Review

What Are the Emerging Trends, Research Gaps, and Future Directions of Personalized Care in Nursing?

Satriya Pranata[1], Shu-Fang Vivienne Wu[2], Shu-Yuan Liang[2], Yeu-Hui Chuang[3]

[1] Departement of Nursing, Faculty of Nursing and Health Sciences, Universitas Muhammadiyah Semarang, Semarang, Central Java, Indonesia
[2] Departement of Nursing, Faculty of Nursing, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan
[3] Departement of Nursing, Faculty of Nursing, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan

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Correspondence
Satriya Pranata; Departement of Nursing, Faculty of Nursing and Health Sciences, Universitas Muhammadiyah Semarang, Semarang, Central Java, Indonesia.

Email:
Satriya.pranata@unimus.ac.id

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ABSTRACT

Background: Trends show that research on personalized care continues to increase annually. In future studies, researchers need information on trends and innovations to inform personalized care research. The purpose of the study was to explore the trend of the number of publications, the trend of the number of citations, the journal with the highest number of publications, which field has the most consent to publish, network visualization, overlay visualization, and density visualization on the topic of personalized care through bibliometric analysis.

Methods: This study qualifies as a bibliometric analysis. Papers in this study are restricted to those published from 2021 to 2026, with a focus on the fields of health sciences and nursing, and on publication types. The data sources used in this study are based on online searches via https://app.dimensions.ai/. Data was collected in January 2026. Researchers analyse the data using VOS viewer.

Results: Research on personalized care began to increase in 2021, peaking in 2025. Through this study, we identified that the use of artificial intelligence can achieve the goal of personalizing patient needs. Numerous studies have been conducted on the development of artificial intelligence in nursing, but they are still limited to systematic reviews, scoping reviews, literature reviews, and meta-analyses. Moreover, the system surrounding the patient to achieve personalization comprises family, caregivers, health workers, and the patient. The tendency of which diseases are most often developed and discussed in the personalized care approaches is cancer (lung cancer and breast cancer), chronic diseases (diabetes, heart disease, and kidney disease), with cancer being the most frequently discussed topic. The focus of personalized care interventions across various diseases is on exercise, diet, medication adherence, and chemotherapy. Overall, personalization is expected to reduce levels of anxiety, fatigue, complications, and depression, as well as improve the quality of life of each patient. On the other hand, the least frequently discussed topics in personalized care are patients with mental disorders, dementia, cancer, self-care, and spiritual care.

Conclusion: Personalized care emphasizes not only the use of artificial intelligence and genetic technology to identify each patient's individual needs but also considers patient preferences and health profiles. Personalized care is a challenge that must be addressed to improve patient satisfaction with healthcare services in the future.

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Keywords: Patient Preference; Patient-Centered Care; Publications; Personal Health Services; Genetic Profile.

Implications for Practice:

- The personalized care approach is unique for individuals with different values, preferences, cultures, and life goals.
- Through personalized care, nursing practice will no longer focus solely on medical diagnosis and treatment, but also on the patient's life experiences, psychosocial, spiritual, and cultural needs.
- In personalized care, nurses will increasingly act as partners with patients, rather than simply providers of care.

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Introduction

Personalized care is an approach currently the focus of studies in various countries (Ginsburg & Phillips, 2018). Furthermore, many hospitals across the country are already promoting personalized care in their patient care (Havas et al., 2017; Pranata et al., 2021). This approach has become a trend in various countries since the development of genetic and genomic approaches, particularly in developed countries, due to the support of technology in their respective countries (Zhao et al., 2022). Furthermore, developed countries have been collecting patient data through big data, allowing the personalized approach to flourish (Ionut, 2015; Lv & Qiao, 2020).

The primary goal of personalized care is to improve clinical outcomes through precise treatment based on genetic considerations, biomarkers, phenotypes, or psychosocial characteristics, matched through big data, and based on the clinical presentation of each patient (Goyal Mehra et al., 2022; Record et al., 2021). Furthermore, personalized care is expected to be tailored to each patient's preferences and oriented towards their unique individual needs. Personalizing patient needs will increase patient satisfaction (Pranata et al., 2022; Schiano Moriello et al., 2024).

