

Needs Assessment of the Elderly People in a Rural Community in Coimbatore

**A Dissertation Submitted to the Tamilnadu Dr. MGR Medical
University, Chennai in Partial Fulfillment of Requirement for the
Degree of M.D. in Community Medicine (Branch XV)**

2006



By

Dr. T. Ashokkumar

Guide

Dr. Thomas V Chacko M.D

**Department of Community Medicine
PSG Institute of Medical Sciences and Research
Peelamedu, Coimbatore - 641004**

Needs Assessment of the Elderly People in a Rural Community in Coimbatore

**A Dissertation Submitted to the Tamilnadu Dr. MGR Medical
University, Chennai in Partial Fulfillment of Requirement for the
Degree of M.D. in Community Medicine (Branch XV)**

2006

By

Dr. T. Ashokkumar

Guide

Dr. Thomas V Chacko M.D



**Department of Community Medicine
PSG Institute of Medical Sciences and Research
Peelamedu, Coimbatore – 641004**

CERTIFICATE

This is to certify that the dissertation entitled “**Needs Assessment of the Elderly People in a Rural Community in Coimbatore**” is the bonafide work of **Dr. T. Ashokkumar**, in the Department of Community Medicine, PSG Institute of Medical Sciences and Research, Peelamedu, Coimbatore, in partial fulfillment of requirement for the Degree of M.D. in Community Medicine from the Tamilnadu Dr. MGR Medical University, Chennai.

Prof. Dr. Thomas V Chacko

Guide & H.O.D

Department of Community Medicine

Dr.N. Radhakrishnan

Principal

PSG INSTITUTE OF MEDICAL SCIENCES AND RESEARCH

COIMBATORE

Place:

Date:

ACKNOWLEDGEMENT

I wish to express my deep sense of gratitude to my guide Dr. Thomas. V Chacko, Professor and HOD, Department of community medicine, for his valuable guidance, continuous encouragement and support with personal interest which made my dissertation to see the light of the day.

I am extremely obliged to Dr. Subramaniyan, Professor, for his generous contribution, thoughtful suggestions and judgment.

I express my heartfelt gratitude to Dr. S.L. Ravishankar, Professor, whose thoughts, ideas, suggestions and constant encouragement were instrumental in the completion of the study.

I am very much thankful to Dr. Anil C Mathew, Associate professor in Biostatistics, for teaching me statistical methods.

I express my sincere thanks to Dr. R. Rajkumar, Associate Professor, for his consistent help and blessings.

I express my gratitude to Dr. R. Meera, Assistant Professor, for her valuable suggestions throughout the study.

I wish to express my special thanks to Dr. Y.S. Sivan, Senior Lecturer, for his valuable suggestions throughout the study.

I express my heartfelt thanks to Dr. K.S. Sudha, PG Student, for her valuable suggestions and inputs for improvement.

I wish to extend my gratitude to all Assistant professors, Dr. Shakila Rani, and all staff in my department for their continuous encouragement and support at every stage of the study.

I am grateful for the support extended by the field staff of Vedapatti, RHC, for their help during data collection.

At last but not least I would like to thank my parents, brother and all my family members for their immense support and encouragement in many ways to complete this study.

Abbreviations used in this document

ADL	-	Activities of Daily Living
CANE	-	Camberwell Assessment of Need for the Elderly
C.I.	-	Confidence Interval
DI	-	Disability Index
HAQ	-	Health Assessment Questionnaire
IADL	-	Instrumental Activities of Daily Living
NGO	-	Non Governmental Organization
NOAPS	-	National Old Age Pension Scheme
OR	-	Odds Ratio
PPS	-	Probability Proportional to Size
SPSS	-	Statistical Package for the Social Sciences
UN	-	United Nations
WHO	-	World Health Organization

List of Tables and Figures

1. Tables

Table Number	Title	Page number
I.A	Village wise distribution of elderly people	33
I.B	Age - sex distribution of the study population	34
I.C	Marital Status of the elderly	34
I.D	Educational Status of the Elderly	35
I.E	Living Arrangements	36
I.F	Distribution of elderly by Financial Status	36
II.A	Sex-wise distribution of physical disabilities	37
III.C	Age-wise distribution of physical disabilities	38
III.A	Morbidity profile of the elderly	39
III.B	Morbidity load among the elderly	40
IV.A	Needs - Unmet and Met needs in physical disabilities the among study population	41

IV.B	Distribution of unmet needs in physical disabilities among males and females	42
V	Distribution of Needs among the elderly as assessed by Camberwell Assessment of Need for the Elderly	43-44
VI	Predictors of Unmet Needs in Physical Disabilities	45-46

2. Figures

Number	Title	
1.	Distribution of villages within the catchment area of proposed Day Care Centre	facing 24
2.	Distribution of the elderly by living arrangement	facing 36
3.	Distribution of elderly by Financial Status	facing 36

1. INTRODUCTION

All over the world the life expectation of people is increasing. Population ageing is the result of demographic transition with reduction in fertility leading to decline in the proportion of young in the population and at the same time there is increasing longevity. It indicates the triumph of public health and advancement of medical technology; this demographic transition is under way throughout the world. Unfortunately, the rapidity of population ageing is expected to continue to outpace social and economical development in developing countries particularly in countries like India.

Today, worldwide, there are some 600 million persons aged 60 and over; this total will double by 2025 and will reach virtually two billion by 2050 when there will be more people aged 60 and over than children under the age of 15.¹

From a mere 5.1% in 1901, the elderly will become 21% of the population by the year 2050, estimates a United Nations projection. Most of them will be living in developing countries which are often least prepared to meet the challenges of rapidly ageing societies. In other words WHO says *“Developing countries will become old before they become rich while industrialized countries became rich while they were growing old.”*

Problems of the Elderly

There are plenty of health and social problems that have been addressed by different authors all over the world. The major health problems of older people are chronic, non-communicable diseases and disabilities. Any strategy designed to improve the health of older people requires a firm understanding of the factors that contribute to the development of these diseases. The health of the elderly is not only affected by medical determinants but also affected by their behaviour and by the wider environment in which they live. Values, beliefs and traditions play a central role in the health behaviour of older people and in the opportunities available to them to adopt healthy modes of behaviour.

Old age is not a disease by itself, but the elderly are vulnerable to long term diseases of insidious onset such as cardiovascular illness, cerebrovascular accidents, cancers, diabetes, musculoskeletal and mental illnesses. They have multiple symptoms due to decline in the functioning of various body functions and abilities.

Health also has a social context. Health and ill-health are socially distributed – the higher in the social hierarchy people are, the healthier they tend to be. The more socially disadvantaged people are, the more likely they are to suffer from disease and disabilities. Social position affects health for two main reasons: poverty and disempowerment. Poverty is a strong predictor of poor

health: the poorer people are, the more likely they are to suffer from ill-health – at any stage in the life course, including later life. It has been shown that older people in poverty have a much lower level of functioning than those who are financially well off. Poverty has especially important implications for health in later life. Poverty throughout the life course has a cumulative effect, whereby many of the impacts are especially evident in later life. Furthermore, poverty is more common among older people and this means that the capacity of older people to deal with health problems is more pronounced than among younger age groups. Social position also affects health because it is linked with social isolation, disempowerment and a loss of control over one's life. The less people feel in control of their own life and future, the less likely they are to engage in health-promoting behaviour. These two factors, poverty and disempowerment, affect health through a variety of means.

In this context, Health being a fundamental human right, our goal should not be solely to extend lives in the physical sense, but to ensure that the added years are worth living with diminishing handicaps and disabilities, and with a greater degree of health security.

The Elderly in India

India, a sub-continent that carries 15 percent of the world's population, is gradually undergoing a demographic change as a result of many factors including implementation of specific development programs. With decline in fertility and

mortality rates accompanied by an improvement in child survival and increased life expectancy, the major impact of demographic changes is population ageing i.e progressive increase in the number of elderly persons. In France, it took 120 years for the grey population to double from 7 % to 14 %. But in India, the grey population has doubled in 25 years!

The Indian aged population is currently the second largest in the world, next to China. The absolute number of the over 60 population in India will increase from 76.6 million in 2001 to 137 million by 2021. From 5.4 percent in 1951, the proportion of 60 years and above people grew to 6.4 per cent in 1981 and 7.8 per cent in 2001. The decadal percent growth in the elderly population for the period 1991-2001 would be close to 40, more than double the rate of increase for the general population.

Societal Implications on Ageing

a. The Family

In India the traditional family system is a Joint family system. The responsibility of caring for the elderly is traditionally that of the immediate family, and most often by the sons and the elderly population depends heavily on the family for economic and emotional support. Migration of younger people to a more urban locality and foreign countries to pursue opportunities for employment and adventure, the emergence of nuclear families, single parent families, female-

headed households and dual earner families disrupted the traditional family norms. The community used to play a major role in the caring for aged by reinforcing the ability of the family to offer a caring environment. As a result of urbanization there is increasing lack of community support for elderly, which was in practice in the past. These factors have contributed to the deteriorated care system of the aged in India.

b. Care Services for Older Persons in Our Country

Government has taken various policies in favour of older persons. Various health care services are made available for elderly. Non-Governmental organizations such as Help Age India, Association of care of the aged, Hyderabad, Age-Care India, New Delhi, Geriatric Society of India, Lady Harding Medical College, New Delhi and Association of Gerontology (India), S.V. University, Tirupathi are playing a significant role by providing the following services

- Geriatric Out Patient Care.
- Mobile Medicare Units - Health Care at their door step.
- Day Care Centres.
- Old age homes.

Available Social Security Systems for the elderly²

Under standardized economic security policies, government is covering retirement benefits for those in the organized sector, some of them are,

i) Old Age Pension for the General Public

National Old Age Pension Scheme (NOAPS)

Old Age Pension Scheme in different States

Senior Citizens Saving Scheme

(ii) Social Security Scheme for Unorganized Sector

(iii) Annapurna

(iv) Post Retirement Benefits

a) Pension

Central Government Employees

Employees permanently absorbed in Public

Sector undertakings/autonomous bodies

(b) Family Pension

Central Government Employees

Employees permanently absorbed in Public Sector

undertakings/autonomous bodies

(c) Gratuity

(d) Dearness Relief

- e) Central Government Employees Group Insurance Scheme
- (f) General Provident Fund

Other available Social security system provided by NGOs like Help Age India (Advocacy etc..)

Most of these Social Security Systems are for the Organized Sectors especially living in rural areas, **Help age India**³ says 90% of older persons are from the unorganized sector, with no social security at the age of 60.

They also highlighted the following,

30% of older persons live below the poverty line and another 33% just marginally over it.

73% are illiterate, and can only be engaged in physical labor.

55% of women over 60 years are widows, many of them with no support whatsoever

80% live in rural areas.

The Need for a Needs Assessment Study.

Needs assessment is an important issue in public policy and financing of health and support services. Accurate assessments of need for disability assistance are essential for effective planning of disability support services, but there is little national data on type and acuity of need.

Numerous attempts have been made in India over the last few years to estimate the number of elderly who are disabled^{4,5}. Very few studies⁶, however, have been done to assess the extent to which those who are disabled go without the assistance they need. Similarly very few have studied the expectations of elderly and those that did, did not cover all the needs of the elderly.

“PREVENTION IS BETTER THAN CURE” and so to be prepared for providing services to the elderly in the community, we need to know the needs and problems (Health and social) of older people. By establishing their needs and problems, we can be better prepared to tackle the health and social problems among the elderly.

Apart from assessing needs and unmet needs of elderly, it is important to identify the target elders who need the service the most (predictors of unmet need) in order to provide the home based and community care services so that we can ***“Add life to the years not years to the life”***.

2. OBJECTIVES

1. To assess the extent of physical disabilities, the morbidity load and unmet needs in physical disabilities for care of elderly in a rural community.
2. To identify the predictors of unmet needs in physical disabilities of elderly so that they can act as surrogate markers to identify those in need of the services.

3. REVIEW OF LITERATURE

“Ageing is definitely no longer a first world issue. What was a footnote in the 20th century is on its way to becoming a dominant theme in the 21st. (Kofi Annan, UN Secretary General)”¹

Ageing is a privilege and a societal achievement. It is also a challenge, which will have an impact on all aspects of 21st century society. It is a challenge that can not be addressed by the public or private sectors in isolation: it requires joint approaches and strategies. The major health problems of older people are chronic non-communicable diseases and disabilities. Any strategy designed to improve the health of older people requires a firm understanding of the factors (chronic diseases, disabilities) that contribute to the development of these diseases.

