed households in Kerala. Data for this study have been extracted from (NFHS-4, household file, 2015- 16), and Census Reports of India. Socio economic well being indexes (SEWI) of female headed households have been calculated by using their education, occupation, standard of living, ownership of productive assets and economic empowerment. Likewise, poverty among female headed households is illustrated by Lorenz Curve and the determinants of household socio economic vulnerability has been assessed using Ordinal Logistic regression analysis. From this study we can arrive at a conclusion that in Kerala, Muslim households, those who are living in Kachha houses (-1.437), who belongs to nuclear family (-0.42), and no education (-2.399) are very prone to the Socio Economic vulnerability compared to the other categories. This study also recommends some policies for uplifting these women in to the main stream of development.

Keywords: *Female headship, migration, poverty, socio-economic vulnerability*

1. Introduction

Household is regarded as the fundamental social and economic unit of the society. Household headed by women have become a significant phenomenon since the last half of the twentieth and the beginning of the twenty first century. Large numbers of literatures across the world reveal that, a significant proportion of households headed by women are being more exposed to poverty and other socio economic vulnerability in many aspects (Sidloyi, S. 2016, Singh, Moepeng, P. T., & Tisdell, C. A. ,2008, Gangopadhyay, S., & Wadhwa, W. 2004, Galster, G., & Constantine, P,1991 Chant, Panda 1997, Massiah, J. ,1982).

There are different perspectives towards the formation of female headed households in different region. Among these widowhood, divorce and separation, male migration, cohabitation, are the major reason for the universal increase in their number and percentage (Lingam, L,1994). The ILO defined female headed households as ‘where either no adult males are present, owing to divorce, separation, migration, non-marriage or widowhood or where men also present, do not contribute to the household income (The ILO, 2005). The United Nations also identifies them as “women who are financially responsible for their families, who are the key decision makers and household managers, who manage household economies on behalf of an absent male head, or who are the main economic contributors” (UN, 1995; 32/B). As per the census of 2011, Belarus (53 per cent), Ukraine (49.4 per cent), Swaziland (47.9 per cent), Eritrea (46.7 per cent), and Cuba (46.4 per cent) are the top most five nations having the highest women headed households in the world and India occupies the 67th position among these (11 percent). Among the Indian states, Kerala ranks top in female headship which constituted 23 per cent and it is more than twice than the national average.

In a patriarchal society like India, and the state like Kerala, these households are in poor economic situation, and are disadvantaged in choice of work, wage level, employment benefits, property, capital, income and credit. Despite having a significant increase in their proportion in Kerala, they are being less identified or relatively little such research has been conducted in Kerala context. By keeping all these issues in back ground, in this paper, our aim is to assess the extent of female headed households in Kerala and to examine their socio economic vulnerabilities faced by these households in Kerala context.

2. Female headship and Socio economic vulnerability: A brief review of Theoretical and Empirical Literature.

Studies on vulnerabilities of female headed households are very common all over the world. When a household is said to be vulnerable, the degree of its vulnerability depends on the characteristics of the risk and the household's ability to respond to that risk, which often depends on their asset-base, accessibility to credit and their education etc. Generally, vulnerability has been viewed in four dimensions: physical/climatic, economic, social, emotional. Physical vulnerabilities deal with difficulty in access to basic infrastructure and issues related with disasters such as earth quake, Tsunami etc. Economic vulnerability deals with lack of endowments, whereas, emotional vulnerability focus on conflict, hopelessness and pessimism, associated with the absence of male partner in such households. Among this, the number of studies have been argue that economic crisis or poverty is the crucial problem, faced by them (Shukla & kumar, 2012; Kotwal and prabhakar, 2009; Barros et al., 1997).

It is also reported that the issues of poverty related with them may vary with respect to their age, marital status, ability, and social religious or ethnic status. Among the female headed households, young widows, with dependent children are at greater risk of poverty in terms of low endowment and entitlements of resources than others (Beckwith et.al,1990). There are many factors associated with the incidence of poverty among them. Such as illiteracy, large family size, dependency ratio predominance of female members and lack of male earning members etc (Sundaran & Tendulkar, 2002, Rani, Asif, 2007) . Rah man's study (2018) titled *household characteristics and poverty: a logistic regression analysis*, finds that larger the dependency ratio lower will be the labour force participation rate of women due to their household liabilities and child caring responsibilities, which often triggers poverty in such households. More over these households are often subjected to, discrimination in the labour market in terms of low wage, gender segregation of employment, socio cultural constraints, political powerlessness, exploitations and sexual violence etc. (Hossain and Huda, 1995).

