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Elder Abuse Between EAG And Non-EAG States in India: A Decomposition Analysis Approach

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Abstract

Objective: The primary aim of this study is to identify the key factors contributing to the differences in the prevalence of elder abuse between Empowered Action Group (EAG) states and non-EAG states.

Methods: The data for this study was sourced from the Longitudinal Ageing Study in India (LASI) Wave 1, conducted in 2017-18. The study focused on older adults aged 60+ from a sample of 10,686 from EAG states and 20,166 from non-EAG states. A multivariate nonlinear decomposition analysis was conducted to identify the key factors contributing to the gap in elder abuse prevalence between EAG and non-EAG states in India. The main goal was to determine the covariates driving these variations.

Results: The decomposition analysis revealed a significant rise in elder abuse rates among EAG states compared to non-EAG states, driven largely by changes in behavioral responses.

Introduction

As the global population ages, the frequency of elder abuse is expected to rise significantly. According to the WHO (2022)**,** one in every six older adults is subjected to some form of abuse globally, and this number is projected to increase annually due to accelerated ageing (UN News, 2022). In India, the elderly population is growing at an alarming rate. The National Commission on Population reported that in 2011, approximately 9% of India's population was aged 60 and above. This percentage is expected to double to 18% by 2036 (UN DESA, 2023). These demographic shifts suggest that elder abuse will present an even greater challenge in the future, especially in rapidly ageing societies (World Social Report, 2023). The phenomenon of elder abuse was first brought to public attention under the term "granny battering" in the 1970s. It was in 1975 that elder abuse was first formally documented in a British scientific journal (Baker, 1975). Since then, elder abuse has gained global recognition as a significant social and public health issue.

Elder abuse is a pervasive issue affecting older adults worldwide, violating their basic human rights. The World Health Organization (WHO) defines elder abuse as "a single or frequent act, or lack of appropriate action, happening within any relationship where there is an expectation of trust that causes harm or distress to an older person" (WHO, Missing voice, 2002). This abuse manifests in various forms, including physical, sexual, psychological, emotional, financial or material exploitation, neglect, and the severe erosion of dignity and respect (Krug et al., 2002). In India, elder abuse remains a largely underreported issue due to cultural conditioning and the traditional multigenerational family structures that venerate older persons (Jamuna, 2003). The prevalence of co-residence with family members has been a defining characteristic of Indian society, with joint family structures historically providing a safety net for elderly care (Samanta et al., 2015). However, the societal shift from joint to nuclear

families has introduced challenges for older adults, leading to increased feelings of insecurity regarding emotional, physical, and financial well-being. This shift has also contributed to a rise in psychological problems, such as depression, dementia, and social isolation, which are exacerbated by a lack of adequate social support (Seth et al., 2019). These psychological burdens often outweigh physical ailments, underscoring the need to address the emotional and mental health needs of the elderly alongside their medical conditions. In rural India, the prevalence of elder abuse is notably higher, with a study of India's seven demographically oldest states reporting that 11% of older individuals experience abuse (Skirrbek & James, 2014). Family members are most often the perpetrators of elder abuse, with sons identified as the most common abusers (Acierno, 2010). In one study, sons were responsible for abusing 41% of male victims and 43% of female victims (Skirrbek & James, 2014).

The main objective of this study is to understand the key factors contributing to the disparities in the prevalence of elder abuse between socioeconomically backward states EAG (Empowered Action Group) and non-EAG states.

To the best of our knowledge, this is the first study to examine the relative importance of elder abuse in socioeconomically backward **Empowered Action Group (EAG)** states compared to non-EAG states, taking into account socio-demographic factors, health status, and economic conditions.

Data and Methods:

The data for this study was taken from the Longitudinal Ageing Survey of India (LASI) wave1- 2017-18. The LASI is a comprehensive nationwide scientific method into the socioeconomic and health status of the older population in India as well as the impacts of population ageing. LASI is a longitudinal prospective study that included 73000 participants from 36 Indian states and union territories who were 45 years of age or older, as well as their spouses (regardless of age). The present study focused on 60+ older adults of 31902 sample sizes in India. The effective sample size after removing missing cases was 30852 older adults, the sample size was reduced to 10,686 in EAG and 20,166 in non-EAG states respectively.