The UN defines a country as ‘ageing’ where the proportion of people over 60 reaches 7 per cent. In India, currently 7.8% of the population are elderly and it is expected that this will reach 12.6% in 2025.¹¹

It is true that some diseases are far more common among older people than among younger people and that the risk of developing these diseases and disabilities increases as people grow older. However, this does not mean that these diseases are either a natural or an inevitable part of ageing.⁴⁵ The most

important thing is not whether a disease is caused by intrinsic or extrinsic ageing but whether a health condition is preventable, or at least treatable. Health promotion and disease prevention programmes can only be directed at preventable conditions. It is the role of research scientists to discover the causes of diseases and whether or not they can be treated or prevented.

Measurement of ADL and IADL disability and unmet need for Home and Community Based Services:

Increased health services utilization and long term care needs arise when one or a combination of disease process and physical performance limitations such as bathing, walking etc cause long term or permanent loss of independent function. **“Needs” become “unmet” when assistance from other person or special devices or equipment are unavailable or inadequate.**¹⁸

Most commonly used measures of disability and need are based on subjective reporting of these items, which measure the ability to perform routine task of daily living.

Measures of disability and functional limitation are used for various purposes, including clinical decision making,³⁵ estimates of long term care needs and unmet needs,^{36, 37} and determining eligibility for programme and services.^{35, 38} Each has particular requirements and implications.

There are many ways to measure functional performance limitations. The most common method used among elderly are to assess activities of daily living (ADLs) and Instrumental activities of daily living (IADLs).¹⁸ While the former attempts to measure physical ability to carryout everyday living tasks, the latter measures ability to carryout household management functions.

Tools to assess the physical abilities of elderly:

There are different tools to assess the physical abilities. The important tools being, Katz ADL Scale¹⁹ and Lawton IADL Scale.²⁰ These tools can assess either ADL or IADL but not both. Comprehensive Assessment and Referral Evaluation (CARE)²¹ is a semi structured, multi dimensional interview guide to assess the community resident elderly with a primary focus on psychiatric assessment. It also covers medical, nutritional, and other problems of elderly. In 1981, The WHO has presented an International Classification of Impairment, Disability, and Handicap (ICIDH) and subsequently revised in 2001 to make further explorations in relationship between functioning, disability and health (International Classification of Functioning, Disability, and Health (ICF), WHO, 2001).²²

Other instruments to assess the physical abilities of elderly are Philadelphia Geriatric Center Multilevel Assessment Instrument (MAI),²³ Older Americans Resources and Services (OARS) multidimensional functional assessment questionnaire²⁴ and Sickness Impact Profile (SIP).²⁵

The newly introduced Stanford health assessment questionnaire²⁶ has five domains, “the 5 ‘D’s” namely, Disability, Discomfort, Drug side effects, Dollar costs and Death. The version that has received the widest attention and has been most frequently used is “the short” or 2 page Health Assessment Questionnaire (HAQ),²⁶ which assesses the domain of disability. This tool is used to measure physical disabilities among elderly in present study. It has been, translated and validated in Tamil by the MAPI Research Institute France,²⁷ and measures all the dimensions of physical abilities of elderly. It has gained increased acceptability as a tool to measure physical abilities. The HAQ is usually self-administered, but can also be given face-to-face in a community and clinical setting or in a telephone interview format by trained outcome assessors, and has been validated in these settings.²⁶

Definition of Unmet Need: - As given by the different experts

Just as there is difference of opinion on how best to identify disability, differences also exists with regard to defining unmet need.

As per the definition of Dr. Manton quoted in the article by Mary E Jackson²⁸ the unmet needs in ADL Disability is defined to exist if a person met one of the following criteria:

- Does not perform the activity at all
- Receives no human assistance, does not use an assistive device, but reports needing help and two additional criteria that are ADL-specific:
- Persons who are incontinent (of bowel or bladder) are considered to have an unmet need.

- Those who report (initially) that they do not bathe at all, but later in the interview state that they take a bed/basin/sink bath are not considered as having an unmet need in bathing.

However in the same study by *Mary E Jackson*,²⁸ **SIM 1 and SIM 2 define** the unmet need as “an elderly who receives no human assistance, does not use an assistive device, but reports needing help”.

Jiajian Chen and Russell Wilkins et al⁸ in their study defined the following

Unmet needs for ADL and/or IADL

People needing ADL and/ or IADL assistance, but not receiving help or needing additional help for at least one ADL and/or IADL.

All ADL and/or IADL needs met.

Other people receiving ADL and/or IADL assistance.

The sum of these two categories also equals the population with any need for help.

In general, services can be provided based on the unmet needs in physical disabilities. Williams et al¹⁸ in their study stated that focusing simply on physical functioning limitation sometimes limits our ability to identify target services (the common services they need) and to serve all those in need. In order to overcome it we assessed the common met and unmet needs of elderly by Camberwell Assessment of Need for the Elderly.

Camberwell Assessment of Need for the Elderly ³⁰

The Camberwell Assessment of Need for the Elderly was published on the 30th of June, 2004. This tool covers information about needs and needs assessment for older people. It also includes the completed CANE manual for the full version and short version of the instrument and a training pack. Other chapters of the book detail the application of the CANE in different settings such as, Day Care Hospitals, Primary Care, Sheltered Housing, Long-Term care facilities and Acute Hospital care and its application in foreign countries. In the present study, the shorter version of CANE, which has potential in ***the structured assessment of older people in primary care***, was used. The CANE can be easily used, without extensive training, by a wide variety of professionals including doctors, nurses, clinical psychologists, occupational therapists and social workers, and the reliability remains good when used by different disciplines.

Studies on disability assessment

Kamalesh Joshi et al ⁴ in 2003 studied the elderly people in Chandigarh to assess their functional disabilities and they found a total of 87.5% had minimal to severe disabilities and 66% of elderly people were distressed physically, psychologically, or both. These disabilities are directly related to increase in number of morbidity. In the same study, 51.5% had a history of falling and of these 21.3% suffered bone fracture/joint dislocation and 79.6% received an injury due their physical disabilities.

Kirsten Naumann Murtagh et al¹² conducted survey on “Gender difference in physical disabilities among elderly” in United States of America showed that women compared with similarly aged men were significantly more likely to report functional limitations (Overall 52% vs 37%, $p < .001$) and had significantly greater degree of disability (Overall mean 0.30 vs 0.18). Women also reported limitation in more of the 8 functional categories than did men. They analyzed the role of socio-demographic factors, chronic disease risk factors and health conditions in explaining differences in disability among senior citizens. They identified that women have more physical disabilities compared to their male counterparts.

Another study in Villupuram district, conducted by **Venkatarao et al**⁵ in 2005 to assess the impairments and disabilities, identified 58% of elderly people have at least one disability in their Activities of daily living (ADL) and Instrumental activities of daily living.

David Melzer et al⁴¹ in their study on Profile of disability in elderly people found that 11% of men and 19% of women aged 65 and over were disabled. 38% of these were aged 85 or over and a similar percentage were cognitively impaired. Overall, more than 80% of elderly disabled people needed help on at least a daily basis. Over a third of people with limitations to daily activity living in private households were wholly or partly dependent on formal services for help. 63% of disabled elderly people used acute hospitals during the 2 year follow up, 43% as

inpatients. 53% of those with cognitive impairment and limitations to daily activity were living in institutions.

Studies on needs assessment and predictors of unmet needs

1. Unmet needs in physical disabilities

By Moner Alam et al⁶ assessed the ADL difficulty and assistance required by them in their daily activities from a multistage survey of over 1000 urban households in all the nine administrative districts of Delhi. This study revealed that the unmet needs (persons with difficulty and receiving no help (Disabled/No Help) vary from 1.3% in eating to 24.4% in getting up. They also identified in most of the ADL category women is needed more personal assistance.

Mayur M Desai et al⁷ studied a national representative data of older adults on “Unmet Need for Personal Assistance with Activities of Daily Living among Older Adults” and have opined overall, 48.7% of older adults with ADL difficulties reported needing some sort of personal assistance with one or more ADLs, and, of those individuals with need 20.7% had an unmet need. They also identified in multivariate analysis, respondents ***who had less annual household income, lived alone, and had difficulty in performing an increasing number of ADLs*** were at increased risk of having unmet need for personal assistance.

Alonso et al in 1997⁴⁵ estimated the prevalence of unmet health care needs among the elderly of Barcelona Spain and analyzed the association

between unmet needs and mortality. They identified between 10% and 25% of the elderly in need reported no use of health services. After a median of 60.3 months, those with unmet health care needs presented a higher risk of mortality

Williams et al¹⁸ reviewed the article on “Unmet Long -Term Care Needs of Elderly People in the Community” in 1997 and unmet need range from around 2 percent to about 35 percent of community dwelling elders, depending on what is included or excluded from the definition. They found that ***living alone*** was one of the strongest predictor of unmet need.

Tennstedt et al⁴³ In their study found that, among those with IADL needs, lack or withdrawal of informal care predicted unmet need. However, among those with ADL needs, the predictor of unmet need was a higher level of physical disabilities. They also identified ***living alone appears to be the best predictor*** of unmet need and formal service use.

Otero et al¹⁴ conducted study on community dwelling Spanish elderly on assessing the unmet home care needs and they reported overall, 14, 39, and 50% of subjects reported dependency for daily, weekly and monthly activities, respectively. Of these, 40, 27, and 12% reported receiving inadequate assistance. By applying logistic regression they identified unmet needs were strongly associated with ***low monthly income, low educational level, living alone, and symptoms of depression***. Families were the exclusive source of almost all assistance provided, few persons reporting the use of additional formal community care sources.

2. By Using CANE

Orrell M et al¹⁵ conducted a feasibility study of CANE in primary care in 2000 in United Kingdom and they compared needs identified by patients, carer and health professional and they found patient most frequently felt eyesight/hearing, psychological distress and incontinence as their unmet needs. They suggested CANE schedule is a feasible tool to use in primary care and they can identify perceived needs not previously known about by health professional. They also suggested more needs assessment of elderly to be carried out in primary care to improve survival and quality of life of elderly persons.

Walters K et al¹⁶ by using CANE, conducted study among the elderly in United Kingdom to identify elderly patients', carers' help seeking behaviour and perceived barrier to unmet needs. They identified A total of 55/84 (65.5%) of patients and 15/17 (88%) of carers completed the initial needs assessment. For 104 unmet needs identified by 31 patients and 11 carers, a further interview was completed on the barriers to meeting that need. Help had been sought for only 25/104 (24%) of unmet needs and it had been offered in only 19/104 (18%). In those not seeking help, withdrawal, resignation and low expectations were dominant themes. In those that had sought help, there were issues of perceived failure of service delivery and rationing, with themes of resignation and withdrawal again emerging in those declining help offered.

3. Other studies on Needs Assessment of the elderly

The study was conducted by **Goel P.K. et al**¹⁷ in rural elderly population in Meerut in 2003 to assess the unmet needs, identified 58.5% elderly were dependent financially, and 32.2% were feeling lonely while family members of 33.9% elderly used to ignore their advice. 69.5% of elderly were having no leisure time activity outside home, 24.8% of them were not having any social contact outside home and 55.1% of elderly were having sad attitude towards their lives. The major needs of elderly were found to be economic dependence, ignorance to their advice, sad attitude towards life, loneliness, distant government health facilities and lack of awareness as well as utilization of geriatric welfare services.

The study was conducted by **K.R. Rani et al**¹⁰ on assessing the health care needs of elderly living in home which includes social, medical and nursing needs, They identified the social needs like Financial support is needed for about 40 percent of the elderly, Lack of social security (35%), lack of healthy family environment (37%) and not participating in social events (64%). They identified the medical and nursing needs by considering their disease status. Among those identified as having ailments nearly three-fourths are in need of an urgent detailed medical check up. For about 12 percent of persons with illness, no one was present to provide proper care. They also identified even among those having care, in about 40 percent of the cases the care given seemed to be inadequate.

In the study by **Yang-Heui Ahn et al**⁴⁴ on assessing the health care needs of elderly in a rural community in Korea identified service need for physical care was highest, and the factors contributing to service need were gait disability, functional capabilities, nutrition status, and perceived health status. The results of this study indicates their needs are multiple and complex. The authors have recommended a well-coordinated health service system that would integrate social welfare services for elderly population who lived alone.

