

Research Article

Sexual Activity of the Elderly During the COVID-19 Pandemic

Bayu Prastowo* and Aluf Mumtaziah Windayati

Department of Physiotherapy, University of Muhammadiyah Malang, Indonesia

ORCIDBayu Prastowo: <https://orcid.org/0000-0002-6249-3299>**Abstract.**

The increase in the productivity of the elderly population causes the elderly to become a population at risk. The health problems of the elderly are caused mainly by non-communicable diseases (NCDs). Soft tissue pain, functional limitations, and pelvic floor muscle disorders (PFMDs) predominate in the disease. The incident of the relationship between sexual activity and PFMDs during the pandemic is an interesting discussion. The research discussion uses bibliometric methods and a simple PICO review to analyze linkages and metadata. Pathophysiological sequences show a link between the two. Meanwhile, bibliometric studies indicate that studying the pelvic floor and organs is a novel recommendation compared to sexual dysfunction.

Keywords: COVID-19, elderly, sexual activity, pelvic floor muscle disorders

Corresponding Author: Bayu Prastowo; email: bayuprastowo@umm.ac.id

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1. Introduction

The projection of the aging phenomenon on the world's population is a demographic bonus. Aging is defined as the increasing age of the population (1). This phenomenon becomes a demographic bonus if age increases productivity. However, aging is associated with the condition of the elderly or elderly population. The category of the elderly in Indonesia is the population that has reached the age of 60 years and over (2,3). The proportion of the elderly population in Indonesia is increasing every year. In 2021, the percentage of the elderly population in East Java will be the second largest in Indonesia, reaching 14.53%. Meanwhile, three out of ten, or 29.52% of the population in Indonesia, are dominated by elderly women (4,5).

The productive elderly in Indonesia reached 59.21%. The productivity category includes his role as the head of the household and is responsible for daily needs. This productivity reflects the level of welfare of the elderly. This productivity shows the level of welfare of the elderly. These aspects include health, social, and economical.

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Implementing the sustainable development goals (SDGs) program is reported to be able to control various problems (6). However, during the corona virus-19 pandemic, there was an increase in productivity for the elderly population category in the form of additional working hours. The percentage of elderly productivity in the young category (60-69 years) is 3.13%. The elderly in the middle category (70-79 years) amounted to 2.95%. The elderly (those over 80) receive an additional 3% of working hours (5).

The increase in the productivity of the elderly population causes the elderly to become a population at risk. The elderly as a population at risk based on the decline in physiological function due to aging. A decrease in the immune system or the body's immune system makes it vulnerable to the corona virus-19 (5). However, the health problems of the elderly are caused mainly by non-communicable diseases (NCDs). The disease is 95% caused by soft tissue pain, functional limitations, and pelvic floor muscle disorders (PFMDs). PFMDs are primary aging as a result of the process of progressive changes in genetic function (7). Physiologically, sexual activity can trigger the production of the hormonal system, and the hormone causes explicitly the oxygenation of various soft tissues (8). So, continuous oxygenation provides a relaxing effect on soft tissues to minimize the occurrence of PFMDs. Aging in the elderly is a consideration in sexual activity (9,10).

The relationship between sexual activity and PFMDs theoretically requires proof through research studies with various approaches. This study uses bibliometric methods to see research trends, literature trends, and collaboration networks to analyze the interrelationships of these events. Bibliometric studies also function for assessment, mapping, and recommendations in planning, developing, or the novelty of scientific studies (11).

2. Materials and methods

This study applies publication metadata analysis with the bibliometric method. However, the discussion of this research is based on the science of physiotherapy. Search publications using the search engine Harzing's Publish or Perish (PoP) Windows operating system edition, version 8.2.3944.8118 from Tarma Software Research Ltd. The search engine functions are used to reduce metadata based on keywords and publication types. The reduction is based on the keywords sexuality activity, elderly, old age, pelvic floor, and sexual dysfunction in the form of journal articles. The metadata used in this study was set for publication in 2022. The output metadata from PoP in Research Information Systems (RIS) and Comma Separated Values (CSV) file formats are used

as input files for chart map analysis. The metadata is sourced from publishers such as Scopus, Semantic Scholar, and Crossref. Metadata analysis using VOSviewer version 1.6.17 creates graph mapping projections of network visualization, overlay visualization, and density visualization. Detailed mapping analysis using a searching, clustering, zooming, and scrolling system. The schema mapping adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method, shown in **Figure 1** (1).