In India, Rajaram (2009) estimates, the poverty of female headed households, by using wealth index, standard of living index, housing condition and permanent income and infers that female heads are poor in terms of standard of living index. Based on wealth index they are marginally poor. Gangopadhyay & Wadhwa (2003) in their study, "*Are the Indian female headed households are more vulnerable to poverty*" analyse their vulnerability interms of education and land holding (by using the NSSO (43,50th and 55th round such as 1987-88, 1993-94, and 1999-2000) and infers that they have been experiencing gender bias in terms of wage, better job opportunities, physical and human capital such as health, education, possession of assets and inherited land, etc (Chakrabarthy,2002,Schiller,1989). Maleki et al 's study (2016) conducted on Iran also portrays their multiple vulnerabilities in terms of low literacy, large family size, low family income, rising cost of children and high cost of rental housing, lack of ability to solve the problem and reduced amount of pension received, etc. At the same time, they also face adverse social, cultural and economic living due to negative attitude towards women, and low social connection and welfare due to their absence of the male partners etc.

Another form of vulnerability is associated with their psychological and emotional problems (klasen et.al, 2011) .Due to their isolation and rootlessness these households are often tend to have stress related with parenting and household liabilities. The sudden loss of husband in women's life sometimes leads to the feeling of anger, anxiety, fear and some kinds of personality disorders. (Kotwal & Prabhakar, 2009). The biological, sexual, as well as emotional needs and desires which gave her an illusory experience and the society refused to understand her mental condition or what she is really fighting for. In majority of cases most of the female headed households are poor and resource less, persecuted by her own relatives and neighbors and sexually harassed by men she has to deal with .They also face inabilities to resolve their problems due to the lack of education; issues of children's training; problems related with their preceding material, social and emotional needs; problems related with their efficient management of their family; ignorance relating to how to utilise their leisure time, etc. Apart from their psychological and emotional problem these households are

suffering gender discrimination both in labour market and housing market (McClure, 1987 in the San Francisco Bay area).

The existing literature mentioned above reveals their vulnerabilities in different socio economic context. With the light of the above literature, female-headed households have become an easily identifiable group on which to target poverty alleviation measures. With this background the present study trying to analyse the socio economic consequences of these households in Kerala, where, the studies about them are meagre, even though this state ranks top in female headship (23 per cent) as compared with other Indian state (Census of India 2011).

3. Data and Methodology

3.1 Data

In India, the incidence of female-headed ship is higher in the southern states like Kerala. So this study is restricted to Kerala women headed households to understand their socio economic vulnerability among those headships. Two aspects of female-headship are investigated in this study: whether there is a higher incidence of poverty in households headed by women and what are the correlates of socio economic vulnerability among them. Thus this study aims to analyse the extent of female headed households in Kerala and to examine the factors that led to their socio economic vulnerability. This study exclusively based on secondary data, which have been extracted from National Family Health survey-4, and it's various round (NFHS-1, NFHS-2, NFHS-3, and NFHS, 4.

3.2 Methodology

3.2.1 Measurement of socio economic vulnerability

The socio economic vulnerability was examined by creating an index of Socio Economic Wellbeing Index (SEWI). If lower the index value, higher will be the vulnerability and vice versa.

3.2.2 Socio economic wellbeing index (SEWI)

This study, constructed a composite index of women's Socio-Economic Wellbeing Index (SEWI) using the three indices, ie, Social wellbeing, Standard of living, and finally the Economic Empowerment. The composite Index is then classified into three categories, based on their scores, such as High, Medium, and Low. The Index provides quantitative measures that are amenable to higher precision and statistical manipulation. First, we selected the appropriate variables for the Index, and each variable was given values according to their importance. The total score for each respondent is calculated by adding the value of each variable and place the source in an array usually from the lowest score were taken, and total score value of all respondents was classified into three categories: low, medium and high based on the mean and standard deviation. Score up to mean value coded as Low, Mean to (Mean + SD) coded as Medium, and score above (Mean + SD) is coded as High Socio- Economic Wellbeing Index.

