Studies on Elderly People in Odisha: A Bibliometric Analysis

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KEYWORDS: Elderly people. Odisha. Bibliometric analysis.

ABSTRACT: The present paper is a bibliometric paper on studies on elderly people in Odisha. The objective of the present study is to assess research on elderly people in Odisha. Bibliometric analysis was done using data from papers available on lens. organization platform. Software named Vos Viewer was used to analyze the citation pattern and co-authorship. The terms 'elderly people in Odisha' were used as the keywords. The paper unfolds manyfold information about the publications done on elderly people in Odisha. The output showed 270 number of scholarly articles by 851 authors. With the help of bibliometric analysis, the paper identified the top authors, top journals, top institutions, most cited authors, the co-author, the most cited papers, top cited words, etc. The analysis also includes year-wise distribution, theme-wise classification, authorship patterns, degree of collaboration, geographical distribution of articles, and citation analysis. Many studies have been done on themes such as health, gerontology, healthcare, medicine, etc. Very negligible studies have been done on elderly people in slums and elderly people in tribal areas.

INTRODUCTION

The elderly constitute one of the major categories of population in every society. The number of elderly people is growing day by day. In India, 139 million people are aged over 60 which is over 10% of the country's total population on/before 2019. The proportion of older people is expected to almost double to 19.5% in 2050 with 319 million people aged over 60. This means that every 1 in 5 Indians is likely to be a senior citizen (UNFPA, 2017). Odisha is not an exception. As per the 2011 Census, 9.5 percent of the elderly population comprises 4 million persons aged 60 years and above, 2 million each of men and women, with most of them living in rural areas (UNFPA, 2014). The present paper is a bibliometric analysis of the studies done on the elderly population in Odisha.

Analysis of scholarly publications through bibliometrics facilitates the interpretation of structures and trends in the respective disciplines. This type of bibliometric analysis affords the identification of characteristics of a particular research field and may contribute to revealing future research topics. Bibliometrics as a mathematical and statistical technique has a wider scope to identify the current research practices in a core subject area, authorship pattern, and the dissemination of literature in assessing secondary periodicals by the scientists, citation analysis, etc. that caused the growth of literature. Furthermore, bibliometrics analysis helps to identify the upcoming research areas that are specifically of keen interest to the modern scientific community. Bibliometrics applies quantitative approaches mainly to scientific fields that are principally based on various aspects of written articles

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like subject, author, citations, title, etc. This type of analysis may be useful to monitor the growth of literature and the patterns of research. Bibliometrics has been considered as a standard tool of scientific policy and research management over the last two decades. All the significant compilations of science indicators depend on the publication, citation statistics, and more complex bibliometric techniques. Researchers may use bibliometric methods of evaluation to identify the influence of a single author or to define the relationship of two or more authors or works. An analysis of research output in particular areas of knowledge may reveal new facts that prove beneficial to the concerned research fraternity. To understand the latest trend and pattern of publication distribution, a bibliometric study has been conducted on the research (Tyagi and Bharadwaj, 2021).

Many studies on the elderly population have been done. Some of the literature related to the study of the elderly is given below.

Mahapatra *et al*., (2021) stated that fear, anxiety, and loneliness were continuing stressors, and many of them learned to adapt and emerge resilient to the evolving situation. Various elements at the individual, family, community, and organizational levels were conducive to better coping. The companionship and complementary support of a spouse, self-health literacy, digital efficacy, virtual connectedness with family and friends, availability of community pharmacy and diagnostic services in the vicinity, support of neighbors, re-engaging with creative leisure time activity, and assurance of a responsive administration at the time of emergency helped them to cruise through the pandemic. Furthermore, watching the re-telecast of prime-time serials made these elderly fondly remember their youth time memories. Self-health monitoring, indoor physical exercise, spiritual practices, the continuation of previous prescriptions, and telephonic advice from physicians were add-on strategies that facilitated their physical and psychological well-being during the pandemic.