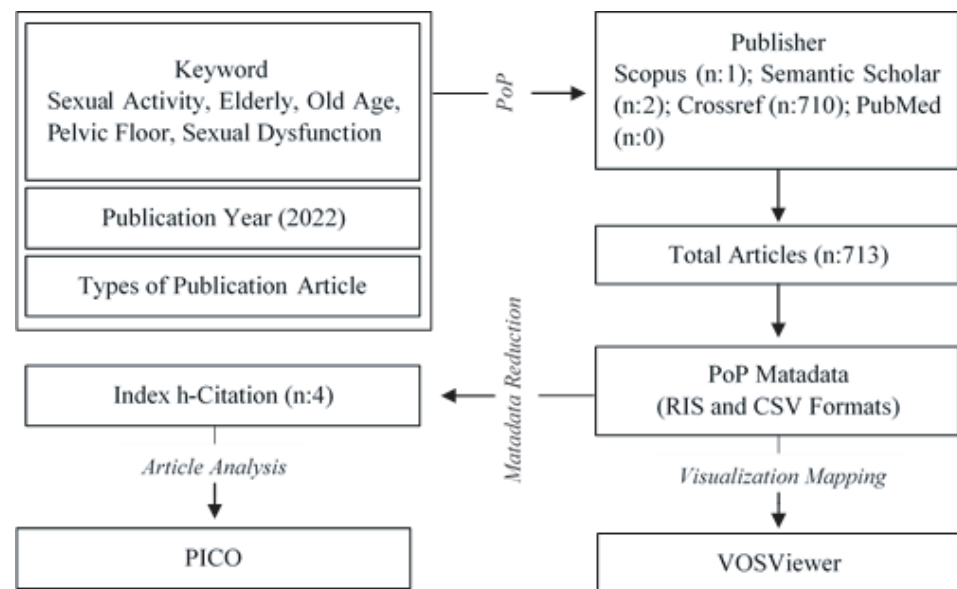


Figure 1: Schema of PoP metadata.

3. Results

3.1. PoP metadata search

Figure 2. Metadata searches from publishers Scopus, Semantic Scholar, Crossref, and PubMed obtained 1, 2, 710, and 0 journal articles. The articles include one proceeding, three literature reviews, and 709 case studies. In addition, three articles with an h-citation index on the Crossref publisher were obtained. In 2022, the topic of research publications on elderly sexual activity was dominated by publisher Crossref. However, the PubMed publisher did not find any articles, reports, books, or anything else. Publications in 2022 cannot be interpreted as experiencing fluctuating or significant developments from the previous few years until this research is published, and this is due to the absence of an annual accumulation period. In addition, publications obtained from searches range from January to June 2022 (8,11).

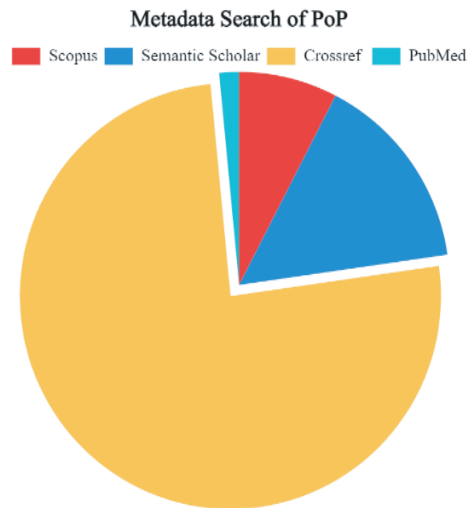


Figure 2: Results of PoP metadata.

3.2. Visualization mapping of a researcher

The VOSviewer mapping in **Figure 3** shows the network, overlay, and density visualization. The Network visualization shows the relationship between one researcher and another based on the co-citation of 182 links (**Figure 3a**). The distance from one point to another indicates the size of the relationship. Network mapping shows that two cluster items mean the intensity of the researcher's dominance. The first cluster of 14 items was dominated by Adami et al., and the second cluster of 9 items was dominated by Alves et al. Researchers in the first and second clusters are related to each other through links. The relationship between the two researchers is evidenced by the collaboration of articles published by the Semantic Scholar publisher. Adami et al. had 22 collaboration link publication productivity compared to Alves et al., who had 13 collaboration links. The density visualization confirms this in **Figure 3c**. Density, size, and distance between items show the same meaning as network visualization. Density visualization showed a clear difference between the researchers' Adami et al., dominating when compared to Alves et al. While the visualization overlay in **Figure 3b** shows a blue to yellow (green) color gradation. The color gradation means the item's score is between low (blue) and high (yellow). This score indicates that the researcher gives an impact factor to the journal in the medium category (11).

