"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA - A COMMUNITY BASED CROSS SECTIONAL STUDY"

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Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITY BASED CROSS SECTIONAL STUDY."** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

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LIST OF ABBREVIATIONS USED

SL.NO	ABBREVIATIONS	EXPANSION OF THE ABBREVIATIONS
1	ADL	Activities of Daily Living
2	AOR	Adjusted Odds Ratio
3	aPR	Adjusted Prevalence Ratio
4	ASDP	Age-Standardized Disability Prevalence
5	AT	Assistive Technology
6	BMI	Body Mass Index
7	BKPAI	Building Knowledge base for Population Ageing in India
8	CNAA	Community Needs Assessment Approach
9	CI	Confidence Interval
10	CPI	Consumer Price index’
11	CF	Correction Factor
12	DHS	Demographic Health Survey
13	IEC	Information, Education and Communication
14	ICF	International Classification of Functioning, Disability and Health
15	JNMC	Jawaharlal Nehru Medical College
16	LMIC	Lower- or Middle-Income Countries
17	MDS	Model Disability Survey
18	NFHS	National Family Health Survey
19	NSS	National Sample Survey
20	NCD	Non-Communicable Diseases

21	NGO	Non-Governmental Organization
22	OR	Odds Ratio
23	PCI	Per Capita Income
24	PWD	Persons with Disabilities
25	PHC	Primary Health Centre
26	rATA	Rapid Assistive Technology Assessment
27	RCI	Rehabilitation Council of India
28	SII	Slope Index of Inequality
29	SES	Socio-Economic Status
30	SD	Standard Deviation
31	SAGE	Study on Global AGEing and Adult Health
32	SDGs	Sustainable Development Goals'
33	UHC	Universal Health Coverage
34	WHO	World Health Organization
35	WHO DAS	WHO Disability Assessment Schedule

ABSTRACT

"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITY BASED CROSS SECTIONAL STUDY"

INTRODUCTION:

At some point in their life, almost everyone will experience disability temporarily or permanently. Number of people living with disability are increasing because of high prevalence of non-communicable diseases and ageing population. Factors such as gender, age, religion and economic situation affect the health needs and experiences in life of 'persons with disabilities' (PWDs). Inclusion of disability is necessary for achieving the 'United Nations Sustainable Development Goals' and universal health priorities to attain universal health care for all. It is necessary to know the needs of person with Disabilities, and this can be done by estimating the burden in the community. Hence, it becomes important to estimate the prevalence of disability and to identify sociodemographic factors associated with disability in rural areas of Belagavi district in Karnataka, India.

OBJECTIVES:

1. To estimate the prevalence of disability among adults residing in rural field practice area using WHO 'Brief Model Disability Survey' tool.
2. To identify sociodemographic factors and environmental factors associated with disability.

MATERIAL AND METHODS:

A community based, cross-sectional study was conducted among 400 study participants in rural field practice area of PHC Kinaye, Belagavi by using population proportionate sampling from 1st January 2023 to 31st December 2023 (12 months), using a predesigned and structured questionnaire by using WHO Brief MDS survey. Collected data was entered in Microsoft Excel sheet and analyzed by IBM SPSS software version 20.

RESULTS:

Among the 400 study participants, 278 (69.5%) participants were females, 123 (30.8%) participants were in the age group 30-40 years, 204 (51%) participants had completed secondary education, 357 (89.3%) participants were married, 221 (55.3%) participants were homemakers, 354 (88.5%) participants belonged to Hindu religion and 161 (40.3%) participants belonged to class IV socio-economic status. Out of 400 study participants, 84 (21%) participants had no disability, 139 (34.8%) participants had mild disability, 118 (29.4%) participants had moderate disability and 59 (14.8%) participants had severe disability as per the criteria. Increasing age (p=0.000, χ^2 = **117.819**), being widowed (p=0.001, χ^2 = **23.206**) and having elementary and secondary educational level (p=0.000, χ^2 = **27.592**) were significantly associated with disability. Gender (p=0.128, χ^2 = **5.685**), religion (p=0.231, χ^2 = **8.094**), occupation (p=0.05, χ^2 = **16.928**) and socio-economic status (p=0.183, χ^2 = **16.175**) were not found to be significantly associated with disability.

CONCLUSION:

Eight out of ten study participants had one or other type of disability. More than one third of them had mild and moderate type of disability and less than one fifth of them had

severe disability. Increasing age, widowhood and low educational level were associated with disability. Gender, religion, occupation and socio-economic status were not found to be significantly associated with disability

KEY WORDS:

Adults, Brief MDS, Disability and Rural area.

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INTRODUCTION

'Disability' is part of being human and experience is integral to human. At some point in their life, almost everyone will experience disability temporarily or permanently. Currently an estimated 1.3 billion people, representing 16% of the global population experience significant disability. Number of people with disability is growing because of an increase in the prevalence of non-communicable diseases and population ageing. Factors such as Gender, age, religion and economic situation affect the health needs and experiences in life of 'persons with disabilities' (PWDs). When related to persons not having disabilities, PWDs may die 20 years earlier. Risk of evolving conditions such as depression, diabetes, asthma, obesity, stroke or poor oral health among PWDs was twice that of persons without disabilities.[1] PWDs die early because of poor health and experiencing of more limitations in functioning than persons without disabilities. During health emergencies persons with disabilities are more affected.[2]

The 'International Classification of Functioning, Disability and Health (ICF)' defines 'disability' as "the outcome of the interaction between a person's health condition(s) and the physical, attitudinal, human-built, and sociopolitical surroundings in which that person lives." ICF defines 'capacity' as "the synthesis of all intrinsic physical and mental capacities of a person, determined by his or her health conditions or impairments." Therefore, disability is not only due to impairments or specific health problems.[3]

In the 'Brief Model Disability Survey' conducted in India 2019 by WHO, "disability is also defined as continuum, ranging from no disability to very high levels of disability." Therefore, experiencing disability was diverse.[3]

According to "Rights of Person with Disability Act, 2016" "Person with Disability means a person with long term physical, mental, intellectual or sensory impairment which, in

interaction with barriers, hinders his/her full and effective participation in society equally with others."[4]

As per the Census India 2011, 26.8 million (2.21%) of Indian population are differently abled. Over the period of 10 years, PWDs increased from 21.9 million to 26.8 million. The disability among men is 15.0 million (2.41%) as against women is 11.8 million (2.01%). The population with disability in Karnataka state is 1.32 million (2.17%).[5]

According to the NFHS - 5 survey (2019-2021), the disability prevalence in India was 1.1% and in Karnataka state was 1.4%. Locomotor type of disability was prominent (0.4%) compared to hearing, speech, visual, mental and other disabilities. At age 15 years and above, men (1.4%) had slightly more disability compared to women (0.9%). Disability among rural population (1.2%) was slightly more than urban population (0.9%).[6]

PWDs are affected disproportionately by contributing factors such as structural factors, community determinants of health, risk factors and health system factors due to health inequities. Structural factors which are related to the very broad socioeconomic and political context, and the mechanisms that generate social stratification. Unmet health needs of PWDs were due to community determinants of health such as poverty, poor living conditions, exclusion from education & employment. Risk factors which are related with non-communicable diseases (NCDs), including tobacco use, alcohol consumption, diet and amount of exercise, as well as environmental aspects such as air pollution. Persons with disabilities has increased contact to risk factors was mainly due to community health interventions which are not complete. Health system factors which include obstacles across building blocks were delivery of service, the health workforce, health data systems, health systems, medical devices and technologies, leadership and financing.[1,2]

Inclusion of disability is desperate to achieving the 'United Nations Sustainable Development Goals' and universal health priorities to attain health for all. On uniform basis, if PWDs didn't get quality health services, Universal health coverage (UHC) won't be achieved. Seven targets that mention about disability indicators for 'Sustainable Development Goals' (SDGs) are education outcome (4.5); accessible schools (4.a); employment (8.5); inclusion and empowerment (10.2); accessible transport (11.2); accessible public spaces (11.7) and data disaggregation (17.18). The quality data collected at population level on disability is essential for policy development which is useful for persons experiencing different levels of disability to improve their living standards. Data can be used to predict the rehabilitation needs of different regions. Data is also useful to monitor progress of 'Sustainable Development Goals' (SDGs).[1,7]

The 'brief model disability survey' was developed by WHO in 2016 and using this, they have done a project in India in 2018. Only few studies are done on disability, health conditions and barriers in the environment that affecting disabled people using 'brief model disability survey questionnaire.' It is necessary to know the needs of person with Disabilities, and this can be done by estimating the burden first. Hence, it becomes important to estimate the prevalence of disability and to identify sociodemographic factors associated with disability in rural areas of Belagavi district in Karnataka.

OBJECTIVES OF THE STUDY

1. To estimate the prevalence of disability among adults residing in rural field practice area using 'Brief Model Disability Survey.'

2. To identify sociodemographic factors and environmental factors associated with disability.

REVIEW OF LITERATURE

A 'Brief Model Disability Survey' 2019 conducted in India among 3,000 participants aged fifteen years and older population revealed that prevalence of mild, moderate and severe types of disability was 17%, 35% and 15% respectively. Seventy percent of people aged between 18 and 49 years had completed elementary or lesser education. Individuals with moderate type (39%) and severe type (48%) disability were out of the work force. Regarding health conditions, 37% of the population reported that they had one health condition. Musculoskeletal conditions (back pain 19%) and mental disorders (anxiety 17% and depression 9%) were reported among health conditions. 19% of the population used assistive devices and 17% of the people reported additional need of assistive devices.[3]

A cross-sectional study was conducted among 430 elderly individuals during the period 2013-2016 in rural areas of Dibrugarh district of Assam, India found that 44.5% of female participants and 42.9% of male participants had a functional disability. Not having formal education (AOR=1.86, 95% CI=0.99-3.48), being widowed (AOR=1.87, 95% CI=1.20-2.93), and being underweight (BMI<18.5 kg/m2) (AOR=1.64, CI=1.03-2.62), were associated with disability. Participants with five (or more) morbidities were associated with twenty times risk (OR=19.61, 95% CI=9.01-42.68) than participants with no or 2 morbidities.[8]

A cross-sectional study was conducted among 900 individuals during January-March 2012 in Bareilly District of Uttar Pradesh among 900 individuals reported that, disability was found in 333 (37.0%) individuals. Among the study participants, 27.33% and 10% of the individuals had visual and locomotor disabilities respectively. Multiple disabilities were found in 159 individuals. Out of 333 individuals, disabled males were 207 (62.16%) individuals and females were 126 (37.83%) individuals (Chi-square = 15.5) ($P < 0.0001$). Disability prevalence in age group 0-19 years was 16.66%, 20-39 years was 22.13%, 40-60

years was 40.4% and in age group above 60 years was 79.59% (Chi-square = 166) (P < 0.0001). As the age increased, the persons with disability also increased.[9]

A secondary analysis was conducted on NFHS-5 dataset after obtaining authorization from 'Demographic Health Survey' (DHS), to know the disability prevalence in India. The mean ± (SD) age of respondents was 30.82 (20.62) years and 75.83% of them being from a rural area and 44.44% of them were not educated. Disability prevalence was 4.52% [(95% CI: 4.48–4.55)]. Locomotive disabilities accounted for 44.70% of all disabilities and mental disabilities accounted for 20.28% of all disabilities (n = 23,436). Sociodemographic variables like men (vs. women) [aPR: 1.02 (1.0–1.04)], not having education (vs. higher education) [aPR 1.62 (1.56–1.68)] and single (vs married) [aPR: 1.76 (1.70–1.82)] were significant independent determinants.[10]

'Age-standardized disability prevalence (ASDP)' was calculated by using Census data (2011) and the 'WHO World Standard Population' by Saikia N et.al. Absolute number of people with disabilities were 26.8 million, and that around 70% of all people with disabilities are living in rural areas. 'Age-standardized disability prevalence' was 2.2% (0.8% to 4.5%). The gender geographical patterns were similar (Pearson's r = 0.95). The regression model displayed that the disability rate raised with expanding magnitudes of the population, who were more than 65 years age (OR = 0.155, P = 0.000 (95% CI = 0.122, 0.186) and disability prevalence decreased with increased population of the females, who were literate & of the population (OR = -0.060, p = 0.000 (95% CI = -0.090, -0.030).[11]

A study was conducted in eight districts, 4 different zones of India in 2021 using 'WHO Rapid Assistive Technology Assessment (rATA) tool'. Response rate was 94.6% (8486 participants out of 8964 individuals). Among the participants, the prevalence of at least one difficulty was 31.8% (2700). 6.3% had severe difficulties. Prevalence for 'Assistive

Technology' need was 27.8% (2357) with an estimated population prevalence of 24.5% (95% CI: 23.5–25.4). The estimated population prevalence of unmet needs was 8.0% (95% CI: 7.43–8.60). The unmet needs amongst persons with severe difficulties was 52.3%. Individuals used assistive technology for seeing, i.e., spectacles (20.2%, 1712), mobility products such as canes/sticks, tripods, quadripods (1.6%, 135), spinal orthoses (0.8%, 70), lower limb orthoses (0.5%, 45) and walkers (0.3%, 27). Common barrier observed was the lack of ability to afford 'assistive technology'.[12]

Approximately 2,500–3,000 participants responded to the Gallup World Poll and the 'World Health Organization's' 'Brief Model Disability Survey' in each of India, Laos and Tajikistan, 2019 through face-to-face interviews. In the final step wise linear regression model, the association between capacity and disability was slightly attenuated. An average increase of 0.808 (95% CI: 0.779 to 0.838) points of disability score was observed for each point increase in capacity score, all else being equal. Female gender was associated with an average increase of 1.542 (95% CI: 0.344 to 2.741) in disability score compared to being male.[13]

A multicentric cross-sectional study conducted in China, Ghana, India, Mexico, Russian Federation and South Africa during 2007–2010 by using 'WHO longitudinal multi-country Study on global AGEing and adult health' (SAGE) was used for the analysis. In India, prevalence of older adults without disability, mild, moderate and severe disability was 21.9%, 41.5%, 21.6% and 15.0% respectively. In six countries, sociodemographic variables associated with a greater probability of having a more severity of disability were being woman [OR = 1.44], 50–59 years age group (OR = 1.420) 60–69 & living in rural areas (OR = 1.32). In terms of chronic health conditions, prevalence of hypertension, arthritis and angina was 54%, 23.4%, and 14% respectively.[14]

World Health Survey 2002 – 2004 data included 53,447 adults aged 50 or older from 43 low- and middle-income countries was analysed to quantify disability prevalence among older adults of lower- & middle-income countries (LMIC) and to measure socio-demographic distribution of disability. Overall prevalence of disability in the pooled sample was 33.3 % (95 % CI 32.2–34.4 %). Estimated disability prevalence in India was 44.1% (95% CI 40.8%-47.3%). Disability among females was 1.5 times more than males. Disability was positively associated with increasing age.[15]

Data was analysed from 'WHO-SAGE (2007-10)' and 'BKPAI-2011 (Building Knowledge base for Population Ageing in India) (2007-10)' among 7171 individuals. The 'Oaxaca decomposition model' was capable to explain 46.5%, 41.6% and 46.4% of the difference between fragility, limitation and disability among elderly persons respectively.[16]

Data was analysed among 218,737 participants, who attended the 'World Health Survey' 2002–2004. Persons who had composite scores of disabilities above 40 were disabled. 'Slope index of inequality' (SII) and the 'relative index of inequality' were used to measure socioeconomic inequalities. Median 'Age-standardized disability prevalence' (ASDP) was higher in the 'lower' and 'lower- & middle-income countries' (LMIC). In India, crude prevalence of disability among adults ≥ 18 years was 22.1%. A positive 'Slope index of inequality' in all countries indicating a more prevalence of disability in the poor. After adjusting confounders (age & other), reduced the magnitude of inequality, the 'Slope index of inequality' remained statistically significant in 26 countries. For India, several Factors-Adjusted, difference in prevalence (95% CI) was 10.4% (5.1, 15.7).[17]

A cross-sectional study was conducted among a sample of 220 elderly people in 2020, by multistage random sampling from T.P. Chatram, a slum in Chennai, Tamil Nadu. WHO DAS 2.0 Scale was used for assessing disability. Disability prevalence with 95% CI was 20.9%

(15.5–26.4%). Advancing age [AOR 6.12 (1.89-19.85)], female gender AOR [2.59 (1.07-6.29)], presence of chronic illness AOR [7.85 (1.69-36.41)] were the factors increasing the risk of disability. Chronic illness prevalence was 75.5%. Among the chronic illnesses, prevalence of arthritis was 55%, hypertension was 39.5% and diabetes was 31.8%. 15% of the study population had single chronic illness, 60% had multiple chronic illnesses and 25% of the study population reported no chronic illnesses.[18]

A cross-sectional study was conducted among 418 selected adult participants aged above 18 years in a rural area of Haryana. 'WHO Disability Assessment Schedule 2.0' '(WHODAS 2.0)' was used for assessing disability. Disability prevalence was 7.7%. 10.9% of women and 4.1% of men were disabled. 46.8% of the elderly were disabled and 2.7% of those in 18–59 years were disabled ($p<0.001$). Disability among illiterates was 20.9% and among literate participants was 3.2%. More than ≥60 years of age was associated with disability (AOR 12.3) in this study.[19]

The 76th round of National Sample Survey (NSS), 2018, nationally representative data of 106,894 disabled individuals was analysed to investigate the economic gradient of age of onset of visual, hearing, speech, locomotor, mental retardation, mental illness and other disabilities in India. The disability rate was 2,184 per 100,000 persons. The disability rate for locomotor was 1,353, hearing was 296, visual was 234, speech was 228, mental retardation was 158, and mental illness was 131. 82% of locomotor and 81% of visual disabilities occurred after birth.[20]

A systematic review was conducted in India to study the disability prevalence and its association with socio-demographic factors & 'quality of life' in general population in 2000-2018. The impairment prevalence ranged from 1.6% to 43.3%. In majority of surveys compared to females, male individuals had higher impairment. The impairment prevalence

ranged from 1.6% to 6.3% in studies that included all age groups. Studies which were conducted in rural areas, showed a higher impairment prevalence and activity limitation. Literate population had lower prevalence of disability.[21]

A cross-sectional study was conducted among 358 elderly in two urbanized villages of East district of Delhi in 2015-16. 11% of the participants had visual impairment and 3.3% participants had hearing impairment. 25.6% of the study participants were disabled. Participants, who had any chronic condition, had 2.1 times (95% CI 1.200–3.635, P = 0.009) more odds of being disabled as compared to participants who did not suffer from any chronic condition. Participants who had ≥ 70 years of age had 2.6 times odds of being disabled as compared to participants who belonged to younger age groups. 29.8% had cataract, 27.8% had hypertension, 16.1% had diabetes mellitus, 16.1% had osteoarthritis, 5% had heart disease.[22]

A cross-sectional study was conducted among 495 older population in a rural area of West Bengal, in the year 2007. Mean age and SD of study individuals was 66.89 ± 7.38 years. Among disabled population, females were 77.7%. 96.4% participants were Hindus by religion, 88.8% of disabled populations were illiterate and 51.3% belonged to socio-economic class – IV & V. 56.2% of the disabled population had 3 or more chronic diseases and 7.5% of study participants did not have any chronic condition. Disability prevalence was 16.16% as per 'Activities of Daily Living (ADL)' scale. osteoporosis OR [7.81 (3.94 – 15.4)], anemia OR [3.42(1.48 – 7.93)], acid peptic disorder OR [2.99 (1.60 – 5.57)], osteoarthritis OR [2.50 (1.26 – 4.93)] and diabetes OR [2.32 (1.07 – 5.06)] were strongly associated with disability.[23]

A community-based prevalence study was conducted among 1,006 elderly population in 2018 in an urban colony, located in New Delhi, by using 'World Health Organization Disability Assessment Schedule version 2.0' '(WHO DAS 2.0)'. 515 (55.3%) were females

and Mean ± (SD) age of participants was 67.5 ± (6.8) years. 49 participants (5.3%) had completed secondary school of education and 557 (59.8%) participants were illiterate. 571 (61.3%) participants were married. 82.7% participants were homemakers. 748 (80.3%) participants belonged to Below Poverty Line. Disability prevalence among study participants was 7.4% (95% CI 5.8% - 9.3%). Among study participants female sex (p = <0.001) and illiteracy (p = <0.001) had risk of disability.[24]

Population-based cross-sectional study was conducted in 2020 among elderly population in Khammam and Warangal districts in Telangana by using 'Washington Disability Questionnaire.' 1,821 participants responded to the survey, 54.5% were females & 73.3% participants had no education. The disability prevalence was 20.3% (95% CI 16.3 - 24.9). The prevalence of self-reported disabilities was: seeing (5.9%), mobility (12.8%), self-care (3.3%;). The prevalence of non-communicable disease was 34.2%. Prevalence of Hypertension, diabetes and body pains was (25.4%; 95% CI 22.4 to 28.7), (9.0%; 95% CI 7.3 to 11.0), and (9.9%; 95% CI 8.1 to 12.2) respectively. Gender, education level, district of residence and body mass index (BMI) were not associated with disability.[25]

A cross-sectional study was conducted in rural field practice area, center for Rural Health, AIIMS, Jodhpur at Keru and Dhundhara in 2016 among 280 houses. The prevalence rate of locomotor disability was 2.08% (male = 57% and female = 43%). Among them, 31% were in 40 to 60 years, 60% of them belonged to lower class and 49% were illiterates.[26]

A cross-sectional population-based study was conducted in 2004-05 Koramangala, a suburban of Bengaluru among 356 participants. Based on disability score, 37% had higher level of disability, 27% of the individuals had mild disability. 76.7% of the study respondents belonged to the Hindu religion and 60% of the study individuals had college education. 85% of respondents had any one medical problem. 49.4%, 32.3%, 28.1% and 27.9% respondents

had medical problems of hypertension, diabetes, arthritis and coronary artery disease respectively.[27]

METHODLOGY

A community based cross – sectional study was conducted to estimate the disability prevalence among adults using WHO 'Brief Model Disability Survey questionnaire' and to identify sociodemographic and environmental factors associated with the disability in rural area of PHC Kinaye, under the administrative control of JNMC in Belagavi district, Karnataka state, India. The study was conducted during 1st January 2023 & 31st December 2023 (12 months).