The trend of the personalized care approach can be seen in Google Trends search data by typing in the keyword "personalized care." Upon closer inspection, the data shows a positive trend in various countries continuing to develop research on this topic. Google Trends shows that research on personalized care continues to increase annually, particularly in the 2025-2026 period, where the numbers are even higher. Presented in **Figure 1.**

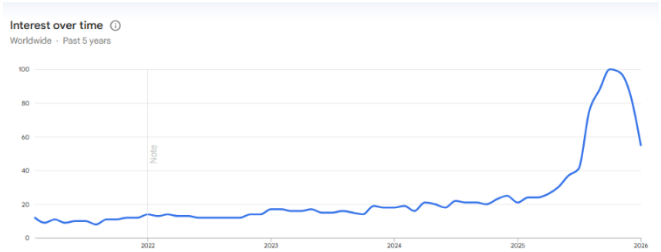

Figure 1. Interest of personalized care 2025-2026 period

The countries that most frequently discuss personalized care are India, the United States, Japan, Germany, and China. The trend is presented in Figure 2.

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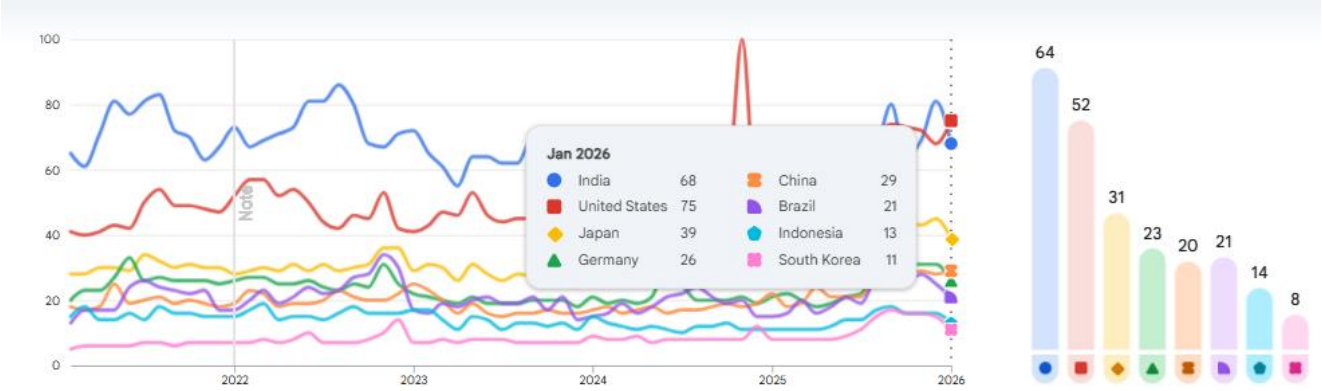

Figure 2. The countries that most frequently discuss personalized care

The data shows that interest in personalized care is high, especially in 2025-2026, across various countries. However, the data is still considered insufficiently detailed and clear. In future studies, researchers need information on trends and innovations to inform personalized care research. The results of bibliometric analyses may guide future studies by determining the quality and main research areas of existing publications in specific fields. Bibliometric analysis is a scientific and quantitative method for assessing published works, identifying development trends and research hot spots in specific research fields, and providing guidance for future research. Bibliometric analysis helps researchers identify emerging areas and future directions in research domains using visualization tools. Various authors have used bibliometric analysis to evaluate information theory listed in international databases. Moreover, through bibliometric research, researchers can easily obtain information about subjects of interest from among the numerous and increasing number of published articles (Lam et al., 2022). From this Personalized care is an approach currently the focus of studies in various countries (Ginsburg & Phillips, 2018). Furthermore, many hospitals across the country are already promoting personalized care in their patient care (Havas et al., 2017; Pranata et al., 2021). This approach has become a trend in various countries since the development of genetic and genomic approaches, particularly in developed countries, due to the support of technology in their respective countries (Zhao et al., 2022). Furthermore, developed countries have been collecting patient data through big data, allowing the personalized approach to flourish (Ionut, 2015; Lv & Qiao, 2020).