Outcome Variables

The LASI survey question for elder abuse. ‘Have you felt that you were ill-treated in the past year?' The responses were "no" and "yes."

Further respondents were questioned people were also asked, "How often did you feel like that?" Responses were marked as often, sometimes, or not very often. The following question was, "Who were the people who abused you in the past year?" The answer was recorded into a number of different groups, including son-in-law, neighbor, relative, spouse, grandchildren, and others (daughter/s, son-in-law, brother, sister, and other relatives). This study included only ill-treatment faced inside the household including Physical, Verbal, Disrespect, Economic exploitation, and Emotional abuse ((Srivastava et al; 2021). The term ill-treatment was taken as abuse in this study.

Exposure Variables

Individual factors: Age, Sex, Marital status, Educational, MPCE, Working status, Religion; Hindu, Muslim and others, Place of residence,

Health factors: Self-rated health; Depression, ADL and IADL limitations.

Empowered Action Group states (EAG) and Non-EAG states: The Empowered Action Group EAG

states in India, which include the eight socioeconomically backward states i.e., Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand, and Uttar Pradesh and rest states, belong to non-EAG states.

Statistical Analysis

In this chapter descriptive statistics were employed to provide an overview of elder abuse in India, EAG and non-EAG states. To further attain the study's goals and objectives, binary logistic regression analysis was performed. The data are shown in the form of odds ratios with a 95% confidence interval (CI). After adjusting for a variety of socio-demographic characteristics, health status, and economic dependency status variables of older adults, binary logistic regression was able to explain the impact of these exposure variables of abuse among older persons. Moreover, to comprehend the primary factors influencing EAG and non-EAG states gaps in the prevalence of elder abuse multivariate nonlinear decomposition analysis was performed. The primary objective of the decomposition analysis was to pinpoint the covariates that contributed to the variations in elder abuse between the Empowered Action Group (EAG) and non-EAG states in India. The covariates are divided by the decomposed into components that can be attributed to variations in the characteristics themselves and variations in the effects of the characteristics. Decomposition took into account individual, health, and household variables.

In the multivariate decomposition analysis, two key contributing effects were examined: the compositional differences (endowments) denoted as 'E,' and the effects of characteristics represented by the differences in coefficients or behavioral responses 'C' for the selected predictor variables (Tiruneh et al, 2020). The observed differences in abuse can be separated into two distinct components: characteristics (endowments) and coefficients (effects of features) through an additive decomposition process (Debie et, al; 2020). In the non-linear model, the dependent variable is a function of a linear combination of predictors and regression coefficients:

$$Y = F\,(X\beta) = logit\,(Y) = X\beta, \qquad (4.1)$$

where Y denotes the n*1 dependent variable vector, X an n*K matrix of independent variables, and β a K*1 vector of coefficients.

The proportion difference in Y between EAG A and non-EAG B of abuse can be decomposed as: $Y_A - Y_B = F(X_A\,\beta_A) - F(X_B\beta_B)$ (4.2)

For the log odds of abuse, the proportion of the model is written as

$$Logit\,(Y_A) - logit\,(Y_B) = F(X_A\beta_A) - F(X_B\beta_B)$$
$$= (X_A\beta_A\,) - (X_B\beta_A\,) + (X_B\beta_A) - (X_\beta\beta_B) \qquad (4.3)$$