Sample size estimation was done by using formula

$n = 4pq/d^2$,

where n = sample size, p is the prevalence of disability, taken as 35% (Moderate Disability 35%, Based on brief model disability survey 2019, India).[3]

p = 35%

q = 100-p

= 65%

d = absolute error taken as 5%

n = 4*35*65/25

= 364

Considering 10% as non-responders, 364*10/100=36.4

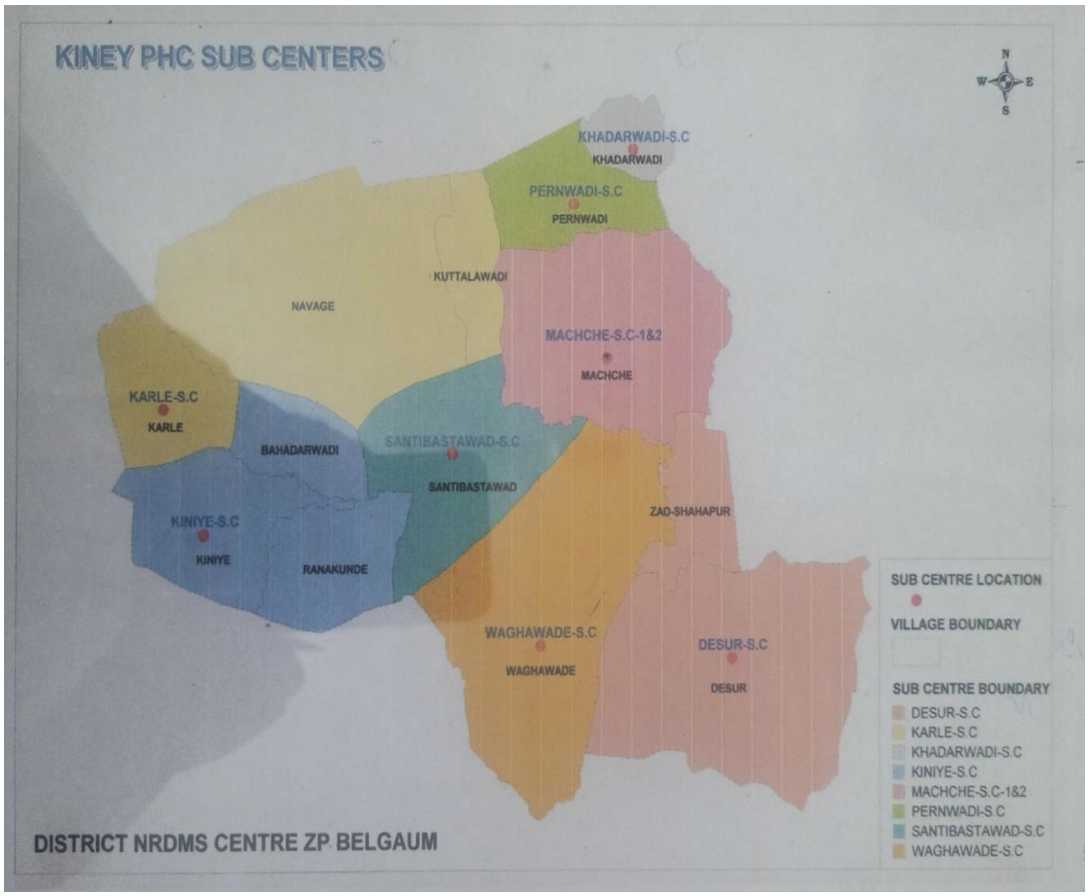
n = 364+36.4

= 400.4 rounded off to 400

So, the estimated sample for the study was 400 households.

Primary Health Centre, Kinaye, Belagavi has nine sub centres, with total houses of 13,266 as per Community Needs Assessment Approach (CNAA) survey 2022-2023 with a total population of 73,239, total of 27 villages from all subcentres of PHC Kinaye. A population proportionate sampling method was used to choose representative sample of households from each village from the nine subcentres under the Primary Health Centre, Kinaye.

Map No.1: Map of Kinaye PHC with sub centres



Population proportionate sampling was done as below:

Name of the subcenters in Kinaye PHC	Total no of households registered in one year (2022)	Calculation for proportionate sampling	No of households selected for study
Desur	1,114	1114/13266*400	33
Karle	930	930/13266*400	28
Khadarwadi	2,125	2125/13266*400	64
Kinaye	918	918/13266*400	28
Machhe-I	971	971/13266*400	29
Machhe-II	2,640	2640/13266*400	80
Peeranwadi	2,149	2149/13266*400	65
Santibastwad	1,316	1316/13266*400	40
Waghwade	1,103	1103/13266*400	33
TOTAL	**13,266**		**400**

Total no. of households in PHC Kinaye = 13,266

Systemic Random sampling was used for data collection. Sampling interval (K) was calculated from number of households to be selected from that area with total number of households in the respective rural area. Every K^{th} house was selected for survey, after selecting first house by using lottery method.

Inclusion Criteria:

All adults aged 18-60 years from selected households in the rural area of PHC Kinaye and residing since last 12 months preceding the survey.

Exclusion Criteria:

Households locked after three consecutive visits by the investigator and individuals with severe hearing impairment were excluded.

Ethical clearance was obtained from the 'Institutional Ethics Committee for Human Subjects' Research' of the Medical College dated 27/09/2022 vide under letter MDC/JNMCIEC/81 (ANNEXURE – I). 'Written informed consent form' was obtained from all the study participants before the data collection (ANNEXURE – II). Pilot study was conducted in forty households and necessary modifications were done in the questionnaire.

From the selected households, after listing all the household members aged 18-60 years, who were available at interviewing time, the person to be interviewed was selected randomly by the lottery method. Selected Person was interviewed by using pre-validated and pre-tested questionnaire from socio-demographic characteristics such as education level, marital status, occupation[6] and religion from 'Gallup World Poll'[28] questionnaire and 'modified Brief Model Disability Survey[29] questionnaire.'

The questionnaire consisted of following sections:

I. Sociodemographic characteristics
II. Environmental factors
III. Functioning
IV. Capacity and health conditions
V. Assistive products and Personal assistance
VI. Health care utilization

The combined score was calculated for each study participant based on the participant responses for all functioning and capacity questions. There were 11 questions each in functioning and capacity section. Each question had score ranging from 1 to 5. Combined scores of each individual participant ranges between 11 to 55. After calculating mean score and standard deviation, the cut-offs were used to segregate the participants experiencing no disability, mild disability, moderate disability and severe disability.

Cut-offs used to identify persons with no disability, mild disability, moderate disability and severe disability in the MDS.[3]

Target level	**Cut-off criteria**
No disability	Score < Mean – 1SD
Mild disability	Mean – 1SD ≤ Score < Mean
Moderate disability	Mean ≤ Score < Mean + 1SD
Severe disability	Score ≥ Mean + 1SD

Collected data was entered in Microsoft Excel sheet and analyzed by IBM SPSS version 20 using frequency, percentages, mean and standard deviation. Association between outcome variables like types of disability level and sociodemographic factors were analyzed by using Chi-square and regression analysis.

DEFINITION OF VARIABLES:

Age: 'Age was recorded to the nearest completed year'.

Education level: [3]

'Elementary or less: completed elementary education or less (up to 8 years of basic education)'

'Secondary: completed some secondary education up to 3 years tertiary education (9– 15 years of education)'

'Tertiary: completed 4 years of education beyond "high school" and/or received a four-year college degree.'

Socio-economic Status: [30,31]

'Socio – economic status information regarding per capita income of the family (in rupees / month) was collected and socio-economic status was classified using 'modified B.G. Prasad's' classification for the study period of 2023'.[30,31]

Monthly Per Capita Income (PCI) = Total monthly income of family / Total number of family members.

Modification was done using the Correction Factor:

'Correction Factor (CF) was obtained as below, the study period was from 1st January to 31st December 2023 and hence, the mean 'Consumer Price index' (CPI) for that period was considered'.

Average CPI for the year 2023 (by 2016 base) = 136.4 [31]

CF = Value of CPI average (2023) x 4.93 x 4.63 x 2.88 / 100 = 136.4 x 4.93 x 4.63 x 2.88 / 100 = 89.67

'Modified B.G Prasad's Classification' = Per capita family monthly income of 1961 (B.G Prasad) x CF

Socio economic class	**'B.G Prasad's classification 1961 (per capita income in rupees / month)'[30,31]**	**'Modified B.G Prasad's Classification 2023 (per capita income in rupees / month)'[30,31]**
I	100 and above	8967 and above
II	50-99	4484-8966
III	30-49	2690-4483
IV	15-29	1345-2689
V	< 15	< 1345

Definition of disability:

"Disability is the outcome of the interaction between a person's health condition(s) and the physical, human-built, attitudinal and socio-political environment in which that person lives."[3]

Definition of capacity:

"Capacity is the synthesis of all intrinsic physical and mental capacities of a person, determined by his or her health conditions or impairments."[3]

RESULTS

SECTION – I: SOCIO-DEMOGRAPHIC VARIABLES

Table 1: Distribution of the participants according to their age group (n=400)

Age group (in years)	Frequency	Percentage (%)
18-30	83	20.75
30-40	123	30.75
40-50	105	26.25
50-60	89	22.25
TOTAL	**400**	**100.00**

Out of 400 study participants, 123 (30.75%) participants were in 30-40 years age group, 105 (26.25%) participants were in 40-50 years age group, 89 (22.25%) participants were in 50-60 years age group and 83 (20.75%) participants were in 18-30 years age group.

Graph 1: Distribution of the participants according to their age group (n=400)

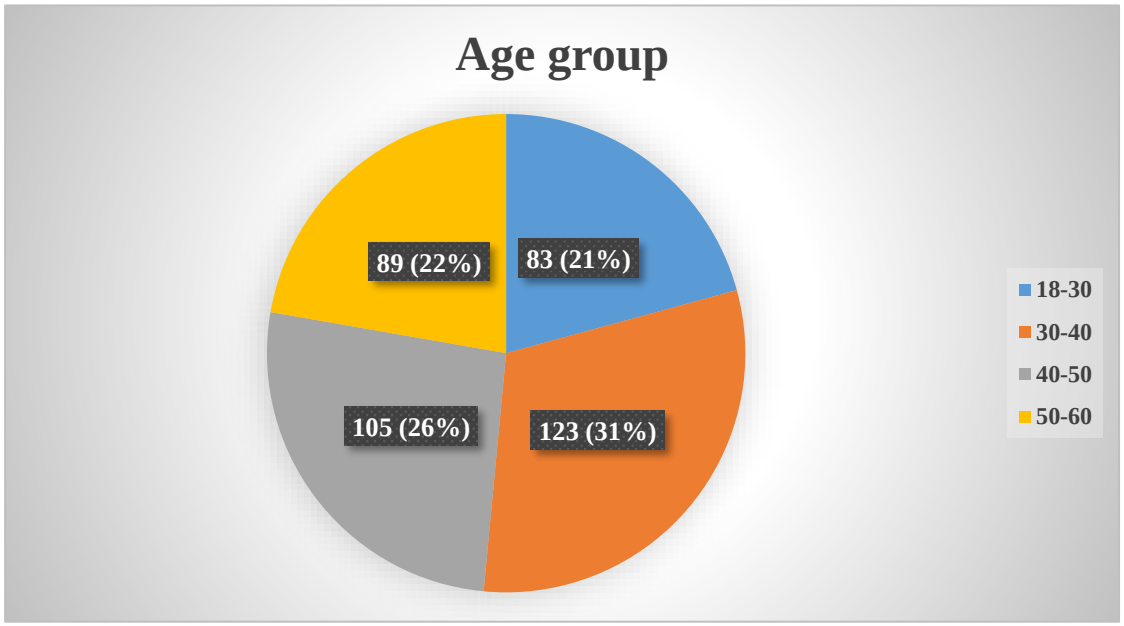


Table 2: Distribution of the participants according to their gender (n=400)

Gender	Frequency	Percentage (%)
Male	122	30.5
Female	278	69.5
TOTAL	**400**	**100.00**

Out of 400 participants, 278 (69.5%) were females and 122 (30.5%) were males.

Graph 2: Distribution of the participants according to their gender (n=400)

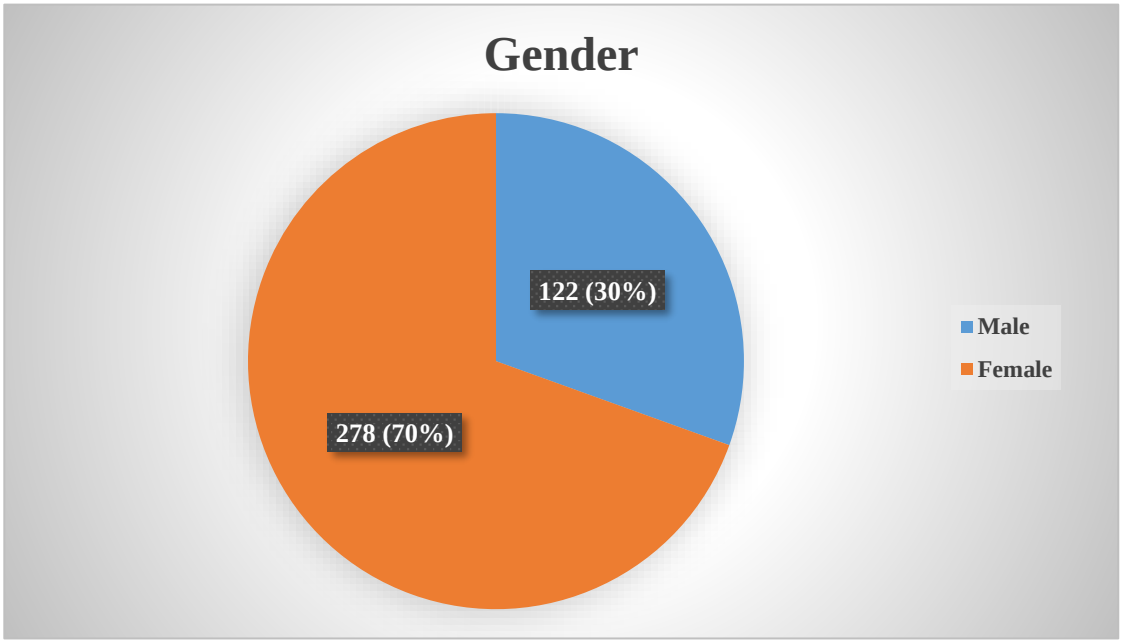


Table 3: Distribution of the participants according to their educational level (n=400)

Educational level	Frequency	Percentage (%)
Elementary or less	155	38.75
Secondary	204	51.00
Tertiary	41	10.25
TOTAL	**400**	**100.00**

Among the 400 study participants, 204 (51%) participants had completed secondary level of education, 155 (38.75%) participants had completed elementary or less level of education and 41 (10.25%) participants had completed tertiary level of education

Graph 3: Distribution of the participants according to their education level (n=400)

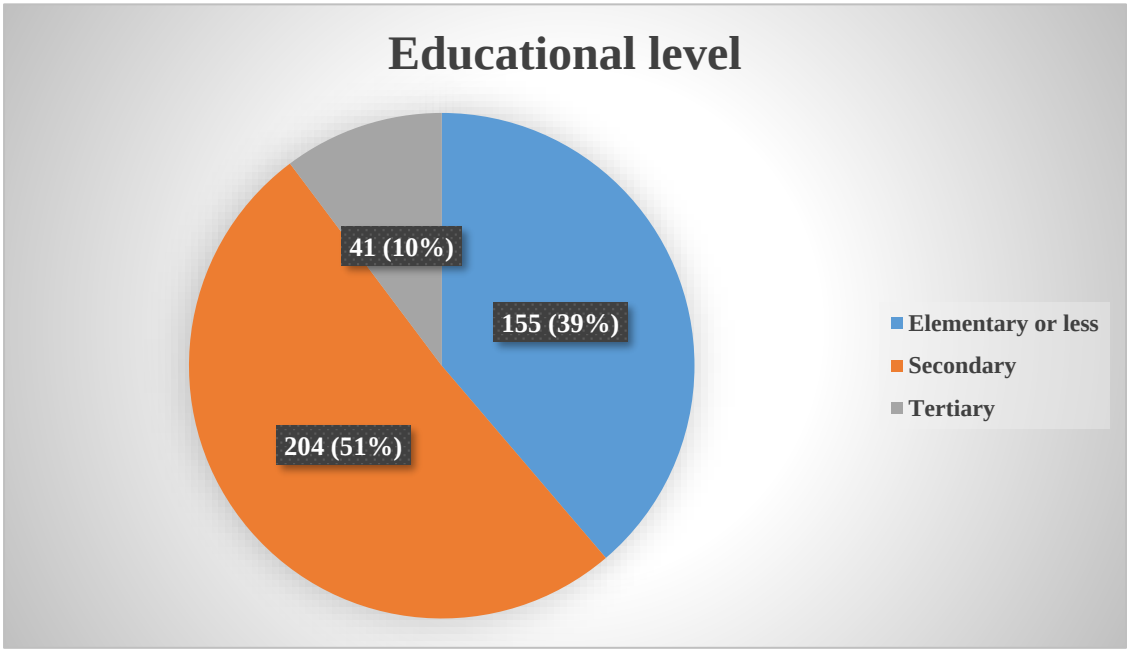


Table 4: Distribution of the participants according to their marital Status (n=400)

Marital Status	Frequency	Percentage (%)
Single	26	6.50
Married	357	89.25
Widowed	17	4.25
TOTAL	**400**	**100.00**

Among the 400 study participants, 357 (89.25%) participants were married, 26 (6.5%) participants were single and 17 (4.25%) participants were widowed and none of the participants were divorced.

Graph 4: Distribution of the participants according to their marital Status (n=400)

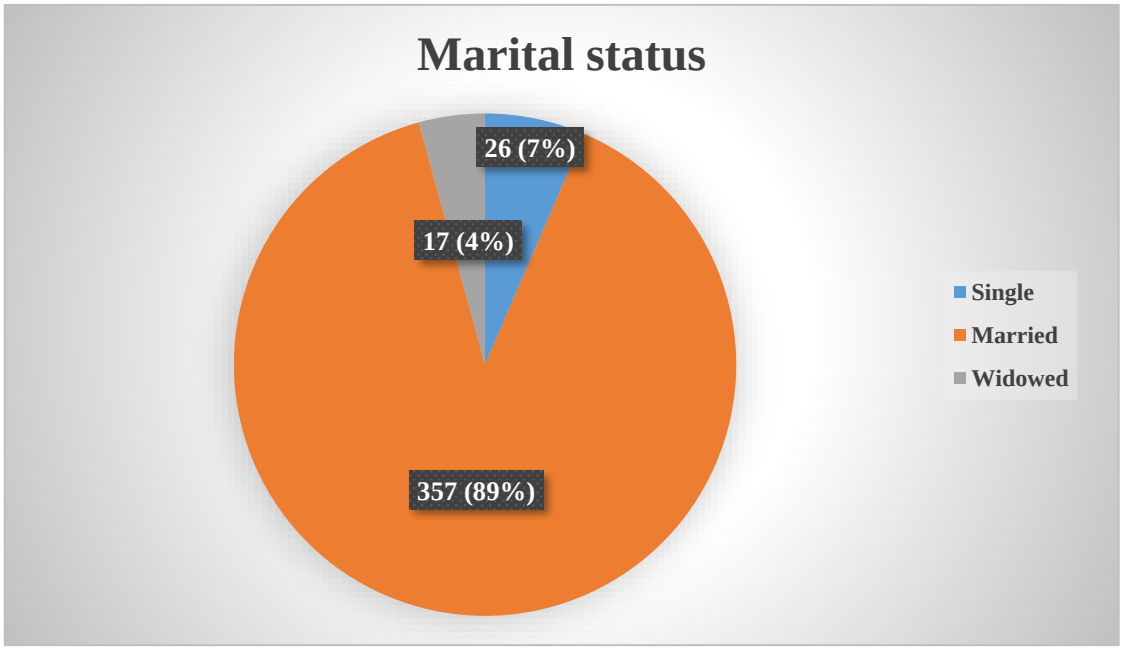


Table 5: Distribution of the participants according to their religion (n=400)

Religion	Frequency	Percentage (%)
Hindu	354	88.50
Islam	39	9.75
Christian	7	1.75
TOTAL	**400**	**100.00**

Among the 400 study participants, 354 (88.5%) participants belonged to Hindu religion, 39 (9.75%) participants belonged to Islam and 7 (1.75%) participants were Christians.

Graph 5: Distribution of the participants according to their religion (n=400)

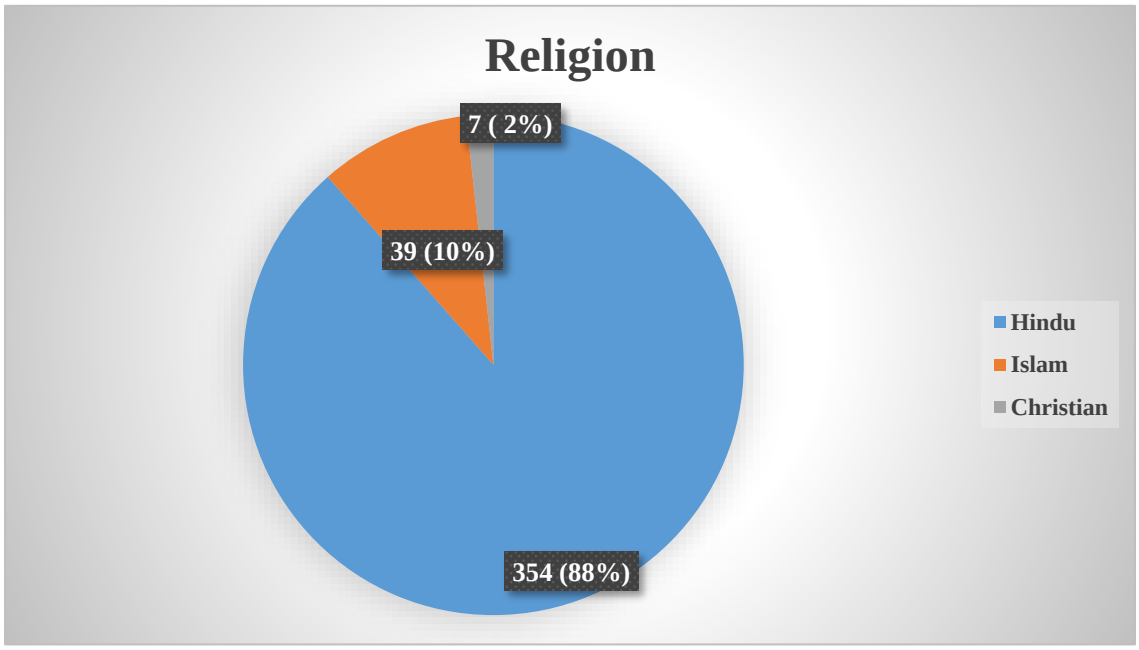


Table 6: Distribution of the participants according to their occupation (n=400)

Occupation	Frequency	Percentage (%)
Agriculture/Farmer	49	12.25
Skilled & Unskilled Manual	71	17.75
Home maker	221	55.25
Others	59	14.75
TOTAL	**400**	**100.00**

Among the 400 study participants, 221 (55.25%) participants were homemakers, 71 (17.75%) participants were doing skilled and unskilled manual jobs, 59 (14.75%) participants were doing other type of jobs and 49 (12.25%) participants were doing agriculture work.