Mui A.C et al⁴² conducted study among Asian American elders on community needs assessment. Their findings suggests that Services needed but not provided were emergency psychiatric care, home attendants, home-delivered meals, legal services, medical services, and protective services. Findings of this study provide useful information for further research and program planning for Asian American elders in urban settings.

Studies on Morbidity assessment:

The study was conducted by **Rahul prakash et**¹³al among 300 elderly in the urban area of Udaipur on assessing the “Morbidity pattern among geriatric population” and identified 70% had problem related to vision, 48% had hypertension. 38% males and 49% females had psychosocial problems like loneliness (23.3%) and neglected by others. Also they identified 36% elderly persons are suffering from some kind of Musculoskeletal disorders (arthritis, spondylitis, and Kyphosis) ,

Kamalesh Joshi et⁴ al in 2003 studied the elderly people in Chandigarh and identified 88.9% reported illness based on their perceptions and of these 43.5% were seeking treatment and taking medicines, and 42.5% were diagnosed as having 4-6 morbidities. The commonly identified morbidities were Anemia, Dental problems, Hypertension, Chronic Obstructive Airway Diseases (COAD), Cataract and Osteoarthritis. They suggested assessment of morbidity pattern and its determinants will help the in the application of intervention, both medical and social, to improve the health status and thus quality of life of elderly people

Another study by **Vijayakumar et al³¹** to assess the health of the elderly people in a community transition in Kerala in 1994 based on the reported morbidity they identified the leading morbidity were hypertension (18.4%), arthritis and joint problems (12.1%), chronic bronchitis (11.7%) and diabetes (9.5%) coronary heart disease accounted for 5.7%.

The study mentioned earlier by **K.R. Rani et al¹⁰** also assessed the disease pattern of elderly based on detailed clinical examination and basic blood investigations and they identified the common problems that trouble the elderly persons are arthritis, hypertension, chronic respiratory disorders, indigestion and gastritis. The systems commonly affected are Loco-motor system disorders (47%), Cardiovascular diseases (37%), Peripheral vascular disease (37%) and Respiratory diseases (20%).

Anil Jacob Purty et al³² studied 320 rural elderly in Tamilnadu identified the average illness per person was 2.77. Pain in the joints and joint stiffness was the most common morbidity in 139 (43.4%), followed by dental and chewing complaints in 135 (42%), decreased visual acuity due to cataract and refractive errors in 182 (57%) and hearing impairment in 46 (15.4%). Other morbidities were hypertension in 42 (14%), diarrhoea in 38 (12%), chronic cough in 37 (12%), skin diseases in 38 (12%), heart illness in 27 (9%), diabetes in 26 (8.1%), asthma in 19 (6%) and urinary complaints in 18 (5.6%).

In the study by **M.K. Sharma et al**³³ in 2005 on assessing the pattern of life style and morbidity profile of elderly population in urban areas of Chandigarh identified 57.2 % had osteoarthritis, 40.4% had hypertension, 33.5% were overweight, 25.5% were diabetics, 67.4% had cataract and 34.2% had respiratory problems.

In the study by **Shashi Kant et al**⁴⁶ in 2004 on assessing the Morbidity among elderly persons residing in a resettlement colony of Delhi identified 71% had visual disturbances and among them 4% are blind. Chronic cough was there in 19.7%, 33.5% had respiratory problems and 21.9% had symptoms of chest pain. In the background details they found 62% are financially fully dependent, 3% were living alone and 62% are currently married.

4. MATERIALS AND METHODS

The objectives of this study were to assess the extent of physical disabilities, morbidity load and unmet needs in physical disabilities of the elderly in a rural community. This study also aimed to identify the predictors of above unmet needs so that they can act as a surrogate marker to identify those in need of the service.

Study design:

Cross sectional study

Study period:

The study was conducted for a period of one year from July, 2005 to June, 2006.

Study area:

Seven villages coming under the field practice area of PSG Rural Health centre, Vedapatti served as the study area. These villages are planned to be covered by “**PSG Geriatric Day Care Centre**”.

Estimation of sample size:

A pilot study was conducted amongst randomly selected elderly in another village which was not included in the study. It was found that 23.7% of elders have unmet needs in their physical disabilities. Based on this prevalence, the sample size was calculated using the formula $n = (1.96)^2 pq/d^2$ where p is the expected prevalence (23.7%) and q is 76.3% (100-23.7). Taking the worst acceptable estimate as 18.7% (absolute precision 5%), the sample size necessary, with 95%

CI, was calculated to be 278. Allowing for 20% non respondent, the required sample size was calculated to be **347** ($p = 23.7\%$, $q = 76.3\%$ and $d = 5$)

Sampling method:

Seven villages, which are to be covered by the “**PSG Geriatric Day Care Centre**”, come under field practice area of PSG Rural Health Centre were included in the study. The complete list of all residents of those villages is available at the centre in the form of Family registers. With the help of the above key information, all households which have elders were given serial numbers. This constituted the sampling frame.

To arrive at the **required sample size of 347**, elders from 7 villages were selected using the **Probability Proportional to Size (PPS)** sampling technique.

Total number of households with the elderly people = 1204

Number of households to be surveyed in each village (probability proportional to size (PPS))

$$= \frac{\text{No. of households with elders} \times \text{required sample size}}{\text{Total no. of household with elders in all villages}}$$

1) Ajjanur = $86 \times 347 / 1204 = 25$

2) Nambialgampalayam = $84 \times 347 / 1204 = 24$

3) Vedapatti = $233 \times 347 / 1204 = 67$

4) Kalikkanyakkanpalayam = $230 \times 347 / 1204 = 66$

5) Kurumpalayam = $142 \times 347 / 1204 = 41$

6) Sundapalayam = $268 \times 347 / 1204 = 77$

7) Vanniyampalayam = $161 \times 347 / 1204 = 47$

The required number of households for each village was decided, as mentioned above. Among the total households in each village, the sample households were randomly selected using SPSS 11.5 version. If a household had more than one elder person one of them selected for the study by using lots. The elderly persons residing in the selected sample households were visited and the study was conducted. Those who were either non-cooperative or could not be contacted despite making three attempts to contact them were not included in the study. The remaining elderly people were included and studied.

Tools used in data collection

I. Physical instruments

Stethoscopes, B.P. Apparatus and Snellen's Chart (for illiterate, Snellen's E Chart) have been used to assess the morbidity status of the elderly. Blood pressure was measured in lying down position using mercury type sphygmomanometer twice in each individual at an interval of 30 minutes. Elderly with systolic blood pressure of 140 mmHg or more and / or diastolic blood pressure of 90 mmHg or more were considered as hypertensive. Snellen's Chart

(E Chart) was used to assess the visual acuity. Those who were unable to read were further examined for cataract and corneal opacity.

II. Survey Questionnaire

The Survey Questionnaire contained the following details:

A. Background details

Certain socio-demographic details of the study population such as gender, age, religion, marital status, educational status of the elderly, occupation, living arrangement, monthly income (personal and family), financial status and the availability of carer.

B. Assessment of physical disabilities - By using Stanford Health Assessment Questionnaire

Stanford Health Assessment Questionnaire was used for assessing disability by various authors.^{12, 39} It was translated in Tamil and validated by MAPI Research Institute, France.²⁷ This was used to obtain functional-status information and to score a measure of overall disability. Subjects were asked to rate their degree of difficulty in performing their physical abilities namely Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs), While ADL attempts to measure physical ability to carry out everyday living tasks, IADL measures ability to carry out household management functions. This was done by respondents answering 20 questions that represented 8 categories of physical functioning namely, dressing/ grooming, arising, eating, walking, hygiene, reaching, gripping, and doing errands/chores. Perceived difficulty in performing each activity

during the past week were scored as 0 (no difficulty), 1 (some difficulty), 2 (much difficulty), or 3 (unable to do). Ratings such as *some difficulty*, *much difficulty*, or *unable to do* were deliberately not defined for the patients; patients were instructed to respond idiomatically, using their own frame of reference. For example, if a patient asked what “SOME” means, an appropriate response would be “Whatever you think ‘SOME’ means to you”.

The activity with the greatest perceived difficulty within a particular functional category determined the category score. An overall disability index that ranged from 0 (no disability) to 3 (most severe disability) was then obtained by averaging the 8 category scores.

Subjects also informed whether they used an aid, device, or got help from another person within each functional category for assessing their unmet need in that category.

C. Assessment of unmet needs in physical disabilities:

Subjects with disability/disabilities were assessed for their unmet needs based on the model described by **Mayur M Desai et al.**⁷ (Annexure-II.A).

Elders with unmet needs in any one of the physical disabilities were considered as having an unmet need in physical disability.

D. Morbidity Load assessment

Subjects were clinically evaluated based on the steps given by the **“Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities”**,³⁴ i.e. by their reported illness (Existing diagnosis), medication held by the subjects, history and clinical examination.

E. Camberwell Assessment of Need for the Elderly (CANE)

The CANE is a comprehensive, person-centred needs assessment tool that has been designed for use with the elderly.³⁰ It is suitable for use in a variety of clinical and research settings. It has 24 areas / items of needs assessment. It has been shown that the CANE is a valid and reliable tool, which is suitable for use in various settings.⁹

It was developed from the Camberwell Assessment of Need (CAN) to incorporate the special needs posed by the elderly. Twenty-four areas of possible individual needs are assessed by the CANE, as well as two questions aimed at assessing the needs of the person’s carer. The CANE tool collects information about the elderly individual’s needs from various perspectives such as the persons themselves (Felt needs), those of a key staff member, and those of a carer. A summary of met and unmet needs is then produced from the information gathered, which can lead directly to possible interventions and preparation of the care plans. This study mainly focused on assessing only the ***felt needs of elderly***.

Details about the tool and method of collection of each item are given in **Annexure-III**

F. Identifying Predictors of unmet needs

The socio-demographic factors, carer status, number and level of physical disability and number of chronic health condition were found to be predictors of unmet needs.^{6, 7, 14, 18, 43.} Specifically we included the following socio-demographic variables in our analysis: sex, age, educational status, marital status, financial status, living arrangement, monthly family income, carer status, presence of cognitive impairments, number of morbidity, number and level of physical disabilities

Details of each variable are given in **Annexure - I**.

The mean family income of the 305 elderly subjects was Rs. 4350 per month. Those with income below Rs 4350 were classified as the low-income group and those with income Rs 4350 and above were classified as high income group.

III. Data Analysis

The data were expressed as number and percentage. **Chi - Square test and Multivariate logistic regression** analysis were performed to identify predictors of unmet needs. In the analysis using Multivariate logistic regression, odds ratios (ORs) with 95% Confidence Intervals (CIs) were calculated and **p value less than 0.05** were considered as statistically significant. Analyses were performed using SPSS 11.5 version.

5. OPERATIONAL DEFINITIONS

Elderly person:

A person, either male or female, aged 60 years and above is considered as elderly person.

Illiterate:

A person, who can neither read nor write or can only read but cannot write in any language, is considered as illiterate.

Carer:

A carer is someone who has the responsibility for providing or arranging care for the elderly person who is not able to care for him or herself, because of long-term illness / disability.

‘Unmet need’ in physical disabilities:

An elderly person, who

a) needs help for ADL and/ or IADL, but not receiving help.

or

b) gets some help but needing additional help for at least one ADL and / or IADL”.

6. RESULTS

The study was conducted in 7 villages, shown in table I.A. These villages had a total population of 16976 including 1487 elderly people (8.8%). Among the elderly, 347 were selected for the study sample. However 42 were either non-cooperative or could not be contacted despite making 3 attempts to contact them. The remaining 305 elderly people were contacted and studied, thus forming the respondent rate of 87.9%.