Variables under consideration for constructing Socio Economic Wellbeing Index (SEWI)

Table -1

Dimensions Of Index	Variables	Description
Social Wellbeing Index	Literacy Status	Illiterate = 0, Literate =1
	Current employment Status	Working =1, Not working= 0
Standard of living Index	Electricity	Electrified house =1, No =0
	Type of house	Kucha =0 , Pucca = 1
	Card	APL=1 BPL=0
	Water	Pipedwater =1, Bore well /open well=0
	Sanitation	No toilet/shared toilet =0 ,Has toilet = 1
Economic Empowerment Index	Cooking fuel	Electricity/LPG = 1 Biogas =0
	Wealth	Yes = 1, No = 0
	Bank account	Yes=1, No=0
	Land /livestock	Yes=1 , No=0

3.2.3 Lorenz Curve

The inequality in poverty among female headed household was illustrated by the Lorenz curve. The district wise proportion of people below poverty line was considered as the proxy for poverty.

4. The Model

4.1 Ordinal Logistic regression analysis

Since the dependent variable is in an ordered form, we have used ordinal logistic regression analysis for finding out the predictors of socio economic wellbeing of the households. The study used an Ordinal logistic regression with three categories of dependent variable, Y= 0, Low; Y=1, Medium; Y=2, High. Model are as follows.

$$SEWI = \beta_0 + \beta_1 A Hi + \beta_2 MS Hi + \beta_3 HH Ti + \beta_4 HH Ei + \beta_5 HH Ri + \beta_6 HH Wi$$

Here socio economic wellbeing is considered as a dependent variable along with the independent variable such as, A Hi = Age of household head, MS Hi=Marital status of the household head, HH Ti =House type, HH Ei =Household head's education HH Ri =Household head's religion, HH Wi= Wealth of the household head

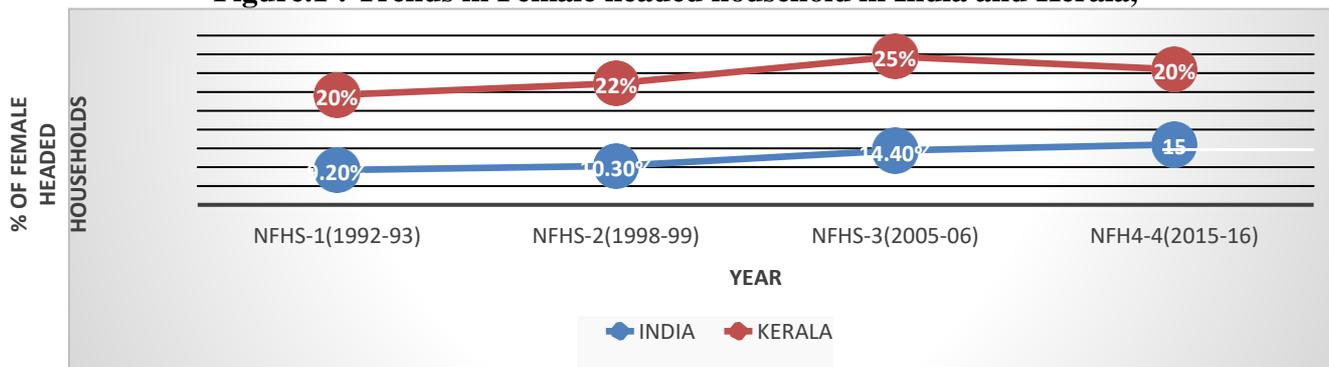
5. Empirical results

5.1 Objective -1; To analyses the extent of female headed households in Kerala

According to National family health survey (NFHS), the head of household is "the person considered responsible for the household. This person may be appointed on the basis of age (older), sex (generally, but not necessarily male), economic status (main provider) or some other reason. It is up to the respondent to define who the head is." As per national family health survey, the proportion of female headed household is increasing in India. It is 9.2 per cent, 10.3 per cent, 14.4 per cent, 15 per cent for the subsequent data collected in NFHS -1 (1992-93), NFHS-2 (1998-99) and NFHS-3 (2005-06), NFHS-4 (2015-16) respectively.