The difference due to endowment change is the component ‘E,' also known as the explained component. The difference attributed to coefficient (behavioural) change, often known as the unexplained component, is the ‘C' component. The model structure for the decomposition analysis was:

$$Logit\,(A) - Logit\,(B) = [\beta_{0A} - \beta_{0B}] + \sum \beta_{ijA}\,[X_{ijA} - X_{ijB}] + \sum X_{ijB}\,[\beta_{ijA} - \beta_{ijB}] \qquad (4.4)$$

where

- β_{0A} is the intercept in the regression equation for EAG
- β_{0B} is the intercept in the regression equation for non-EAG
- β_{ijA} is the coefficient of the $j\ th$ category of the $i\ th$ determinant for EAG
- β_{ijB} is the coefficient of the $j\ th$ category of the $i\ th$ determinant for non-EAG

- X_{ijA} is the proportion of the $j\ th$ category of the $i\ th$ determinant for EAG
- X_{ijB} is the proportion of the $j\ th$ category of the $i\ th$ determinant for non-EAG

The command mvdcmp was used to carry out multivariate decomposition analysis in STATA 14(Stata corp, 2015).To ensure estimates were equally distributed, weights were used. Microsoft Excel and STATA 14.2 were used for all of the analysis.

Results

Figure 1 illustrates that the overall prevalence of elder abuse in India was 5.2%. Abuse was more prevalent in EAG states, with a rate of approximately 6%, compared to around 4% in non-EAG states. Figure 2 further highlights that in EAG states, the prevalence of elder abuse varied between 2.6% and 11.63%, with Bihar experiencing the highest rate and Uttarakhand the lowest. In non-EAG states, elder abuse ranged from 0% to 10%, with Karnataka showing the highest prevalence, while Lakshadweep, Nagaland, and Meghalaya had the lowest rates, ranging from 0% to 0.8%.

Frequency, type and preparatory of elder abuse

Table 1 shows that the Frequency, type and perpetrator of elder abuse among older adults frequently abuse among older was less which was approximately 14% in India. The percentage of occasional abuse was higher in India; it was 53% in EAG and 49.7% in non-EAG states. Verbal and neglect abuse was higher among all abuse in both groups of states as well as in India. Daughter-in-law (35%) was the main preparatory of abuse followed by son (33.2%) and neighbour (32.8%) in India as well as in non-EAG states while in EAG states main preparatory of abuse was the daughter in law followed by the neighbour (37.3%) and son (31%).

Table 2 shows the relationship between elder abuse and socio-demographic factors, health conditions, and economic status. All the association with elder abuse was found to be significant except for age group.

Logistic regression

Table 3 shows the Logistic Regression Estimate for determining older Abuse in India. All the variables considered here were positively associated with elder abuse except age, religion and wealth index, they are negatively associated.

Decomposition analysis

Table 4 shows the decomposition results in changes in the prevalence of abuse were divided into two parts. The first part identified the change in composition or characteristics of the selected variables. In comparison, the second part described the change due to the coefficients of those variables. Table 4 shows the overall decomposition analysis of the increase in abuse. The differences in endowments explain just over 31.73% of the EAG and non-EAG gap in the prevalence of elder abuse. The coefficient affects accounts for 68.27 per cent of the increase in the proportion of abuse between EAG and non-EAG. The overall decomposition revealed that the coefficient effects, not the endowment effects, were primarily responsible for the abuse rate increment between EAG and non-EAG in India. According to coefficient effects, between EAG and NON-EAG, an increase in the likelihood of abuse among older adults resulted from changes in the behaviour of study participants based on variables like depression, poor self-rated health, female and had no education contributed significantly to increment in abuse by

approximately 9.7%,10%, 8.3% and 21% respectively. The differences in endowments explain just over 31.73% of the EAG and non-EAG gap in the prevalence of elder abuse. In this regard, the key factors that significantly influenced the increment in abuse were (population change) older residence, religion and education. Older belong to rural residences, other religions and had no education made a large contribution (12.83%, 19.18% and 9.46%) to reducing differences in elder abuse between EAG and non-EAG.