Graph 6: Distribution of the participants according to their Occupation (n=400)

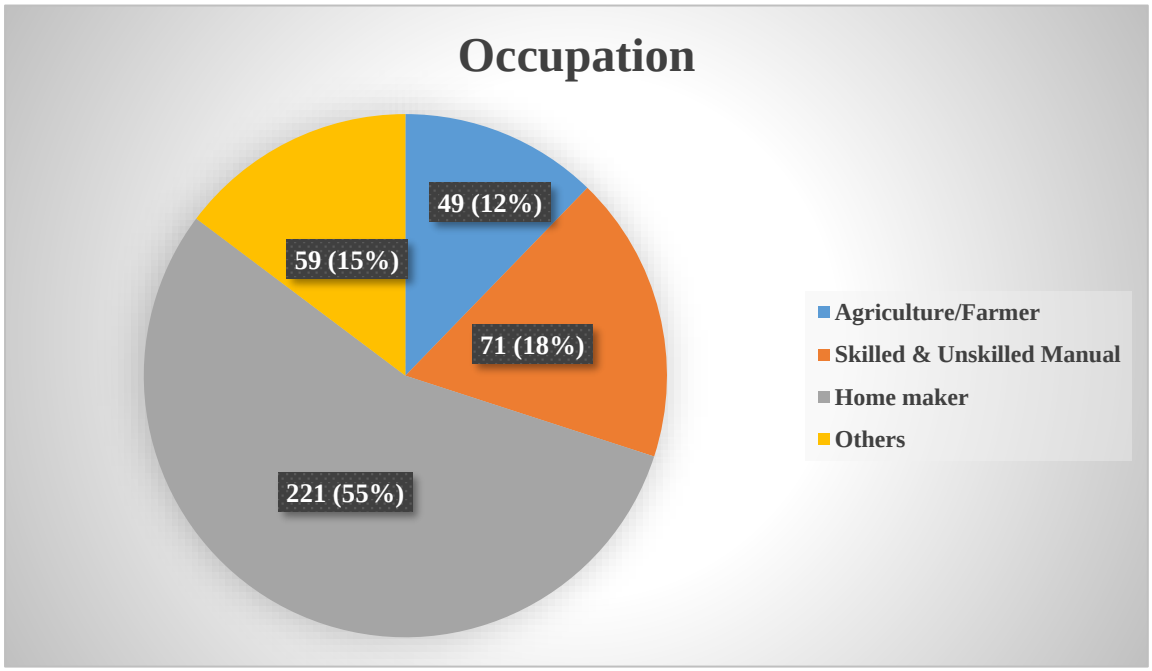
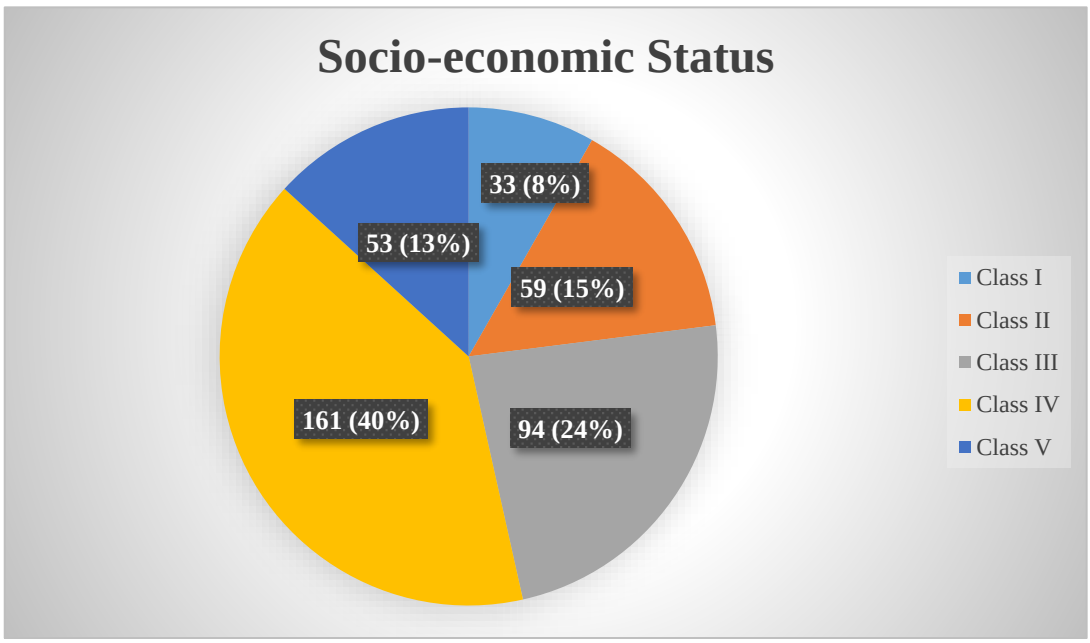


Table 7: Distribution of the participants according to their 'Socio-economic Status' (n=400)

'Socio-economic Status'	Frequency	Percentage (%)
Class I	33	8.25
Class II	59	14.75
Class III	94	23.50
Class IV	161	40.25
Class V	53	13.25
TOTAL	**400**	**100.00**

Among the 400 study participants, 161 (40.25%) participants belonged to Class IV of socio-economic status, 94 (23.50%), 59 (14.75%), 53 (13.25%) and 33 (8.25%) participants belonged to Class III, Class II, Class V and Class I of socio-economic status respectively according to 'modified BG Prasad's classification.'

Graph 7: Distribution of the participants according to their Socio-economic Status (n=400)



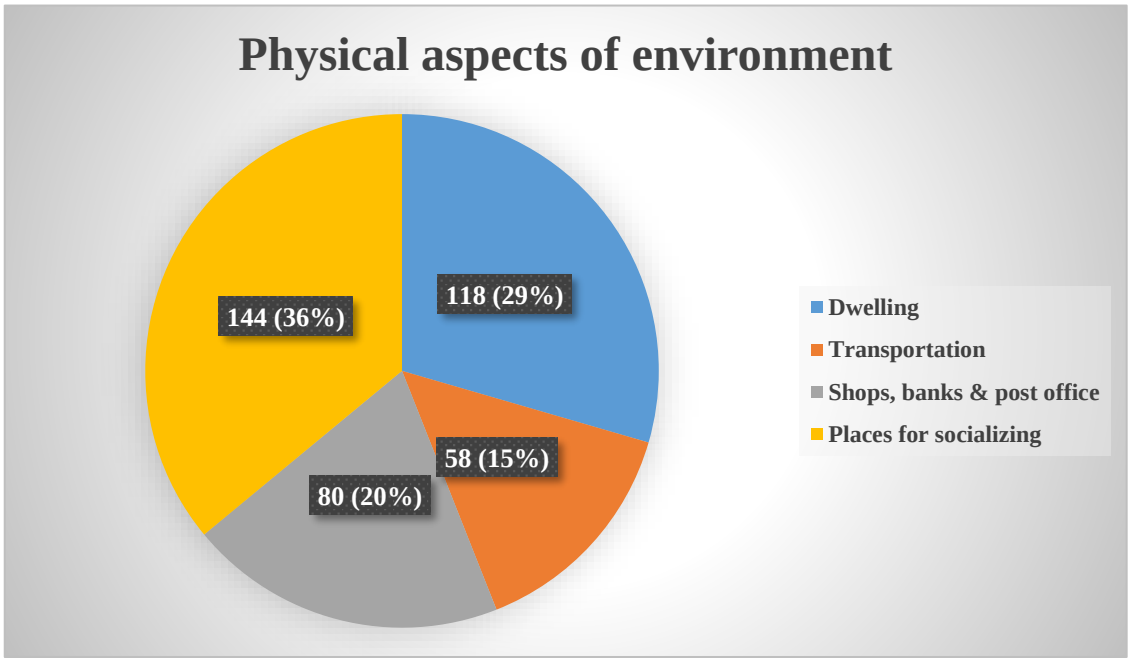
SECTION II: ENVIRONMENTAL FACTORS

Table 8: Distribution of the participants according to their satisfaction with selected physical aspects of environment (n=400)

Participants satisfied with selected physical aspects of environment	Frequency	Percentage (%)
Dwelling	118	29.50
Transportation	58	14.50
Shops, banks & post office	80	20.00
Places for socializing	144	36.00
TOTAL	**400**	**100.00**

Among the 400 study participants, 144 (36%) participants said that they were satisfied with places for socializing, 118 (29.5%) participants were satisfied with dwelling environment, 80 (20%) participants were satisfied with environment of shops, banks and post office and 58 (14.50%) participants were satisfied with transportation.

Graph 8: Distribution of the participants according to their satisfaction with selected physical aspects of environment (n=400)



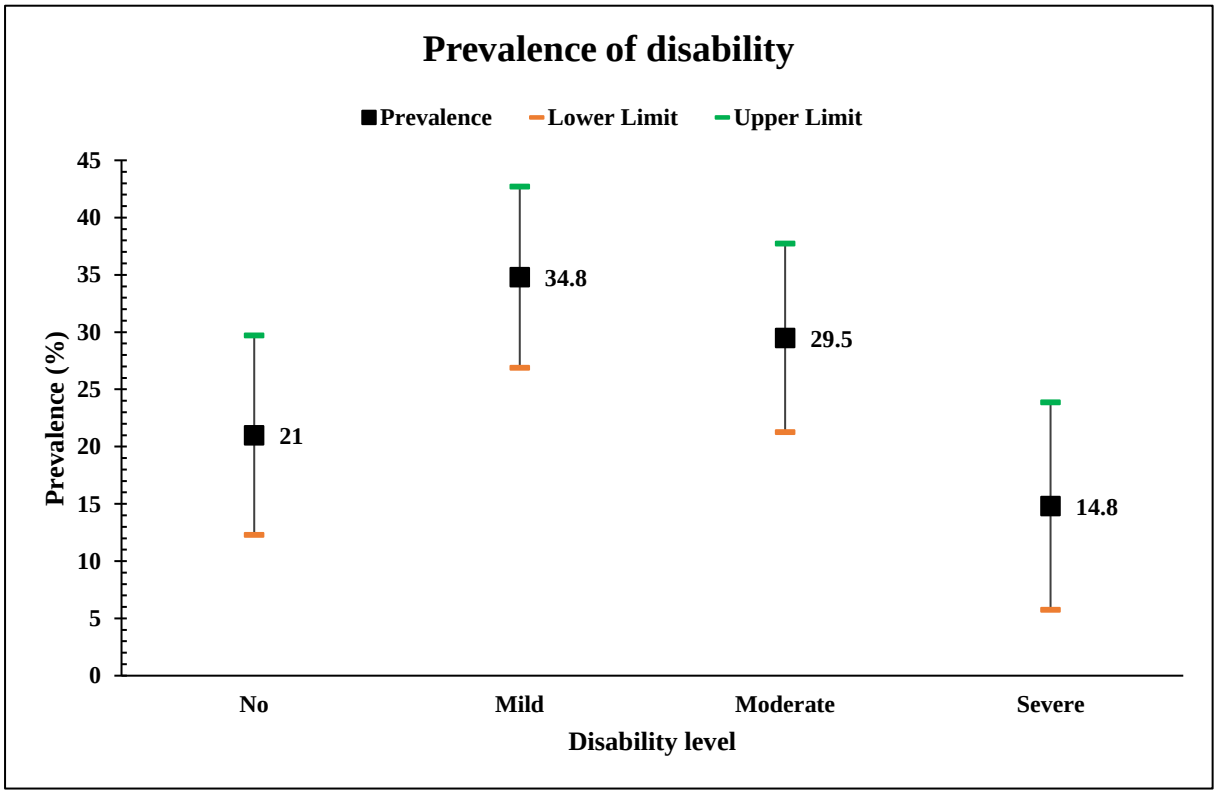
SECTION III: FUNCTIONING

Table 9: Distribution of the participants according to prevalence of disability (n=400)

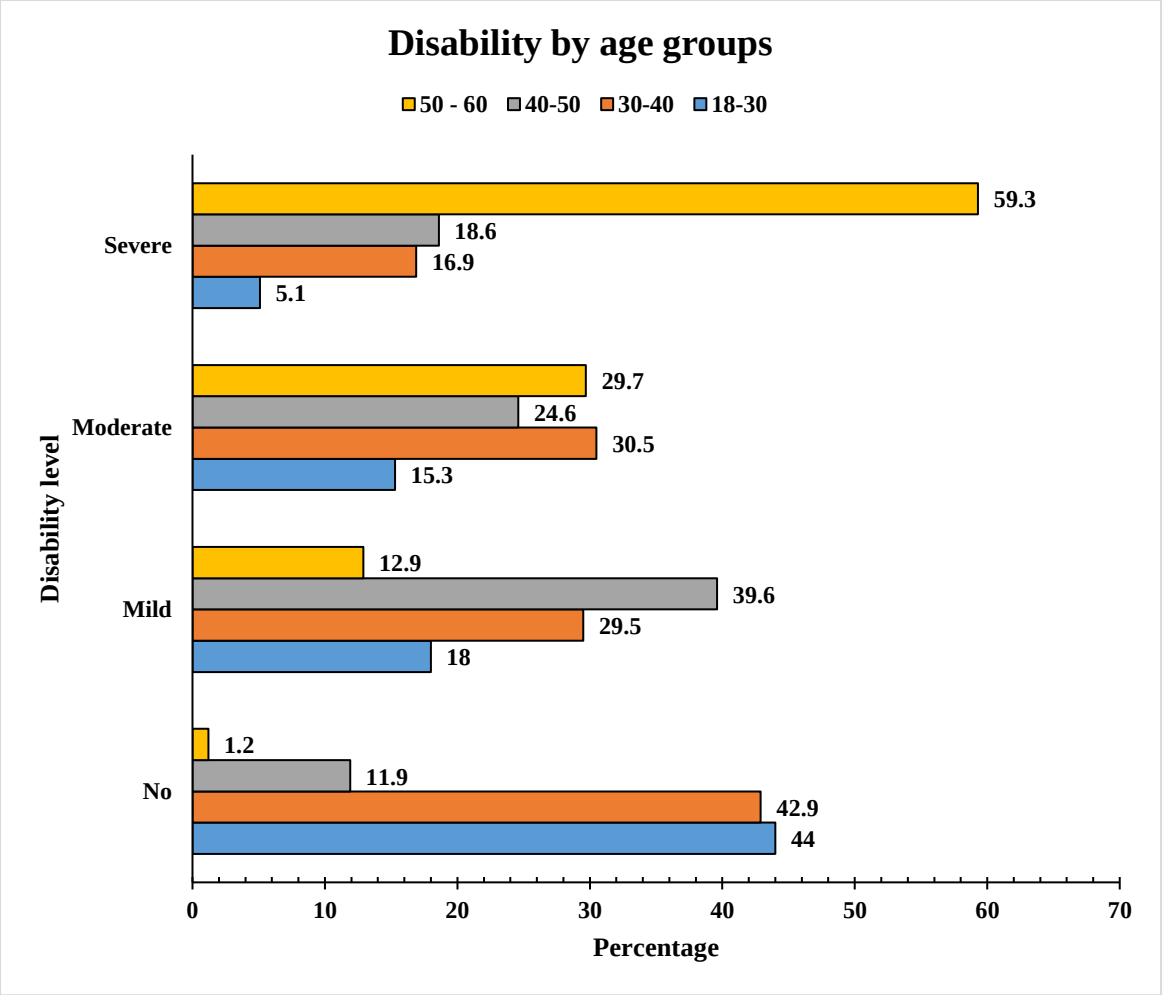
Type of disability	Frequency	Percentage (%)
No	84	21.0
Mild	139	34.8
Moderate	118	29.4
Severe	59	14.8
Total	**400**	**100**

Out of 400 study participants, 84 (21%) participants had no disability, 139 (34.8%) participants had mild disability, 118 (29.4%) participants had moderate disability and 59 (14.8%) participants had severe disability as per criteria[3] mentioned in the questionnaire.

Graph 9: Distribution of the participants according to prevalence of disability (n=400)



Graph 10: Distribution of the participants by age groups within disability levels (n=400)

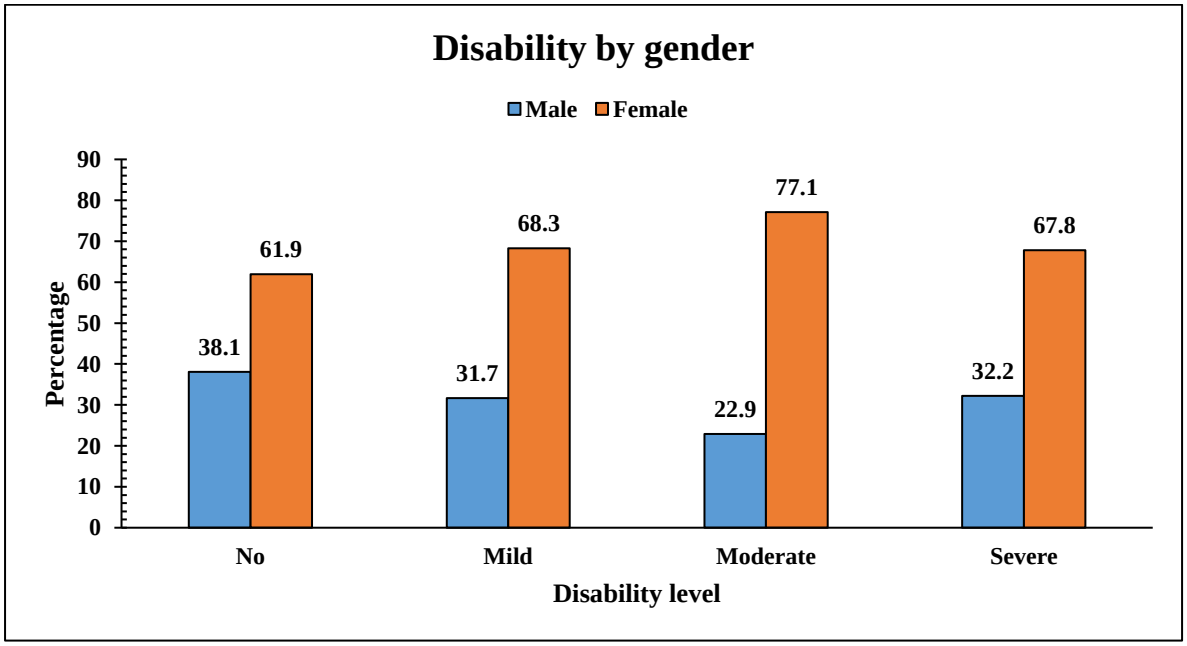


Among the 18-30 years age group, 21.7% and 3.6% participants had moderate type of disability and severe type of disability respectively. Among the 30-40 years age group, 29.3% and 8.1% participants had moderate type of disability and severe type of disability respectively. Among the 40-50 years age group, 27.6% and 10.5% participants had moderate type of disability and severe type of disability respectively. Among the 50-60 years age group 39.3% and 39.3% participants had moderate type of disability and severe type of disability respectively.

Out of 84 participants who had no disability, 44%, 42.9%, 11.9% and 1.2% participants were in the age groups 18-30, 30-40, 40-50 and 50-60 years respectively. Out of

139 participants who had mild disability, 18%, 29.5%, 39.6% and 12.9% participants were in the age groups 18-30, 30-40, 40-50 and 50-60 years respectively. Out of 118 participants who had moderate disability, 15.3%, 30.5%, 24.6% and 29.7% participants were in the age groups 18-30, 30-40, 40-50 and 50-60 years respectively. Out of 59 participants who had severe disability, 5.1%, 16.9%, 18.6% and 59.3% participants were in the age groups 18-30, 30-40, 40-50 and 50-60 years respectively.

Graph 11: Distribution of disability level among the participants based on gender (n=400)

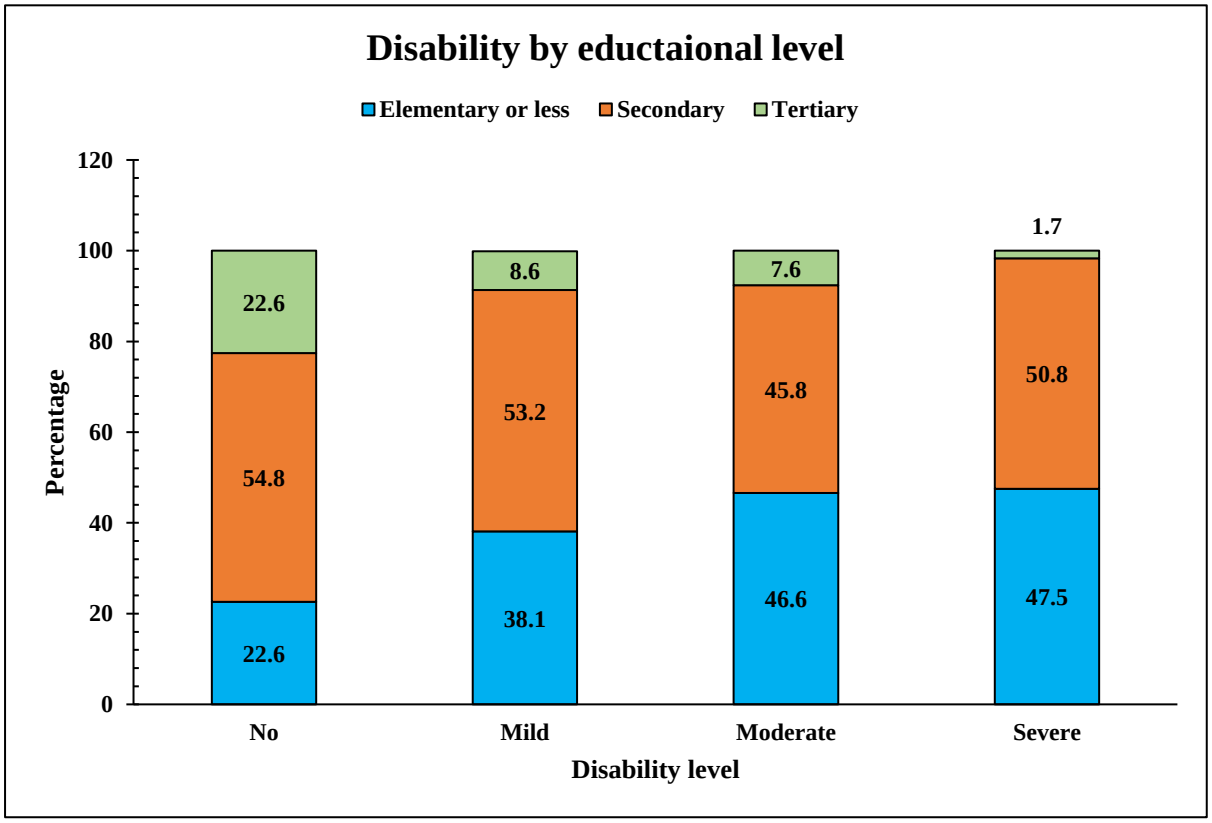


Among the 122 males, 22.1% and 15.6% participants had moderate type of disability and severe type of disability respectively and among the 278 females, 32.7% and 14.4% participants had moderate type of disability and severe type of disability respectively.

Out of 84 participants who had no disability, 38.1% were males and 61.9% were females. Out of 139 participants who had mild disability, 31.7% were males and 68.3% were females. Out of 118 participants who had moderate disability, 22.9% were males and 77.1%

were females. Out of 59 participants who had severe disability, 32.2% were males and 67.8% were females.