Pradhan (2021) stated that examining the relationship between psychological distress and disability and the risk of developing morbidity among the tribal elderly in Odisha shows that multi-morbidity is significantly associated with physical disability, psychological stress, and functional disability. The probability of having a physical disability is 1.87 times higher among those who are having multi-morbidity as compared to the reference category. Age and gender-specific policy formulation is an essential component to ensure healthy aging in countries like India. To reduce the burden of morbidity, disability, and psychological distress among the elderly population, more priority should be given to the female elderly and elderly males in the higher age group of 70 and above.

Banjare *et al*., (2015) stated that significant effects on aliments and disability in rural settings are marital status, risk behavior, and kinship. Similarly, the variables that show significant effects on urban settings are livestock, ownership of houses, and risk behavior. Risk behavior comes out to be a significant factor in both settings. It is observed that the elderly, having bad habits especially consumption of alcohol and smoking, are prone to ailments leading to disability in the long run.

Banjare and Pradhan (2014) stated that the overall prevalence of multi-morbidity is 57% among rural elderly in Bargarh District of Odisha. The most common diseases in rural areas are Arthritis, Chronic Obstructive Pulmonary Disease (COPD), High Blood Pressure, and cataracts. Results from the logistic regression analyses show that age, state of economic independence, and lifestyle indicators are the most important measured predictors of multi-morbidity. Unlike earlier studies, wealth index and education have a marginal impact on multi-morbidity rate. Moreover, the occurrence of multi-morbidity is higher for elderly males compared to their female counterparts, though the difference is not significant.

Kshatri *et al*. (2020) stated that elder abuse and multimorbidity are emerging as issues of significant concern among rural elderly in Odisha, India. Multimorbidity and functional dependence are associated with significantly higher odds of elder abuse among rural older adults.

According to Mohanta *et al*. (2013) elderly people in the Mayurbhanj district perceived that they were susceptible to eye problems and felt that eye ailments could occur to any person, at any time. They considered eye problems as “serious”, which could hamper the family income, but had difficulties in accessing eye care facilities and approaching eye

doctors. However, most respondents had a fair knowledge of the benefits of treating eye problems early. The lack of timely information about the availability of eye care services in their local areas was a programmatic gap. Distance, non-availability of any accompanying person, lack of monetary support, lack of information, and fear of losing eyesight after surgery were found to be the main barriers behind delayed eye-care-seeking behavior.

The present study has been undertaken with the following objectives:

(a) To examine the year-wise distribution of papers; (b) to examine institution-wise publications; (c) to find out the top journals publishing articles on ageing; (d) to find out the page length of articles published on ageing; (e) to find out the most prolific researchers on the study of aged; (f) to examine the authorship pattern of papers; (g) to make a citation analysis; and (h) to find out the keywords used in the papers with co-occurrence of keywords.

MATERIAL & METHODS

The method of bibliometric analysis was used in the present study to find out the bibliographic features of the articles published on elderly people in Odisha. By searching papers on the "elderly population in Odisha" 270 articles were extracted from the Lens. organization portal. The extracted data is put in the bibliometric analysis application namely VOS viewer to analyze the data on publications like year-wise distribution, institution-wise publications, theme-wise classification, top journals publishing articles on the elderly, page length of articles, prolific authors researching elderly, authorship pattern, citation analysis of papers and co-occurrence of keywords. There is no conflict of interest.

RESULTS

The bibliometric analysis in the present paper is done in three parts:

1. Analysis of articles/publications
2. Analysis of authors, and
3. Analysis of citations

Analysis of Articles / Publications

Year wise publication analysis: Table 1 and Fig 1 highlight the data on the year-wise distribution of articles. Out of a total of 270 articles, the maximum number of publications was recorded in 2018 (34 articles, 12.592%) while the minimum was in the year 2010 (only 2 articles, 0.74%).