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inform personalized care research. The results of bibliometric analyses may guide future studies by determining the quality and main research areas of existing publications in specific fields. Bibliometric analysis is a scientific and quantitative method for assessing published works, identifying development trends and research hot spots in specific research fields, and providing guidance for future research. Bibliometric analysis helps researchers identify emerging areas and future directions in research domains using visualization tools. Various authors have used bibliometric analysis to evaluate information theory listed in international databases. Moreover, through bibliometric research, researchers can easily obtain information about subjects of interest from among the numerous and study, it will be identified how many publications, networks, overlays, and density visualizations of personalized care exist. Thus, the purpose of the study was to explore the trend of the number of publications, the trend of the number of citations, the journal with the highest number of publications, which field has the most consent to publish, network visualization, overlay visualization, and density visualization on the topic of personalized care through bibliometric analysis. We hope this study makes personalized care information more accessible to readers, especially nurses, to improve the quality of nursing services for patients in the future.

Methods

Design

This study qualifies as a bibliometric analysis. Bibliometric analysis is more suitable for quantitatively examining the distribution of research papers, terms, and keywords to determine research trends. Bibliometric analysis is essential for assessing research impact, in which studies are ranked by the number of citations they receive.

Eligibility Criteria

Papers restricted in publications years 2021 - 2026, with a focus on the field of health sciences, nursing, and publication types, were included in this study. Papers that do not meet these criteria were excluded from the study.

Information Sources

We combined the keywords personalized care and personal care using Boolean AND and OR. The data sources used in this study are based on online searches via https://app.dimensions.ai/. Data was collected on January 2026. The literature search used the stages following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart.

Search Strategy

The stages in PRISMA include identification, screening, and inclusion, as shown in Figure 3. (Identification) detects 787.922 records from dimensions.ai. Dimension AI is a comprehensive platform for scientific research databases. It provides access to a wide range of scientific information sources, including publications, research data, grants, and policies, and offers advanced search features, bibliometric analysis, and interactive data visualization. Dimension AI also enables publication and citation impact analysis and supports a variety of research needs. The main search terms (personalized care), "article and proceeding document type", and "all published data in the data range from 2021 to 2026 included in this study.

Selection Process

The option "article title, abstract" was selected in the field of each search term, resulting in 79.507 articles being excluded.

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In phase 3 (included), the final sample yielded 2.650 articles. Details of the process are shown in **Figure 3.**

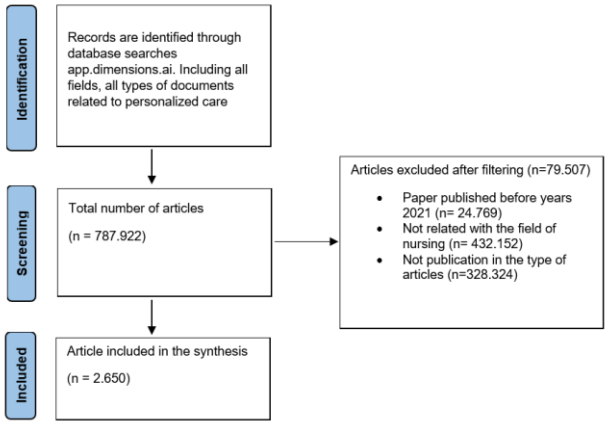

Figure 3. PRISMA Flowchart

Study Risk of Bias Assessment

Researchers (SP, SFVW, SYL, and YHC) analyse the picture in the Vos viewer to ensure the data description is accurate.

Synthesis Methods

Data were analysed using VOS viewer. VOS viewer is a computer program for creating and viewing bibliometric maps.18 The type of analysis is selected to create a map based on text data. In this study, the analysis was reviewed by the author. The analysis procedure involves selecting the type of data and creating a map based on bibliographic data. Choose data source: Read data from reference manager files. Supported file type: ris. Choose the type of analysis and counting method by full counting. Choose threshold: the maximum number of documents for an author that are calculated.