I. Background Demographic Details

Table I.A: Village wise distribution of elderly people

S.No.	Name of village	Total Population	Total Number of elderly people	Sample of elderly people
1.	Vedapatti	3181	310	67
2.	Kurumbapalayam	2183	152	41
3.	Vanniyampalayam	2260	180	47
4.	Sundappalayam	3372	346	77
5.	Kalikkanaickenpalayam	3050	305	66
6.	Ajjanoor	1475	99	25
7.	Nambialaganpalayam	1455	95	24
Total		16976	1487	347

Among the 305 elderly people studied, the majority of the elderly were Hindus (98%) and the remaining (2%) belonged to other religions (Christians and Muslims)

Table I.B: Age - sex distribution of the study population

Age groups (in years)	Male (n=143)		Female(n=162)		Total (n=305)	
	No.	%	No.	%	No.	%
60 to 64	55	38.5	45	27.8	100	32.8
65 to 69	39	27.3	44	27.2	83	27.2
70 to 74	24	16.8	34	21.0	58	19.0
75 to 79	12	8.4	18	11.1	30	9.8
80 and above	13	9.1	21	13	34	11.1
Total	143	100	162	100	305	100

In the present study, out of 305 elderly, major proportions (32.8%) of elderly were between age group of 60 - 64 years. A sizable proportion (11.1%) elderly were aged 80 years and above. Females were more in number 162(53.1%) than male (143(46.9%))

Table I.C: Marital Status of the elderly

Marital status	Male(n=143)		Female(n=162)		Total (n=305)	
	No.	%	No.	%	No.	%
Married	99	69.2	61	37.7	160	52.5
Widowed	39	27.3	97	59.9	136	44.6
Separated/Divorced	4	2.8	3	1.9	7	2.3
Never Married	1	0.7	1	0.6	2	0.7
Total	143	100	162	100	305	100

In the sample studied, 160(52.5%) elderly people were currently married. Remaining 134 (44.6%) were widowed, 7(2.3%) were separated and divorced and 2(0.7%) were never married.

Table I.D: Educational Status of the Elderly

Category	Male(n=143)		Female(n=162)		Total (n=305)	
	No.	%	No.	%	No.	%
Illiterate	70	49	134	82.7	204	66.9
Literate(Without formal schooling)	30	21	10	6.2	40	13.1
Upto primary school	31	21.7	15	9.3	46	15.1
Upto High school and above	12	8.4	3	1.9	15	4.9
Total	143	100	162	100	305	100

This study revealed that 204 (66.9%) elderly people were illiterate, while 40 (13.1%) were literate without formal schooling and 46(15.1%) of the elderly had gone through primary school education. Only 15 (4.9%) had under gone high school and above.

This study also found that illiteracy is more among the females (82.7%) as compared to the males (49%).

Table I.E: Living Arrangements

Category	Male (n=143)		Female(n=162)		Total (n=305)	
	No.	%	No.	%	No.	%
Alone	9	6.3	16	9.9	25	8.2
With spouse	95	66.4	58	35.8	153	50.2
With family without spouse	30	21.0	79	48.8	109	35.7
With Non-Relatives	9	6.3	9	5.6	18	5.9
Total	143	100	162	100	305	100

Table I.E revealed nearly half (49.5%) of the elderly living with their spouse, 111 (36.4%) of elderly living without spouse but with their family members and 5.4% living with non-relatives. A sizable proportion (8.2%) of elderly were living alone.

Table I.F: Distribution of elderly by Financial Status

Financial status	Male (n=143)		Female(n=162)		Total (n=305)	
	No.	%	No.	%	No.	%
Fully Dependent	39	27.3	103	63.6	142	46.6

Partially dependent	23	16.1	31	19.1	54	17.7
Independent	81	56.6	28	17.3	109	35.7
Total	143	100	162	100	305	100

It was found that 142 (46.6%) of the elderly were financially fully dependent and 54 (17.7%) were partially dependent. The proportion of females were fully dependent on others was 63.6% as compared to 27.3% among male.

II. Physical disabilities of the elderly

Table II.A: Sex-wise distribution of Various Physical disabilities

S.No	Category	Male (n=143)	Female(n=162)	Total (n=305)
		No. (%)	No. (%)	No. (%)
1	Dressing and grooming	28(19.6)	36(22.2)	64(21)
2	Arising	24(16.8)	39(24.1)	63(20.7)
3	Eating	21(14.7)	30(18.5)	51(16.7)
4	Walking	25(17.5)	42(25.9)	67(22)
5	Hygiene	13(9.1)	24(14.8)	37(12.1)
6	Reach	19(13.3)	40*(24.7)	59 (19.3)
7	Grip	22(15.4)	31(19.1)	53(17.4)
8	Other***	19(13.3)	49**(30.2)	68 (22.3)

9	One or More Activity Limitation	59(41.3)	103(63.6)	162**(53.1)
---	--	----------	-----------	-------------

* P< 0.01 by Chi square test

** P< 0.001by Chi square test

***Going to the shop, Able to use personal and public transport, Household chores*

It was found that 162(53.1%) elderly had limitation in their activity in one or more categories. This study also identified women compared with similarly aged men had more activity limitation (Overall 63.6% vs 41.3%, p< 0.001). Gender differences also were significant in 2 of the 8 categories of physical function (Reach 24.7% vs 13.3%, p<0.01 and other activities 30.25 vs 13.3%, p<0.001).

Table II.B: Age-wise distribution of various Physical disabilities (Age in years)

S.No	ADL and IADL Category	60 to 64 (n=100)	65 to 69 (n=83)	70 to 74 (n=58)	75 to 79 (n=30)	80 and above (n=34)	Total (n=305)
		No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
1	Dressing and grooming	13(13.0)	15(18.1)	12(20.7)	6(20.0)	18(52.9)	64(21)
2	Arising	9(9.0)	15(18.1)	12(20.7)	9(30.0)	18(52.9)	63(20.7)
3	Eating	6(6.0)	6(7.2)	9(15.5)	6(20.0)	24(70.6)	51(16.7)
4	Walking	15(15.0)	6(7.2)	12(20.7)	12(40.0)	22(64.7)	67(22.0)
5	Hygiene	3(3.0)	3(3.6)	3(5.2)	6(20.0)	22(64.7)	37(12.1)
6	Reach	0(0)	0(0)	25(43.1)	15(50)	19(55.9)	59(19.3)

7	Grip	3(3)	9(10.8)	22(37.9)	12(40)	7(20.6)	53(17.4)
8	Others*	6(6)	9(10.8)	28(48.3)	12(40)	13(38.2)	68(22.3)
9	One or more disability	31(31)	30(36.1)	43(74.1)	27(90)	31(91.2)	162(53.1)

**Going to the shop, Able to use personal and public transport, Household chores*

Table II.B shows that disabilities are common in the age group 80 years and above and the percent of people with disability also increasing as the age increases.

III. Morbidity Load

Table III.A: Morbidity profile of the elderly.

S.No	Physical Health Condition	Male (n=143)	Female(n=162)	Total (n=305)
		No. (%)	No. (%)	No. (%)
1	Eye Problems*	88 (61.5)	103(63.6)	191 (62.6)
2	Hypertension	72(50.3)	63 (38.9)	135 (44.3)
3	Respiratory diseases**	48(33.6)	56(34.6)	104 (34.1)
4	Psychological distress and symptoms	38(26.6)	51(31.5)	89 (29.2)
5	Musculoskeletal disorders***	24(16.8)	48 (29.6)	72 (23.6)
6	Cognitive Impairment	35 (24.5)	31 (19.1)	66 (21.6)
7	Diabetes mellitus	22 (15.4)	19 (11.7)	41 (13.4)
8	Acid peptic disease	25 (17.5)	14(8.6)	39(12.8)
9	Anemia	15 (10.5)	18 (11.1)	33 (10.8)
10	Genitourinary diseases	6 (4.1)	12 (7.4)	18 (5.9)

11	Deafness	7(4.9)	9(5.6)	16(5.2)
12	Oral lesions (Dental caries and oral carcinoma)	5(3.5)	7(4.3)	12(3.9)
13	Stroke	2(1.4)	1(0.62)	3(0.99)

* *Eye problems include cataract, corneal opacity*

** *Respiratory diseases include Chronic Obstructive Airway Diseases (COAD) and Pulmonary Tuberculosis*

*** *Musculoskeletal disorders include Osteoarthritis, Rheumatoid arthritis, Kyphosis and Spondylitis*

Table III.A shows distribution of morbidity load diagnosed by History, clinical examination and medical records held by the subjects. The most common morbidity identified among them were Eye problems (62.6%) Hypertension (44.3%) Respiratory diseases (34.1%), Psychological distress and symptoms (29.2%) and musculoskeletal disorders (23.6%).

Table III.B: Morbidity load among the elderly

Number of morbidity per elderly	Male (n=143) No. (%)	Female (n=162) No. (%)	Total (n=305) No. (%)
0	10(7)	8(4.9)	18(5.9)
1-3	84(58.7)	70(43.2)	154(50.4)

4-6	37(25.9)	69(42.6)	106(34.8)
>6	12(8.4)	15(9.3)	27(8.9)

About half of the subjects (50.4%) were diagnosed as having 1-3 morbidities and 34.8% of elderly having 4-6 morbidities. There are few (8.9%) elderly people having more than 6 morbidities. A small number (5.9%) of elderly is free from disease.

IV. Unmet Needs in Physical Disabilities

Table IV.A: Needs - Unmet and Met needs in physical disabilities among the study population (n=305)

S.No	ADL and IADL Category	Disabled persons No. (%)	Unmet needs No. (%)	Met needs No. (%)
1	Dressing and grooming	64(21)	30(9.8)	34 (11.1)
2	Arising	63(20.7)	42(13.8)	21 (6.9)
3	Eating	51(16.7)	30(9.8)	21(6.9)
4	Walking	67(22)	24(7.9)	43(14.1)

5	Hygiene	37(12.1)	13(4.3)	24(7.9)
6	Reach	59(19.3)	25(8.2)	34(11.1)
7	Grip	53(17.4)	4(1.3)	49(16.1)
8	Others***	68(22.3)	37(12.1)	31(10.2)
9	One or More Category	162(53.1)	100(32.8)	62(20.3)

Table IV.B: Distribution of unmet needs in physical disabilities among males and females

S.No	ADL and IADL Category	Male (n=143)	Female(n=162)	Total (n=305)
1	Dressing and grooming	9(6.3)	21*(13.0)	30 (9.8)
2	Arising	12(8.4)	30*(18.5)	42 (13.8)
3	Eating	12(8.4)	18(11.1)	30(9.8)
4	Walking	9(6.3)	15(9.3)	24(7.9)
5	Hygiene	1(0.7)	12*(7.4)	13(4.3)
6	Reach	10(7.0)	15(9.3)	25(8.2)

7	Grip	1(0.7)	3(1.9)	4(1.3)
8	Others***	13(9.1)	24(14.8)	37(12.1)
9	Unmet need in one or more Activity Limitation	31(21.7)	69**(42.6)	100 (32.8)

* P< 0.05 by Chi square test

** P<0.001 by Chi square test

*** *Going to the shop, Able to use personal and public transport, Household chores*

The results in Tables IV.A and IV.B show that nearly one third (32.8%) of elderly have unmet need for one or more physical disabilities. The highest prevalence of unmet needs was present in “arising” (13.8%). Like disability, unmet needs were also more common among women as compared to men (42.6% vs 21.7%, p <0.001). Gender differences also were significant in 3 of the 8 categories of physical function (Dressing and Grooming, Arising and Hygiene).

V. Camberwell Assessment of Need for the Elderly (CANE)

Table V: Distribution of Needs among the elderly as assessed by CANE

S.No	Category	Unmet need No. (%)	Met need No. (%)	No need No. (%)
1	Accommodation	181 (59.3)	31(10.2)	93(30.5)
2	Looking after the home	101 (33.1)	46(15.1)	158 (51.8)
3	Food	109(36)	93(30.5)	103(33.8)
4	Self care	98(32.1)	71(23.3)	136(44.6)
5	Caring for someone else	20(6.6)	92(30.2)	193(63.3)

6	Day time activities	149(48.9)	43(14.1)	113(37)
7	Memory	88(28.9)	74(24.3)	143(46.9)
8	Eyesight / Hearing /Communication	177(58)	36(11.8)	92(30.2)
9	Mobility / Falls	41(13.4)	48(15.7)	216(70.8)
10	Continenence	11(3.6)	13(4.3)	281(92.1)
11	Physical health	131(42.9)	145(47.5)	29(9.5)
12	Drugs	66(21.6)	132(43.3)	107(35.1)
13	Psychotic symptoms	55(18)	41(13.4)	209(68.5)
14	Psychological Distress	42(13.8)	65(13.4)	198(64.9)
Table. Unmet need.. (On Condition and treatment)		68(22.3)	67(22)	170(55.7)
S.No	Category	Unmet need No. (%)	Met need No. (%)	No need No. (%)
16	Safety to self (Deliberate self-harm)	27(8.9)	6(1.9)	272(89.2)
17	Safety to self (Inadvertent self-harm)	15(4.9)	7(2.3)	283(92.8)
18	Abuse / Neglect	40(13.1)	22(7.2)	243(79.7)
19	Behaviour	31 (10.2)	12(3.9)	262(85.9)
20	Alcohol	53(17.4)	4(1.3)	248(81.3)
21	Company	104(34.1)	84(27.5)	117(38.4)

22	Intimate relationships	19(6.2)	42(13.8)	244(80)
23	Money / Budgeting	119(39)	89(29.2)	97(31.8)
24	Benefits*	165(54.1)	67(22)	73(23.9)

* *Benefits given by the government and NGOs*

Table V shows frequencies of “Need” (unmet and met need) and “No need” identified among the elderly in the present study. Most of the unmet needs among the elderly were in the areas of accommodation (59.3%), Eyesight / Hearing (58%), Benefits (54.1%), Day time activities (48.9%) and Physical health (42.9%), closely followed by companionship(34.1%), looking after the home (33.1%),and self care (32.1%). Regarding met needs the most common are with reference to Physical health (47.5) Drugs (43.3) looking after the home (30.5), and caring for someone else (30.2%).