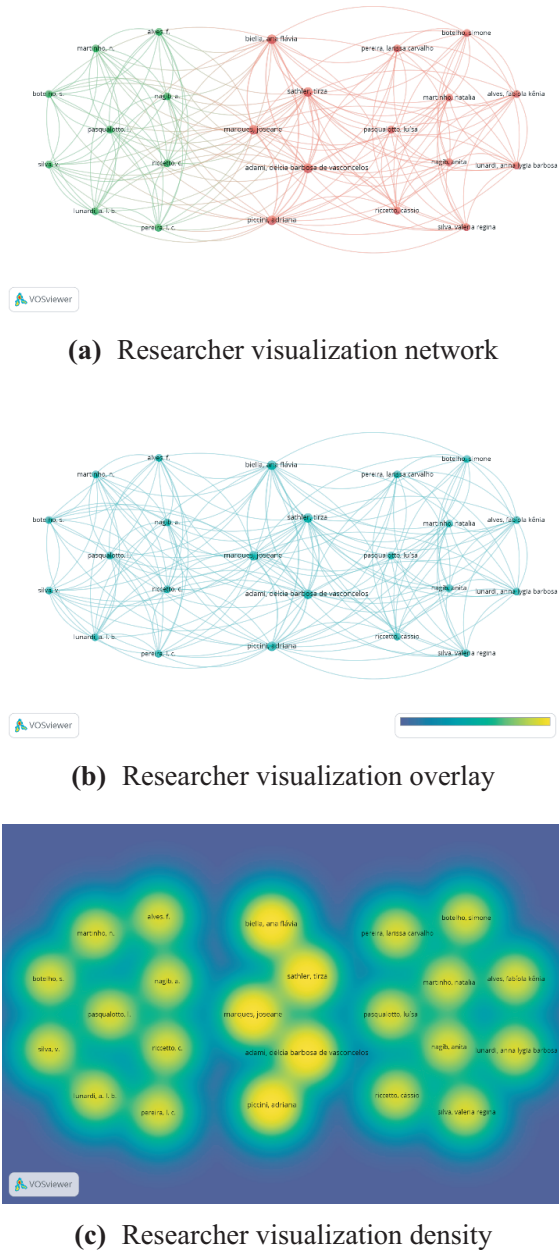


Figure 3

3.3. Visualization mapping of research topic

The VOSviewer mapping in **Figure 4** shows the network, overlay, and density visualization as in **Figure 3**. The visualization network in **Figure 4a** has 3125 items, 65 clusters, and 42196 links. The level of cluster items is indicated by differences in color variations. All of these items are not entirely linked by links or have a relationship. The research topic item that dominates the research topic is dysfunction. The topic of dysfunctional research has links to various other topics, as many as 621 links.

Meanwhile, the color gradation of the pelvic floor and pelvic organ items indicates the renewal of the research topic. The map is shown in **Figure 4a** and confirmed in **Figure 4c**. The density visualization map shows the Density of the yellow color, a parameter that the research topic is the center of the discussion or problem. The development of future research topics can be done based on the low color density. The visualization overlay map in **Figure 4b** shows the same situation as in **Figure 3b**. Mapping the research topic indicates that the research topic provides an impact factor in the moderate category. However, the impact is not seen as robust or low based on the metadata obtained in just one year. So there is no comparison with the previous year (11).

4. Discussion

Searching, mapping, and visualizing articles from Scopus, Semantic Scholar, and Crossref show dysfunction as the main topic of discussion in various cases of sexual activity in the elderly in 2022. However, the discussion in this study refers to the article's findings using PoP as a form of confirmation map. The mapping is done through a simple review approach to each article from Scopus, Semantic Scholar, and Crossref. The source of the article for discussion is the one with an h-citation value (11). The discussion of framing a question to analyze the article uses the adapted PICO approach. PICO is an evidence-based model used to explore general information or specific knowledge through critical question types (12).

The aging phase in the elderly population is a transitional event and a decline in human physiological functions (13)—overall functional decline, including the function of sexuality. Self-care theory states that sexuality is closely related to physical, psychological, social, and cultural aspects, not just procreation or sexual intercourse (14). Expression of sexual activity in the elderly has benefits for the body's metabolic system. However, these expressions are inhibited by cultural stereotypes, decreased emotional and intimate social bonds, decreased physical function, and relationships that are not psychologically supportive. The emergence of one of these inhibiting factors causes the elderly to hold back sexual expression or activity. This happens to both men and women (15).