The procedure for co-occurrence analysis proceeds through the following stages: the data source is selected, and data are read from the reference manager files. The selected fields from which terms will be extracted are the title and abstract fields. The counting method is selected as full counting. The threshold is set to 10, the minimum number of occurrences for a term. The selected choice of several terms is 133.

Results

Results

The results of this study summarize the number of publications, citations, network, overlay, and density visualizations related to personalized care. The data is shown below.

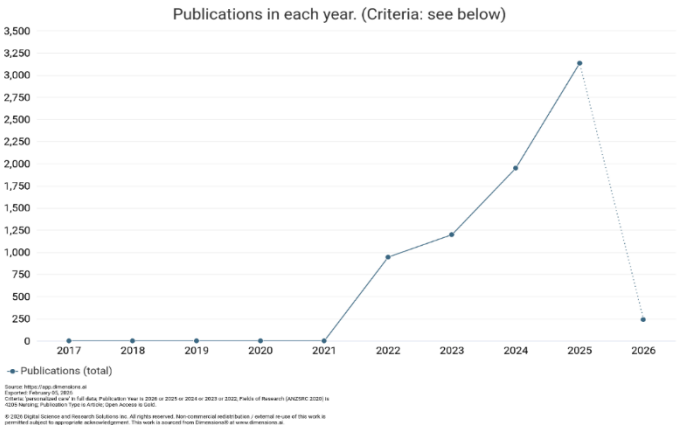

Figure 4. Number of publications each year

Figure 4 shows an overview of the number of publications on personalized care from year to year. This overview allows readers to identify how frequently this topic is addressed by researchers each year.

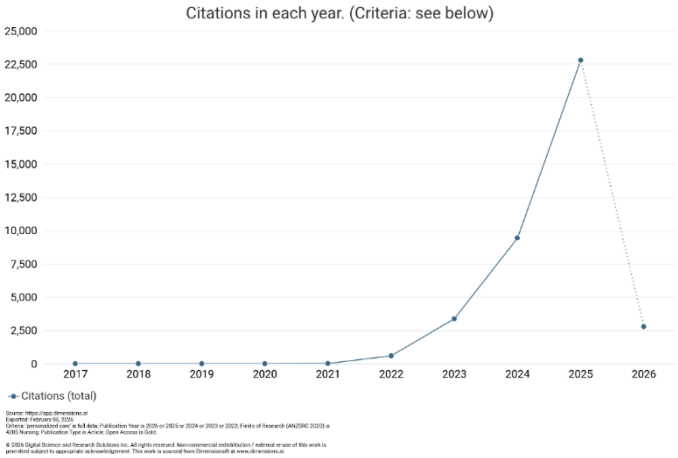

Figure 5. Number of citations each year

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Figure 5 shows the trend in the number of papers citing studies on personalized care each year. This chart demonstrates the tendency of researchers to develop these studies, and their development can be tracked.

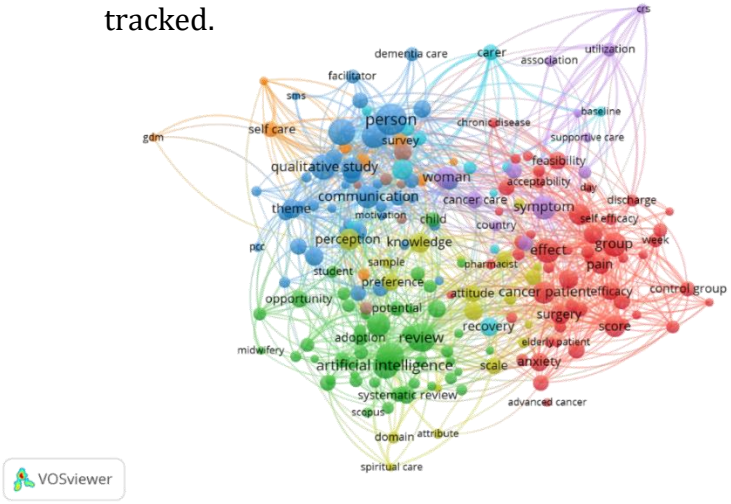

Figure 6. Network visualization

Through **Figure 6,** readers can identify connections between studies. **Figure 6** shows readers not only personalized care and the domains that shape it, but also the connections between other concepts. This makes it easier for researchers to identify the direction of personalized care development when linked to other concepts, further clarifying the concept.