Discussion

The chapter seeks to give a complete analysis of elder abuse in India, concentrating on the relationship between elder abuse and numerous aspects such as socio-demographic features, health status and economic reliance status of older persons in both EAG and non-EAG states. This study shows in India overall elder abuse was 5.2%, while for EAG and non-EAG states it was 6% and 4% respectively. Previous studies in India and other countries such as Singapore and Malaysia found a prevalence of 8.3% and 9%, respectively, with a global incidence of 17%. A study conducted in West Bengal, India showed a 26% prevalence of elder abuse (Chokkanathan, 2005; Skirbekk, 2014; Sembiah, 2020; Wang, 2006; Dong, 2007; Yon, 2017). Similar results were found in a study, the total prevalence of elder abuse was found to be 11.4% (Sathya et al., 2020). Specifically, the prevalence of elder abuse reported by study participants in the month preceding the survey was 6%. This study found Bihar (11.63%) of EAG and Karnataka (10.26%) of non-EAG states had the highest abuse rate. A study has provided insights into the differences in elder abuse prevalence at the state and union territory levels across India and found Bihar and Karnataka had the highest abuse rates in India(Sathya et al.,2022). Bihar, a state that does not score well on various socioeconomic metrics, has the highest rate of elder abuse, followed by Karnataka, a state that performs well in terms of development. Surprisingly, the prevalence of abuse was higher in places where violence against women in the reproductive age range was also found to be higher (IIPS, 2017). According to the social learning theory, violence is a learned behaviour that is induced by stress, alcohol misuse, or financial hardship (Jackson, 2009). Thus, abuse in India crosses across states, regardless of development position, and may be attributed to a violent culture.

This study found that verbal abuse is most prevalent in India as well as in EAG and non-EAG states. Among the various forms of abuse, the most common kind of harassment is verbal abuse, which is followed by neglect (Bhansod et al., 2021). The current study revealed that the older adults were primarily victimized by family members mostly by daughter in law. Most Indian parents rely on their children and grandchildren in their old age (Lieber et al., 2020), and this exposure may be one of the primary that sons, daughters-in-law, and grandchildren are common abusers. (Day, 2007). Low social security coverage and issues with intergenerational lifestyle adjustments tend to raise the load on the family in terms of financial stress and time utilization (Jackson, 2009; Kumar & Bhargava, 2014).

The results of the logistic regression odds ratio indicated all the socio-demographic, health and economic dependence variables that have been taken in this study were impacted significantly to elder abuse. It is critical to emphasize health considerations such as functional restrictions. The frequency of chronic diseases and functional limitations among the population is increasing as a result of an ageing population and demographic trends. Several studies have found that chronic diseases harm subjective health and well-being. According to the findings of this study, functional limitation plays a substantial role in elder abuse, with the disability-related change in dependency being an essential cause of elder abuse (Arokiasamy, 2018; Arokiasamy et, al, 2015). According to a recent study, older persons with

less education, those living alone, and those without health insurance or pension coverage are more likely to work above the age of 60 (Chattopadhyay et al., 2022). Older persons who were not married were more likely to be mistreated, which could be attributed to social isolation and the associated increased susceptibility (Pillemer et al., 2016; Ramalingam et al., 2019).

Strengths and limitations

Strengths: The data was collected from all states and union territories of India, making the figures and percentages representative and comparable at the socioeconomically backward states Empowered Action Group and Non Empowered Action Group in India. This study had several limitations. Firstly, the findings were derived from cross-sectional data, which may not capture changes over time. Additionally, there is a possibility of under-reporting elder abuse, which could influence the overall prevalence estimates. The presence of family members during survey completion may have also impacted the responses. Unlike many studies conducted in developed countries that use validated elder abuse or ill-treatment scales, this study did not employ such a scale to measure the prevalence of elder abuse.

Conclusion

Elder abuse is higher in EAG states than in non-EAG states in India. Elder abuse is more prevalent in Bihar (11.63%) state of the EAG group and Karnataka (10%) state of the non-EAG group. Being one of the less economically developed states and maybe the traditional joint family system in the state has both positive and negative impacts on elder abuse. While it can provide support and care, it can also create conflicts and power imbalances within the family, leading to abuse. Verbal abuse is more prevalent among older adults in India, with both states classified as Empowered Action Group (EAG) and non-EAG states reporting high occurrences of such mistreatment. Elder abuse is perpetrated by family members, including more by daughters-in-law followed by sons.