Graph 12: Distribution of disability level among the participants based on their educational level (n=400)

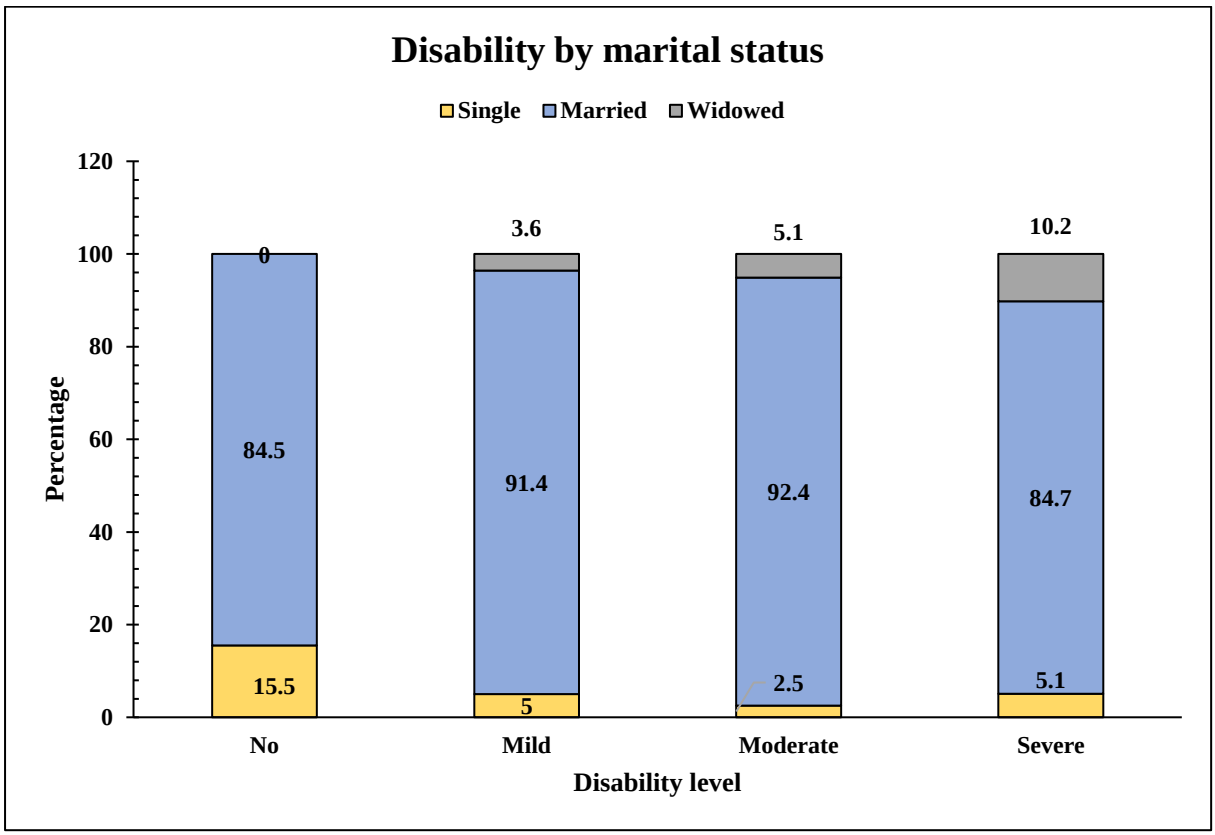


Among the 155 participants who had completed elementary or less education, 35.5% and 18.1% participants had moderate type of disability and severe type of disability respectively. Among the 204 participants who had completed secondary education, 26.5% and 14.71% participants had moderate type of disability and severe type disability respectively. Among the participants who had completed tertiary education, 22% and 2.4% participants had moderate and severe disability respectively.

Out of 84 participants, who had no disability, 22.6.%, 54.8% and 22.6% participants had completed elementary or less, secondary, tertiary education respectively. Out of 139 participants, who had mild disability, 38.1.%, 53.2% and 8.6% participants had completed elementary or less, secondary, tertiary education respectively. Out of 118 participants, who had moderate disability, 46.6.%, 45.8% and 7.6% participants had completed elementary or less, secondary, tertiary education respectively.

Out of 59 participants who had severe disability, 47.5.%, 50.8% and 1.7% participants had completed elementary or less, secondary, tertiary education respectively.

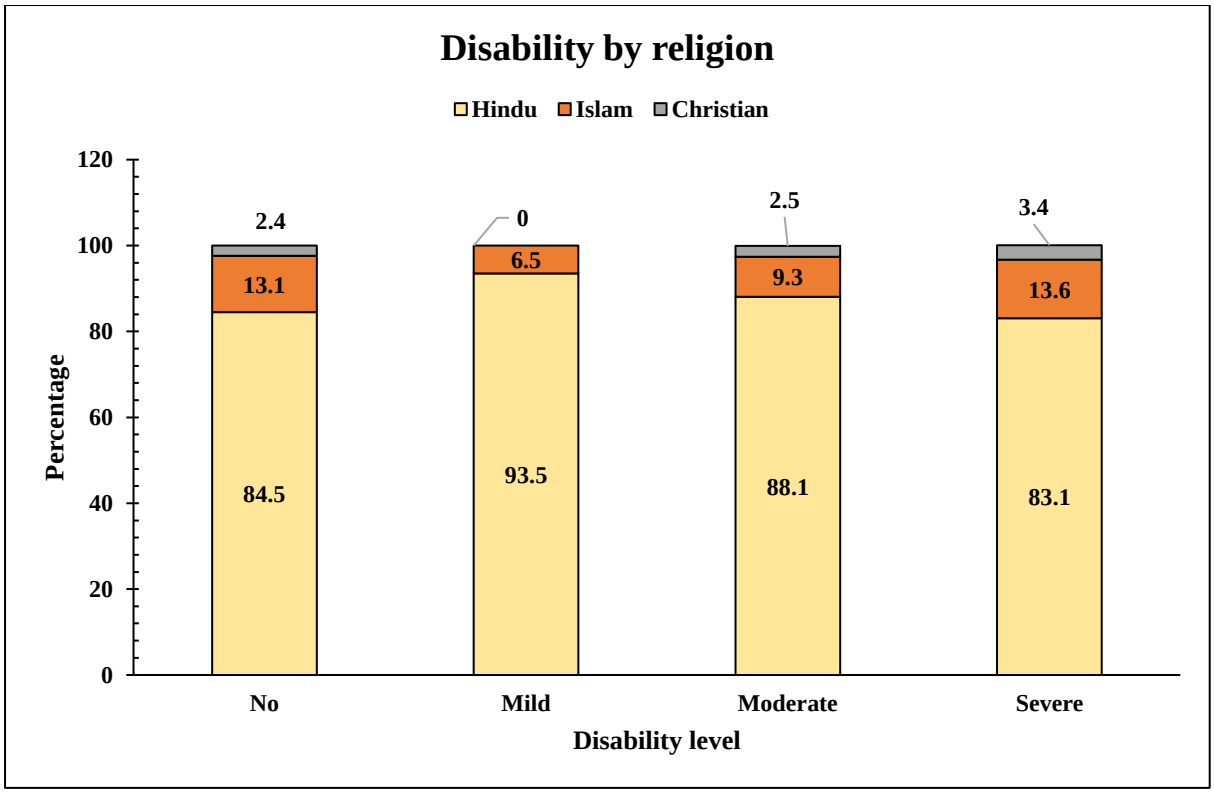
Graph 13: Distribution of disability level among the study participants by marital status (n=400)



Among the 357 married participants, 30.5% and 14% had moderate and severe disability respectively and among the 17 widowed participants, 35.3% and 35.3% had moderate and severe disability respectively.

Out of 84 participants who had no disability, 15.5% were single and 84.5% were married. Out of 139 participants who had mild disability, 5% were single, 91.4% were married and 3.6% were widowed. Out of 118 participants who had moderate disability, 2.5% were single, 92.4% were married and 5.1% were widowed. Out of 59 participants who had severe disability, 5.1% were single, 84.7% were married and 10.2% were widowed.

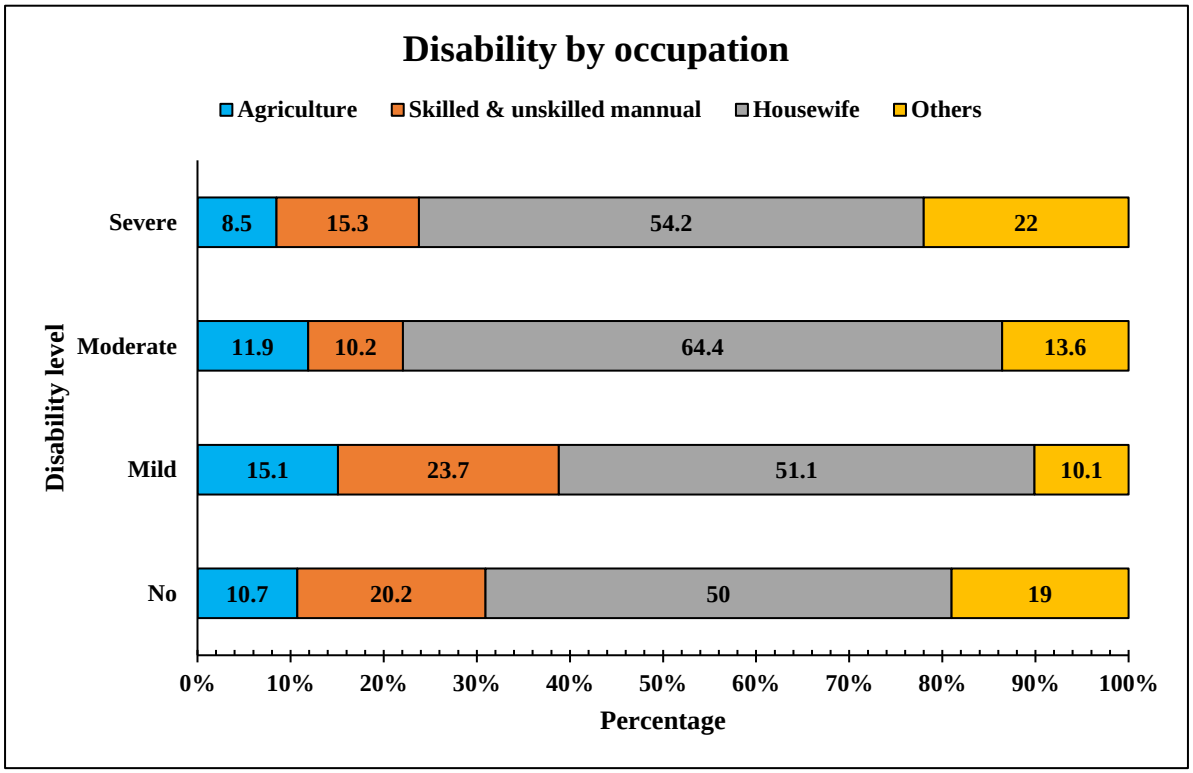
Graph 14: Distribution of disability level among the participants by religion (n=400)



Among the 354 Hindu participants, 29.4% and 13.8% had moderate and severe disability respectively. Among the 39 Islam participants, 28.2% and 20.5% had moderate and severe disability respectively. Among the 7 Christian participants, 42.9% and 28.6% had moderate and severe disability respectively.

Out of 84 participants who had no disability, 84.5% participants belonged to Hindu, 13.1% participants belonged to Islam and 2.4% participants belonged to Christian religion. Out of 139 participants who had mild disability, 93.5% participants belonged to Hindu, and 6.5% participants belonged to Islam none belonged to Christian religion. Out of 118 participants who had moderate disability, 88.1% participants belonged to Hindu, 9.3% participants belonged to Islam and 2.5% participants belonged to Christian religion. Out of 59 participants who had severe disability, 83.1% participants belonged to Hindu, 13.6% participants belonged to Islam and 3.4% participants belonged to Christian religion.

Graph 15: Distribution of disability level among the participants by occupation (n=400)

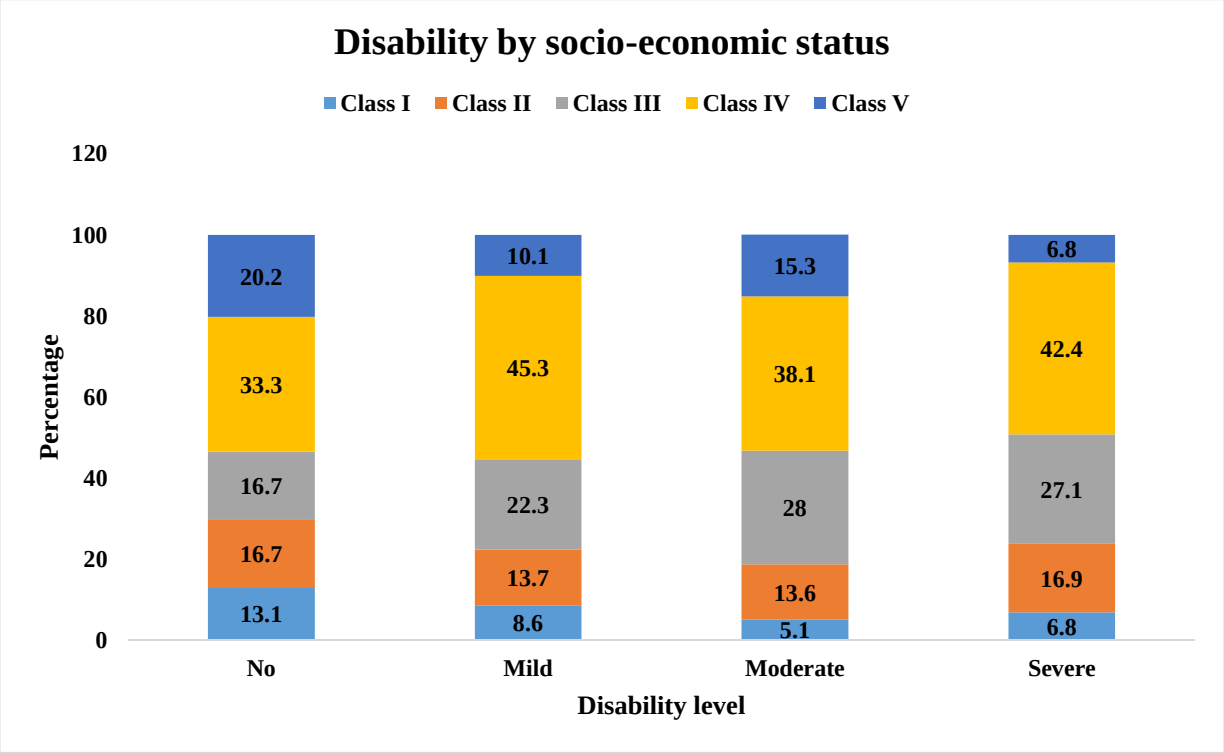


Among the 221 participants, who were homemakers, 34.4% and 14.5% had moderate and severe disability respectively. Among the 71 participants who were doing skilled and unskilled manual, 16.9% and 12.7% had moderate and severe disability respectively. Among the 49 participants who were doing agriculture, 28.6% and 10.2% had moderate disability and severe disability respectively.

Out of 84 participants who had no disability, 10.7% were doing agriculture, 20.2% were doing skilled and unskilled manual work, 50% were housewives and 19% were doing other type of jobs. Out of 139 participants who had mild disability, 15.1% were doing agriculture, 23.7% were doing skilled and unskilled manual work, 51.1% were house wives and 10.1% were doing other type of jobs. Out of 118 participants who had moderate disability, 11.9% were doing agriculture, 10.2% were doing skilled and unskilled manual work, 64.4% were house wives and 13.6% were doing other type of jobs. Out of 59 participants who had severe disability, 8.5% were doing agriculture, 15.3% were doing

skilled and unskilled manual work, 54.2% were house wives and 22% were doing other type of jobs.

Graph 16. Distribution of disability level among the participants by socio-economic status (n=400)



Among the 161 participants belonged to class IV SES, 28% and 15.5% participants had moderate and severe disability respectively. Among 94 the participants belonged to class III SES, 35.1% and 17% participants had 'moderate disability and severe disability' respectively. Among the 59 participants belonged to class II SES, 27.1% and 16.9% participants had 'moderate disability and severe disability' respectively. Among the 53 participants belonged to class V SES, 34% and 7.5% participants had 'moderate disability and severe disability' respectively. Among the 33 participants belonged to class I SES, 18.2% and 12.1% participants had 'moderate disability and severe disability' respectively.

Out of 84 participants who had no disability, 13.1%, 16.7%, 16.7%, 33.3% and 20.2% participants belonged to class I, II, III, IV and V of socio-economic status respectively.

Out of 139 participants who had mild disability, 8.6%, 13.7%, 22.3%, 45.3% and 10.1% participants belonged to Class I, II, III, IV, V of socio-economic status respectively.

Out of 118 participants who had moderate disability, 5.1%, 13.6%, 28%, 38.1% and 15.3% participants belonged to Class I, II, III, IV and V of socio-economic status respectively.

Out of 59 participants who had severe disability, 6.8%, 16.9%, 27.1%, 42.4% and 6.8% participants belonged to Class I, II III, IV and V of socio-economic status respectively.

Table 10: Association between socio-demographic variables with disability levels (n=400)

Demographic variables		Type of disability				Chi-square value	p value
		No	Mild	Moderate	Severe		
		n (%)	n (%)	n (%)	n (%)		
Gender	Male	32 (26.2)	44 (36.1)	27 (22.1)	19 (15.6)	5.685	0.128
	Female	52 (18.7)	95 (34.2)	91 (32.7)	40 (14.4)		
Age group in years	18 – 30	37 (44.6)	25 (30.1)	18 (21.7)	3 (3.6)	117.819	0.000*
	30 - 40	36 (29.3)	41 (33.3)	36 (29.3)	10 (8.1)		
	40 - 50	10 (9.5)	55 (52.4)	29 (27.6)	11 (10.5)		
	50 - 60	1 (1.1)	18 (20.2)	35 (39.3)	35 (39.3)		
Education level	Elementary or less	19 (12.3)	53 (34.2)	55 (35.5)	28 (18.1)	27.592	0.000*
	Secondary	46 (22.5)	74 (36.3)	54 (26.5)	30 (14.7)		
	Tertiary	19 (46.3)	12 (29.3)	9 (22)	1 (2.4)		
Marital status	Single	13 (50)	7 (26.9)	3 (11.5)	3 (11.5)	23.206	0.001*
	Married	71 (19.9)	127 (35.6)	109 (30.5)	50 (14)		
	Widowed	0 (0)	5 (29.4)	6 (35.3)	6 (35.3)		
Occupation	Agriculture	9 (18.4)	21 (42.9)	14 (28.6)	5 (10.2)	16.928	0.05*
	Skilled & unskilled manual	17 (23.9)	33 (46.5)	12 (16.9)	9 (12.7)		
	Home maker	42 (19)	71 (32.1)	76 (34.4)	32 (14.5)		
	Others	16 (27.1)	14 (23.7)	16 (27.1)	13 (22)		
Religion	Hindu	71 (20.1)	130 (36.7)	104 (29.4)	49 (13.8)	8.094	0.231
	Islam	11 (28.2)	9 (23.1)	11 (28.2)	8 (20.5)		
	Christian	2 (28.6)	0 (0)	3 (42.9)	2 (28.6)		
Socio-economic status	Class I	11 (33.3)	12 (36.4)	6 (18.2)	4 (12.1)	16.175	0.183
	Class II	14 (23.7)	19 (32.2)	16 (27.1)	10 (16.9)		
	Class III	14 (14.9)	31 (33)	33 (35.1)	16 (17)		
	Class IV	28 (17.4)	63 (39.1)	45 (28)	25 (15.5)		
	Class V	17 (32.1)	14 (26.4)	18 (34)	4 (7.5)		

Among the 122 males, 22.1% and 15.6% participants had 'moderate disability and severe disability' respectively and among the 278 females, 32.7% and 14.4% participants had moderate disability and severe disability respectively.

Among the 400 study participants, in the age group 50-60 years, 39.3% 'participants had severe disability' compared to other age groups; where 10.5%, 8.1% and 3.6% participants had severe disability in the age groups 40-50 years, 30-40 years and 18-30 years respectively. As the age increased disability also increased, which was found to be significant statistically with p = 0.000 **(χ^2 = 117.819).**

Only 2.4 % participants who completed tertiary education had severe disability compared to other participants; where 14.7% and 18.1% participants who completed secondary and elementary or less education respectively had severe disability. Participants who had lower educational level had severe disability which was found to be significant statistically with p = 0.000 **(χ^2 = 27.592).**

35.3% participants who were widowed had severe disability compared to 14% and 11.5% participants who were married and single respectively had severe disability. Participants who were being widowed, had experienced severe disability, which was found to be significant statistically with p = 0.001 **(χ^2 = 23.206).**

Among the participants who were doing agriculture, 28.6% and 10.2% participants had 'moderate disability and severe disability' respectively. Among the participants who were doing skilled and unskilled manual work, 16.9% and 12.7% participants had 'moderate disability and severe disability' respectively. Among the participants who were homemakers, 34.4% and 14.5% participants had 'moderate disability and severe disability' respectively.

Among the participants belonging to class I SES, 18.2% and 12.1% participants had ‘moderate disability and severe disability’ respectively. Among the participants belonging to class II SES, 27.1% and 16.9% participants had ‘moderate disability and severe disability’ respectively. Among the participants belonging to class III SES, 35.1% and 17% participants had ‘moderate disability and severe disability’ respectively. Among the participants belonging to class IV SES, 28% and 15.5% participants had ‘moderate disability and severe disability’ respectively. Among the participants belonging to class V SES, 34% and 7.5% participants had ‘moderate disability and severe disability respectively’.

Table 11: Multiple logistic regression between socio-demographic variables and disability level (n=400)

Socio-demographic variables		Mild				Moderate				Severe			
		OR	LL	UL	p value	OR	LL	UL	p value	OR	LL	UL	p value
Gender	Male	0.385	0.141	1.055	0.063	0.347	0.114	1.056	0.062	0.27	0.065	1.118	0.071
	Female	Ref.				Ref.				Ref.			
Age group	18-30	0.022	0.002	0.214	0.001	0.007	0.001	0.07	0	0.001	_	0.009	0
	30-40	0.043	0.005	0.383	0.005	0.017	0.002	0.156	0	0.003	0	0.026	0
	40-50	0.274	0.031	2.428	0.245	0.077	0.009	0.685	0.022	0.022	0.002	0.21	0.001
	50-60	Ref.				Ref.				Ref.			
Education level	Elementary or less	1.291	0.421	3.957	0.655	1.402	0.418	4.699	0.584	3.678	0.33	41.009	0.29
	Secondary	1.844	0.719	4.729	0.203	1.658	0.588	4.678	0.339	9.917	1.01	97.408	0.049
	Tertiary	Ref.				Ref.				Ref.			
Occupation	Agriculture	0.468	0.114	1.912	0.29	0.178	0.039	0.805	0.025	0.054	0.009	0.342	0.002
	Skilled & unskilled manual	1.18	0.36	3.866	0.785	0.295	0.078	1.109	0.071	0.3	0.066	1.356	0.118
	Housewife	0.941	0.248	3.573	0.929	0.668	0.161	2.766	0.578	0.348	0.065	1.88	0.22
	Others	Ref.				Ref.				Ref.			
Religion	Hindu	1016	0	_	0.994	0.362	0.034	3.862	0.4	0.469	0.027	8.144	0.603

		9661											
	Islam	43148488	0	_	0.995	0.225	0.018	2.83	0.248	0.777	0.037	16.502	0.872
	Christian	Ref.				Ref.				Ref.			
Socioeconomic status	Class I	1.401	0.395	4.973	0.602	0.463	0.111	1.921	0.288	0.83	0.118	5.843	0.852
	Class II	1.641	0.542	4.97	0.381	1.064	0.342	3.311	0.915	1.752	0.353	8.707	0.493
	Class III	2.79	0.988	7.878	0.053	2.491	0.889	6.98	0.082	4.255	0.955	18.953	0.057
	Class IV	2.203	0.881	5.508	0.091	1.147	0.455	2.891	0.771	2.159	0.54	8.631	0.276
	Class V	Ref.				Ref.				Ref.			