Gender recreates an essential role in the sexual activity of the elderly (16). The decline in the physiological function of elderly women occurs earlier when compared to men. Functions that play a role in decreased sexual activity include thinning of the skin layer, atrophy, rauge, decreased lubrication, and dyspareunia genitalia (17,18). Meanwhile, men have a more extended menopause age range compared to women

The pelvic floor is a complex muscle consisting of superficial and deep layers. The pelvic floor supervisory muscles include the bulbospongiosus, ischiocavernosus, perineal, and anal sphincter muscles. Meanwhile, the deep pelvic floor muscles include the levator ani puborectalis, pubococcygeus, and iliococcygeus muscles. Pelvic floor muscle function regulates and controls intra-abdominal pressure and genital function. Examining the sexual function and pelvic floor symptoms can determine the quality of these functions. The recommended sexual function examinations include the female sexual function index (FSFI), the Cervantes scale measuring the sexual response cycle on quality of life (QoL), the sexual health domain of the pelvic pain symptom scale, and the sexual health inventory for men (SHIM). In comparison, the pelvic floor symptoms examination includes the Likert visual analog scale, urgency-frequency, visual analog scale (VAS), and O'Leary-Sant problem index (22).

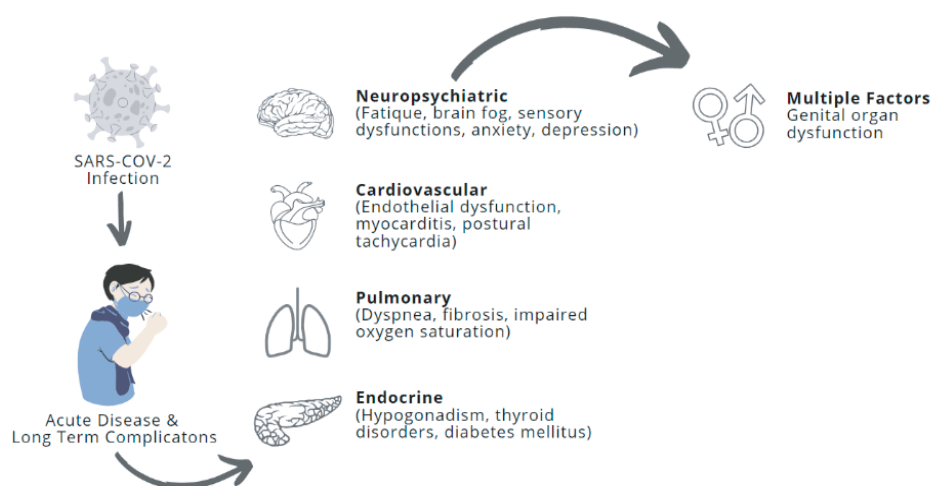


Figure 5: Scheme of COVID-19 pathophysiological.

The current condition of PFMDs is exacerbated by the presence of the coronavirus disease-19 (COVID-19) originating from SARS-CoV-2. COVID-19 can trigger the occurrence of PFMDs. The general finding from COVID-19 is that they experience brain fog and fatigue. However, recent findings suggest that it can cause a decrease in sexual activity. Pathophysiologically, this sequence is shown in **Figure 5**. The relevance of COVID-19 to sexual activity is a decrease in oxygen saturation. Decreased cardiovascular function due to fibrosis, anemia, and hypoxic hypoxia. Oxygen is an essential substrate for nitric oxide (NO) production. The body synthesizes NO from the amino acid L-arginine and the enzyme nitric oxide. The synthesis process is through a molecular system or the inner lining of blood vessels. In general, a person with a history of chronic obstructive pulmonary disease and interstitial disease causes NO production to be impaired. These compounds act as vasoactive blood vessels and alveolar gas exchange

and play a role in the release of the hormonal system. The release of NO from nerves and corpus cavernosum endothelial cells in the genital organs causes an erectile response. The process of releasing NO is through a diffusion system from smooth muscle cells to the spongy genital tissue in males (23). Meanwhile, the release of the activating hormone also causes oxygenation of various soft tissues through blood vessels so that it triggers a domino effect reaction of physical and psychological relaxation (9).

5. Conclusion

The publication of articles and publishers in 2022 on the topic of finding the sexual activity of the elderly is dominated by Crossref. The VOSviewer visualization mapping shows that the research topic of the pelvic floor and pelvic organs have a low color density gradation when compared to dysfunction. The low color density shows the novelty of the topic of discussion. The bibliometric approach provides recommendations for research topics for the renewal and development of further research. However, research by case studies or observational studies needs to be done to confirm the suitability of the theory to problems and/or clinical cases (11).

6. Conflict of Interest.

There are no conflicts of interest.

Acknowledgments

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