Decomposition analysis concluded a sharp increase in the proportion of abuse among older adults between EAG and non-EAG resulting from a large increasing effect of the change in behavioral response. The sharp increase in abuse rates among older adults in the EAG group may signal the need for targeted policies and interventions. Addressing the root causes of the behavioral response changes and improving access to support services can be essential in mitigating the increase in abuse rates.

There is an urgent need to raise awareness about elder issues and the available remedies. Improving the accessibility of existing protective mechanisms for older adults, such as social benefits and legal provisions, is essential. Coordination between international and national agencies is necessary to enforce legal and programmatic actions against elder abuse. State and district-level centers can operate within a national framework to address elder abuse, particularly through programs like the National Programme for Health Care for the Elderly (NPHCE). Additionally, primary health care providers and family physicians, with proper training and reporting systems, can play a crucial role in identifying and addressing cases of elder abuse.

Table 1. Frequency, type, and perpetrator of abuse among older adults in EAG and Non-EAG states

Variable	India	EAG states	Non-EAG states
Frequency of abuse	**N (%)**	**N (%)**	**N (%)**
Frequently	181(14.4)	82(13.1)	99(15.3)
Occasionally	654(52.8)	332(53.1)	321(49.7)

Only a few times	438(32.8)	212(33.9)	226(35.1)
Total	1272	626	646
Type of abuse			
Physical	154(16.6)	83(15.3)	71(15.4)
Verbal	659(66.6)	350(64.5)	309(67.0)
Economic exploitation	222(22.2)	107(19.7)	115(24.9)
Emotional	335(36.8)	142(26.2)	193(41.9)
Neglect	446(47.5)	218(40.1)	228(49.5)
Number of Older adults	1004	543	461
Perpetrator of abuse			
Daughter in law	362(34.9)	197(36.3)	165(35.9)
Son	312(33.2)	168(31.0)	144(31.4)
Neighbour	325(32.8)	202(37.3)	123(26.8)
Others	171(14.5)	57(10.5)	88(19.2)
spouse	74(6.7)	42(7.7)	32(7.0)
Grandchild	52(4.5)	27(5.0)	25(5.4)
Daughter	41(3.5)	12(2.2)	29(6.3)
Brother	30(3.3)	11(2.0)	19(4.1)
son in law	13(1.0)	3(0.6)	10(2.2)
Total	1001	542	459

Table 2. Association of Elder Abuse with socio-demographic, health factors and economic status

Variables	India (%)	p-value
Age- 60-69	5.1	
70-79	5.8	
80+	4.2	0.087
Place of residence- Urban	3.8	
Rural	5.8	0.000
Sex-Male	4.8	
Female	5.5	0.000
Education -Higher	3.2	
Secondary	4.1	
Primary	4.8	
No	5.9	0.000
Marital status- Married	4.9	
Widowed	5.7	
Others	6.7	0.000
Wealth quintile- Poorest	6.0	
Poorer	5.4	
Middle	5.7	
Richer	4.2	
Richest	4.6	0.000

Religion- Hindu	5.5	
Muslim	5.1	
Others	2.2	0.000
Self-rated health- Good	4.5	
Bad	7.6	0.000
ADL- No	4.7	
Yes	6.9	0.000
IADL-No	3.8	
Yes	8.2	0.000
Depression-No	3.8	
Yes	8.2	0.000
Social Participation-No	5.2	
Yes	5.3	0.000
Economic dependence- Non-dependence non-supporting	4.5	
Completely dependent	8.2	
Partially dependent	6.2	
Non-dependent but supporting	12.2	0.000
States-EAG	6.3	
Non EAG	4.1	0.000

Table 3. Logistic Regression Result of Elder Abuse and Its Association with Background Characteristics in India