Males as compared to females, were 0.30 times likely to have mild type of disability that is males were 70% less likely to have mild type of disability, which was with near significance. Males as compared to females, were 0.34 times likely to have moderate type of disability that is males were 66% less likely to have moderate type of disability, which was almost significant with p = 0.06. Males as compared to females were 0.27 times likely to have severe type of disability, that is males were 73% less likely to have severe type of disability, which was almost significant with p = 0.07.

As compared to age group 50-60 years, people in the age group 18-30 years were 0.022 times likely to have mild, 0.007 times moderate and 0.001 times severe disability respectively that is people of 18-30 years age group 97.8% (p=0.001), 99.3% (p=0.00) and 99.9% (p=0.00) were less likely to have ‘mild, moderate and severe type of disability’ respectively, which were statistically significant. As compared to age group 50-60 years, people in the age group 30-40 years were 0.043 times likely to have mild, 0.017 times

moderate and 0.003 times severe disability respectively that is people of 30-40 years age group 95.7% (p=0.001), 98.3% (p=0.00) and 99.7% (p=0.00) were less likely to have 'mild, moderate and severe type of disability' respectively, which were statistically significant. As compared to people of age group 50-60 years, people of age group 40-50 years were 0.077 times moderate and 0.022 times severe disability respectively that is people of 40-50 years age group 92.3% (p=0.00) and 97.8% (p=0.00) were less likely to have moderate and severe type of disability respectively, which were statistically significant.

Individuals who had completed secondary education were 9.91 times more likely to have severe disability, as compared to individuals who had completed tertiary education, which was found to be significant statistically with p = 0.049

As compared to other occupations, agriculturists were 0.17 times likely to have moderate disability and 0.054 times likely to have severe disability that is 83% and 94.65 times less likely to have moderate and severe disability respectively, which were statistically significant with p = 0.025 & p = 0.002.

As compared to SES V, SES III had 2.79 times more likely to have mild type of disability and 4.255 times more likely to have severe type of disability, which were almost statistically significant with p = 0.05 & p = 0.05.

SECTION IV: CAPACITY AND HEALTH CONDITIONS

Table 12: Distribution of the participants according to rating of their health on the day of survey (n=400)

Rating of participants health today	Frequency	Percentage (%)
Very good	147	36.75
Good	213	53.25
Moderate	39	9.75
Bad	1	0.25
TOTAL	**400**	**100.00**

Out of 400 study participants, 147 (36.75%) participants rated their health was very good, 213 (53.25%) participants rated their health was good, 39 (9.75%) participants rated their health was moderate and only one participant rated his/her health was bad.

Graph 17: Distribution of the participants according to rating of their health on the day of survey (n=400)

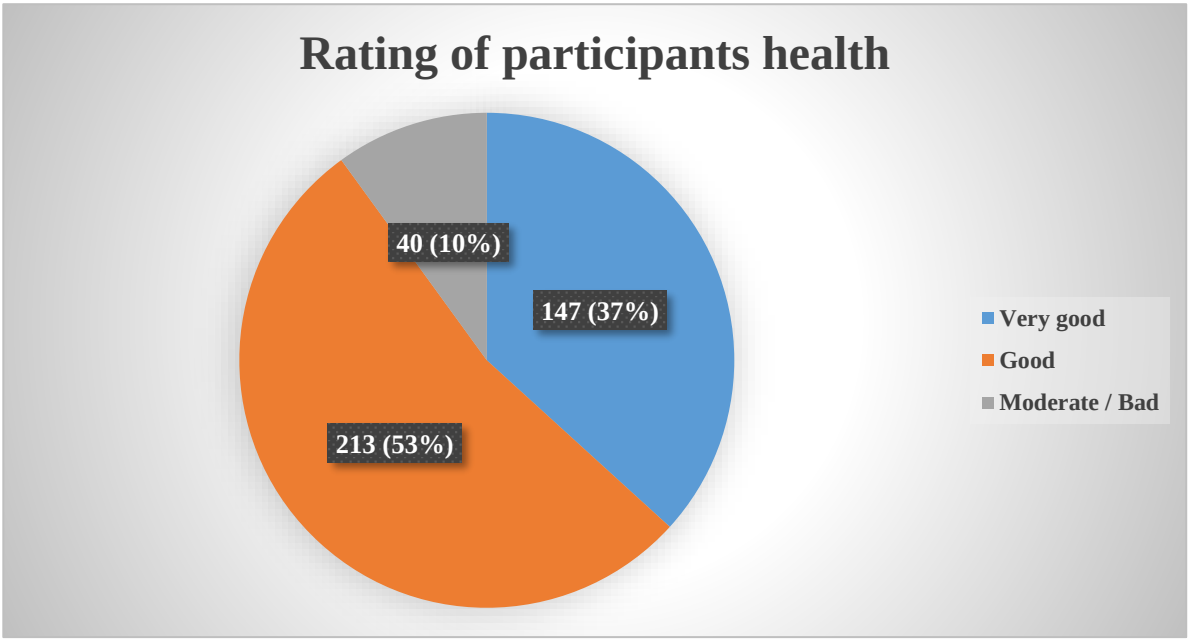
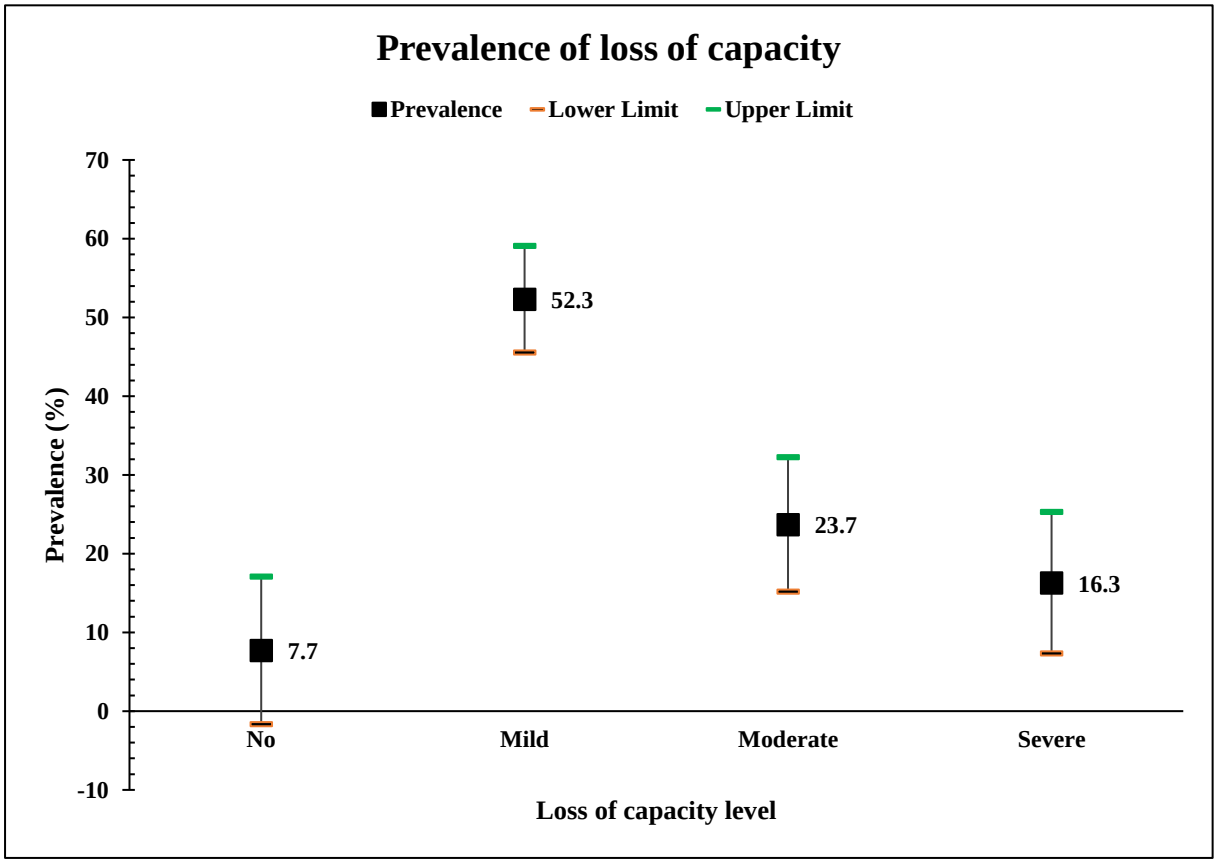


Table 13: Distribution of the participants according to prevalence of loss of capacity (n=400)

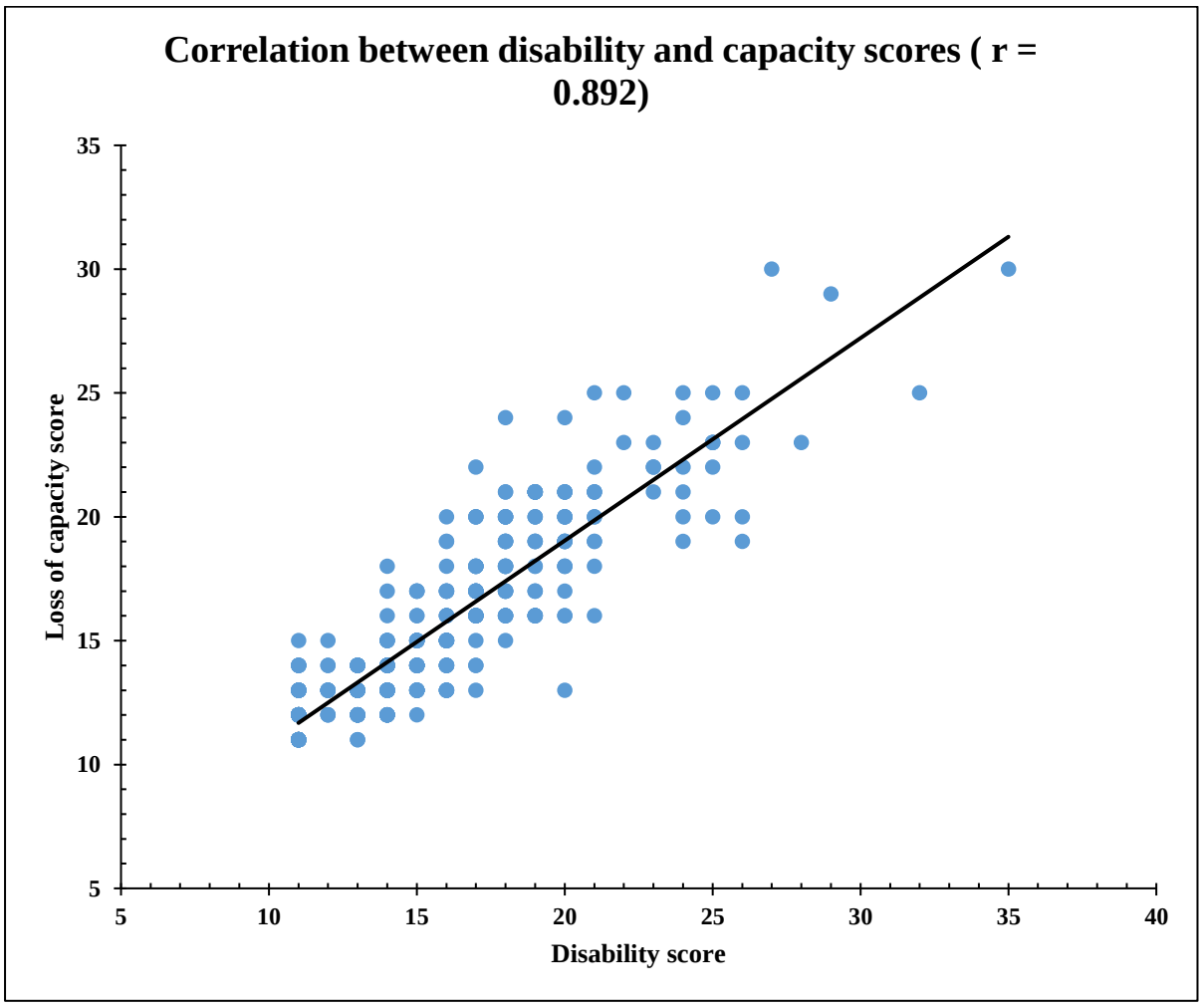
Loss of Capacity level	Frequency	Percentage (%)
No	31	7.8
Mild	209	52.3
Moderate	95	23.8
Severe	65	16.3
Total	**400**	**100**

Out of 400 study participants, 31 (7.8%) had no loss of capacity, 209 (52.3%) participants had mild loss of capacity, 95 (23.8%) participants had moderate loss of capacity and 65 (16.3%) participants had severe loss of capacity as per criteria[3] mentioned in questionnaire.

Graph 18: Distribution of the participants according to prevalence of loss of capacity (n=400)



Graph 19: Scatterplot between disability scores and loss of capacity scores of the participants (n=400)



Among the 400 study participants, as the disability scores of each study participant increased, their capacity scores of individuals were also increased. Higher the disability score, higher was the loss of capacity score (reduced capacity), showing strong positive correlation (r = 0.892).

Table 14: Distribution of the participants according to prevalence of health conditions (n=111)

Health conditions	Frequency	Percentage
Refractive errors (Vision problem)	45	11.25%
Back pain	29	7.25%
Hypertension	29	7.25%
Diabetes Mellitus	21	5.25%
Arthritis / Arthralgia	10	2.5%
Heart disease	04	1%
Amputation / Trauma	04	1%
Others	09	2.25%

Among the 111 study participants, 45 (11.25%) participants were suffering from refractive errors, 29 (7.25%) participants were suffering from back pain, 29 (7.25%) participants were suffering from hypertension, 21 (5.25%) participants were suffering from diabetes mellitus, 10 (2.5%) participants were suffering from arthritis/arthralgia, 4 (1%) participants were suffering from heart disease, 4(1%) participants were suffering from amputation / trauma and the rest 9 (2.25%) participants were suffering from other health conditions like thyroid, renal stones, varicose veins, spondylosis etc.,

Few participants had multiple responses to more than one health condition.

Graph 20: Distribution of the participants according to health conditions (n=400)

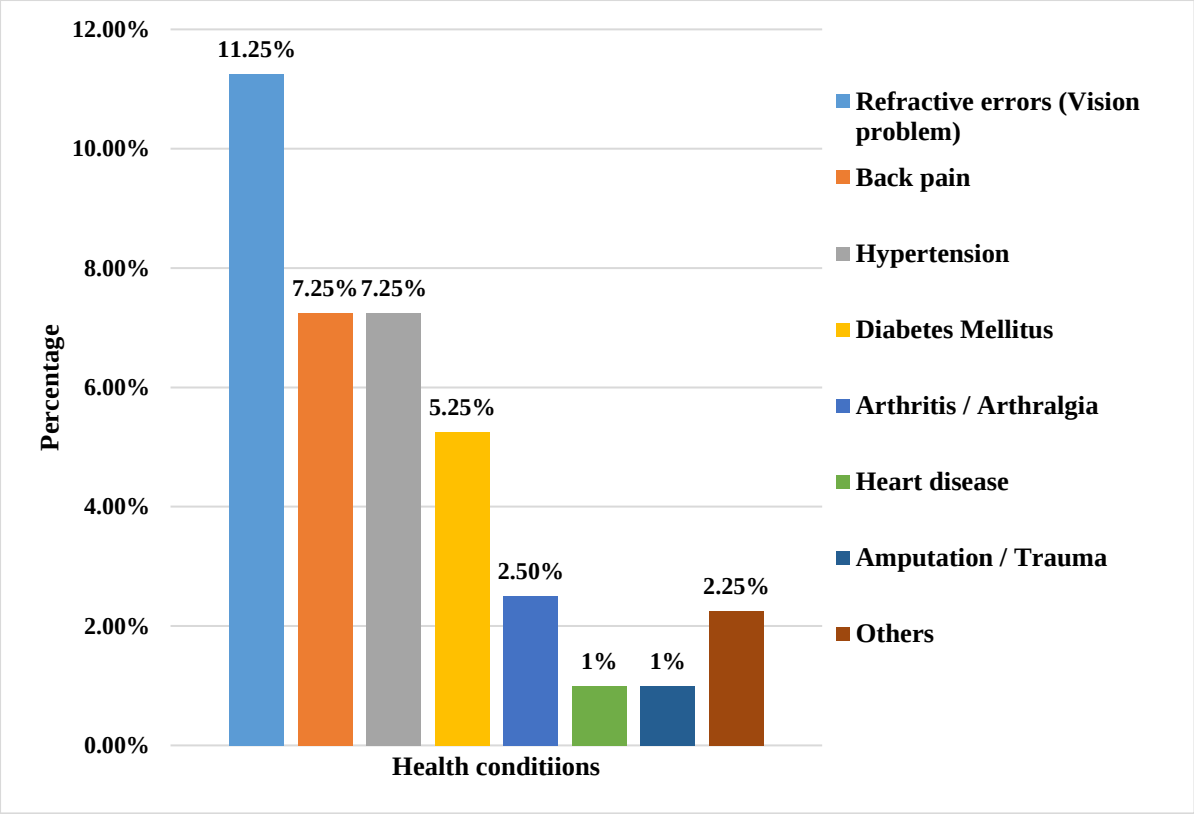


Table 15: Distribution of the participants according to individual health conditions (n=400)

Health conditions	Frequency	Percentage (%)
One or More than one health condition	111	27.75%
No health condition	289	72.25%
Total	**400**	**100**

Among the 400 study participants, 111 (27.75%) participants reported at least one or more than one health condition, but 289 (72.25%) participants did not report any health condition.

Graph 21: Distribution of the participants according to individual health conditions (n=400)

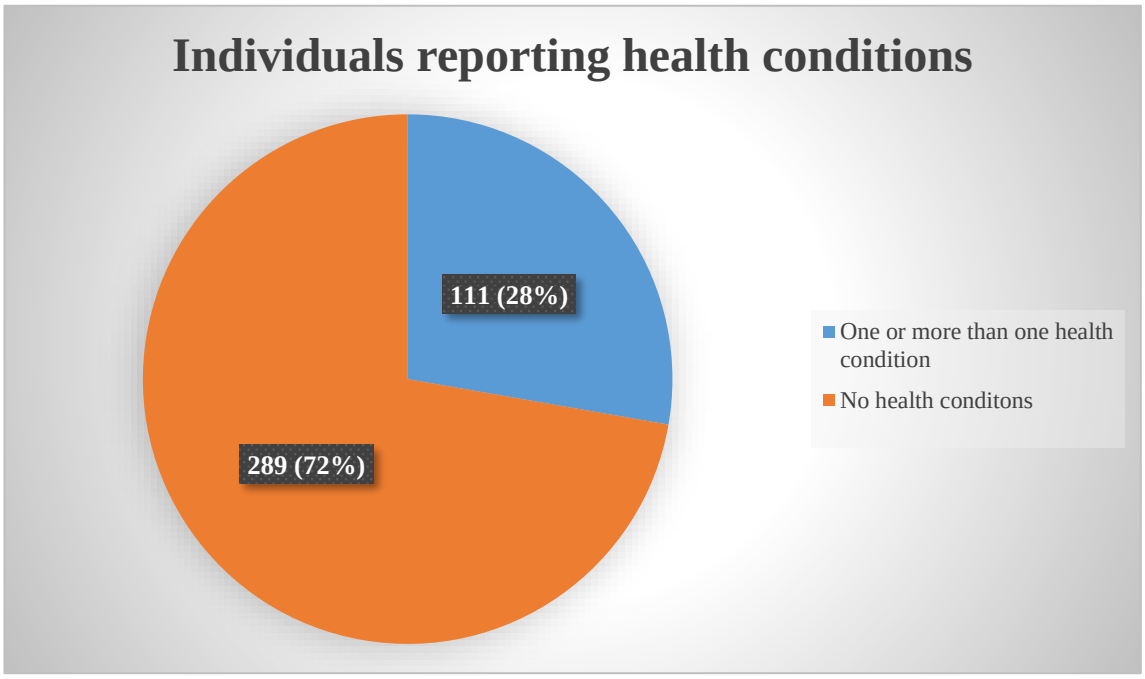
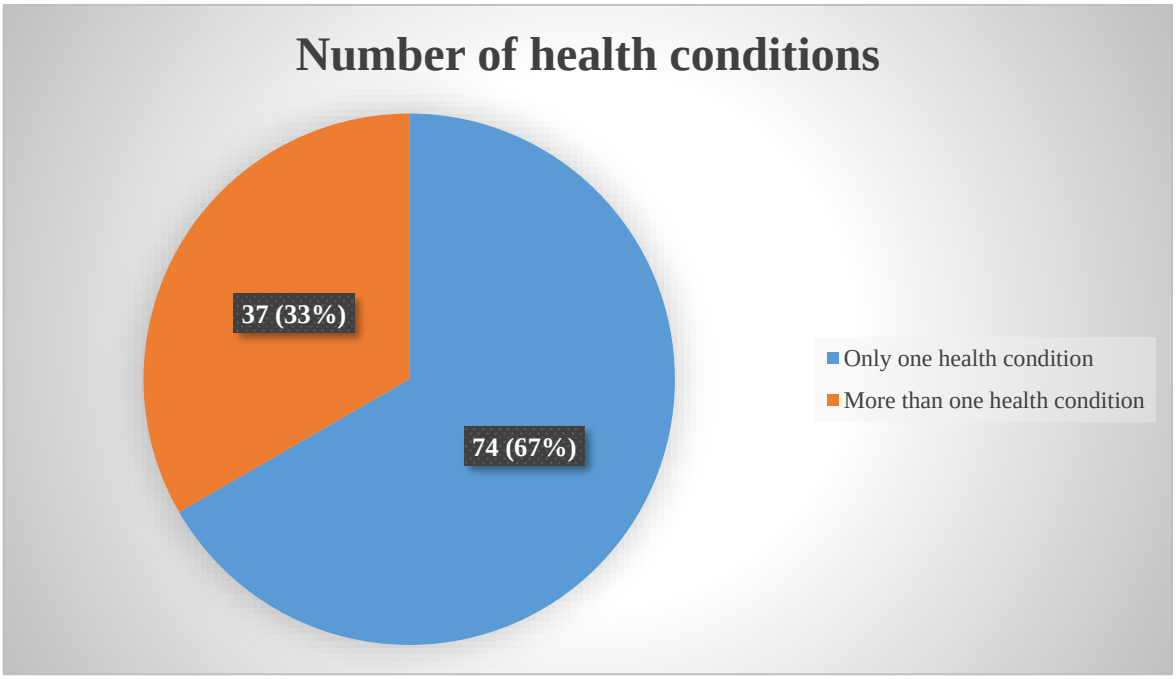