Likewise, in Kerala, their proportion is 20 percent, 22 percent, 25 percent, 20 percent for the subsequent data collected in DFHS-1, DFHS-2, DFHS-3 DFHS-4 which have been shown in the following figure

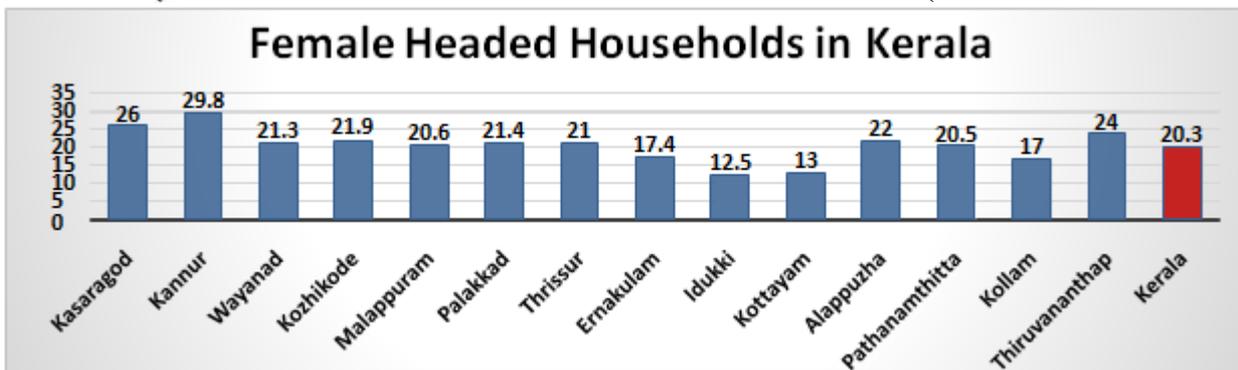
Figure.1 : Trends in Female headed household in India and Kerala,



Source NFHS Various round

National family health survey both in India and Kerala showed an increasing trend in female headships since 1992-93, except the year 2015-16 (NFHS 4), showing a 5% decrease from the previous survey of 25 % in Kerala.

Figure 2. District wise distribution of female headed households in Kerala



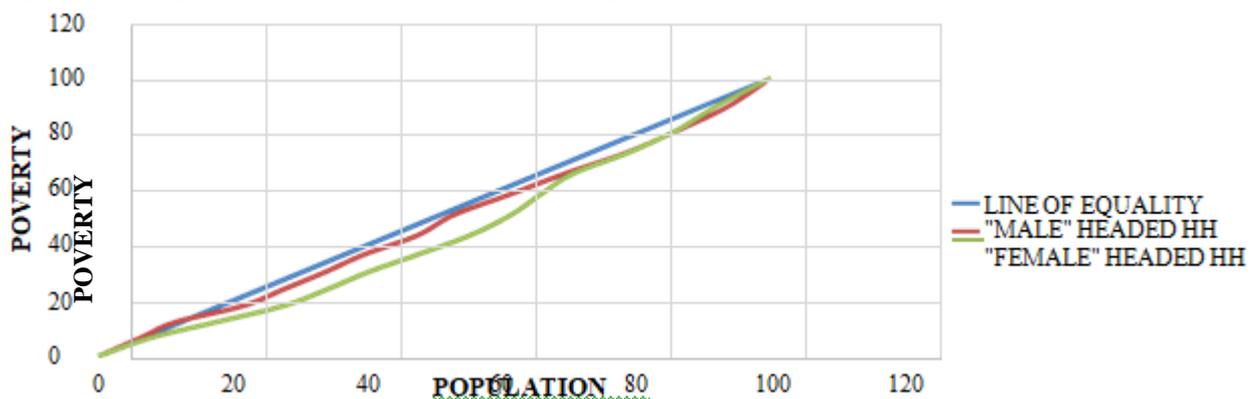
Source National family health survey -4

This figure depicts the district wise distribution of female headed households in Kerala. Kerala recorded a prevalence of 20 per cent of households headed by women. Kannur has the highest prevalence rate (29.9 per cent), Idukki has the lowest. Towards the central districts, the prevalence of female headed households shows a declining trend.