Variables	**India**
	AOR(95% CI)
Age- 60-69®	**1**
70-79	0.97(0.85-1.10)
80+	0.69(0.55-0.85) ***
Place of residence- Urban ®	**1**
Rural	1.37(1.19-1.60) ***
Sex-Male®	**1**
Female	1.06(0.93-1.21)
Education -Higher®	**1**
Secondary	1.39(1.1-1.92) *
Primary	1.27(0.90-1.77)
No education	1.48(1.07-2.03) *
Marital status- Married®	**1**
Widowed	1.00(0.87-1.15)
Others@	1.48(1.08-2.02) ***
Wealth quintile- Poorest®	**1**
Poorer	0.94(0.77-1.08)
Middle	0.93(0.74-1.04)
Richer	0.82(0.63-0.99) **

Richest	0.78(0.58-0.95) ***
Religion- Hindu®	**1**
Muslim	0.76(0.61-0.92) **
Others$	0.52(0.35-0.66) ***
Self-rated health- Good®	**1**
Bad	1.49(1.29-1.70) ***
ADL- No®	**1**
Yes	1.25(1.07-1.42) **
IADL-No®	**1**
Yes	1.51(1.31-1.72) ***
Depression-No®	**1**
Yes	2.11(1.87-2.37) ***
Social Participation-No®	**1**
Yes	1.17(1.02-1.32) *
Economic dependence- Non-dependence non-supporting®	**1**
Completely dependent	1.53(1.34-1.77) ***
Partially dependent	1.88(1.36-2.60) ***
Non-dependent but supporting	1.81(1.41-2.30) ***
Non-EAG®	**1**
EAG	1.66(1.46-1.87)***

Note: *** p <0·001, ** p<0·01, *p<0·05

®: reference category; @ Others: Divorced, Separated, Deserted, Live-in, Never married, $ Other: Christian, Buddhist, Sikh, Jain, Parsi, Jewish, others

Table 4. Multivariate Nonlinear Decomposition for EAG and non-EAG Gap in the Prevalence of Elder Abuse in India

Overall Decomposition	Coefficient	Per cent
Endowment effect	**0.00839*** **	**31.73**
Coefficient effect	**0.01805*** **	**68.27**
Total effect	**0.02645*** **	

Background characteristic	Due to differences in Characteristic		Due to differences in coefficients	
	Coefficient	Percentage	Coefficient	Percentage
Age-60-69®				
70-79	0.0001	0.04	0.00026	0.99
80+	-0.0001 *	-0.01	0.00037	1.39
Residence- Urban®				
Rural	0.0034**	**12.83**	0.00178	6.74
Sex- Male®				
Female	0	0.01	-0.00219*	-8.27

Education-Higher®				
Secondary	-0.0092	-3.46	-0.0011	-7.04
Primary	-0.0051	-1.93	-0.00091	-3.5
No education	0.0025*	9.46	-0.00095*	-21.3
Marital status- Currently married®				
Widowed	0.00004	0.14	-0.00204	-7.7
Others@	-0.00032***	-1.21	0.00004	0.16
Wealth quintile- Poorest ®				
Poorer	0.000009	0.35	0.0017	6.42
Middle	-0.00001	-0.06	0.00185	7
Richer	0.00034	1.3	0.0006	2.6
Richest	0.00056	2.13	0.0016	6.21
Religion- Hindu®				
Muslim	0.00013	0.51	0.00077	2.92
Others$	0.00507*	**19.18**	-0.0008	-3.04
Self-rated health- Good®				
Poor	-0.0005***	-1.88	-0.00243*	**-10.17**
ADL- No®				
Yes	-0.00018	-0.69	-0.00088	-3.33
IADL- No®				
Yes	-0.00038***	-1.45	-0.00119	-4.49
Depression-No®				
Yes	-0.00032***	-1.21	-0.0255*	**-9.65**
Social participation- No®				
Yes	-0.00075	-2.83	-0.00052	-1.95
Economic dependence- Non-dependent non supporting®				
Complete dependent	0.00003***	0.1	0.00011	0.4
Non-dependent but supporting	-0.00012*	-0.44	-0.00047	-1.77
Partial dependent	0.00022**	0.84	0.00047	0.26