Table 16: Distribution of the participants according to number of health conditions (n=111)

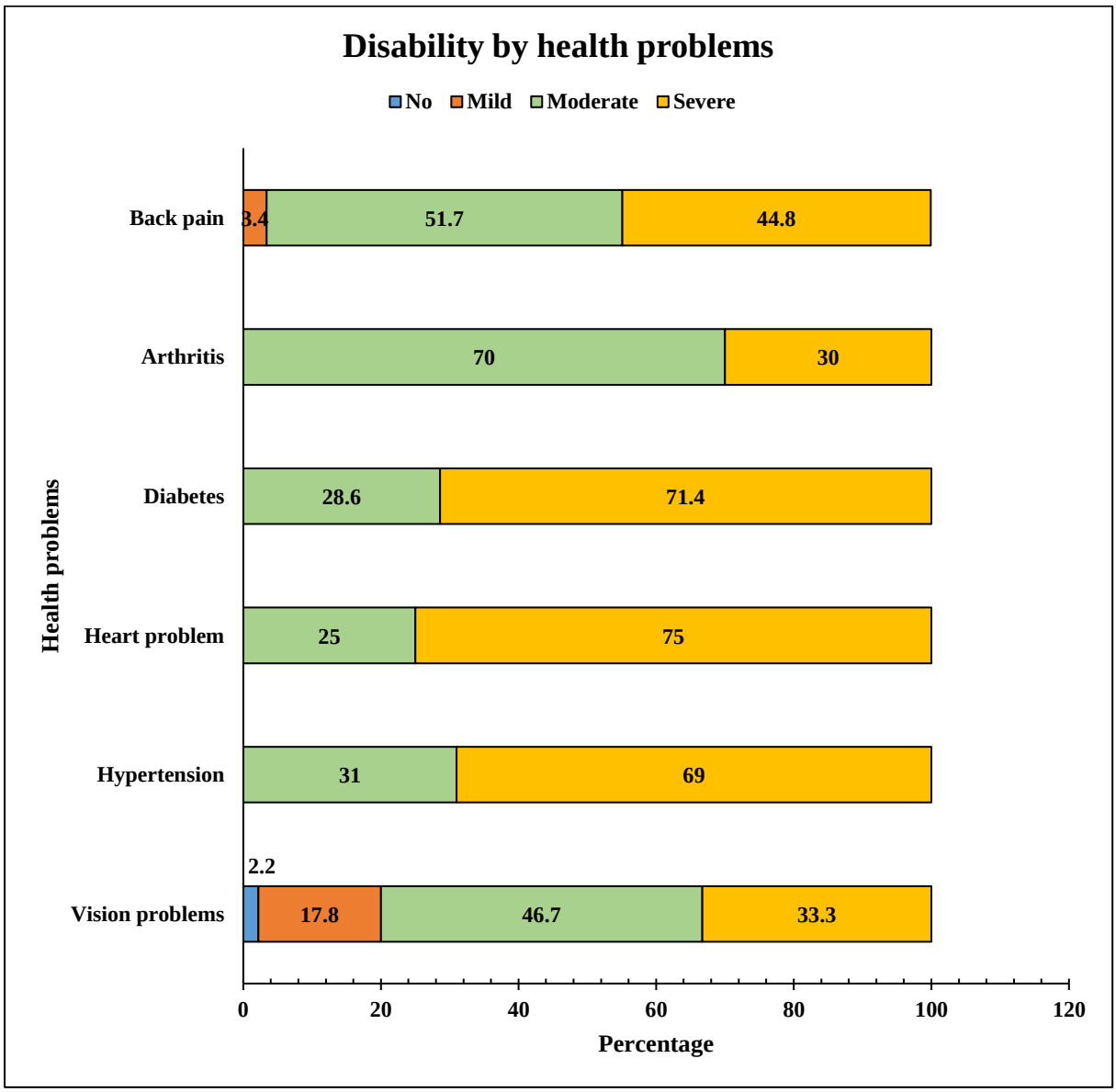
Health conditions	Frequency	Percentage (%)
Only one health condition	74	66.67%
More than one health condition	37	33.33%
Total	**111**	**100**

Out of 111 participants reporting any health conditions, 74 (66.67%) participants had only one health condition and 37 (33.33%) participants had two or more health conditions

Graph 22: Distribution of the participants according to number of health conditions (n=400)



Graph 23. Distribution of the participants according to health problems within disability level (n=400)



Out of 45 participants who had vision problems, 2.2%, 17.8%, 46.7% and 33.3% participants had no, mild, moderate and severe type of disability respectively. Out of 29 participants who had hypertension, 31% and 69% participants had moderate and severe type of disability respectively. Out of 4 participants who had heart problems, 25% and 75% participants had moderate and severe type of disability respectively. Out of 21 participants who had diabetes, 28.6% and 71.4% participants had moderate and severe type of disability

respectively. Out of 10 participants who had arthritis, 70% and 30% participants had moderate and severe type of disability respectively. Out of 29 participants who had back pain, 3.4%, 51.7% and 44.8% participants had mild, moderate and severe type of disability respectively.

Table 17: Association between number of health conditions with disability level of study participants (n=400)

Health conditions		**Type of disability**				**Chi-square value**	**p value**
		No	**Mild**	**Moderate**	**Severe**		
		n (%)	**n (%)**	**n (%)**	**n (%)**		
≥ one health conditions	**Yes**	1 (0.9)	8 (7.2)	52 (46.8)	50 (45)	174.359	0.000*
	No	83 (28.7)	131 (45.3)	66 (22.8)	9 (3.1)		
≥ two health conditions	**Yes**	0 (0)	1 (2.7)	14 (37.8)	22 (59.5)	76.826	0.000*
	No	84 (23.1)	138 (38)	104 (28.7)	37 (10.2)		

Among the 111 participants who had one or more than one health conditions, 45% participants had severe disability compared to other participants (289) who didn't have any health condition, whereas only 3.1% participants had severe disability. Having any one health condition was positively associated severe disability, which was found to be significant statistically with p = 0.000 **(χ^2 = 174.35).** Among the 37 participants who had two or more than two health conditions, 59.5% participants had severe disability compared to other participants (363) having one health condition or not having any health condition were 10.2

% with severe disability. Having two or more health conditions was positively associated with severe type of disability, which was found statistically significant with p = 0.000 **(χ^2 = 76.82).**

Table 18: Association between health problems with disability level of study participants (n=400)

Health problems		Type of disability				Chi-square value	p value
		No	Mild	Moderate	Severe		
		n (%)	n (%)	n (%)	n (%)		
Vision problem	Yes	1 (2.2)	8 (17.8)	21 (46.7)	15 (33.3)	29.653	0.000*
	No	83 (23.4)	131 (36.9)	97 (27.3)	44 (12.4)		
Hypertension	Yes	0 (0)	0 (0)	9 (31)	20 (69)	79.764	0.000*
	No	84 (22.6)	139 (37.5)	109 (29.4)	39 (10.5)		
Heart problem	Yes	0 (0)	0 (0)	1 (25)	3 (75)	12.224	0.007*
	No	84 (21.2)	139 (35.1)	117 (29.5)	56 (14.1)		
Diabetes	Yes	0 (0)	0 (0)	6 (28.6)	15 (71.4)	60.634	0.000*
	No	84 (22.2)	139 (36.7)	112 (29.6)	44 (11.6)		
Arthritis	Yes	0 (0)	0 (0)	7 (70)	3 (30)	13.038	0.005*
	No	84 (21.5)	139 (35.6)	111 (28.5)	56 (14.4)		
Back pain	Yes	0 (0)	1 (3.4)	15 (51.7)	13 (44.8)	39.794	0.000*
	No	84 (22.6)	138 (37.2)	103 (27.8)	46 (12.4)		

Among the 45 participants who had vision problems, 46.7% and 33.3% participants had moderate and severe type of disability respectively, as compared to other participants without vision problems, whereas only 27.3% and 12.4% participants had moderate and severe type of disability respectively. Having vision problems was associated disability, which was found to be significant statistically with p = 0.000 **(χ^2 = 29.65).**

Among the 29 participants who had hypertension, 31% and 69% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have hypertension, whereas only 29.4% and 10.5% participants had moderate and severe type of disability respectively. Having hypertension was associated with disability which was found to be significant statistically with p = 0.000 **(χ^2 = 79.764).**

Among the 4 participants who had heart problem, 25% and 75% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have heart problem, whereas only 29.5% and 14.1% participants had moderate and severe type of disability respectively. Having heart problem was associated disability which was found to be significant statistically with p = 0.007 **(χ^2 = 12.224).**

Among the 21 participants who had diabetes, 28.6% and 71.4% participants had moderate and severe disability respectively, as compared to other participants who didn't have diabetes, whereas only 29.6% and 11.6% participants had moderate and severe type of disability respectively. Having diabetes was associated with disability which was found to be significant statistically with p = 0.000 **(χ^2 = 60.634).**

Among the 10 participants who had arthritis, 70% and 30% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have arthritis, whereas only 28.5% and 14.4% participants had moderate and severe type of

disability respectively. Having arthritis was associated with disability which was found to be significant statistically with p = 0.005 **(χ^2 = 13.038).**

Among the 29 participants who had back pain, 51.7% and 44.8% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have back pain, whereas only 27.8% and 12.4% had moderate and severe type of disability respectively. Having back pain was associated with disability, which was found to be significant with p = 0.000 **(χ^2 = 39.794).**

SECTION V: ASSISTIVE PRODUCTS AND PERSONAL ASSISTANCE

Table 19: Distribution of the participants according to need of personal assistance in day-to-day activities (n=400)

Need of someone to assist participants in day-to-day activities	Frequency	Percentage (%)
Yes	3	0.75
No	397	99.25
Total	**400**	**100**

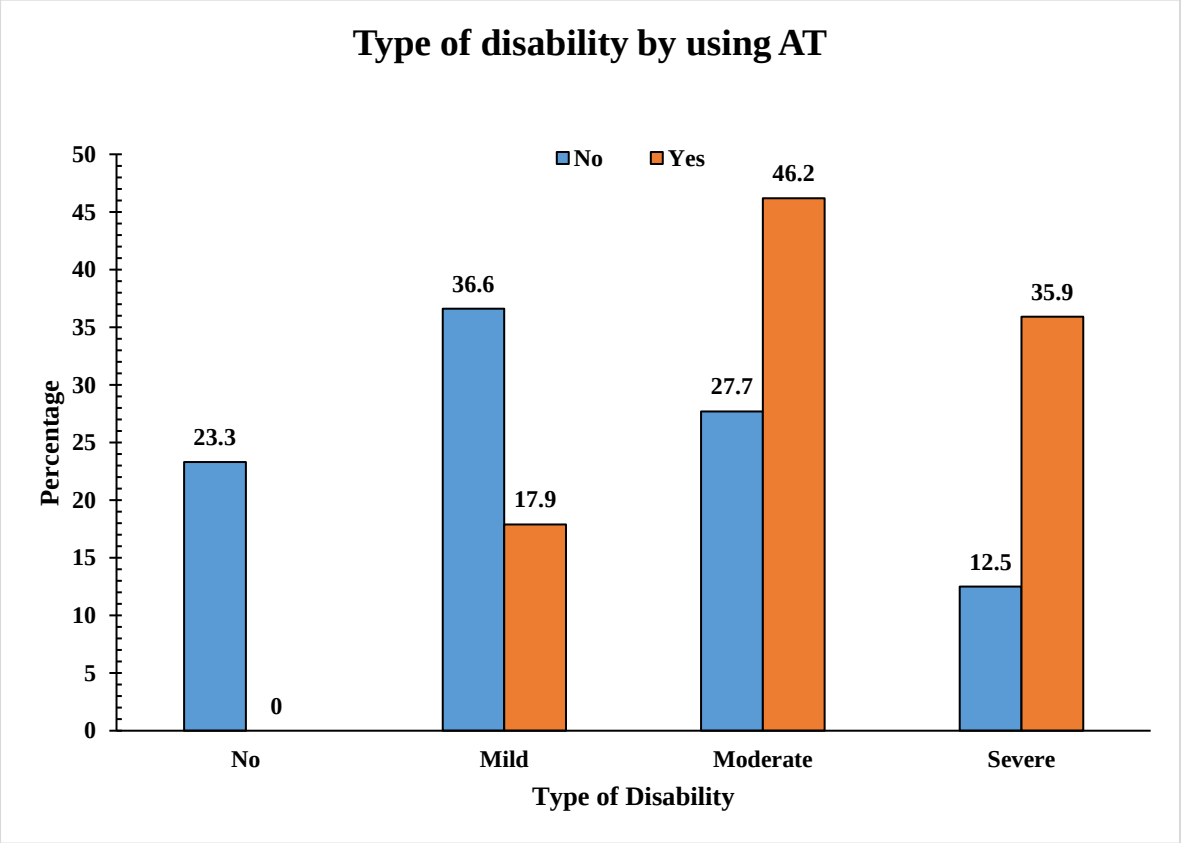
Out of 400 study participants, 3 (0.75%) participants informed that they needed someone to assist their day-to-day activities at home or outside. 397 (99.25%) participants informed that they didn't need anyone to assist their day-to-day activities.

Table 20: Distribution of the participants according to use of assistive devices (n=400)

Use of assistive technology (AT)	**Frequency**	**Percentage (%)**
Yes – Prostheses, lower limb	1	0.25
Therapeutic footwear	2	0.50
Walking frames or walkers	1	0.25
Spectacles	35	8.75
No	361	90.25
Total	**400**	**100**

Out of 400 study participants, 361 (90.25%) participants were not using any type of assistive devices but 39 (9.75%) participants were using assistive devices. Among the 39 participants using assistive devices, one participant used prostheses for lower limb, one participant used walking stick, two participants used therapeutic foot wear and 35 participants used spectacles for vision problems.

Graph 24: Distribution of the participants according to use of assistive technology within disability level (n=400)



Among the 39 participants who were using assistive devices, 17.9% participants had mild disability, 46.2% participants had moderate disability and 35.9% participants had severe disability.

Table 21: Distribution of the participants according to partial unmet need of assistive devices (n=39)

Partial unmet need of assistive technology (AT)	Frequency	Percentage (%)
Yes – Pressure relief cushions Therapeutic footwear	1 6	2.56 15.38
No	32	82.05
Total	**39**	**100**

Among the 39 study participants using assistive devices, one participant required additional assistive devices of pressure relief cushions, 6 participants required additional assistive devices of therapeutic footwear and 32 participants didn't need any additional assistive devices.

Table 22: Distribution of the participants according to complete unmet need of assistive devices (n=361)

Complete unmet need of assistive technology (AT)	Frequency	Percentage (%)
Yes – Pressure relief cushions	3	0.83
Therapeutic footwear	15	4.16
Spectacles	10	2.77
No need	333	92.24
Total	**361**	**100**

Among the 361 study participants who were not using any type of assistive device, 3 participants thought they need pressure relief cushions, 15 participants thought they need therapeutic footwear, 10 participants thought they need spectacles and 333 participants thought they didn't need any type of assistive devices.

SECTION VI: HEALTH CARE UTILIZATION

Table 23: Distribution of the participants according to health care utilization (n=400)

Type of hospital	Frequency	Percentage (%)
Public hospital	132	33.00
Private hospital	268	67.00
TOTAL	**400**	**100.00**

Out of 400 participants, 132 (33%) participants had visited public hospital for consultation and 268 (67%) participants had visited private hospital for consultation for illness.

Graph 25: Distribution of the participants according to health care utilization (n=400)

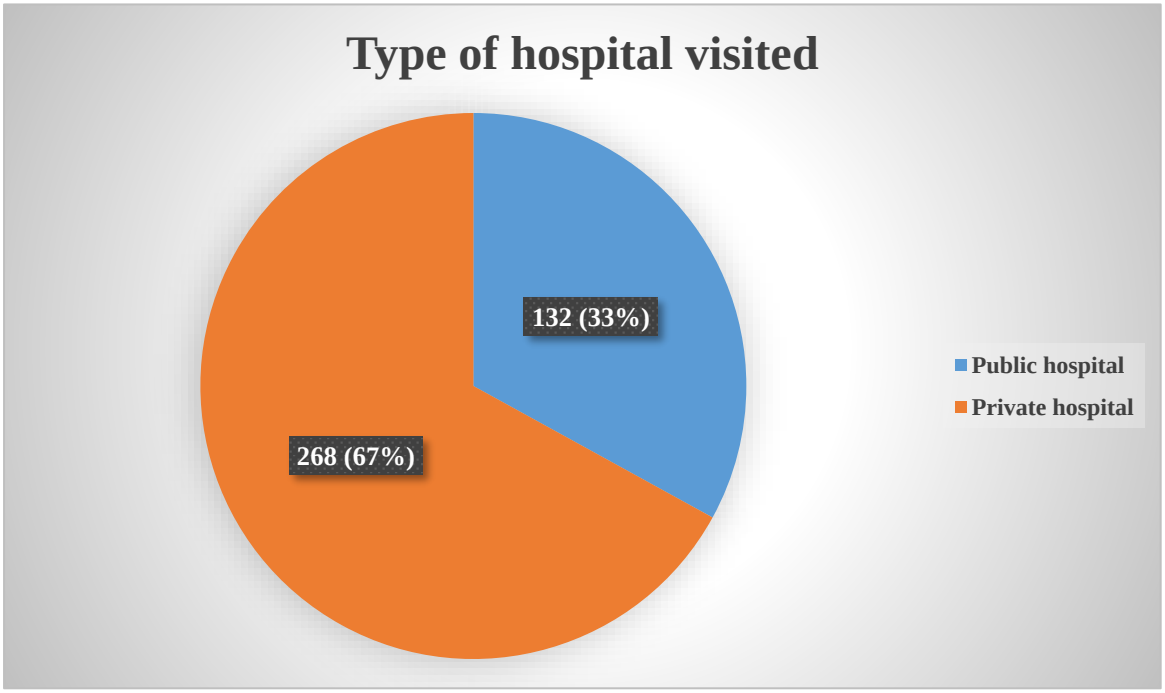
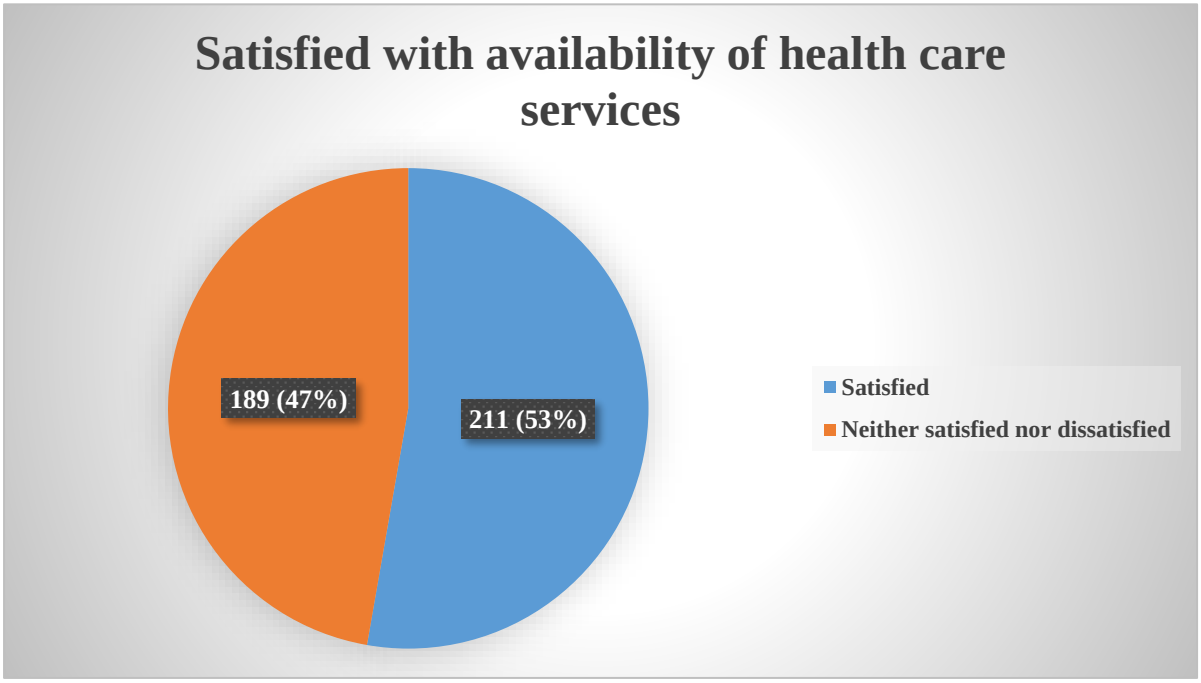


Table 24: Distribution of the participants according to satisfaction with availability of health care services (n=400)

Satisfied with availability of health care in the area	Frequency	Percentage (%)
Satisfied	211	52.75
Neither satisfied nor dissatisfied	189	47.25
TOTAL	**400**	**100.00**

Out of 400 study participants, 211 (52.75%) participants were satisfied with availability of health care in the area. 189 (47.25%) participants were neither satisfied nor dissatisfied with availability of health care in the area. None of the participants were dissatisfied with availability of health care in the area.

Graph 26: Distribution of the participants according to satisfaction with availability of health care services (n=400)



DISCUSSION

SECTION – I: SOCIO-DEMOGRAPHIC VARIABLES

Table 1: Distribution of the participants according to their age group (n=400)

In the current study, nearly one-third (30.75%) participants were in 30-40 years age group, followed by 26.25% participants were in 40-50 years age group, 22.25% participants were in 50-60 years age group and 20.75% participants were in 18-30 years age group.

Table 2: Distribution of the participants according to their gender (n=400)

In the current study, more than two-third (69.5%) participants were females and males were only 30.5%.

Table 3: Distribution of the participants according to their educational level (n=400)

In the current study, half (51%) of participants had completed secondary education and only 10% participants had completed tertiary education.

Table 4: Distribution of the participants according to their marital Status (n=400)

In the current study, majority (89.25%) of the participants were married and 4.25% participants were widowed. None of the study individuals were divorced.

Table 5: Distribution of the participants according to their religion (n=400)

In the current study, majority (8.5%) of the participants belonged to Hindu, followed by 9.75% belonged to Islam and 1.75% participants belonged to Christian religion.

Table 6: Distribution of the participants according to their occupation (n=400)

In the present study, more than half (55.25%) of the participants were home makers, followed by 17.75% participants who were doing skilled and unskilled manual work, 12.25% participants were doing agriculture and 14.75% participants were doing other type jobs like professional job, general stores, sales job etc.