5.1.2 Inequality in the Economic vulnerability

This figure of Lorenz Curve clearly depicts the inequality in the economic vulnerability of women. Here we considered the proportion of people who belongs to the households which is below poverty line as proxy for poverty as Size of land and the type of housing have been included in the identification criteria for the Below Poverty Line census since 1997 (BPL). Male population are not much deviate from the line of equality but female's curve deviates more and a considerable distance from the equality. This means men are more inclined to the line of inequality.

Figure: 3 Inequality of economic vulnerability



5.2 Objective 2

- ❖ To analyse the factors that affect their socio economic vulnerabilities based on National family health survey-4

5.2.1. Socio economic and demographic characteristics of Household headed by women in Kerala

As per the data extracted from National family health survey- 4, the number of female headed households were 2385. Out of it 61.6 per cent are residing in the rural area, 60.3 are belong to Hindu religion. Their wealth index indicates that 74.6 per cent of them are at the rich / richest category. In spite of their higher economic position, they face vulnerabilities in terms of education, dependent children and problems related to health. Regarding their family structure, it is clear that a large proportion of these households reside in non-nuclear family. These women reside in non-nuclear family are often overwhelmed with higher household responsibilities such as child caring, caring of parents and other elder members of the family. When it comes to the education of these households,

13.9 per cent do not have any education at all. Most of them are belongs to the category of primary and secondary education (79.1). About 52 per cent of them do not cover any health insurance schemes. Likewise, majority of them do not have access to physical assets (consumer durables) such as bicycle (77 per cent), motor cycle (57.9 per cent), internet (91.3 per cent), computer (84.1 per

cent), sewing machine (67.2 per cent), tractor, radio, car (86.2 per cent) etc. About 85.4 per cent of them do not have ownership of land and (69.9) and live stocks. This finding is supported by Shiller, Gangopadhyay and Wilmaradawa, 2004, Chakraarthy, 2002. As per their opinion female headed households face deprivation both in human and physical capital.

Table 2. Association of Socio Economic Wellbeing Index (SEWI) with selected Socio economic characteristics of the female headed households

Back ground Characteristics		Low(%)	Medium(%)	High(%)	χ^2 Value
Age of Head of the household***	Below 40	41.70	44.30	14.00	23.409
	40 -49	41.70	49.20	9.10	
	50-59	50.00	40.40	9.60	
	60+	55.40	37.30	7.20	
Education of Household Head***	No education	90.50	8.60	0.90	293.083
	Primary and secondary	43.30	46.60	10.10	
	Higher	0	0	0	
Place of residence***	Rural	51.40	40.50	8.10	41.184
	Urban	46.50	43.30	10.20	
Religion***	Hindu	51.70	39.80	8.50	87.663
	Muslim	50.30	41.20	8.50	
	Christian	35.90	51.60	12.50	
Number of adult members***	<= 2	49.70	41.10	9.20	1.020
	3-5	44.00	49.10	6.90	
Number of children <5 years***	<= 2	40.10	55.80	4.10	
	3-5	49.20	41.70	9.10	
Marital status ***	Single	56.00	41.00	2.90	105.746
	Married	38.40	49.10	12.60	
	Widowed	52.50	39.40	8.10	
	Divorced/separated	64.70	31.40	3.90	
Housing structure***	Kuchha	90.60	9.40	0.00	84.77
	Semi Pucca	61.20	36.40	2.40	
	Pucca	47.20	42.70	10.00	
TOTAL		49.20%	41.80%	9.00%	