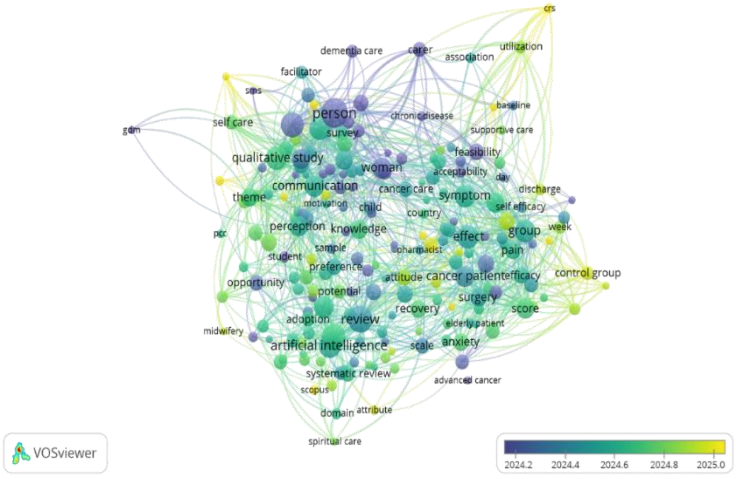

Figure 7. Overlay visualization

Figure 7 shows the novelty of the concept by identifying the brightness of the colors shown. Brighter colors indicate that new studies on the concept are currently underway. **Figure 7** indicates that the development of personalized care is now in the experimental study development stage.

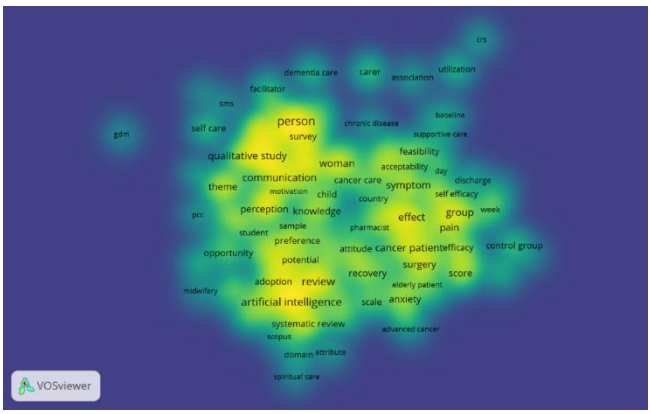

Figure 8. Density visualization

Figure 8 shows the novelty of the topic. Topics clustered in the center indicate that many researchers have conducted studies on them. Furthermore, topics further away from the center indicate that the topic has not received much research.

Discussion

By looking at the number of publications on personalized care in Figure 4, readers can see that research on personalized care began to increase in 2021, peaking in 2025. 2026 is still relatively small, as it is still early in the year. It is estimated that interest in personalized care among researchers, readers, and authors will continue to grow. This aligns with a 2024 study, which stated that the direction of future treatment approaches will be determined by genomic data and patient profiles to determine the best interventions for patients (Moriello et al., 2024). This trend continues to be supported by the rapidly evolving research on personalized care year after year. Figure 5

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shows a spike in citations in 2022. This is relevant because Figure 4 shows that research on personalized care increased only in 2021, so the number of citations will increase in the following year. Looking at the citation trend, it appears that the number of citations in personalized care studies continues to increase year after year, peaking in 2025 and predicted to continue increasing in the future. This data aligns with studies stating that developed and developing countries are continuously competing to collect big data to identify patient needs algorithmically. With the vast amount of big data collected, studies are increasing, followed by year-on-year citations on big data for achieving personalized care in the future (Singh, 2023).