Table 7: Distribution of the participants according to their Socio-economic Status (n=400)

In the present study, 40.25% participants belonged to class IV SES followed by class III SES (23%), class II (14.75%), class V (13.25%) and class I (8.25%) according to modified BG Prasad's classification.

SECTION II: ENVIRONMENTAL FACTORS

Table 8: Distribution of the participants according to participants satisfaction with selected physical aspects of environment (n=400)

In the current study, more than one-third (36%) of participants were satisfied with places for socializing, followed by dwelling (29.50%), shops, banks & post office (20%) and transportation (14.50%).

SECTION III: FUNCTIONING

Table 9: Distribution of the participants according to prevalence of disability (n=400)

In the current study, 21.0% participants had no disability, 34.8% participants had mild disability, 29.4% participants had moderate disability and 14.8% participants had severe disability. Almost similar findings were stated in the Brief MDS survey conducted in India, 2019 among 3,000 participants found 33% participants with no disability, 17% participants with mild disability, 35% participants with moderate disability and 16% participants with severe disability.[3]

Graph 10: Distribution of the participants by age groups within disability levels (n=400)

In the present study, among the 400 participants, who had severe disability, 59.3% participants were in 50-60 years age group, as compared to other participants who had moderate, mild and no disability, where majority of the participants were in the groups 30-40 years, 40-50 years and 18-30 years respectively. Results from our study infers that as participants' age increased, level of disability also increased. Similar findings were stated in the 'Brief MDS survey' conducted in India, 2019 among 3,000 participants, which showed that most of the individuals with disability were adults.[3]

Graph 11: Distribution of disability level among the participants based on gender (n=400)

Among the 59 participants with severe disability, 67.8% participants were females in current study. Similar findings were reported in the 'Brief MDS survey' conducted in India, in 2019 among 3,000 participants, showed that women with severe disability were more than males.[3] Contrast findings were reported in a study conducted in Dibrugarh during 2013-2016

among 430 elderly individuals, which showed that 44.5% of females had functional disability.[8]

Graph 12: Distribution of disability level among the participants based on their educational level (n=400)

Majority of the participants with severe disability had completed elementary (47.5%) and secondary (50.8%) education in the current study. Similar findings were reported in the Brief MDS survey conducted in India, 2019 among 3,000 participants, which showed that most of the persons with severe disability had elementary or less education.[3]

Graph 13: Distribution of disability level among the participants by marital status (n=400)

Among the 59 participants with severe disability, majority (84.7%) of participants were married and in other types of disability also majority of the individuals were married in current study. Widowed participants had severe disability compared to other types of disability. Similar findings were stated in the Brief MDS survey conducted in India, 2019 among 3000 participants, which showed that a slightly increased proportion of widowed individuals with severe disability.[3]

Graph 14: Distribution of disability level among the participants by religion (n=400)

Among the 59 participants with severe disability, majority (83.1%) of the participants belonged to Hindu religion and in other types of disability also majority of the individuals belonged to Hindu religion. The reason may be most participants (88.5%) were Hindus in current study. However, participants belonging to Islam and Christian had severe disability compared to other types of disability.

Graph 15: Distribution of disability level among the study participants by occupation (n=400)

Among the 59 participants with severe disability, half (54.2%) of the participants were home makers and in other types disability also majority of the participants were home makers.

Graph 16. Distribution of disability level among the participants by socio-economic status (n=400)

Among the 59 participants with severe disability, half (49%) participants belonged to class IV & class V SES in current study. Similar findings were reported in the Brief MDS survey conducted in India, 2019 among 3000 participants, which showed that most of the individuals who had severe disability were poor.[3]

Table 10: Association between socio-demographic variables with disability level (n=400)

Among the 89 study participants, in the age group 50-60 years, 35 (39.3%) and 35 (39.3%) participants had moderate and severe type of disability respectively. Findings in our study inferring that increasing age was found to be associated with disability level. Similar findings were stated in a study conducted in Bareilly, Uttar Pradesh in 2012 among 900 individuals which showed that as the age increased, persons with disability also increased (Chi-square = 166) ($P < 0.0001$). [9]

19 (46.3%) participants who completed tertiary education had no disability inferring that having elementary and secondary education was found to be associated with disability in our study. Similar findings were stated in a study conducted in Dibrugarh during 2013-2016 among 430 elderly individuals, which showed that having no formal education, was

associated with disability (AOR=1.86, 95%CI=0.99-3.48).[8] Similar findings were stated in secondary analysis of NFHS 5, which showed that having no education was associated with more disability.[10]

6 (35.3%) participants who were widowed had severe disability, inferring that marital status was significantly associated with disability levels in our study. Similar findings were reported in a study conducted in Dibrugarh during 2013-2016 among 430 elderly individuals, which found that being widowed was associated disability (AOR=1.87, 95% CI=1.20-2.93).[8]

Table 11: Multiple logistic regression between socio-demographic variables and disability level (n=400)

In the present study, males as compared to females are 0.30 times likely to have mild type of disability that is males are 70% less likely to have mild type of disability, which was almost significant with p = 0.06. Males as compared to females, were 0.34 times likely to have moderate type of disability that is males were 66% less likely to have moderate type of disability, which was almost significant with p = 0.06. Males as compared to females, were 0.27 times likely to have severe type of disability, that is males were 73% less likely to have severe type of disability, which was almost significant with p = 0.07.

In the present study, as compared to age group 50-60 years, people in the age group 18-30 years were 0.022 times likely to have mild, 0.007 times moderate and 0.001 times severe disability respectively that is people of 18-30 years age group 97.8% (p=0.001), 99.3% (p=0.00) and 99.9% (p=0.00) less likely to have 'mild, moderate and severe type of disability' respectively, which were statistically significant. As compared to age group 50-60 years, people in the age group 30-40 years were 0.043 times likely to have mild, 0.017 times moderate and 0.003 times severe disability respectively that is people of 30-40 years age group 95.7% (p=0.001), 98.3% (p=0.00) and 99.7% (p=0.00) less likely to have 'mild,

moderate and severe type of disability' respectively, which were statistically significant. As compared to age group 50-60 years, people in the age group 40-50 years were 0.077 times moderate and 0.022 times severe disability respectively, that is people of 40-50 years age group 92.3% (p=0.00) and 97.8% (p=0.00) less likely to have moderate and severe type of disability respectively, which were statistically significant.

In the present study, participants who had completed secondary education were 9.91 times more likely to have severe disability, as compared to participants who had completed tertiary education, which was statistically significant with p = 0.049.

In the present study, as compared to other occupations, agriculturists were 0.17 times likely to have moderate type of disability and 0.054 times likely to have severe type of disability that is 83% and 94.65 times less likely to have moderate and severe type of disability respectively, which were statistically significant with p = 0.025 & p = 0.002.

In the present study, as compared to SES V, SES III were 2.79 times more likely to have mild type of disability and 4.255 times more likely to have severe type of disability, which were almost statistically significant with p = 0.05 & p = 0.05.

Similar findings were stated in a study conducted in China, Ghana, India, Mexico, Russian Federation and South Africa during 2007–2010 by using 'WHO longitudinal multi-country Study on global AGEing and adult health' (SAGE), which showed that being woman [OR (odds ratio) = 1.44], older than 50–59 years age group (OR = 1.42) had higher probability of having severe disability.[14]

Similar findings were reported in a study conducted in slum of Chennai during February 2020 – April 2020 among 220 elderly people, which showed that advancing age [AOR 6.12

(1.89-19.85)], female gender AOR [2.59 (1.07-6.29)] were the factors increasing the risk of disability.[18]

SECTION IV: CAPACITY AND HEALTH CONDITIONS

Table 12: Distribution of the participants according to rating of their health on the day of survey (n=400)

Among the 400 study participants, 53.25% participants reported their health was good, followed by 36.75% and 9.75% participants reported their health was very good and moderate respectively in the current study.

Table 13: Distribution of the participants according to prevalence of loss of capacity (n=400)

Among the 400 study participants, 23.8% participants had moderate loss of capacity levels and 16.3% participants had severe loss of capacity levels. Similar findings were stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants which found that 28% had moderate loss of capacity levels and 15% had severe loss of capacity levels.[3]

Graph 19: Scatterplot between disability scores and capacity scores of the participants (n=400)

Higher the disability score is the higher the loss of capacity score (reduced capacity) showing strong positive correlation (r = 0.892). Similar findings were stated in the study conducted by Chen MZ et al. in India, Tajikistan and Laos in 2018, which showed that an average increase of 0.808 (95% CI: 0.779 to 0.838) points of disability score for each point increase in capacity score.[13]

Table 14: Distribution of the participants according to prevalence of health conditions (n=400)

Among the 400 study participants, 11.25% participants had vision problems, 7.25% participants had hypertension, 5.25% participants had diabetes and 1% participants had heart problems in the current study. Almost similar findings were stated in in the Brief MDS survey conducted in India in 2019 among 3,000 participants which showed that 7.4% participants with vision loss, 7.9% participants with hypertension, 3.4% participants with diabetes and 2.2% participants with heart problems.[3]

Table 15: Distribution of the participants according to individual health conditions (n=400)

Among the 400 study participants, 27.75% participants had ≥ one health condition in the current study. Almost similar findings were stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants which showed that 37.3% participants had more than or equal to one health condition.[3]

Table 16: Distribution of the participants according to number of health conditions (n=111)

Among the 111 study participants, 33% participants had ≥ 2 health conditions in the current study, which was almost similar to findings (22%) stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants.[3]

Graph 23. Distribution of the participants according to health problems within disability level (n=111)

Among the 111 study participants with health problems such as vision problems, hypertension, heart problems, back pain, diabetes and arthritis, majority of them had moderate and severe type of disability. Similar findings were stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants.[3]

Table 17: Association between number of health conditions with disability level of study participants (n=400)

Among the 111 participants, who had one or more than one health conditions, 52 (46.8%) and 50 (45%) participants had moderate and severe type of disability respectively. Among the 37 participants who had two or more than two health conditions, 14 (37.8%) and 22 (59.5%) participants had moderate and severe type of disability respectively. The current study findings inferred that the increased in number of health conditions was associated with severity of disability. Similar findings were stated in a study conducted in Dibrugarh during 2013-2016 among 430 elderly individuals, which showed that five or more health conditions were associated with 20 times risk of disability (OR=19.61, 95% CI=9.01-42.68).[8]

Similar findings were reported in a study conducted in East district of Delhi during 2015-2016 among 358 elderly individuals, which showed that any chronic disease was associated with 2.1 times more odds of being functionally disabled. risk of disability (p=0.009, 95% CI=1.200-3.635).[22]

Table 18: Association between health problems with disability level of study participants (n=400)

Among the 45 participants, who had vision problems, 46.7% and 33.3% participants had moderate and severe type of disability respectively, as compared to other participants without vision problems, whereas only 27.3% and 12.4% participants had moderate and severe type of disability respectively. Having vision problems was associated higher disability, which was found to be significant statistically with p = 0.000 **(χ^2 = 29.65).**

Among the 29 participants, who had hypertension, 31% and 69% participants had moderate and type of severe disability respectively, as compared to other participants who didn't have hypertension, whereas only 29.4% and 10.5% participants had moderate and severe type of disability respectively. Having hypertension was associated with higher disability, which was found to be significant statistically with p = 0.000 **(χ^2 = 79.764).**

Among the 4 participants who had heart problem, 25% and 75% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have heart problem, whereas only 29.5% and 14.1% participants had moderate and severe type of disability respectively. Having heart problem was associated with higher disability, which was found to be significant statistically with p = 0.007 **(χ^2 = 12.224).**

Among the 21 participants who had diabetes, 28.6% and 71.4% participants had moderate and severe disability respectively, as compared to other participants who didn't have diabetes, whereas only 29.6% and 11.6% participants had moderate and severe disability respectively. Having diabetes was associated with higher disability, which was found to be statistically significant with p = 0.000 **(χ^2 = 60.634).** Similar findings were stated in a study conducted in rural area of West Bengal, India in 2007 among 495 elderly individuals.[23]

Among the 10 participants who had arthritis, 70% and 30% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have arthritis, whereas only 28.5% and 14.4% participants had moderate and severe type of disability respectively. Having arthritis was associated with higher disability, which was found to be significant statistically with p = 0.005 **(χ^2 = 13.038).**

Among the 29 participants who had back pain 51.7% and 44.8% participants had moderate and severe type of disability respectively, as compared to other participants who didn't have back pain, whereas only 27.8% and 12.4% had moderate and severe type of disability respectively. Having back pain was associated with higher disability, which was found to be statistically significant with p = 0.000 **(χ^2 = 39.794)**

SECTION V: ASSISTIVE PRODUCTS AND PERSONAL ASSISTANCE

Table 19: Distribution of participants according to need of personal assistance in day-to-day activities (n=400)

In the present study, only 3 (0.75%) participants needed someone to assist them in their day-to-day activities at home or outside.

Table 20: Distribution of the study participants according to use of assistive devices (n=400)

In the present study, prevalence of use of assistance devices was 10%. Almost similar findings were stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants which showed that 19% participants used assistive devices.[1] In our study, spectacles were the most common used assistive device, which was the similar to the finding stated in the Brief MDS survey conducted in India in 2019 among 3,000 participants.[3]

Graph 24: Distribution of the participants according to use of assistive technology within disability level (n=400)

In the present study, among the 39 participants who were using assistive devices, 46.2% participants had moderate disability, 35.9% participants had severe disability, and 17.9% participants had mild disability.

Table 21: Distribution of the study participants according to partial unmet need of assistive devices (n=39)

In the present study, prevalence of partial unmet need of assistive devices was 18%, which was similar to the findings reported in the Brief MDS survey conducted in India in 2019 among 3,000 participants.[3]

Table 22: Distribution of the study participants according to complete unmet need of assistive devices (n=361)

In the present study, prevalence of complete unmet need of assistive devices was 7.75%, which was similar to the findings reported in the Brief MDS survey conducted in India in 2019 among 3, 000 participants.[3] Similar findings were stated in a study conducted in 4 different zones of India in 2021 among 8,964 individuals, which showed that prevalence of unmet need was 8.0%.[12]

SECTION VI: HEALTH CARE UTILIZATION

Table 23: Distribution of the participants according to health care utilization (n=400)

Among the 400 study participants, more than two-third participants (67%) had visited private hospital for consultation when felt sick, followed by 33% participants who had visited public hospital for consultation.

Table 24: Distribution of the study participants according to satisfaction with availability of health care services (n=400)

Among the 400 study participants, half (52.75%) of the participants were satisfied with availability of health care services.

CONCLUSION

- Eight out of ten participants had one or other type of disability. More than one third of them had mild and moderate type of disability and less than one fifth of them had severe disability.

- Increasing age, widow/er-hood and low educational level were associated with disability. Gender, religion, occupation and socio-economic status were not found to be significantly associated with disability.

RECOMMENDATIONS

To Individual:

Individuals should manage their health problems by regular medication, healthy lifestyle changes, so that severity of disability level will be reduced.

As partial and complete unmet need for assistive devices was observed in present study, individuals should know about various assistive devices useful for their health problems and should start using them early, so that they can have better quality of life.

Individuals should be aware of other types of disability such as social and emotional disability apart from physical disability and they should do meditation, yoga and should participate in socializing activities for improving their mental and social health.

To Family:

Family members should assist persons with disability in their activities of daily living and regular follow up medical care.

Family members should assist them to buy and use assistive devices and support the person with disability in day-to-day activities.

To Community:

District Disability Rehabilitation Centre should create awareness, should assess the need of assistive devices, provision for repair of devices, disability certificate & other facilities for PWDs.

Health staff of PHC should conduct medical checkup camps once in a month at village level or Subcenter level for better Utilisation of health care services for persons with disability.

Government should appoint physiotherapist at primary health centre level to cater to rehabilitation activities for PWD. Block Health Education Officer should conduct IEC activities for public on disability, PWD Act and schemes available for persons with disability.

The State Government should make assistive devices available locally at low cost to PWDs for their use and at the Central level, Government should revise policies and legislations based on the needs of PWD and have a separate budget for persons with disability. 'Rehabilitation Council of India (RCI)' can empower human manpower by giving training to them on rehabilitation courses. WHO and NGOs like Red Cross can advise central government to revise guidelines for persons with disability and how to address barriers faced by them.

STRENGTHS

Study setting: A community based cross-sectional study among 400 households.

Sampling technique: The study was conducted by using population proportionate sampling.

Research questionnaire: Pre-validated WHO Brief MDS questionnaire was used, which was one of the major strengths of this study.

LIMITATIONS

The study was done in only one rural field practice area.

Recall bias as some questions were in the questionnaire had recall of prior 30 days.

No qualitative data was collected.

No confirmation of disability was done by physical examination.

SUMMARY

A community based, cross-sectional study was conducted among 400 study participants in rural field practice area of PHC Kinaye, Belagavi by using population proportionate sampling from 1st January 2023 to 31st December 2023 (12 months), using a predesigned and structured questionnaire by using WHO Brief MDS survey.

Ethical clearance was obtained from the 'Institutional Ethics Committee for Human Subjects Research' of the Medical College dated 27/09/2022 vide under letter MDC/JNMCIEC/81 (ANNEXURE – I). 'Written informed consent form' was obtained from all the study participants before the data collection (ANNEXURE – II)

Collected data was entered in Microsoft Excel sheet and analyzed by SPSS version 20 using frequency, percentages, mean and standard deviation. After calculating mean score and standard deviation, the cut-offs were used to segregate the participants experiencing no disability, mild disability, moderate disability and severe type of disability. Association between outcome variables like mild, moderate and severe type of disability and sociodemographic factors were analyzed by using Chi-square and regression analysis.

Out of 400 study participants, 84 (21%) participants had no disability, 139 (34.8%) participants had mild disability, 118 (29.4%) participants had moderate disability and 59 (14.8%) participants had severe disability as per criteria[3]mentioned in questionnaire.

30.75% participants were in the 30-40 years age group followed by 26.25% participants were in the 40-50 years age group, 22.25% participants were in the 50-60 years age group and 20.75% participants were in the 18-30 years age group. 69.5% participants were females and males were only 30.5%. Half of participants had completed secondary education and only 10% participants had completed tertiary education. Majority of the

participants (89.25%) were married and 4.25% participants were widowed, but none of the participants were divorced. Majority of the participants (88.5%) belonged to Hindu followed by 9.75% belonged to Islam and 1.75% participants belonged to Christian religion. 55.25% participants were home makers followed by 17.75% participants who were doing skilled and unskilled manual work, 12.25% participants were doing agriculture and 14.75% participants were doing other type jobs like professional job, general stores, sales job etc. 40.25% participants belonged to Class IV of socio-economic status, 23.50%, 14.75%, 13.25% and 8.25% participants belonged to Class III, Class II, Class V and Class I of socio-economic status respectively according to 'modified BG Prasad's classification.'

Among the study participants, in the age group 50-60 years, 39.3% and 39.3% participants had moderate and severe type of disability respectively. 46.3% participants who had completed tertiary education had no disability. 35.3% participants who were widowed had severe disability. Increasing age (p=0.000), being widowed (p=0.001) and having elementary and secondary educational level (p=0.000) were significantly associated with disability.

As compared to age group 50-60 years, people in the age group 18-30 years were 0.022 times likely to have mild, 0.007 times moderate and 0.001 times severe disability respectively that is people of 18-30 years age group 97.8% (p=0.001), 99.3% (p=0.00) and 99.9% (p=0.00) less likely to have 'mild, moderate and severe type of disability' respectively which were statistically significant.

Among the males, 22.1% and 15.6% participants had moderate and severe type of disability respectively and among the females, 32.7% and 14.4% participants had moderate and severe type of disability respectively.

Among the Hindu participants, 29.4% and 13.8% participants had moderate and severe type of disability respectively. Among the Islam participants, 28.2% and 20.5% participants had moderate and severe type of disability respectively.

Among the participants who were doing agriculture, 28.6% and 10.2% participants had moderate and severe type of disability respectively. Among the participants who were doing skilled and unskilled manual work, 16.9% and 12.7% participants had moderate and severe type of disability respectively. Among the participants who were homemakers, 34.4% and 14.5% participants had moderate and severe type of disability respectively.

Gender, religion, occupation and socio-economic status were not found to be significantly associated with disability.

Participants who had completed secondary education were 9.91 times more likely to have severe disability, as compared to participants who had completed tertiary education, which was statistically significant with $p = 0.049$.

As compared to other occupations, agriculturists were 0.17 times likely to have moderate type of disability and 0.054 times likely to have severe disability that is 83% and 94.65 times less likely to have moderate and severe type of disability respectively, which were statistically significant with $p = 0.025$ & $p = 0.002$.

As compared to SES V, SES III were 2.79 times more likely to have mild type of disability and 4.255 times more likely to have severe disability, which were statistically significant with $p = 0.05$ & $p = 0.05$.

27.5% participants had any one health condition. Majority of them were suffering from vision problems, followed by back pain, hypertension, diabetes and arthritis. Having

any health problem and a greater number of health conditions (p=0.000) was significantly associated with disability.

Prevalence of use of assistive technology was 9.75% among PWDs. Prevalence of partial unmet need and complete unmet need of assistive technology was 17.94% and 7.76% respectively.

Two third participants (67%) had visited private hospital for consultation when fell sick, followed by one third (33%) participants had visited public hospital for consultation. 52.75% participants were satisfied with availability of health care services.

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ANNEXURE – I

K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed – to- be- University)
Accredited 'A+' Grade by NAAC in (3rd Cycle) Placed in Category 'A' by MHRD (GoI)
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Ref No.MDC/JNMCIEC/81 **Date: 27/09/2022**

To,

REG. NO: BD0121005
PG Student in Community Medicine,
J. N. Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITY BASED CROSS SECTIONAL STUDY."** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

(Dr. Smita Sonoli)
Member Secretary
JNMC Institutional Ethics Committee
J.N.Medical College, Belagavi.

(Dr. Harsha Hegde)
Chairman,
JNMC Institutional Ethics Committee
J.N.Medical College, Belagavi

ANNEXURE – I I

INFORMED CONSENT FORM

TITLE: "DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITY BASED CROSS SECTIONAL STUDY"

Objective:

You are being invited to participate in the present study to estimate the prevalence of disability among adults and to identify sociodemographic and environmental factors associated with disability. This study will be carried out in the rural field practice area of Kinaye in Belagavi.

Introduction:

Now a days disability in populations is increasing tremendously especially rise in non-communicable diseases and rapid ageing. Apart from health conditions, physical, human built and sociopolitical barriers etc., also can influence disability. Interventions are essential for improving functioning of individuals. You are being invited to participate in this study, which will be conducted to know the prevalence of disability among adults in the rural field practice area of Kinaye Belagavi.

Explanation of procedure:

In this study, you will have to answer a few pre-designed questions about your socio-demographic details and about functioning, capacity and health conditions, environmental factors. The entire procedure may take 20-30 minutes. If you agree to participate, the required information will be collected**.**

Withdrawal from participation in the study: Participation in this study is voluntary. You will be free to decide whether to participate in this study or continue participation once

enrolled. In case you decide to withdraw your participation, you are free to do so. Even if you withdraw from the study, care provided to you will not be halted. However, please convey the decision to the principal investigator.