TABLE 1

Year-wise distribution of publications

Year	Article	Percentage	Cumulative Percentage
2010	2	0.74	0.74
2011	4	1.48	2.22
2012	10	3.70	5.92
2013	8	2.96	8.88
2014	23	8.51	17.39
2015	18	6.66	24.05
2016	20	7.40	31.45
2017	31	11.48	42.93
2018	34	12.59	55.59
2019	25	9.25	64.77
2020	29	10.74	75.51
2021	22	8.14	83.65
2022	8	2.96	86.61
Others* which have not mentioned publication year	33	12.22	98.86

Source: Author

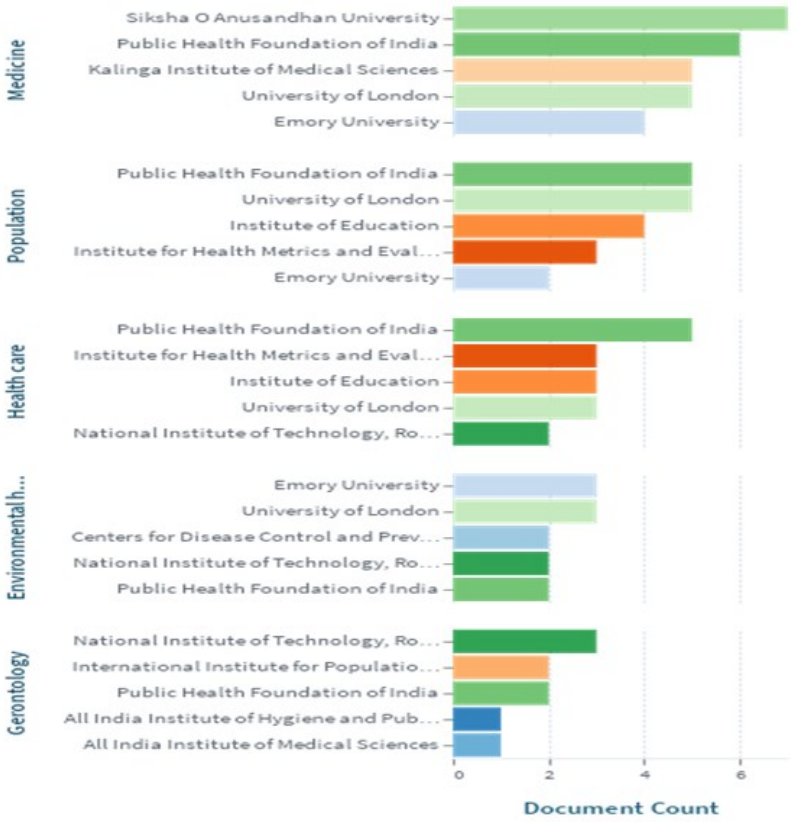

Fig. 1: Year-wise distribution of papers
Source: Len. org

Institution-wise publication analysis: Sikhya 'O' Anusandhan University ranked first in the highest contribution, has 7 (2.59%) number of publications (Fig. 2).

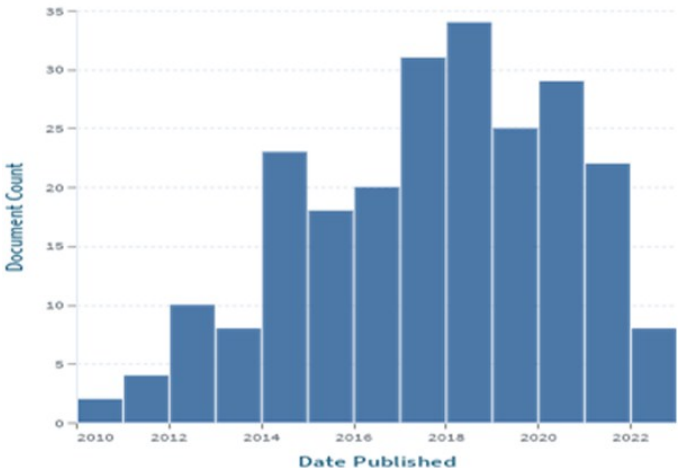

Fig. 2: Institution-wise publication
Source: Len. org

Journal-wise publication analysis: Public Health, Lung India: official organ of the Indian Chest Society, Indian Journal of Ophthalmology, and International Journal of Research in Orthopaedics are the most active journals that have at least 3 publications. Documents published in Elsevier Ltd. received the highest citations per document (Fig. 3).