Table VI: Predictors of Unmet Needs in Physical Disabilities

Variable	Number of elderly people	Number of elderly with Unmet need No. (%)	Unadjusted Odds Ratio (95 % Confidence interval)	Adjusted odds ratio (95 % Confidence interval)	Level of Significance (p value)
Sex					
Male	143	31 (21.7)	1.00	1.00	p = 0.055
Female	162	69 (42.6)	2.68 (1.61 - 4.44)	2.23(0.98 - 5.07)	
Age (in years)					
< 70	183	30 (16.4)	1.00	1.00	p=0.018
70 and above	122	70 (57.4)	6.86(4.03 - 11.67)	2.86(1.20 - 6.82)	

Educational status					
Literate (Non-Formal Schooling and others)	101	19(18.8)	1.00	1.00	p=0.305
Illiterate	204	81(39.7)	2.84(1.60 - 5.04)	0.62 (0.25 - 1.53)	
Marital status					
Married	160	39(24.4)	1.00	1.00	p=0.024
Others*	145	61 (42.1)	2.25(1.38 - 3.67)	2.56(1.13 - 5.80)	
Financial status					
Others (Partially dependent and Independent)	163	22(13.5)	1.00	1.00	p<0.001
Fully dependant	142	78(54.9)	7.81(4.47 - 13.64)	5.86 (2.74 - 12.56)	
Table. VI continued					
Variable	Number of elderly people	Number of elderly with Unmet need No. (%)	Unadjusted Odds Ratio (95 % Confidence interval)	Adjusted odds ratio (95 % Confidence interval)	Level of Significance (p value)
Living arrangement					
Alone	27	18(66.7)	4.78(2.06 - 11.08)	7.74 (2.27 - 26.60)	p=0.001
Living with other(s)	278	82(29.5)	1.00	1.00	
Monthly Family income					
	98	15(15.3)	1.00	1.00	p=0.697

≥Rs 4350(High) <Rs 4350(Low)	207	85(41)	3.85(2.08 - 7.13)	1.186(0.50 - 2.80)	
Elder have carer					
Yes	106	24(22.6)	1.00	1.00	p=0.062
No	199	76(38.2)	2.11(1.23 - 3.61)	2.02 (0.96 - 4.24)	
Cognitive impairment					
No	193	49(25.4)	1.00	1.00	p=0.585
Yes	112	51(45.5)	2.45(1.50 - 4.02)	0.79 (0.34 - 1.83)	
Number of morbidity					
< 3	150	23(15.3)	1.00	1.00	p=0.002
4-6	128	59(46.1)	11.01(4.42 - 27.58)	6.91(1.86 - 25.77)	
>6	27	18(66.7)	4.72(2.67 - 8.29)	4.18(1.81 - 9.67)	
Number of physical disability					
<3	226	46(20.4)	1.00	1.00	p=0.005
3 and above	79	54(68.4)	8.45(4.76 - 15.00)	3.30 (1.14 - 7.54)	

* Others include Widowed, separated and divorced and never married

An attempt was made to identify the predictors of unmet need for physical disabilities and the same is presented in the above table. Without adjustment for other sample characteristics all the variables were significant. After adjusting with other variables, the prevalence of unmet need did not significantly vary by sex, educational status, monthly income, cognitive impairment and carer status. Logistic regression analysis revealed that the elders with the following characteristics had significantly more unmet need for their disability : respondent who lived alone, aged more than 70 years, single (other than married), financially

fully dependent elderly, those elderly had more number(level) of disability and elderly having more morbidity.

7. DISCUSSION

The year 1999 was declared as the International Year of Older Persons and the theme of World Health Day in the same year was '**Active Ageing makes the Difference**'. The theme emphasis that the older people should continue to play a important role in the society. This can be achieved by maximizing their independence, preventing deaths and disabilities, by minimizing losses of bodily

functions, unmet needs especially that of physical activity and increasing social support.

Here, the background details of the sample population, health problems, physical disabilities, unmet need for disabilities and predictors of unmet needs are discussed.

1. Background Details

Using the data from representative sample of community dwelling elderly of 7 villages, we found 53.1% of them are female and 46.9% of them are male.

Literacy is an important determinant of the well being of an individual. In the present study about 83% of women and 49% of men are illiterate. However the national level literacy status shows that 90% of elderly women and two third of elderly men are illiterate. This is due to better educational system in Tamilnadu state. The findings are similar to **Rani K et al.**¹⁰

In the socio-demographic setup of India as well as Tamilnadu, most of the elderly are living with their spouse or children. In the present study most (86%) of the elderly were living with their spouse and/ or with children. The same findings was found by **Rani K et al.**¹⁰ and **Shashi Kant et al.**⁴⁶ Several authors^{7, 14, 18, 43} addressed living alone is the important predictors of unmet needs and less health care service utilization. The present study found that a sizable (9%) proportion of the elderly are living alone. This findings are similar to the study by **Rani K et**

al,¹⁰ but it is still higher than the national level and study by **Shashi Kant et al.**⁴⁶ This is in contrast with the situation in western countries^{7, 14, 18, 43} where the proportion of elderly living alone is much more.

The human life cycle begins and ends with stages of dependency. This dependency may be either physical or financial. Financial dependency is one of the major social problems of the elderly. Dependency is an important factor influencing of physical and mental health of the elderly. In the present study found 47% of the elderly was financially fully dependent to others. These findings are lower than the study by **Shashi Kant et al.**⁴⁶ This is explained by the fact that rural elderly continue to be active until physical incapacity prevents them from working. The latter study was done in an urban setting.

The present study shows that 162 (53%) of the elderly were currently married. Among the male 69% and among the female 38% were currently married. This difference is due to the higher life expectancy among the female. This difference is also noted (75% vs 25%) in the study by **Rani K et al.**¹⁰

Physical Health Problems

Population ageing will require that health systems be reoriented towards the different health needs of ageing populations. Hence, it is important to know the different health problems of the elderly. An aged population has far more

chronic or long-term disease, more people with long-term disabilities, and more non-communicable diseases than infectious disease. Multiple pathology in one person is also very common among the elderly.

Health problems in the present study were assessed by history taking, clinical examination and medical records held by the subjects. On the whole, in the present study 6% of elderly presented with no morbidity. **Kamalesh Joshi et al⁴** in their study found only 0.5% of elderly presented with no morbidity. In contrast, **Vijayakumar et al³¹** in their study identified 42% of sample subjects were free from any disease. This difference can be explained due to the difference in the tools they used.

It was found that 63% of elderly were suffering from one or more eye problems, which is slightly lower than **Prakash R et al.¹³** They found 70% of their sample had one or more eye problems. The lower prevalence in the present study can be due the different to inclusion criteria used for eye problems. The present study included only cataract, corneal opacity and refractive errors.

Hypertension is one of the major chronic conditions²⁹ affecting elderly people. It can occur at any age, but the risk increases with age. This study found that 44% of the elderly were suffered from hypertension. This is consistent with the findings in other studies.^{4, 10, 13}

Musculoskeletal disorders including arthritis, one of the commonest disorders affecting elderly and the causative factors leading to them are poorly understood. The current study found nearly one fourth (23.6%) of the elderly are

affected by these disorders and osteoarthritis ranked first among these disorders. These findings are slightly higher than the study done by **Prakash R et al**¹³, but this prevalence is lower than the study done by **Kamalesh Joshi et al**⁴ and **K.R. Rani et al**¹⁰. Similar to other studies,^{4, 10, 13} the present study has also identified women are more prone to this disorder.

Physical Disabilities and unmet needs in physical disabilities

Disability is a complex phenomenon that manifests itself in many ways and evolves over a much longer time span. Attempt to measure disabilities is important because of its association with a decreased functional autonomy and the increased demand for long term care. If the need for assistance to disability goes unmet, elderly may be at risk for a variety of adverse outcomes, including increased health service utilization and depression.⁴⁰ Disability is strongly associated with age. Disability comes in degrees, and a key threshold is the requirement for frequent help from other people, beyond what would be expected by virtue of family or social ties (i.e. 'dependency').

It is difficult to compare estimates of limitation of activity (Physical disabilities) unmet need for disabilities with various studies, because of considerable difference in study methods, such as sample characteristics, definitions of disability, need and unmet need. Our estimates of unmet need differ from those previously reported both in total and individual categories.

Overall 53% of elderly are disabled in one or more of their physical activities (either ADL or IADL) and these findings are similar to **Venkatarao et**

al.⁵ In their study they found 58% of elderly people had at least one disability in their Activities of daily living (ADL) and Instrumental activities of daily living. **Kamalesh Joshi et al**⁴ in their study found that a total of 87.5% of elderly had minimal to severe disabilities.

The present study also found that women were having more disability (63.6% vs 41.3 %) than men. These findings are consistent with other studies.^{6, 12, 41} In their study the gender difference was significant in physical disabilities (52% vs 37%).

Consistent with other studies^{5, 6, 41} our study also shows that disability occurrence was more with increasing age. The number of disabilities and severity of disabilities increases with age.

The prevalence of unmet needs in disabilities in this study was 33%. This finding is similar to the study done by **Moner Alam et al**⁶ and is in contrast to the several studies in western countries.^{7, 8, 18} The prevalence were much lower than our study. This can be due to availability of formal carer to assist the elderly for their Activities and Instrumental activities. Also the use of equipments/aids were much high in their study. In our study we could not find many aids other than cane/walking stick.

This may be explained by the presence of better geriatric care services includes use of equipments and aids for their disability in those countries and our study used more comprehensive definition and more sensitive tool to assess the disability.

In this study in a particular activity the highest prevalence of unmet needs was in “arising” and this is similar to the study by **Moner Alam et al**⁶ and is in contrast to **Mayur M et al.**⁷ This is due to the fact that the latter study was conducted where there are more equipments available.

The present study found that elderly who lived alone were four times as likely as those who lived with others to report unmet needs for their disability. These findings are consistent with several authors.^{7, 14, 18, 43} It shows that living alone is one of the best predictors of unmet need and future formal care services. This factor is important to note because more number of elderly will be living alone in the rural area in future due to urbanization and youngsters moving to urban area.

After adjusting with other variables, there is no significant gender difference in the unmet needs in this study. This is similar to most other studies.^{7, 14, 18, 43, 45} There have been studies like the one by **Moner Alam et al**⁶ where most of the ADL category women needed more personal assistance.

Consistent with other studies,^{7, 37, 40} the level of disability (defined as the number of disabilities) was the important predictor of unmet need. The positive association between severity of disability and prevalence of unmet needs for physical disability reflects the fact that elderly persons with more number of physical disabilities require more personal care, thereby increasing the likelihood that caregiver will not be able to satisfy all needs.

Age is the important predictor of unmet needs as identified by our study. Especially the aged 70 years and above had significantly more unmet needs for their disabilities. Surprisingly many studies^{7, 14, 18, 43} did not find any relationship between chronological age and unmet needs. In India spouse will be the primary caretaker followed by others. In this study we found that single were more likely to have unmet needs compared to currently married.

This study did not find an association between monthly family income and unmet need, similar to **Tennstedt et al.**⁴³ In contrast to our study, **Mayur M Desai⁷ et al and Otero et al¹⁴** found elderly having low income were at increased risk of having an unmet need. This may be explained, may be in part that our study assessed the monthly income of the family, which is having less recall bias in contrast to other studies, which assessed the annual income.