Possible benefits from participating in the study: You will/will not have nor get any benefits by participating in this study. The data gathered will help the population at large.

Possible risks from participating in the study: There are no risks involved in participating in this study.

Privacy and confidentiality: The information collected from you will be coded, to prevent any person from identifying you. Your identity will never be revealed. The data collected from you will be kept confidential and only processed or aggregated data will be used for publication.

Financial incentives: You will not receive any payment for participating in this study.

Authorization for publication of aggregated data: Results obtained after processing of the aggregated data will be published for scientific purposes and or presented to scientific groups. However, your identity will never be revealed.

Legal rights: By signing this consent form, we are not waiving any of your legal rights.

CONSENT STATEMENT

I am making a voluntary decision to participate in the study **"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITY BASED CROSS SECTIONAL STUDY"**. My signature below indicates that I have decided to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the participant:

Signature or left thumb impression of the participant:

Name of the witness:

Signature or left thumb impression of the witness:

Name of the investigator:

Signature of the investigator:

Date:

Place:

ANNEXURE – III

QUESTIONNAIRE

"DISABILITY AMONG ADULTS RESIDING IN RURAL AREA – A COMMUNITAY BASED CROSS SECTIONAL STUDY"

(Note: The personal data provided by you will be kept confidential. Only aggregated results will be presented /published, without revealing your personal identity)

SL.NO: Date of Interview:

SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1.Name:

2.Age (years):

3.Gender: Male

Female

4. Education level: Elementary or less

Secondary

Tertiary

5. Marital status: Single/never married

Married/domestic partner

Separated/divorced

Widowed

6. Employment status: No

Employed full time for self

Employed part time do not want full time

Unemployed

Employed part time want full time

Out of workforce

7. Religion: Hinduism Christian Islam

Other

8. Total number of family members:

9. Total income of family members per month:

10. Per capita income:

11. Socioeconomic status: (Modified BG prasad classification)

Class I / Class II / Class III / Class IV / Class V

SECTION 2: ENVIRONMENTAL FACTORS

1. Persons satisfied with selected physical aspects of the environment-

Dwelling / Transportation / Shops, banks, post office / Places for socializing

SECTION 3: FUNCTIONING

In the next questions, I want to understand the kinds of problems you experience in your life. By problems I mean not getting things done in the way you want to or not getting them done at all. These problems may arise because of your health or because of the environment in which you live. They may also arise because of the attitudes or behaviours of people around you. Please think about the last 30 days, taking both good and bad days into account. For

each question, please tell me how much of a problem is it for you on a scale from 1 to 5. 1 means no problem and 5 means extreme problem. Please take into account your health and people who help you, any assistive devices you use or any medication you take.

1 No problem at all, 2 Only a little problem, 3 SW of a problem, 4 A problem,

5 Extreme problem/ cannot do at all, 8 Don't know, 98 Not applicable

1. How much of a problem is walking a kilometre for you? 1 2 3 4 5 8

2. How much of a problem is getting where you want to go for you? 1 2 3 4 5 8

3. How much of a problem is being clean and dressed? 1 2 3 4 5 8

4. How much of a problem is toileting? 1 2 3 4 5 8

5. How much of a problem is looking after your health, eating well, exercising or taking your medicines? 1 2 3 4 5 8

6. How much of a problem is feeling tired and not having enough energy? 1 2 3 4 5 8

7. How much of a problem is coping with all the things you have to do? 1 2 3 4 5 8

8. How much of a problem is remembering to do the important things in your day-to-day life? 1 2 3 4 5 8

9. How much of a problem do you have with getting your household tasks done? 1 2 3 4 5 8

10. How much of a problem do you have with joining community activities, such as festivities, religious or other activities? 1 2 3 4 5 8

11. How much of a problem is using public or private transportation? 1 2 3 4 5 8

12. How much of a problem is getting things done as required at work? 1 2 3 4 5 8 98

SECTION 4: CAPACITY & HEALTH CONDITIONS

I have asked you many questions about kinds of problems you experience in your life. The next questions ask about difficulties you may have doing certain activities only because of your HEALTH. Please think about the last 30 days taking both good and bad days into account.

1	2	3	4	5
Very good	Good	Moderate	Bad	Very bad

1. I will start with a question about your overall health, including your physical and your mental health:

In general, how would you rate your health today? 1 2 3 4 5

The next questions ask about difficulties you may have doing certain activities because of a HEALTH PROBLEM. I want you to answer the following questions on a scale from 1 to 5 where 1 means no difficulty and 5 means you cannot do the activity. Please answer these questions WITHOUT taking into account any help.

1 No difficulty, 2 A little bit, 3 Moderate amount, 4 A lot, 5 Extreme or unable

2. How much difficulty do you have seeing things at a distance [without glasses]? 1 2 3 4 5

3. How much difficulty do you have hearing [without hearing aids]? 1 2 3 4 5

4. How much difficulty do you have walking or climbing steps? 1 2 3 4 5

5. How much difficulty do you have remembering or concentrating? 1 2 3 4 5

6. How much difficulty do you have washing all over or dressing? 1 2 3 4 5

7. How much difficulty do you have sleeping because of your health? 1 2 3 4 5

8. How much difficulty do you have doing household tasks because of your health?

1 2 3 4 5

9. Because of your health, how much difficulty do you have with joining community activities, such as festivities, religious or other activities? 1 2 3 4 5

10. How much difficulty do you have with feeling sad, low, worried or anxious because of your health? 1 2 3 4 5

11. Because of your health, how much difficulty do you have getting along with people who are close to you, including your family and friends? 1 2 3 4 5

12. How much bodily aches or pain do you have? 1 2 3 4 5

13. Do you currently have any of these diseases or health problems? circle all mentioned diseases or health problems.

1) Vision loss 2) Hearing loss 3) High Blood Pressure (Hypertension)

4) Heart disease, Coronary Disease, Heart Attack 5) Stroke 6) Diabetes

7) Arthritis or arthrosis 8) Chronic Bronchitis or Emphysema

9) Asthma, allergic respiratory disease 10) Back pain or disc problems

11) Depression 12) Anxiety 13) Amputation

14) Trauma, Interviewer: relates to road traffic accidents or events/accidents in the home or school that resulted in bodily injury limiting activities

15) Tinnitus (ringing, roaring, or buzzing in your ears that lasts for 5 minutes or longer over the last 12 months)

16) Others

14. Individual reporting one or more health conditions: No reported health conditions

≥ 1 health conditions

15. Individuals reporting two or more health conditions: ≤ 1 health conditions

≥ 2 health conditions

16. Is satisfied with availability of health care in the city or area one lives:

Satisfied Dissatisfied

SECTION 5: PERSONAL ASSISTANCE AND ASSISTIVE PRODUCTS

1. Do you have someone to assist you with your day-to-day activities at home or outside? 1 YES | 5 NO | If 5, go 3
2. Do you think you need additional assistance with your day-to-day activities at home or outside? 1 YES | 5 NO, Go to 4
3. Do you think you need someone to assist you? 1 YES | 5 NO
4. Do you currently use any of these assistive products?

circle all mentioned products. 1 YES | 5 NO, if 5, go to 6

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

5. In addition to what you use, do you think you need any other assistive products? Which ones?

circle all mentioned products.

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

6. You told me you do not use assistive products. Do you think you need any of these? circle all mentioned products.

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

SECTION 6: HEALTH CARE UTILISATION

1. Where did you go most often when you felt sick or needed to consult someone about your health? i) Public (govt) hospital ii) Private hospital iii) Pharmacy

2. What was the main reason you needed care, even if you did not get care?

i) Communicable diseases

ii) Maternal and perinatal conditions

iii) Nutritional deficiencies

iv) Acute conditions (diarrhoea, fever, flu, headache, cough, other)

v) Injury

vi) Surgery

vii) Sleep problems

viii) Occupation/ work related condition/injury

ix) Chronic pain in joints

x) Diabetes or related complications

xi) Problems with your heart

xii) Problems with your mouth, teeth or swallowing

xiii) Problems with your breathing

xiv) High blood pressure/ hypertension

xv) Strokes/ sudden paralysis of one side of body

xvi) Generalised pain

xvii) Depression or anxiety

xviii) Cancer

xix) Other

3. How satisfied are you with how the health care services are run in your area?

1 Very satisfied, 2 Satisfied, 3 Neither satisfied nor dissatisfied, 4 Dissatisfied, 5 Very dissatisfied

ANNEXURE – IV

SUPPLEMENTARY FILES

Name of the villages in Desur subcenter	Total no. of households registered in one year (2022)	Calculation for proportionate sampling	No. of households selected for study	Sampling interval (K^{th} household)
Desur	884	884/1114*33	26	34
Z.shahpur	230	230/1114*33	7	32
Total	**1,114**		**33**	

Name of the villages in Karle subcentre	Total no. of households registered in one year (2022)	Calculation for proportionate sampling	No. of households selected for study	Sampling interval (K^{th} household)
Karle	259	259/930*28	8	33
Janewadi	92	92/930*28	3	30
Navage	277	277/930*28	8	34
Bamanwadi	87	87/930*28	2	43
Balagmatti	100	100/930*28	3	33
Kuttalwadi	115	115/930*28	4	28
Total	**930**		**28**	

Name of the households in Khadarwadi subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Khadarwadi	861	861/2125*64	26	33
Devendra Nagar	229	229/2125*64	7	32
Brahma Nagar	207	207/2125*64	6	34
Hanuman Nagar	191	191/2125*64	6	31
R.R Nagar	196	196/2125*64	6	32
Hunchanatti	441	441/2125*64	13	33
Total	**2,125**		**64**	

Name of the villages in Kinaye subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Kinaye	417	417/918*28	13	32
Bhadarwadi	260	260/918*28	8	32
Ranakunde	241	241/918*28	7	34
Total	**918**		**28**	

Name of the villages in Machhe-II subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Machhe-II	1,427	1427/2640*80	43	33
Tippu Nagar	1,213	1213/2640*80	37	32
Total	**2,640**		**80**	

Name of the village in Peeranwadi subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Peeranwadi	2,149	2149/2149*65	65	33
Total	**2,149**		**65**	

Name of the villages in S.Bastwad subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Santibastwad	1,081	1081/1316*40	33	33
Kalenatti	118	118/1316*40	4	29
Basveshwar Nagar	117	117/1316*40	3	39
Total	**1,316**		**40**	

Name of the villages in Waghwade subcentre	**Total no. of households registered in one year (2022)**	**Calculation for proportionate sampling**	**No. of households selected for study**	**Sampling interval (K^{th} household)**
Waghwade	567	567/1103*33	17	33
Walmiki Nagar	65	65/1103*33	2	32
Markhande Nagar	471	471/1103*33	14	33
Total	**1,103**		**33**	

ANNEXURE – V

KEY TO MASTER CHART

A. Sl. No _____

B. Gender:

1 – Male, 2 - Female

C. Age group (years):

1 – 18-30, 2 – 30-40, 3 – 40-50, 4 – 50-60

D. Education level:

1 – Elementary or less, 2 – Secondary, 3 – Tertiary

E. Marital status:

1 – Single, 2 – Married/domestic partner, 3 – Separated/divorced, 4 – Widowed

F. Occupation:

1 – Agriculture / Farmer

2 – Skilled and unskilled manual

3 – Home maker

4 – Others

G. Religion:

1 – Hindu, 2 – Islam, 3 – Christian, 4 – Other

H. Socioeconomic status: (As per modified B.G Prasad's classification)

1 – Class I, 2 – Class II, 3 – Class III, 4 – Class IV, 5 – Class V

I. Persons satisfied with selected physical aspects of the environment

1 – Dwelling, 2 – Transportation, 3 – Shops, banks, post office, 4 – Places for socializing

1 No problem at all, 2 Only a little problem, 3 SW of a problem, 4 A problem,

5 Extreme problem/ cannot do at all, 8 Don't know, 98 Not applicable

J. How much of a problem is walking a kilometre for you? 1 2 3 4 5 8

K. How much of a problem is getting where you want to go for you? 1 2 3 4 5 8

L. How much of a problem is being clean and dressed? 1 2 3 4 5 8

M. How much of a problem is toileting? 1 2 3 4 5 8

N. How much of a problem is looking after your health, eating well, exercising or taking your medicines? 1 2 3 4 5 8

O. How much of a problem is feeling tired and not having enough energy? 1 2 3 4 5 8

P. How much of a problem is coping with all the things you have to do? 1 2 3 4 5 8

Q. How much of a problem is remembering to do the important things in your day-to-day life?

1 2 3 4 5 8

R. How much of a problem do you have with getting your household tasks done?

1 2 3 4 5 8

S. How much of a problem do you have with joining community activities, such as festivities, religious or other activities? 1 2 3 4 5 8

T. How much of a problem is using public or private transportation? 1 2 3 4 5 8

U. How much of a problem is getting things done as required at work? 1 2 3 4 5 8 98

V. Functioning score: _____

W. Prevalence of Disability:

1 – No, 2 – Mild, 3 – Moderate, 4 – Severe

1 2 3 4 5

Very good Good Moderate Bad Very bad

X. In general, how would you rate your health today? 1 2 3 4 5

1 No difficulty, 2 A little bit, 3 Moderate amount, 4 A lot, 5 Extreme or unable

Y. How much difficulty do you have seeing things at a distance [without glasses]? 1 2 3 4 5

Z. How much difficulty do you have hearing [without hearing aids]? 1 2 3 4 5

AA. How much difficulty do you have walking or climbing steps? 1 2 3 4 5

AB. How much difficulty do you have remembering or concentrating? 1 2 3 4 5

AC. How much difficulty do you have washing all over or dressing? 1 2 3 4 5

AD. How much difficulty do you have sleeping because of your health? 1 2 3 4 5

AE. How much difficulty do you have doing household tasks because of your health?

1 2 3 4 5

AF. Because of your health, how much difficulty do you have with joining community activities, such as festivities, religious or other activities? 1 2 3 4 5

AG. How much difficulty do you have with feeling sad, low, worried or anxious because of your health? 1 2 3 4 5

AH. Because of your health, how much difficulty do you have getting along with people who are close to you, including your family and friends? 1 2 3 4 5

AI. How much bodily aches or pain do you have? 1 2 3 4 5

AJ. Capacity score

AK. Prevalence of loss of capacity level:

1 – No, 2 – Mild, 3 – Moderate, 4 – Severe

AL. Do you currently have any of these diseases or health problems?

1) Refractive errors (Vision problem)

2) High Blood Pressure (Hypertension)

3) Heart disease, Coronary Disease, Heart Attack

4) Diabetes

5) Arthritis or arthrosis

6) Back pain or disc problems

7) OTHERS

8) None

9) Hypertension and Arthritis

10) Hypertension and Diabetes

11) Heart problem and Diabetes

12) Vision problem and Hypertension

13) Back pain and Hypertension

14) Vision problem and Back pain

15) Vision problem and Diabetes

16) Vision problem, Diabetes and Hypertension

17) Amputation (Trauma)

AM. Refractive errors

1 – Yes, 2 – No

AN. Hypertension

1 – Yes, 2 – No

AO. Heart problem

1 – Yes, 2 – No

AP. Diabetes

1 – Yes, 2 – No

AQ. Arthritis

1 – Yes, 2 – No

AR. Back pain

1 – Yes, 2 – No

AS. ≥ one health conditions

1 – YES, 2 – NO

AT. ≥ two health conditions

1 – YES, 2 – NO

AU. Do you have someone to assist you with your day to day activities at home or outside?

1 – YES, 2 – NO, IF 2, GO TO AW

AV. Do you think you need additional assistance with your day to day activities at home or outside? 1 YES | 2 NO

AW. Do you think you need someone to assist you? 1 YES | 2 NO

AX. Do you currently use any of these assistive products, IF 1 GO TO AZ

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

AY. In addition to what you use, do you think you need any other assistive products? Which ones?

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

AZ. You told me you do not use assistive products. Do you think you need any of these?

1) None 2) Canes or Sticks 3) Crutches, axillary or elbow

4) Orthoses, lower limb, upper limb or spinal 5) Pressure relief cushions

6) Prostheses, lower limb 7) Rollators 8) Standing frames, adjustable

9) Therapeutic footwear; diabetic, neuropathic, orthopaedic 10) Tricycles

11) Walking frames or walkers 12) Wheelchair

13) Spectacles; low vision, short distance, long distance, filters and protection

14) White cane 15) Hearing aids 16) Others

BA. Where did you go most often when you felt sick or needed to consult someone about your health?

1 – Public (govt) hospital, 2 – Private hospital

BB. What was the main reason you needed care, even if you did not get care?

1) Communicable diseases

2) Maternal and perinatal conditions

3) Nutritional deficiencies

4) Acute conditions (diarrhoea, fever, flu, headache, cough, other)

5) Injury

6) Surgery

7) Sleep problems

8) Occupation/ work related condition/injury

9) Chronic pain in joints

10) Diabetes or related complications

11) Problems with your heart

12) Problems with your mouth, teeth or swallowing

13) Problems with your breathing

14) High blood pressure/ hypertension

15) Strokes/ sudden paralysis of one side of body

16) Generalised pain

17) Depression or anxiety

18) Cancer

19) Other

BC. Is satisfied with availability of health care in the city or area one lives:

1 – Satisfied, 2 – Neither satisfied nor dissatisfied

Sl. No	Gender	Age group	Education level	Marital status	Occupation	Religion	Socioeconomic status	Persons satisfied with selected physical aspects of the environment	How much of a problem is walking a kilometre for you	How much of a problem is getting where you want to go for you	How much of a problem is being clean and dressed	How much of a problem is toileting	How much of a problem is looking after your health, eating well, exercising or taking your medicines	How much of a problem is feeling tired and not having enough energy	How much of a problem is coping with all the things you have to do	How much of a problem is remembering to do the important things in your day-to-day life	How much of a problem do you have with getting your household tasks done	How much of a problem do you have with joining community activities, such as festivals, religious or other activities	How much of a problem is using public or private transportation	How much of a problem is getting things done as required at work	Functioning score	Prevalence of Disability	In general, how would you rate your health today	How much difficulty do you have seeing things at a distance [without glasses]	How much difficulty do you have hearing [without hearing aids]	How much difficulty do you have walking or climbing steps	How much difficulty do you have remembering or concentrating	How much difficulty do you have washing all over or dressing	How much difficulty do you have sleeping because of your health	How much difficulty do you have doing household tasks because of your health
1	2	1	2	2	3	2	4	2	1	2	2	2	2	2	3	2	2	3	2	0	23	4	2	1	1	2	2	1	2	2
2	2	2	2	2	3	2	2	2	1	2	1	1	2	2	2	1	1	2	1	0	16	3	2	1	1	1	2	1	1	1
3	2	1	2	2	3	2	4	4	1	2	1	1	1	1	2	1	1	1	1	0	13	2	1	1	1	1	1	1	1	1
4	2	1	1	2	3	2	3	2	1	2	2	2	3	2	2	2	1	2	1	0	20	4	2	1	1	1	2	1	2	1
5	2	1	1	2	3	2	4	2	1	2	2	2	1	1	1	2	1	1	2	0	16	3	2	1	1	2	2	1	2	2
6	2	3	2	2	3	2	3	1	3	2	2	2	2	2	1	2	2	2	1	0	21	4	3	1	1	2	2	2	2	2
7	2	2	2	2	3	2	3	2	2	2	2	2	3	2	2	2	1	2	1	0	21	4	2	1	1	1	2	1	1	2
8	2	2	1	2	3	2	3	3	2	3	2	2	3	2	2	2	1	3	2	0	24	4	2	1	1	1	2	1	2	2
9	2	2	1	2	2	2	3	1	1	2	1	1	3	2	2	2	2	2	2	0	20	4	2	1	1	1	2	2	2	2
10	1	4	1	2	2	2	3	2	2	3	3	3	3	2	2	3	2	3	2	0	28	4	2	1	1	2	2	2	3	2
11	1	4	2	2	4	1	4	1	2	2	2	2	3	3	3	2	2	2	2	0	25	4	3	1	1	2	2	2	2	2
12	1	4	2	2	4	1	4	1	2	2	2	2	3	3	3	2	2	2	2	0	25	4	3	1	1	1	2	2	2	2
13	2	1	3	2	3	1	4	4	1	1	1	1	1	2	2	2	2	1	2	0	16	3	2	1	1	1	2	1	1	2
14	2	4	2	2	3	1	2	1	2	2	2	2	3	3	2	2	2	2	2	0	24	4	2	2	2	2	2	2	3	2
15	1	3	2	1	2	1	4	1	2	2	2	2	3	3	3	2	3	2	2	0	26	4	4	1	1	2	1	2	2	2
16	2	3	1	2	2	1	4	1	2	1	1	1	2	2	2	2	3	2	2	0	20	4	2	1	1	2	2	2	2	2
17	2	3	2	2	3	1	5	1	1	1	1	1	2	2	2	2	2	2	2	0	18	3	2	1	1	1	2	2	1	2
18	2	2	2	2	3	1	4	1	1	1	1	1	1	2	2	1	2	1	2	0	15	2	1	1	1	1	2	1	1	1
19	2	1	3	2	3	1	3	2	1	1	1	1	1	1	1	1	1	1	1	0	11	1	1	1	1	1	2	1	1	2
20	2	3	1	2	3	1	5	1	1	2	1	1	2	2	2	2	2	2	2	0	19	3	2	1	1	1	2	1	2	2
21	2	3	2	4	4	1	5	1	1	2	1	1	2	2	2	2	2	2	2	0	19	3	2	1	1	1	2	2	2	2
22	2	4	1	2	3	1	4	1	2	2	2	2	3	3	2	2	2	2	2	0	24	4	2	1	1	2	2	2	2	2
23	1	2	2	2	2	1	4	4	1	1	1	1	1	1	2	1	2	1	2	0	14	2	2	1	1	1	2	1	2	2
24	2	3	2	2	3	1	1	1	1	2	1	1	2	2	2	2	2	2	2	0	19	3	2	1	1	1	2	1	2	2
25	2	2	1	2	3	1	4	1	1	1	1	1	2	2	2	2	2	2	2	0	18	3	2	1	1	1	2	1	1	2
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Sl. No	Because of your health, how much difficulty do you have with joining community activities such as festivities, religious or other activities	How much difficulty do you have with feeling sad, low, worried or anxious because of your health	Because of your health, how much difficulty do you have getting along with people who are close to you, including your family and friends	How much bodily aches or pain do you have	Capacity score	Capacity classification	Do you currently have any of these diseases or health problems	Refractive errors (Vision problems)	Hypertension	Heart problem	Diabetes	Arthritis	Back pain	≥ one health conditions	≥ two health conditions	Use of AT	Do you think you need additional assistance with your day to day activities at home or outside	Do you think you need someone to assist you	Do you currently use any of these assistive products	In addition to what you use, do you think you need any other assistive products	You told me you do not use assistive products. Do you think you need any of these	Where did you go most often when you felt sick or needed to consult someone about your health	What was the main reason you needed care	Is satisfied with availability of health care in the city or area one lives
1	3	3	2	2	21	4	8	2	2	2	2	2	2	2	2	2		2	1		1	2	4	2
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