Personal care will grow in demand due to growing awareness of mental and physical health, the need for time efficiency, and the desire for products tailored to specific individual needs (Goyal Mehra et al., 2022). People are increasingly aware of the importance of maintaining mental and physical health to reduce stress and increase happiness, which encourages routines, making personalized care a primary approach (Mahato et al., 2017). Furthermore, consumers are seeking products tailored to their specific needs, rather than generic ones. Personalized care services are increasingly in demand due to their convenience and time efficiency. Furthermore, personalized care is seen as an investment to prevent future health problems (Mahato et al., 2017; Tuot et al., 2022). Technological advances are enabling more accurate, preventative, and participatory care, making healthcare more personalized and effective. Economic growth increases per capita income, giving consumers greater purchasing power to afford personalized care in the future (Scheen, 2016).

The network visualization in Figure 6 shows that the data are grouped into three main clusters. The first cluster mentions the use of artificial intelligence to achieve the goal of personalizing patient needs. The use of artificial intelligence is necessary after going through the process of collecting data through big data (De Cock et al., 2022; Finkelstein et al., 2020; Ionut, 2015). Numerous studies have been conducted on the development of artificial intelligence in nursing, but they are still limited to systematic reviews, scoping reviews, literature reviews, and meta-analyses. Real development in artificial intelligence in nursing science has not yet occurred (Moriello et al., 2024). The second cluster mentions the system surrounding the patient to achieve personalization in the delivery of nursing services. This support system consists of family, caregivers, health workers, and the patient themselves. Supporting components between systems are said to require good communication and mutual trust (Founds, 2018; Subramanian & Hirsch, 2014). The third cluster shows the tendency of which diseases are most often developed, and personalized care approaches. Among these diseases are cancer, with lung cancer and breast cancer being the most frequently discussed diseases, and chronic diseases, with diabetes, heart disease, and kidney disease being the most frequently discussed topics. This data aligns with studies that suggest personalized care is particularly suitable for patients with cancer and chronic diseases because this approach utilizes individual genetic, molecular, and lifestyle data to tailor treatments, increase therapeutic effectiveness, minimize severe side effects, and improve quality of life (Mahato et al., 2017). This avoids the ineffective one-size-fits-all approach for complex disease conditions. The focus of personalized care interventions in various diseases focuses on personalized exercise, diet, medication

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adherence, and chemotherapy (Chodosh et al., 2014; Neff, 2017). Overall, personalization is expected to reduce levels of anxiety, fatigue, complications, and depression, as well as improve the quality of life of each patient (Moriello et al., 2024).

The overlay visualization in Figure 7 shows that research discussions still focus on review studies such as literature reviews, scoping reviews, systematic reviews, and meta-analyses. Research in the health sector has not yet focused on original studies. The least frequently discussed topic is personalization in cancer patients. Chronic diseases such as diabetes, heart disease, and kidney disease have been frequently researched through review studies. Several studies have shown that personalized care often overlaps with other concepts such as person-centered care, precision medicine, and tailored interventions. For example, the precision medicine approach popularized by the Precision Medicine Initiative in the United States focuses more on genetics and biomarkers, while personalized care in clinical practice often incorporates patient preferences, values, culture, and social conditions (Baker, 2015; Denny & Collins, 2021). Because definitions are not yet fully unified, many researchers are still conducting systematic reviews or scoping reviews to map concepts before developing concrete interventions.

From the density visualization in Figure 8, readers can see that the outermost and darkest images indicate a tendency to be rarely discussed by the nursing profession. The least frequently discussed topics in personalized care are patients with mental disorders, dementia, cancer, self-care, and spiritual care. By looking at the density visualization, it is clear that if a researcher wants to find novelty in the research, then this topic can be investigated by other researchers because discussions on this topic are still rarely conducted by researchers in the field of nursing, especially when related to personalized care. Conditions like major depressive disorder, schizophrenia, or bipolar disorder have highly variable manifestations across individuals. Biological, psychological, social, and environmental factors interact. Creating a consistent and standardized personalized model for these conditions is difficult, and this presents a challenge for future researchers, enabling them to achieve innovative research (Glasgow et al., 2018; Park et al., 2021). In conditions such as Alzheimer's disease, there is progressive cognitive decline in patients, so major challenges, such as limited patient communication, difficulty obtaining informed consent, and dependence on caregivers as data sources, become challenges for researchers in developing personalized care in the future (Singh, 2023). Developing personalized care for cancer patients presents a significant opportunity because they have diverse clinical conditions and require varying levels of intervention complexity. Personalized care is an attractive solution to develop. For low- and middle-income countries, the personalized care approach needs to be developed step by step. This is because the amount of funding needed to support this approach is quite large. Furthermore, preparing health workers with a deep understanding of genetic technology to achieve personalized care also requires investment and this requires a long time because it is related to specialized education that is not provided by all countries and is limited to developed countries.