Note: *** p <0·001, ** p<0·01, *p<0·05

®: reference category; @ Others: Divorced, Separated, Deserted, Live-in, Never married; $ Other: Christian, Buddhist, Sikh, Jain, Parsi, Jewish, others

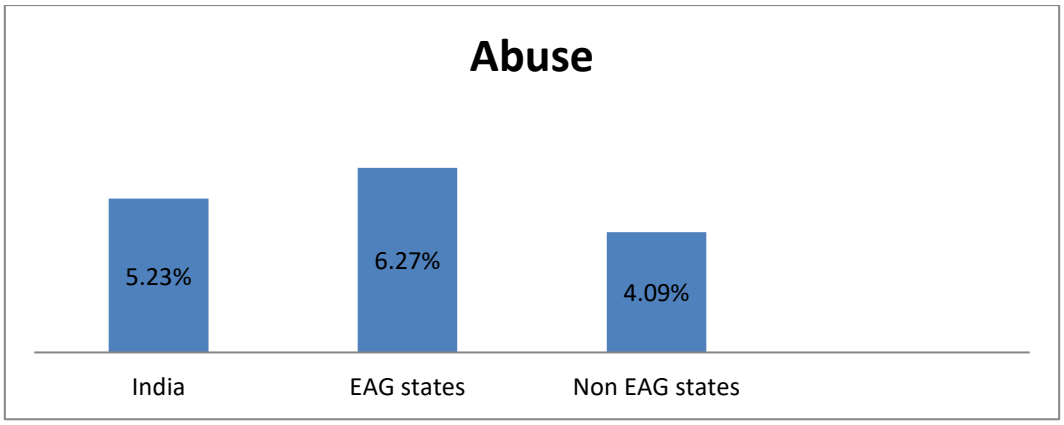
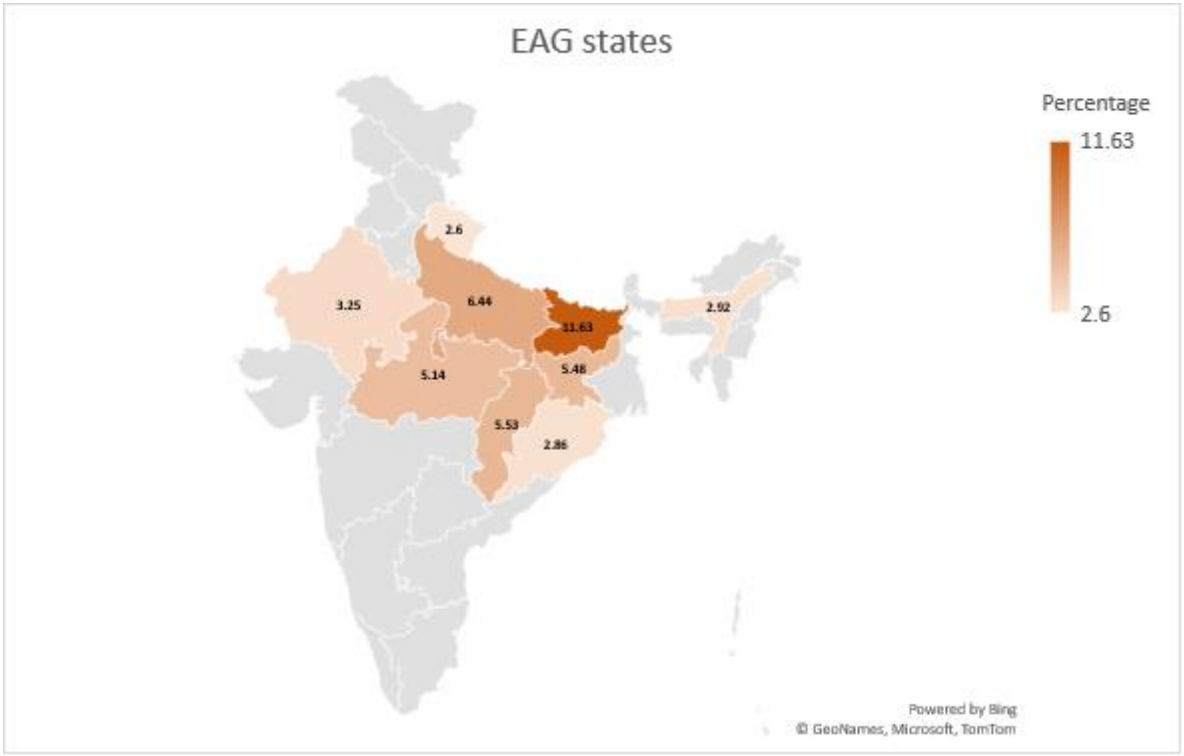


