

Depressive Disorders in Elderly: An Estimation of this Public Health Problem.

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Abstract: The point prevalence of depressive disorders in the elderly population of the world varies between 10% and 20% depending on cultural situations. Objective of the study was to determine the median prevalence rates of depressive disorders in elderly population of India and various other countries in the world. Retrospective study based on meta-analysis of various study reports of community based mental health surveys on geriatric depressive disorders conducted between 1955 and 2005 in continents of Asia, Europe, Australia, North America and South America conducted. 74 original research studies that surveyed a total of 4,87,275 elderly individuals in the age group of 60 years and above, residing in various parts of the world were included for the final analysis. These studies were conducted on homogenous community of elderly population in the world, who were selected by simple random sampling technique. Median prevalence rate and its corresponding inter-quartile range, Chi-square test and Chi-square for Linear Trend were applied. P value < 0.05 was considered as statistically significant. The Median Prevalence rate of depressive disorders in the world for the elderly population was determined to be 10.3% [Interquartile Range (IQR) = (4.7% - 16.0%)]. The Median Prevalence Rate of depression among elderly Indian population was determined to be 21.9% [IQR = (11.6% - 31.1%)]. Though there was a significant decrease trend in world prevalence of geriatric depression, but it was significantly higher among the Indians in recent years than the rest of the world.

Keywords: Depressive Disorders, Prevalence, Elderly, Median, Interquartile Range

INTRODUCTION

The World Health Organization estimated that the overall prevalence rate of depressive disorders among elderly generally varies between 10% and 20% depending on cultural situations.^{1,2} The community-based mental health studies in India have revealed that the point prevalence of depressive disorders in elderly Indian population varies between 10 and 25 percent.^{3,4}

MATERIALS & METHODS

Study design: Retrospective study based on meta-analysis on prevalence of depressive disorders in elderly population

Setting: Community based mental health surveys on geriatric depressive disorders conducted in continents of Asia, Europe, Australia, North America and South America, were included in this analysis.

Study Period: All the studies that were conducted and published in indexed journals between 1955 and 2005 (i.e., within the last fifty one years) would constitute the sample. This is decided on the observed fact that it normally took around two to three years time for a project report to get accepted and published in an indexed journal. So, a study conducted during 2005 was expected to get published in an indexed journal by the year 2008. The sample size for this project was finalized during the year 2008.

Sample Size: All published articles on prevalence of depressive disorders in elderly population that were available, adequately analyzed and accessible from the internet, the central library of Kasturba medical College Manipal in Karnataka and the Central Library of Sikkim-Manipal Institute of medical Sciences (SMIMS) in Sikkim, constituted the study universe.

Databases: The search engines that were utilized for electronic data from the internet were MEDLINE, PUBMED, GOOGLE, YAHOO, EMBASE, PsycINFO, and the Cochrane Collaboration Database for original human research articles in the English literature published through 1st January 1955 and 31st December 2005 using the two sets of search items. "Prevalence of Depression in Elderly" and "Prevalence of Geriatric Depression".

Sampling procedures: Only studies that either covered the total population

of study area or applied simple Random Sampling Method to identify the study subjects in their corresponding research projects were included for this final meta-analysis.

Inclusion Criteria: To avoid undesired bias due to design effects from various epidemiological study designs, the researchers had included only community based cross-sectional surveys on prevalence of depressive disorders and some prospective study designs that had not excluded depression on baseline. All these studies were conducted on homogenous community of elderly population in the world, who were either selected by simple random sampling technique or covered under whole population of the study area. For determining the various correlates of depression in elderly, only those articles were included that had at studied at least one risk factor of depression.

Exclusion Criteria: all the unpublished reports and unavailable or unanalyzed or inaccessible articles from the internet as well as the Central Library of Kasturba medical College manipal in Karnataka and Central Library of Sikkim-manipal Institute of medical Sciences (SMIMS), Sikkim on studies regarding the prevalence of depressive disorders in elderly population were excluded from this study. But it was perceived by the researcher that the proportion of excluded reports on account of inaccessibility or unavailability would constitute less than 5% of the available articles on relevant topic. Hence, this was expected to have minimal impact on the final results. Studies, where the 95% Confidence Interval of prevalence rate estimation exceeded more than 20 units, were excluded on account of possible improper sample size estimation. Studies conducted on migrant populations, old age homes and health care institutions were also excluded from this meta-analysis in order to avoid biasness. High prevalence rate of depression was very common among isolated groups of individuals in the community, who had migrated to some other place either due to political force or to met their physiological or financial needs.