In contrast to the some other authors our study found as number of morbidity increases the unmet needs also increasing.

By using the CANE, the present study found the unmet needs were lack of aged friendly accommodation (59.3%), Eyesight / Hearing (58%), Day time activities (48.9%) and Physical health (42.9%), closely followed by companionship (34.1%). This indicates that geriatric services should be mainly focussed towards the above unmet needs. These findings are slightly in contrast to study done by **Walters et al.**¹⁵ In their study the commonest unmet needs identified by the elders are eyesight/ hearing, psychological distress and

incontinence. The common needs identified by some other authors^{10, 17, 44} are Lack of social security (35%), lack of healthy family environment (37%) and not participating in social events (64%).

This study has identified the predictors of unmet needs and subsequently can be used to identify the elders who need the service most. CANE was then used to assess the unmet and met needs of elderly thus leading to assess the type of common services needed by the elderly.

Limitation of this study:

In the present study the morbidity status of the elderly was assessed based on self reported illness, history and clinical examination of them. No screening test using the laboratory investigation was done. Therefore some of the morbidities which could be identified by screening tests might be missed.

8. SUMMARY

305 elderly people aged 60 years and above were studied with the objective of finding out the extent of physical disabilities, the morbidity load , the unmet needs in physical disability and the predictors of unmet needs in physical disabilities.

Morbidity load was identified by using the guidelines provided in the “Handbook on the Health Care of the Elderly” by WHO. Physical disability was assessed by using the “Stanford Health Assessment Questionnaire” and by applying the standard definition, unmet need of physical disability was identified.

A broad variety of socio-demographic and factors like morbidity load, level of cognitive impairment and disability load were taken to identify predictors of unmet needs. CANE tool was used to identify common needs of the elderly to plan the services for the elderly.

Of the total 305 aged studied in the area, 143(46.9%) were male and 162 (53.1%) were female. Most (68%) of the elderly were below mean family monthly income of the survey area and 67% of the elderly are Illiterate. Nearly half (47%) of the elderly were fully financially dependent.

Most of them (94.9%) have some morbidity. Most common morbidity identified among them were Eye problems (62.6%) Hypertension (44.3%) Respiratory diseases (34.1%), Psychological distress and symptoms (29.2%) and musculoskeletal disorders (23.6%).

Of the 305 elderly studied, 53.1% were disabled and 32.8% elders have unmet needs for their disability. The Unmet needs are commonly for Arising (13.8%), for Home Activities (12.1%), in Dressing & Grooming (9.8%) and Eating (9.8%).

The common needs identified by using CANE were lack of age-friendly accommodation (62.3%) , lack of companionship and day time activities (41.6%). Difficulty in looking after the home (17.7%) as well as being abused and neglected (14.8%) were also common among the elderly. Some of the elderly (10.8%) were not aware of benefits given by the government under various schemes.

After adjusting for other variables, the predictors of unmet needs that were identified in the study were respondents who lived alone, were aged more than 70 years, were other than married, financially fully dependent elderly, those elderly who had more number / level of disability and those who were having more number of morbidity. These predictors can be used as surrogate markers to plan and provide services to the elderly people in a rural community.

9. RECOMMENDATIONS

1. Since there is high morbidity load among the rural elderly, hence it is recommended that we need to provide them with elderly-friendly primary geriatric care services.
2. Since it is also clear that large number of needs of the disabled are unmet, there is a need for a new policy initiative focusing on strengthening of Community Based Rehabilitation Services (Family oriented programs, day care centers), support for family caregivers and social support interventions.
3. Greater, targeted efforts are needed to identify at-risk elderly people living in the community and to provide services (e.g. home care, community based rehabilitation services) that may reduce the burden of unmet need.
4. There were large number of undiagnosed diseases (Hypertension, Cataract etc..) and so there is a need for starting simple screening programs among the elderly like blood pressure measurement, eye camp for cataract screening, simple blood investigations to detect diabetes and anemia and oral cavity examination-for detection of pre-cancerous lesion in mouth, taking pap smear -a simple procedure of detecting early cancer cervix..

5. Availability of tools like the Stanford Health Assessment Questionnaire in all the major Indian languages to identify functional disability and unmet needs will provide an opportunity to do a comparable study in different parts of India.

6. This study identified broad socio-demographic and health status factors which could act as surrogate markers (predictors of unmet needs) which are simple enough to be used by Primary care workers. Data thus generated can then be used to plan and provide quality care services to the rural elderly who need it most.

10. REFERENCE

1. World Health Organization. Active ageing: Towards age-friendly primary health care. Geneva WHO Publications 2004; 3 - 4.
2. Helpage India. Senior citizens guide. New Delhi, Research and Strategic Development Division Helpage India; 2005.
3. <http://www.helpageindia.org/ageingScenario.php>, Accessed on 25.08.04
4. Kamalesh Joshi, Rajesh Kumar, Ajit Avasthi. Morbidity profile and its relationship with disability and psychological distress among elderly people in northern India. *International Journal of Epidemiology* 2003; 32:978-987.
5. Venkatarao T, Ezhil R, Jabbar S, Ramakrishnan R. Prevalence of disability and Handicaps in geriatric population in rural south India. *Indian Journal of Public Health* 2005 Jan - Mar; 49 (1): 11 - 17.
6. Moneer Alam, M. Mukherjee. Ageing, Activities of daily living disabilities and the need for public health initiatives: Some evidence from a household survey in Delhi. *Asia-Pacific Population Journal* 2005 August; 20 (2), 47 - 77.
7. Mayur M. Desai, Harold R. Lentzner, Julie Dawson Weeks. Unmet need for personal assistance with activities of daily living among older adults. *The Gerontologist* 2001; 41 (1): 82 - 88.

8. Jiajian Chen, Russell Wilkins. Seniors needs for health-related personal assistance. *Health Reports*, summer 1998; 10 (1): 39 - 50.
9. Tom Reynolds, Graham Thornicroft, Melanie Abas, Bob Woods, Juanita Hoe, Morven Leese, Martin Orrell. Camberwell Assessment of Need for the Elderly (CANE): Development, validity and reliability. *The British Journal of Psychiatry* 2000; 176: 444-452
10. Rani. K.R Unreported needs of elderly at home. Kerala Institute for Environment and Development, Thiruvananthapuram. September 2004. Available from: URL: <http://www.kied.org/Pub/Un-Reported%20Needs.pdf>.
11. Dr. Indira Jai Prakash. Ageing in India. Geneva: World Health Organization; 1999.
12. Kirsten Naumann Murtagh, Helen B. Hubert. Gender differences in physical disability among an elderly cohort. *American Journal of Public Health* 2004 August; 94 (8): 1406-1411.
13. Rahul Prakash, Choudhary S.K, Uday Shankar Singh. A Study of morbidity pattern among the geriatric population in an urban area of Rajasthan. *Indian Journal of Community Medicine* 2004; 29(1): 35 -39.
14. Otero A, de Yebenes MJ, Rodriguez-Laso A, Zunzunegui MV. Unmet home care needs among community-dwelling elderly people in Spain. *Aging Clinical Exp Res*. 2003 Jun; 15(3):234-42.

15. Katherine Walters, Steve Iliffe, See Sharon Tai, Martin Orrell. Assessing needs from patient, carer and professional perspectives: the Camberwell Assessment of Need for Elderly people in primary care. *Age and Ageing* 2000; 29: 505 - 510.
16. Kate Walters, Steve Iliffe, Martin Orrell. An exploration of help-seeking behaviour in older people with unmet needs. *Family Practice* 2001; 18 (3): 277-282
17. Goel P.K, Garg S.K, Singh J.V, Bhatnagar M, Chopra H, Bajpai S.K. unmet needs of the elderly in a rural population of Meerut. *Indian Journal of Community Medicine* 2003 Oct.-Dec; 28(4): 165 - 166.
18. Williams Judith, Lyons Barbara, Rowland Diane. Unmet Long-Term Care Needs of Elderly People in the Community A Review of Literature. *Home Health Care Services Quarterly* 1997; 16(1/2): 93 - 119.
19. Katz S, Ford, Moskowitz R, Jackson B.A, Jafe M.W. The index of ADL: A standardized measure of biological and psychological function. *Journal of American Medical Association* 1963; 185: 914 - 919.
20. Lawton, M.P., and Brody, E.M. Assessment of older people: Self-maintaining and instrumental activities of daily living. *Gerontologist* 1969; 9:179-186.

21. Gurland B, Kuriansky J, Sharpe L, Simon R, Stiller P, Birkett P. The Comprehensive assessment and Referral Evaluation (CARE) - rationale, development and reliability. *International Journal of Ageing and Human Development* 1977-1978; 8(1):9-42.

22. http://www.who.int/gb/ebwha/pdf_files/WHA54/ea5418.pdf, Accessed on 29.08.2006

23. Powel Lawton, Miriam Moss, Mark Fulcomer, Mortan Kleban. A research and service oriented multilevel assessment instrument. *Journal of Gerontology* 1982, 37, 91-99.

24 Doble SE, Fisher AG. The dimensionality and validity of the Older Americans Resources and Services (OARS) Activities of Daily Living (ADL) Scale. *Journal of Outcome Measurement* 1998;2(1):4-24.

25. Bergner. M, Bobbitt.R.A, Carter WB, Gilson, B S. The Sickness Impact Profile: Development and final revision of a health status measure. *Medical Care*. 1981 Aug; 19(8):787-805.

26. Bruce B and Fries J. The Stanford Health assessment Questionnaire (HAQ): A review of its history, issues, progress and documentation. *J Rheumatology* 2003; 30(1):167-78.

27. <http://www.mapi-research.fr/>, Accessed on 11.03.05.

28. Mary E. Jackson. Prevalence and Correlates of Unmet Need Among the Elderly with ADL Disabilities. U.S. Department of Health and Human Services (HHS) 1991, February. Contract #HHS-100-88-0041 between the U.S. Department of Health and Human Services (HHS) and Systemetrics/McGraw-Hill.
29. World Health Organization. Active ageing: A policy framework. Geneva WHO Publications 2004; 12 - 17.
30. <http://www.ucl.ac.uk/~rejugah/>, Accessed on 12.02.05.
31. Vijayakumar K., Sivan Y.S, Reghu J.R, Das R, Kutty V.R. Health of the elderly in a community in transition: a survey in Thiruvananthapuram City, Kerala, India. Health Policy and Planning 1994; 9(3): 331 - 336.
32. Anil Jacob Purty, Joy Bazroy, Malini Kar, Kavita Vasudevan, Anita Veliath, Purushottam Panda. Morbidity pattern among the elderly population in the rural area of Tamil Nadu, India. Turkish Journal of Medical Sciences 2006; 36: 45 - 50.
33. Sharma. M.K, Swami H.M, Rajbir Gulati, Vikas Bhatia, Dinesh Kumar. Life style and morbidity profile of geriatric in urban area of Chandigarh. Journal of the Indian Academy of Geriatrics 2005; 3:122-125.
34. A.B Dey. Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities. New Delhi, National Institute of Health & Family Welfare (NIHFW); 2000.

35. Kane R.L. The implications of assessment. *The Journal of Gerontology* 1993; 48(Special issue): 27 - 32.
36. Manton K.G, Corder L.S & Stallard E. Estimates of changes in chronic disability and Institutional incidence and prevalence rates in the U.S elderly population from the 1982, 1984 and 1989 National Long Term Care Surveys. *The Journal of Gerontology* 1993; 48(4): 153 - 166.
37. Tennstedt S, McKinlay J, Kasten L. Unmet need among disabled elders: a problem in access to community long term care? *Social Science Medicine* 1994 Apr; 38(7): 915-24.
38. Stone R.I, Murtaugh C.M. The elderly population with chronic functional disability: Implications for home care eligibility. *The Gerontologist* 1990; 39(4): 491 - 496.
39. M C Greenwood, D V Doyle, M Ensor. Does the Stanford Health Assessment Questionnaire have potential as a monitoring tool for subjects with rheumatoid arthritis? *Annals of the Rheumatic Diseases* 2001 April; 60:344-348.
40. Allen S.M, Mor V. The prevalence and consequence of unmet need: Contrast between older and younger adults with disability. *Medical Care* 1997; 35: 1132 - 1148.