Figure1. Percentage distribution of abuse experienced by older adults



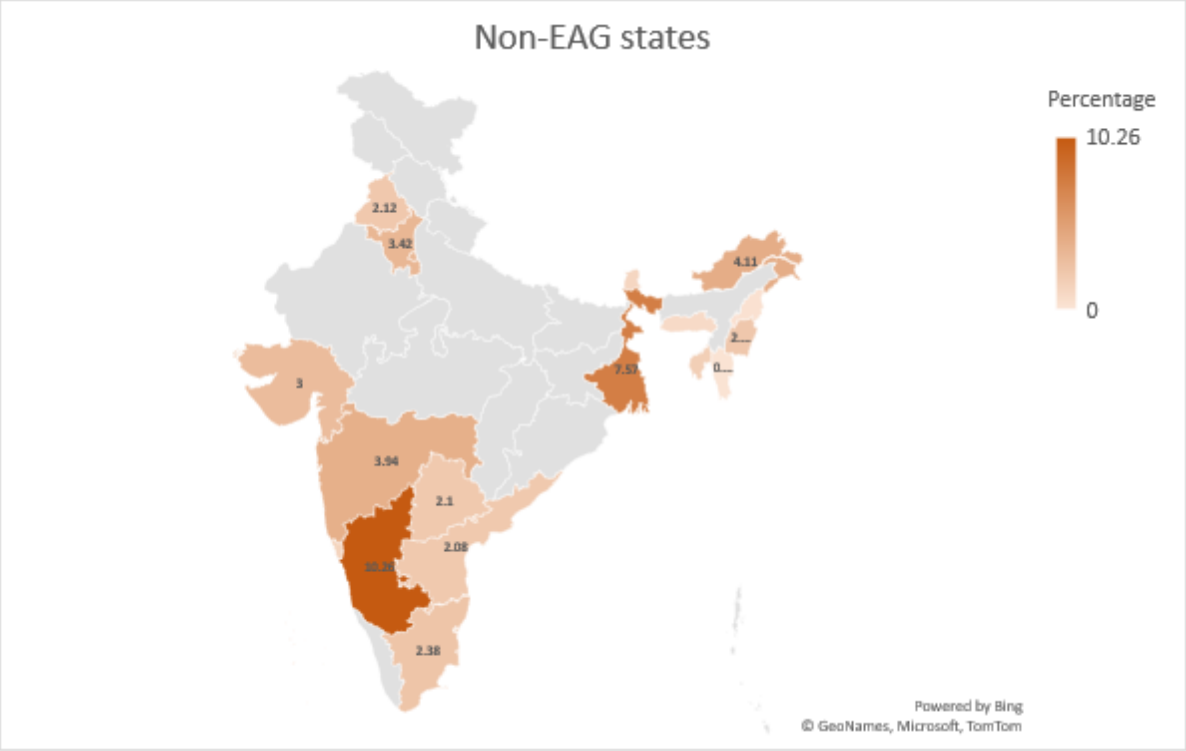


Figure 2. Elder abuse in EAG and non-EAG states of India

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