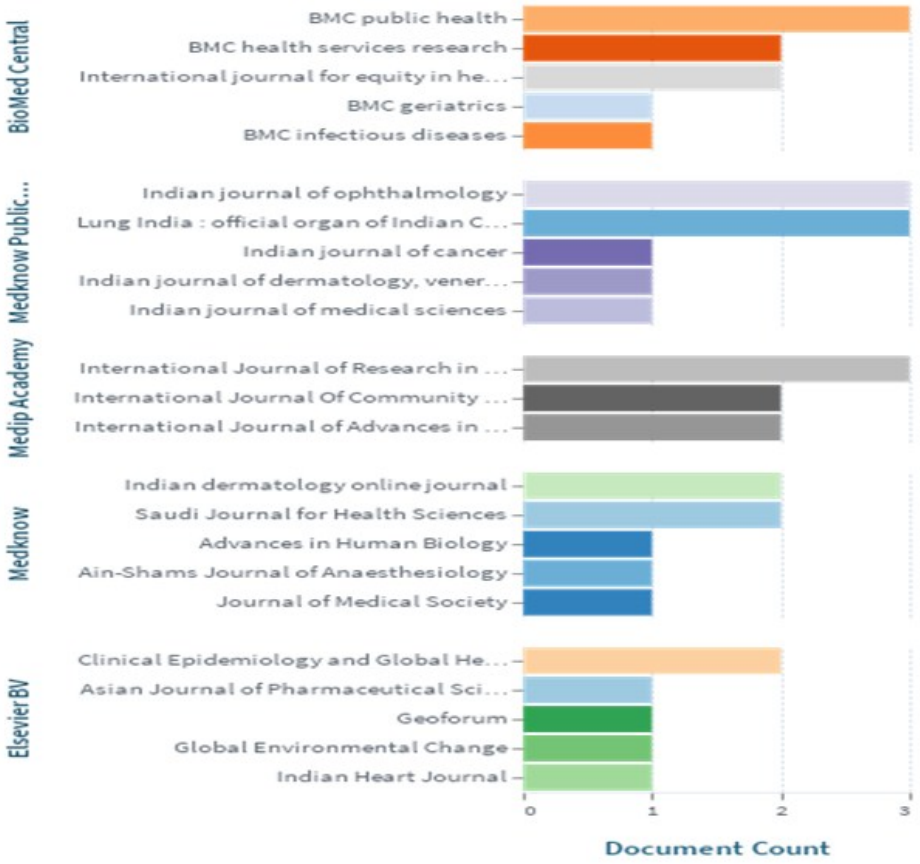

Fig. 3: Journal wise publication analysis
Source: Len. org

Distribution of page length of articles: Most of the articles 36.296% (98) were published in the source journal between 6-10 pages, followed by 71 (26 %) articles between 11-15 pages, 55 (20%) articles within 0 to 5 pages. Only 10 % (27) articles and 7 % (19) articles are above 16-20 pages and above 20 pages respectively. This shows that documents were published between 6-10 pages, which is the highest in number. While only 7.037% (No.) documents were published more than 20 pages and above (Table 2).