41. David Melzer, Brenda McWilliams, Carol Brayne, Tony Johnson, John Bond. Profile of disability in elderly people: estimates from a longitudinal population study. *British Medical Journal* 1999 April; 318:1108-1111.
42. Mui A.C, Domanski M.D. A community needs assessment among Asian American elders. *Journal of Cross Cultural Gerontology* 1999 Mar; 14(1):77-90.
43. Tennstedt S.L, Sullivan M, McKinlay J, D'Agostino B. How important is Functional Status as a Predictor of Service Use by Older People? *Journal of Aging and Health* 1990; 2(4): 439-461.
44. Yang-Heui Ahn, Mi ja Kim. Health care needs of the elderly in a rural community in Korea. *Public Health Nursing* 2004 March; 21 (2): 153.
45. Alonso J, Orfila F, Ruigomez A, Ferrer M, Anto JM. Unmet health care needs and mortality among Spanish elderly. *American Journal of Public Health* 1997 March; 87(3): 365 - 370.
46. Shashi Kant, Puneet Mishra & Anil Goswami, Morbidity among elderly persons residing in a resettlement colony of Delhi. *Indian Journal of Preventive & Social Medicine* 2004; 35(1): 1 - 9.

l) Monthly income

- 1) Personal
- 2) Household

m) Financial status

- 1) Fully dependent
- 2) Partially dependent
- 3) Independent

n) Does the person have a/some carer?

- 1) Yes
- 2) No

Annexure - II

Annexure - II.A

The Stanford Health Assessment Questionnaire

Please give the response which best describe your usual abilities **OVER THE PAST WEEK**

	Without ANY difficulty ⁰	With SOME difficulty ¹	With MUCH difficulty ²	UNABLE to do ³
DRESSING AND GROOMING				
Are you able to do?				
Dress yourself, including wearing dhothi / saree / doing buttons/ using safety pins / wearing the belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Take head bath/rinse your hair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ARISING				
Are you able to do?	<input type="checkbox"/>			
Stand up from a straight chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Get in and out of bed		<input type="checkbox"/>	<input type="checkbox"/>	
EATING				
Are you able to do?				
Cut your vegetables?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lift a full cup or glass to your mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peel a orange				
WALKING				
Are you able to do?				
Walk outdoor on flat ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climb up five steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please specify any **AIDS OR DEVICES** that you usually use for these any activities

Please check any categories for which you usually need **HELP FROM OTHERS**

- | | | | |
|--------------------------|--------------------------|------------|--------------------------|
| 1) Dressing and Grooming | <input type="checkbox"/> | 2) Eating | <input type="checkbox"/> |
| 3) Arising | <input type="checkbox"/> | 4) Walking | <input type="checkbox"/> |

Please give the response which best describe your usual abilities **OVER THE PAST WEEK**

	Without ANY difficulty ⁰	With SOME difficulty ¹	With MUCH difficulty ²	UNABLE to do ³
HYGEINE				
Are you able to do?				
- Wash and dry your body?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Take a bath in seating posture and get up ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Get on and off the toilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REACH				
Are you able to do?				
- Reach and get down 2 kgs object (such as bag of rice) from just above your head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Bend down to pick up clothing from the floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GRIP				
Are you able to do?				
- Open doors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Open jars which have been previously opened	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Turn faucets on and off?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTIVITIES				
Are you able to do?				
- Run errands and shop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Get in and out of an auto rickshaw	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Do household chores such as cleaning, yard work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please specify any **AIDS OR DEVICES** that you usually use for these any activities

Please check any categories for which you usually need **HELP FROM OTHERS**

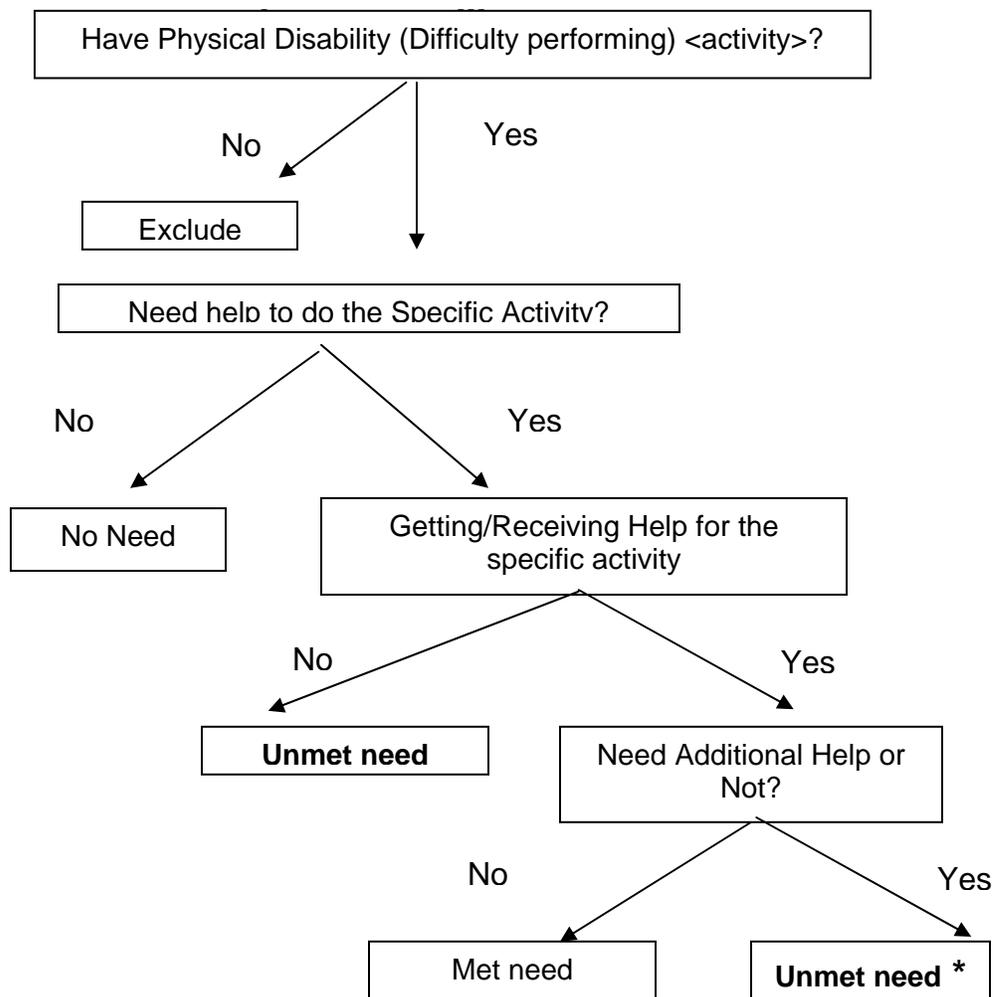
Hygiene

Gripping and opening things

Reach

Errands and chores

Flow Chart to Identify Unmet Needs in Physical Disabilities



Conclusion

- Dressing and grooming
- Arising
- Eating
- Walking
- Hygiene
- Reach
- Grip
- Others (Like doing errands/chores)

Any one of the above category

Disability (Yes/No)

Unmet need (Yes/No)

Annexure - III

Camberwell Assessment of Need for the Elderly (CANE)

1) ACCOMMODATION

What kind of home do you live in?
Do you have any problems with accommodation?

0 = NO NEED	e.g. Has an adequate home. No need for assistance with accommodation
1 = MET NEED	e.g. Home undergoing adaptation/redecoration. Needs and is getting help with accommodation, e.g., in residential care, sheltered housing.
2 = UNMET NEED	e.g. Homeless, inappropriately housed or home lacks basic facilities such as water, electricity, heating or essential alterations.
9 = NOT KNOWN	

2) LOOKING AFTER THE HOME

Are you able to look after your home?
Does anyone help you?

0 = NO NEED	e.g. Independent in looking after the home, home may be untidy but kept basically clean.
1 = MET NEED	e.g. Limited in looking after home and has appropriate level of domestic help.
2 = UNMET NEED	e.g. Not receiving appropriate level of domestic assistance. Home is a potential health/fire/escape hazard.
9 = NOT KNOWN	

3) FOOD

Are you able to prepare your own meals and do your own shopping?
Are you getting the right sort of food?

0 = NO NEED	e.g. Able to buy and/or prepare adequate meals independently.
1 = MET NEED	e.g. Unable to prepare food and has meals or assistance provided to met need.
2 = UNMET NEED	e.g. Very restricted diet; culturally inappropriate food; unable to obtain adequate food; difficulty swallowing normal food.
9 = NOT KNOWN	

SELF CARE

Are you have any difficulty with personal care like washing, cutting your nails or dressing?

Do you ever need help?

0 = NO NEED	e.g. Appropriately dressed and groomed independently.
1 = MET NEED	e.g. Needs and gets appropriate help with self care.
2 = UNMET NEED	e.g. Poor personal hygiene, unable to wash or dress, not receiving appropriate help.
9 = NOT KNOWN	

4. CARING FOR SOMEONE ELSE

Is there anyone that you are caring for?

Do you have any difficulty in looking after them?

0 = NO NEED	e.g. No-one to care for or no problem in caring.
1 = MET NEED	e.g. Difficulties with caring and receiving help.
2 = UNMET NEED	e.g. Serious difficulty in looking after or caring for another person.
9 = NOT KNOWN	

5. DAYTIME ACTIVITIES

How do spend your day?

Do you have enough to do?

0 = NO NEED	e.g. Adequate social, work, leisure or learning activities, can arrange own activities.
1 = MET NEED	e.g. Some limitation in occupying self, has appropriate activities organised by others.
2 = UNMET NEED	e.g. No adequate social, work or leisure activities.
9 = NOT KNOWN	

6. MEMORY

Do you often have a problem remembering things that happened recently?
Do you often forget where you've put things?

0 = NO NEED	e.g. Occasionally forgets, but remembers later. No problem with memory.
1 = MET NEED	e.g. Some problems, but having investigations / assistance.
2 = UNMET NEED	e.g. Clear deficit in recalling new information: loses things: becomes disorientated in time and/or place, not receiving appropriate assistance.
9 = NOT KNOWN	

7. EYESIGHT / HEARING / COMMUNICATION

Do you have any difficulty hearing what someone says to you in a quiet room?
Do you have difficulty in seeing newsprint or watching television?
Are you able to express yourself clearly?

0 = NO NEED	e.g. No difficulties (wears corrective lenses or hearing aid, is independent).
1 = MET NEED	e.g. Some difficulty, but aids help to some extent, receiving appropriate investigations or assistance to care for aids.
2 = UNMET NEED	e.g. A lot of difficulty seeing or hearing, does not receive appropriate assistance.

8. MOBILITY / FALLS

Do you have trouble moving about your home?
Do you have falls?
Do you have trouble with transport?

0 = NO NEED	e.g. Physically able and mobile.
1 = MET NEED	e.g. Some difficulty walking, climbing steps or using public transport, but able with assistance (e.g. walking aids, wheelchair). Occasional fall.
2 = UNMET NEED	e.g. Very restricted mobility even with walking aid. Frequent falls. Lack of appropriate help.
9 = NOT KNOWN	

9. CONTINENCE

Do you ever have accidents/ find yourself wet if you can't get to the toilet quickly?
How much of a problem? Ever any soiling? Are you getting any help?

0 = NO NEED	e.g. No incontinence. Independent in managing incontinence.
1 = MET NEED	e.g. Some incontinence. Receiving appropriate help/ investigations.
2 = UNMET NEED	e.g. Regularly wet or soiled. Deteriorating in continence needing assessment.
9 = NOT KNOWN	

10. PHYSICAL HEALTH

How well do you feel physically?
Are you getting any treatment from your doctor for physical problems?

0 = NO NEED	e.g. Physically well. Receiving no medical interventions.
1 = MET NEED	e.g. Physical ailment such as high blood pressure under control, receiving treatment / investigation. Reviews of physical conditions.
2 = UNMET NEED	e.g. Untreated serious physical ailment. Significant pain. Awaiting major surgery.
9 = NOT KNOWN	

11. DRUGS

Do you have any problems (e.g. side effects) with medication.
How many different tablets are you on?
Has your medication been recently reviewed by your doctor?
Do you take any drugs that are not prescribed?

0 = NO NEED	e.g. No problems with compliance, side effects, drug abuse or dependency.
1 = MET NEED	e.g. Regular reviews, advice, Nurse administers medication,
2 = UNMET NEED	e.g. Poor compliance, dependency or abuse of prescribed or non-prescribed drugs, inappropriate medication given.
9 = NOT KNOWN	

12. PSYCHOTIC SYMPTOMS

Do you ever hear voices, see strange things or have problems with your thoughts?
Are you on medication for this?