Data Collection Procedure

The investigators were trained by the renowned psychiatrists of Kasturba Medical College Manipal, Karnataka, and Sikkim-Manipal Institute of medical Sciences (SMIMS) on how to interpret the result from different

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community based psychiatric evaluation studies. The diagnosis generated by the questionnaires used as study instruments was strictly kept confidential and reconfirmed by consulting the senior psychiatrists for confirmation of their acceptability, content validity and reliability, before arriving at a final; diagnosis for data analysis. At the beginning, A Pilot study was conducted with randomly chosen data from 25 original research articles that surveyed elderly individuals in the age group of 60 years and above, residing in various parts of the world, some of these studies used in the pilot Study, were later include for statistical analysis in the final research project.

Data Analysis: The data was tabulated and analyzed by using the statistical package SPSS (Statistical package for social c=ciences) version 10.0 for Windows and EPI INFO version windows 2000. Findings were described in terms of median prevalence rates of depressive disorders in elderly and their corresponding Inter-Quartile range (IQR). Proportions and their 95% Confidence Intervals (CI) were used for the same purpose. Chi-square test and Chi-square for Linear Trend were applied for studying prevalence rates of elderly depressive disorders among various countries in the worlds and in India. Here, p- value <0.05 was considered as statistically significant.

RESULTS AND DISCUSSIONS

The search strategy yielded 896 potentially relevant studies, among these 143 were retrieved for more detailed evaluation. Though 77 studies met the inclusion criteria, but we could retrieve main article or structured abstract for only 74 studies which were included for the final analysis. Among these 74 selected articles, 69 (93.2%) had cross-sectional study design and 5(6.8%) had prospective study design that had not exclude d depression on baseline.

Two meta-analysis reports, one by Chen R. et al⁵ (1999, China) on 10 relevant studies and another by Copeland J.R.M. et al⁶ (2004, Amsterdam) on 14 relevant studies and also a systematic review report by Beekman A.T. et al⁷ (1999, Netherlands) on 34 relevant studies were included in this meta-analysis project. So, this study had actually taken into consideration the prevalence rates of depression in elderly from [74 + (10+14+34) = 132] survey reports from various parts of the world.

Determination of median Prevalence rate of depressive Disorders in Elderly The 74 included studies involved 4,87,275 elderly individuals from all the parts of the world at baseline. Among these 6 studies from India involved only 2,499 (0.5%) elderly individuals at baseline for assessment of presence of depression. The mean ages of the study population were reported in 68(85.1%) articles with mean ranging from (62-71) years. Here, 68 (91.9%) articles included gender distribution and (36%-64%) of participants were men (median=46%). The length of reported study period ranged from (3-84) months (median =9).

Only 52 (70.3%) studies used some of modern rating scales for diagnosis of depression in elderly. Among these, 14 used AGE CAT/GMS-AGE CAT, 4 used DIS/HDS, 8 used GMS/GDS, 11 used CSES-D and 15 used DSM/ICD criteria for the diagnosis of geriatric depression. The prevalence rate of geriatric depression was found to be higher in studies using psychiatric examination and operational definitions and studies used the geriatric depression sale 9GDS) or Geriatric mental State Schedule (GMS) alone.

The median Prevalence rate o Depressive disorders in the world for the

elderly population from 74 studies was determined to be 10.3% with inter-Quartile Range varying between 4.75 and 16.0%. Similar findings were reported by Kirby M. Et al⁸ (1997, Dublin) and Kay D.W.K. et al⁹ (1985,Hobart). Studies conducted by Geerlings M.L et al¹⁰ [(1990-96), Amsterdam], Newman S.C. et al¹¹ (1998, Canada), Liu C.Y. et al¹² 91993, China), also reported the prevalence rate of depression among the elderly to be 10.5%, 11.2% and 12.9% respectively.

The comparison of median prevalence rates of depression in elderly population of India and the rest of the world was also studied. It was found that the proportion of depressed elderly population in India (18.2%) was significantly higher than the rest of the world (5.4%) and this difference was found to be statically highly significant ($X^2 = 770.4$ and $p = 0.000000001^*$). Though there is an alarming increase of proportion of depressed elderly in India, but we should also keep in mind that there were only 6 relevant studies from India, covering only 0.5% of elderly participants of the world as compared to 68 studies from the rest of the world covering 993.5% of the participants.

The low prevalence of depression in elderly during recent years could be due the presence of better diagnostic instruments with optimum validity and reliability had been developed during the recent years to diagnose elderly depression in the community and ruled out cases of dementia which were often falsely diagnosed as depression in the past.

Though the proportion of elderly individuals affected with depression was significantly lower in Asia (4.2%) than Europe (10.9%) and America (8.4%), but the number of depressed elderly individuals was significantly higher in Asia which was evident from 14 studies conducted in various Asian countries covering 74.5% of the population sample. Studies from the developing countries like India had reported a very high prevalence rate of 21.9% with IQR ranging from (11.6-31.3). Care and bonding from family support systems, lesser competitive life styles and improved mental health facilities with their integration with primary health care could account for lesser prevalence rates in some of the developed Asian countries.^{1, 2, 4}

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