TABLE 2

Distribution of page length of articles

Documents based on number of pages	Number of documents	Percentage
0-5	55	20.37
6-10	98	36.29
11-15	71	26.29
16-20	27	10.00
20 and above	19	7.03

Source: Authors

Author-wise Publication Analysis

Most prolific authors: The data depicted in Table 3 highlights some of the prolific authors who significantly contributed to 3 articles on studies of the elderly population. The total output was contributed by 851 authors as single or joint. Based on analysis of the data, Sanghamitra Pati topped the list with 11 number (4 %) of total number of publications (Table 3).

TABLE 3

Author-wise publication analysis

Author Display name	Document count
Sanghamitra Pati	11
Jalandhar Pradhan	7
Pallavi Banjare	7
Shakti Ranjan Barik	6
Subrata Kumar Palo	6
Tanuja Mohapatra	6
Trilochan Bhoi	6
Lalit Dandona	5
Thomas Clasen	5
Aloke Gopal Ghoshal	4
Anamika Pandey	4
George B Ploubidis	4
Jaya Singh Kshatri	4
Lynda Clarke	4
Parimita Routray	4
Parvaiz A Koul	4
Randeep Guleria	4
Rinshu Dwivedi	4
Virendra Singh	4
Abinash Panda	3
Amita Nene	3
Anirban Sarkar	3
Ansuman Mukhopadhyay	3
Arunima Ray	3
Belen Torondel	3
Bethany A Caruso	3
Bharati Panda	3
D J Christopher	3
Debasmita Barik	3
Georgi Abraham	3

Source: Authors

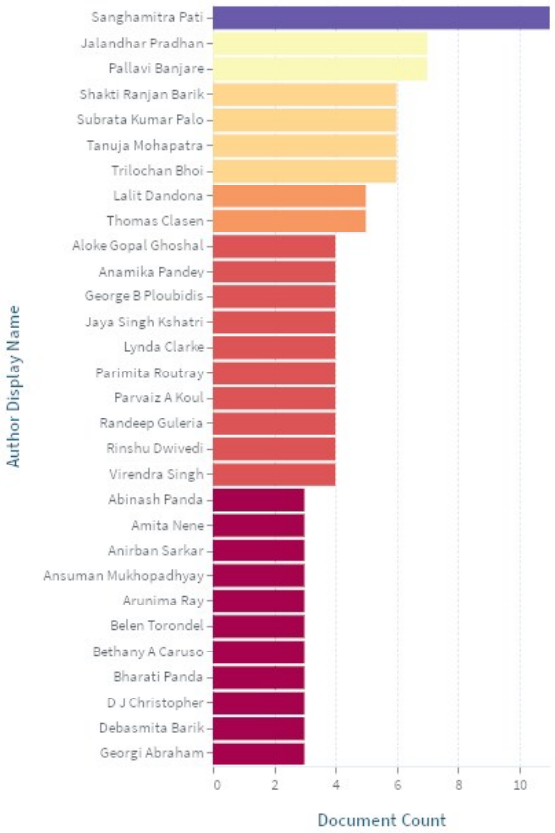

Fig 4: Author-wise publication analysis
Source: Len. org

Authorship pattern: The authorship pattern of papers was studied to determine the percentage of single, double, and multiple authorships. A total number of 851 authors are there for 270 papers. The highest number i.e., 65 papers were by single authors (24.07%), followed by 34 papers with 2 authors (12.59%). 26 (9.62%) papers have 3 authors, and 145 (53.7%) papers are authored by 4 and above co-authors. It shows that during this period, most authors contributed their papers with joint authorship which means more than 3 authors (Table 4).

TABLE 4

Authorship pattern

Authorship Pattern	No of Authors	Percentage (%)
Single author	65	24.07
2 co-authors	34	12.59
3 co-authors	26	9.62
4 and above co-authors	145	53.7

Source: Authors

Citations Analysis

Authors, documents, and citation analysis: Out of 851 authors, with a minimum of 3 documents and 3 citations of an author, 21 meet the threshold. Out of 851 authors, with a minimum of 4 documents and 4 citations of an author, 15 meet the threshold. Out of 851 authors, with a minimum of 5 documents and 5 citations of an author, 8 meet the threshold (Table 5).