0 = NO NEED	e.g. No definite symptoms. Not at risk or in distress from symptoms and not on medication for psychotic symptoms.
1 = MET NEED	e.g. Symptoms helped by medication or other help e.g., coping strategies,
2 = UNMET NEED	e.g. Currently has symptoms or is at risk.
9 = NOT KNOWN	

13. PSYCHOLOGICAL DISTRESS

Have you recently felt very sad or fed up?
Have you felt very anxious, frightened or worried?

0 = NO NEED	e.g. Occasional or mild distress. Copes independently
1 = MET NEED	e.g. Needs and gets on-going support.
2 = UNMET NEED	e.g. Distress affects life significantly, e.g. prevents person going out.
9 = NOT KNOWN	

14. INFORMATION (ON CONDITION & TREATMENT)

Have you been given clear information about your condition, medication
or other treatment?
Do you want such information?
How helpful has the information been?

0 = NO NEED	e.g. Has received and understood adequate information. Has not received but does not want information.
1 = MET NEED	e.g. Receives assistance to understand information. Information given that is appropriate for the person's level of communication / understanding.
2 = UNMET NEED	e.g. Has received inadequate or no information.
9 = NOT KNOWN	

15. DELIBERATE SELF-HARM

Do you ever think of harming yourself or actually harm yourself?

- | | |
|----------------|--|
| 0 = NO NEED | e.g. No thoughts of self-harm or suicide. |
| 1 = MET NEED | e.g. Suicide risk monitored by staff, receiving counseling, adequate safety plan in place. |
| 2 = UNMET NEED | e.g. Has expressed suicidal intent, deliberately neglected self or exposed self to serious danger in the last month. |
| 9 = NOT KNOWN | |

16. INADVERTANT SELF-HARM

Do you ever do anything that accidentally puts yourself in danger (e.g. leaving gas taps on, leaving fire unattended or getting lost)?

- | | |
|----------------|---|
| 0 = NO NEED | e.g. No accidental self-harm. |
| 1 = MET NEED | e.g. Specific supervision or help to prevent harm: e.g. memory notes, prompts, secure environment, observation. |
| 2 = UNMET NEED | e.g. Dangerous behaviour, e.g. getting lost, gas/ fire hazard. |
| 9 = NOT KNOWN | |

17. ABUSE/ NEGLECT

Has anyone done anything to frighten or harm you, or taken advantage of you?

- | | |
|----------------|--|
| 0 = NO NEED | e.g. No abuse/ neglect issues over past month. |
| 1 = MET NEED | e.g. Needs and gets ongoing support or protection. |
| 2 = UNMET NEED | e.g. Regular shouting, pushing or neglect, financial misappropriation, physical assault. |
| 9 = NOT KNOWN | |

18. BEHAVIOUR

Do you come into conflict with others e.g. by interfering with their affairs, frequently annoying, threatening or disturbing them?
What happens?

0 = NO NEED	e.g. No history of disturbance to others.
1 = MET NEED	e.g. Under supervision / treatment because of potential risk.
2 = UNMET NEED	e.g. Recent violence, threats or seriously interfering behaviour.
9 = NOT KNOWN	

19. ALCOHOL

Do you drink alcohol? How much? Does drinking cause you any problems?
Do you ever feel guilty about it? Do you ever wish you could cut down your drinking?

0 = NO NEED	e.g. Doesn't drink or drinks sensibly.
1 = MET NEED	e.g. At risk from alcohol abuse and receiving assistance.
2 = UNMET NEED	e.g. Current drinking harmful or uncontrollable, not receiving appropriate assistance.
9 = NOT KNOWN	

20. COMPANY

Are you happy with your social life?
Do you wish you had more social contact with others?

0 = NO NEED	e.g. Able to organise enough social contact, has enough contact with friends.
1 = MET NEED	e.g. Lack of company identified as a problem. Has specific intervention for company needs e.g. lonely at night but attends drop-in or day centre or Lunch Club. Social work involvement.
2 = UNMET NEED	e.g. Frequently feels lonely and isolated. Very few social contacts.
9 = NOT KNOWN	

21. INTIMATE RELATIONSHIPS

Do you have a partner, relative or friend you feel close to? Do you get on well?
Can you talk about your worries or problems?

0 = NO NEED	e.g. Happy with current relationships or does not want any intimate relationship.
1 = MET NEED	e.g. Has problems concerning intimate relationships, specific plan, counselling/ advice/ support which is helpful.
2 = UNMET NEED	e.g. Desperately lonely. Lack of confidant.
9 = NOT KNOWN	

22. MONEY / BUDGETING

Do you have any difficulty managing your money?
Are you able to pay your bills?

0 = NO NEED	e.g. Able to buy essential items and pay bills independently.
1 = MET NEED	e.g. Benefits from help with managing affairs or budgeting
2 = UNMET NEED	e.g. Often has no money for essential items or bills. Unable to manage finances.
9 = NOT KNOWN	

23. BENEFITS

Are you sure that you are getting all the money that you are entitled to?

0 = NO NEED	e.g. Has no need of benefits or receiving full entitlement of benefits.
1 = MET NEED	e.g. Receives appropriate help in claiming benefits, social worker involvement over past month.
2 = UNMET NEED	e.g. Not sure/ not receiving full entitlement of benefits.
9 = NOT KNOWN	

Annexure - IV

MORBIDITY ASSESSMENT FORMAT

(Given by WHO/Ministry of Health and Family Welfare, Govt of India)

Existing Diagnosis

- 1.
- 2.
- 3.
- 4.
- 5.

Drug Treatment (medication held by subjects)

- | | |
|----|----|
| 1. | 2. |
| 3. | 4. |

Functional Assessment

Vision

read	Able/unable to read (Right)	Able/unable to (Left)
------	--------------------------------	--------------------------

If unable to read check for Cataract and corneal opacity

Hearing

hear	Able/unable to hear (Right)	Able/unable to (Left)
------	--------------------------------	--------------------------

Arm

Leg

Present problems

- 1.
- 2.
- 3.
- 4.
- 5.

Past medical history (mention diagnosis symptoms and year)

- 1.
- 2.
- 3.
- 4.

Physical Examinations:

- a) Weight
- b) Height
- c) BMI
- d) Blood pressure:

Standing

Lying

- e) Pulse
- f) Peripheral pulses
- g) Pallor
- h) Edema
- i) Oral cavity

No of teeth

Loose teeth

Caries

others

- j) Cardiovascular system
- k) Respiratory system
- l) Abdomen
- m) Central nervous system
- n) Dermatological examination

Mini Mental State Examination

Now I am going to ask you some questions to check your memory and concentration.

1. I am going to name three objects : pencil, book, watch, / 3
and repeat now and remember it (***I'll ask you after one minute***)

2. What is the / 5
 - a. year
 - b. Season
 - c. Date
 - d. Day
 - e. Time

3. Where do you live? / 5
 - a. state
 - b. district
 - c. town/village/locality
 - d. ward no
 - e. street

4. Can you please tell the three objects mentioned in question number one? / 1

5. Can you please deduct 7 from 100 five times consecutively / 5

6. I am going to show two objects (pencil and watch), can you tell their names? / 2

7. Can you please repeat the following? “ ***Veera pandian kattabomman***” / 1

8. “Now I am going to give piece of paper with which you have to do exactly what I ask you to do”

“ Take a paper in your right hand, fold it in half and put it on the floor”

Right hand

Folds

Put it on the floor

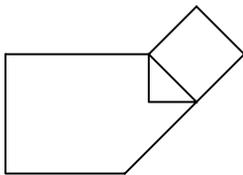
/ 3

9. Can you please read and obey the command written in paper? / 1

“ CLOSE YOUR EYES”

10. Can you please write a sentence? / 1

11. Can you please copy a design given below? / 1



Clinical Diagnosis

Annexure-V. Coding for Master Sheet

Column	Category	Key
Background Details		
1	Age	(In Years)
2	Sex	1 - Male; 2 - Female
3	Religion	1-Hindus; 2-Christians; 3-Muslims; 4-Others
4	Marital Status	1-Married; 2-Widowed; 3-Separated and Divorced; 4-Never Married
5	Educational Status	1-Illiterate; 2-Non-formal schooling; 3-Upto primary school; 4-Upto high school and above
6	Living Arrangements	1-Living alone; 2-With spouse with or without family; 3-With family and without spouse; 4-With non-relative
7	Financial Status	1-Fully dependent; 2-Partially dependent; 3-Independent
8	Monthly Family Income	1- Low; 2 - High
9	Availability of Carer	0-No; 1- Yes

	Physical Disabilities and unmet needs in physical disabilities	
10	Dressing and grooming - Disability	0-No; 1- Yes
11	Dressing and grooming - Unmet Needs	0-No; 1- Yes
12	Arising - Disability	0-No; 1- Yes
13	Arising - Unmet Needs	0-No; 1- Yes
14	Eating- Disability	0-No; 1- Yes
15	Eating - Unmet Needs	0-No; 1- Yes
16	Walking- Disability	0-No; 1- Yes
17	Walking - Unmet Needs	0-No; 1- Yes
18	Hygiene- Disability	0-No; 1- Yes
19	Hygiene - Unmet Needs	0-No; 1- Yes
20	Reach- Disability	0-No; 1- Yes
21	Reach - Unmet Needs	0-No; 1- Yes

22	Grip- Disability	0-No; 1- Yes
23	Grip - Unmet Needs	0-No; 1- Yes
24	Doing errands/chores - Disability	0-No; 1- Yes
25	Doing errands/chores - Unmet Needs	0-No; 1- Yes
26	Disability in one or more category	0-No; 1- Yes
27	Unmet need in one or more Activity Limitation	0-No; 1- Yes
28	Number of physical disabilities	Actual Numbers
29	Level of Physical disabilities	Actual values
30	Number of Morbidity	Actual numbers
31	Cognitive Impairment	0-No; 1- Yes
32	Type of Morbidity	1- Eye Problems; 2-Hypertension; 3-Respiratory diseases; 4-Psychological distress and symptoms; 5-Musculoskeletal; 6-Cognitive Impairment; 7-Diabetes mellitus; 8-Acid peptic disease; 9-Anemia;

		10-Genitourinary; 11-Deafness;12-Oral lesions (Dental caries and oral carcinoma);13-Stroke
Camberwell Assessment of Need for the Elderly (CANE)		
33	Accommodation	0-No need; 1-Met need; 2 -Unmet need
34	Looking after the home	0-No need; 1-Met need; 2 -Unmet need
35	Food	0-No need; 1-Met need; 2 -Unmet need
36	Self care	0-No need; 1-Met need; 2 -Unmet need
37	Caring for someone else	0-No need; 1-Met need; 2 -Unmet need
38	Day time activities	0-No need; 1-Met need; 2 -Unmet need
39	Memory	0-No need; 1-Met need; 2 -Unmet need
40	Eyesight / Hearing /Communication	0-No need; 1-Met need; 2 -Unmet need
41	Mobility / Falls	0-No need; 1-Met need; 2 -Unmet need
42	Continence	0-No need; 1-Met need; 2 -Unmet need
43	Physical health	0-No need; 1-Met need; 2 -Unmet need
44	Drugs	0-No need; 1-Met need; 2 -Unmet need
45	Psychotic symptoms	0-No need; 1-Met need; 2 -Unmet

		need
46	Psychological Distress	0-No need; 1-Met need; 2 -Unmet need
47	Information (On Condition and treatment)	0-No need; 1-Met need; 2 -Unmet need
48	Safety to self (Deliberate self-harm)	0-No need; 1-Met need; 2 -Unmet need
49	Safety to self (Inadvertent self-harm)	0-No need; 1-Met need; 2 -Unmet need
50	Abuse / Neglect	0-No need; 1-Met need; 2 -Unmet need
51	Behaviour	0-No need; 1-Met need; 2 -Unmet need
52	Alcohol	0-No need; 1-Met need; 2 -Unmet need
53	Company	0-No need; 1-Met need; 2 -Unmet need
54	Intimate relationships	0-No need; 1-Met need; 2 -Unmet need
55	Money / Budgeting	0-No need; 1-Met need; 2 -Unmet need
56	Benefits*	0-No need; 1-Met need; 2 -Unmet need