*** p<0.001 significant at 1%

The table (2) depicts the association of socio economic wellbeing index (SEWI) with some selected socio economic background of women headed households in Kerala. It clearly depicts that age playing an important role in the socio economic welfare of the households. For young households, the socio wellbeing index tends to be lower as compared with medium and old age group. Moreover regarding the education, those who are illiterate are more vulnerable than educated one. While we consider the rural urban disparity in vulnerability, rural households are suffering more than urban. While considering the religious differentials, Christians enjoy more socio economic wellbeing followed by Hindus and Muslims. When we consider the household size, the households with less than two adult members and having more than 2 children are more vulnerable than their counterparts. The reason is that the Number of adult members in the family can share their earnings for the wellbeing of the family while number of children less than five years may increase the cost of living for food and health expenditure. Marital status of the household head is also a good predictor of socio economic wellbeing of the family and here, households who are headed by a divorced woman (64 per cent) followed by household headed by a single woman (56%) suffers more vulnerability. Moreover, a lion share of households who reside in a Kachha house (90 per cent) suffers a low SWI score.

5.2.3 Ordinal logistic regression findings

1. **Model fitting information:** The significant chi-square statistic (Table 3) indicates that the fitted model gives a significant improvement over the baseline intercept-only model. This means that the models give better predictions than if somebody just guessed based on the marginal probabilities for the outcome categories (Table 3).

Table 3 Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only Final	1344.412 984.510	359.902	13	.000

Link function: Logit.

2. **Goodness-of-fit:** These statistics (Model Fitting Information and Goodness-of Fit) can be very useful for models with a small number of categorical predictors.

Table 4 Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	556.062	575	.707
Deviance	481.100	575	.998

Link function: Logit.

3. **Pseudo R-square:** Because of the high number of empty cells, that do not allow us to rely on the information provided by the model fitting information and the goodness-of-fit Tables, the pseudo R-squares were used to assess the overall goodness of fit of our models. Three different methods are used to estimate the coefficient of determination. Cox and Snell's R-square, Nagelkerke and McFadden's R-square based on the log-likelihood kernels for the intercept-only model and the full estimated model are analysed. The pseudo R-squares (Table 5) reveal that the items of factors are better predicted by the tested model. Although the pseudo R-squares values are respectable, their relatively low values indicate that there exists a little variation in the effect of the given predictors.

Table 5 Pseudo R Square

Cox and Snell	.144	Nagelkerke	.171	McFadden	.084
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Link function: Logit.

4. **Test of parallel lines:** For location-only models, the test of parallel lines can help assessing whether the assumption that the parameters are the same for all categories is reasonable. Table 6 shows that for all cases this is true, which means that the general model (with separate parameters for each category) gives a significant improvement in the model fit. Here we can conclude that in our model, the proportional odds assumption appears to have held since we reject the null hypothesis on the basis of significance value $0.637 > 0.05$

Table 6 Test of Parallel Lines^a

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	984.510			
General	973.817	10.693	13	.637

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

Link function: Logit.

6.2.4 Ordinal logistic regression analysis of Socio economic determinants of poverty among female headed household in Kerala, NFHS-4

Table -7

VARIABLES	Estimate	Standard error	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Threshold [SEWI = LOW]	-0.119	0.225	0.595	-0.56	0.321

	[SEWI = MEDIUM]	2.383	0.232	0.000	1.929	2.838
Location	[AGE=<40]	0.197	0.219	0.369	-0.232	0.625
	[AGE=40-49]	0.312	0.139	0.024	0.04	0.585
	[AGE=50-59]	0.232	0.109	0.033	0.019	0.445
	[AGE=60+]	0				
	[PLACE=URBAN]	0.105	0.089	0.236	-0.069	0.278
	[PLACE=RURAL]	0				
	[RELIGION=HINDU]	-0.591	0.123	0.000	-0.831	-0.351
	[RELIGION=MUSLIM]	-0.631	0.143	0.000	-0.911	-0.351
	[RELIGION= CHRISTIAN]	0				
	[HOUSETYPE=KACHA]	-1.437	0.816	0.078	-3.037	0.163
	[HOUSETYPE=SEMI PUCCA]	-0.48	0.131	0.000	-0.737	-0.223
	[HOUSETYPE=PUCCA]	0				
	STUCTURE= NUCLEAR FAMILY]	-0.42	0.094	0.000	-0.604	-0.236
	[STUCTURE= JOINT FAMILY]	0				
	[MARITAL STATUS=SINGLE]	0.394	0.362	0.276	-0.315	1.103
	[MARITAL STATUS = MARRIED]	0.906	0.196	0.000	0.522	1.29
	[MARITAL STATUS = WIDOWED]	0.572	0.187	0.002	0.205	0.939
	[MARITAL STATUS=DIVORCED/SEPERATED]	0				
	[EDUCATION= NO EDUCATION]	-2.399	0.204	0.000	-2.799	-1.999
	[EDUCATION= PRIMARY/SECONDARY]	0				