TABLE 5

Citation analysis

Number of authors	Number of citations	Authors meeting thresholds	Percentage (%)
851	3	21	2.45
851	4	15	1.76
851	5	8	0.94

Source: Authors

Citation per document: Out of 270 documents, on a minimum of 3 citations of a document, 107 documents meet the threshold; on a minimum of 5 citations of a document, 96 documents meet the threshold; on a minimum of 10 citations of a document, 69 documents meet the threshold; on a minimum of 15 citations of a document, 50 documents meet the threshold; on a minimum of 20 citations of a document, 42 documents meet the threshold; on a minimum of 25 citations of a document, 36 documents meet the threshold (Table 6).

TABLE 6

Citation per document

Number of authors	Number of citations	Authors meeting thresholds	Percentage (%)
270	3	107	39.62
270	5	96	35.55
270	10	69	25.55
270	15	50	18.51
270	20	42	15.55
270	25	36	13.33

Source: Authors

Analysis of co-occurrence of keywords: To analyze the occurrence of a keyword means to analyze how many times a keyword is used by different authors. Out of 585 keywords, a minimum of 3 times the occurrence of a keyword, 46 keywords meet the threshold. That means 46 keywords are common occurrences at frequency label 3. While the frequency of labels rises the no. of keywords is diminishing. 8 keywords have occurred at least 15 times. That means out of 585 keywords, a minimum of 15 times the occurrence of a keyword, 8 keywords meet the threshold. Aged, Female, Male, India, etc. are the most used keywords by the authors while dental effects, comorbidity, geriatrics, etc. are used less by the authors. Similarly, out of 585 keywords, a single minimum of 5 times the occurrence of a keyword, 22 keywords meet the threshold. Out of 585 keywords, a minimum of 10 times the occurrence of a keyword, 12 keywords meet the threshold (Table 7).

TABLE 7

Analysis of co-occurrence of keywords

Minimum number of occurrences of keyword	Keywords meeting thresholds
1	585
3	46
5	22
10	12
15	8

Source: Authors

DISCUSSION

Several useful facts have been discovered from the bibliometric analysis of the studies on the elderly population in Odisha. The output showed 270 number of scholarly articles by 851 authors. Out of a total of 270 articles, the maximum number of publications was recorded in 2018 (34 articles, 12.59%) while the minimum was in the year 2010 (2 articles, 0.74%). The highest proportion of papers were by single authors (24.07%), followed by papers with 2 authors (12.59%), 3 co-authors (9.62%), and 53.70% by multiple authors (4 or more than 4 authors). Ms. Sanghamitra Pati appeared as the most prolific author, having the highest number of publications. The top four journals are BMC Public Health, Indian Journal of Ophthalmology, Lung India, and International Journal on Research on Orthopedics. Documents published by Elsevier Ltd. received the highest citations per document. Sikhya O Anusandhan University is the most active institution in publishing. The highest number of papers were published in the year 2018 in the last decade.

CONCLUSION

Analysis of scholarly publications through bibliometrics facilitates the interpretation of structures and trends in the respective disciplines. This type of bibliometric analysis affords the identification of characteristics of a particular research field and may

contribute to revealing future research topics. Bibliometric methods have been used for various purposes viz. identification of different scientific indicators, analysis of scientific results and to predict the potential of a field. Bibliometric analyses can be implemented at a conceptual or intellectual level to investigate authorship and collaboration patterns. The results of the present study may represent a useful means of performing future research. The methodology applied in the present study could be applied to the analysis of other journals, as it may contribute to identifying the trends and likely future developments.

ACKNOWLEDGMENT

The authors are thankful to Odisha State Higher Education Council (OSHEC), Dept. of Higher Education, Odisha for providing funding under OURIIP for the research on elderly people.

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