The ordinal logistic regression analysis resulted that most of the predictor variables we considered in the analysis are significantly associated with dependent variable. In This model, the threshold represents the response variable. For the Threshold [SEWI= LOW] is the estimated cut of value differentiate between Middle and High. SEWI categories and [SEWI= MEDIUM] is the estimated cut of value on the latent variable used to differentiate Low and Medium from Higher. That means, a household that had an estimate value (Ordered log-odds (logit) regression coefficient) of -0.119 or less on the underlying latent variable would be classified as having Low SEWI, given they are Muslims (-0.631) and residents of Kacha houses (-1.437). Again the households having an estimated value between -1.119 and 2.383 will be in Middle SEWI. If the estimated value of a household having the Household head is of age 40-49 is increased by one unit, the ordered log of being in the Medium SEWI category would be increased by 0.312 while other variables in the model are held constant. Likewise, if the estimated value of households whose head is widowed is increased by one unit, then the ordered log of being in the Medium SEWI category would be increased by 0.572 while other variables in the model are held constant. From these results we can arrive at a conclusion that in Kerala, Muslim households, those who are living in Kachha houses (-1.437) and who belongs to nuclear family (-0.42), and no education (-2.399) are very prone to the Socio Economic vulnerability compared to the other categories.

CONCLUSION

Evidence from this study on Kerala, as per National family health survey, it is clear that 74.6 percent of female headed households belongs to rich category. However, they are vulnerable in terms of education, health, ownership of consumer durables, and ownership of assets (both land and livestock). In addition to that they are also deprived in terms of dependent children, higher household responsibilities and child caring. This study also resulted that the permanent or temporary absence of their partner have created a civiler emotional issues among these mothers and children in many aspects.

Based on the results derived from the analysis, the lower the index value higher will the vulnerability and vice versa. Thus the correlation between SEWI and vulnerability is negative. This study also exhibits a strong association between SEWI and the age of the household head. In those households where the heads are very young, suffer more vulnerabilities than their counterparts. That may be due to the lack of assistance in getting earnings from other economically active household members. In the case of older women, they may get financial support from their economically active offspring. Moreover, under the headship of younger women, the cost of children is also higher compared to the rest, and they may feel difficulty in meeting the two ends. The similar findings were given by Beckwith, B. E., Beckwith, S. K., Gray, T. L., Micsko, M. M., Holm, J. E., Plummer, V. H., & Flaa, S. L. (1990). Regarding the education, those who are illiterate are more vulnerable than educated one. While we consider the rural urban disparity in vulnerability, rural households are suffering more than urban. While considering the religious differentials, Christians enjoys more socio economic wellbeing followed by Hindus and Muslims.

Marital status of the household head is also a good predictor of socio economic wellbeing of the family. The households who are headed by a divorced woman are more deprived (64 per cent) followed by household headed by a single woman (56%). From this study we can arrive at a conclusion that in Kerala, Muslim households, those who are living in Kachha houses (- 1.437) and who belongs to nuclear family (-0.42), and no education (-2.399) are very prone to the Socio Economic vulnerability compared to the other categories.

Strengthening *property rights* among women in India has been argued to be one of the key strategies for improving women's status in general and female-headed households in particular. More over an inclusive strategy should be implemented both at national and state level for reducing their vulnerability to some extent. Moreover, children from female headed households should be protected from child labour, so that government should provide free education, scholarship, and other allowances for the welfare of children among these households. The impact of migration in the household headship is increased recently and further researches are needed in finding out how it affects the left behind females in Kerala. The younger women as household heads are victims of more poverty and only empowerment of these women can make any development in their vulnerability.

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