Implications and limitations

The personalized care approach is unique for individuals with different values, preferences, cultures, and life goals. If this approach continues to be studied and developed, nursing practice will no longer

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focus solely on medical diagnosis and treatment, but also on the patient's life experiences, psychosocial, spiritual, and cultural needs. The author's limitations in compiling all references from various closed-access journals may make the information in this study incomplete. Furthermore, the studies analyzed were limited to English-language studies, so the potential for personalized information from various perspectives in each country may not be fully explored.

Relevance to Practice

In personalized care, nurses will increasingly act as partners with patients, rather than simply providers of care. This approach demands high levels of interpersonal communication skills, such as active listening, empathy, and shared decision-making, thus requiring healthcare professionals to place the patient as the primary focus of treatment and care. Ultimately, personalized care remains supported by evidence-based practice, but its implementation is tailored to each patient's unique preferences and circumstances.

Conclusion

Personalized care is a new approach in today's healthcare world. The development of personalized care continues in every country. Personalized care emphasizes not only the use of artificial intelligence and genetic technology to identify each patient's individual needs but also considers patient preferences and health profiles. Personalized care is a challenge that must be addressed to improve patient satisfaction with healthcare services in the future.

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CrediT Authorship Contributions Statement

Satriya Pranata: Conceptualization, Methodology, Supervision, Review & Editing, Writing - Original Draft

Shu-Fang Vivienne Wu: Software, Validation, Formal Analysis, Writing - Review & Editing

Shu-Yuan Liang: Investigation, Resources, Data Curation, Project Administration

Yeu-Hui Chuang: Review & Editing, Visualization, Funding Acquisition

Conflicts of Interest

There is no conflict of interest.

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References

Baker, K. A. (2015). Editorial: A new era for healthcare: Precision medicine. *Gastroenterology Nursing*, *38*(4), 249–250. https://doi.org/10.1097/SGA.0000000000000149

Chodosh, J., Morton, S. C., Mojica, W., Maglione, M., Suttorp, M. J., Hilton, L., Rhodes, S., & Shekelle, P. (2014). Improving Patient Care Meta-Analysis : Chronic Disease Self-Management Programs for Older Adults. *Annals of Internal Medicine*.

De Cock, D., Myasoedova, E., Aletaha, D., & Studenic, P. (2022). Big data analyses and individual health profiling in the arena of rheumatic and musculoskeletal diseases (RMDs). *Therapeutic Advances in Musculoskeletal Disease*, *14*, 1759720x221105978.

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https://doi.org/10.1177/1759720X21105978

Denny, J. C., & Collins, F. S. (2021). Precision medicine in 2030—seven ways to transform healthcare. In *Cell* (Vol. 184, Issue 6, pp. 1415–1419). Elsevier. https://doi.org/10.1016/j.cell.2021.01.015

Finkelstein, J., Zhang, F., Levitin, S. A., & Cappelli, D. (2020). Using big data to promote precision oral health in the context of a learning healthcare system. *Journal of Public Health Dentistry*, *80*(S1), S43–S58. https://doi.org/10.1111/jphd.12354

Founds, S. (2018). Systems biology for nursing in the era of big data and precision health. *Nursing Outlook*, *66*(3), 283–292. https://doi.org/10.1016/j.outlook.2017.11.006

Ginsburg, G. S., & Phillips, K. A. (2018). Precision medicine: From science to value. *Health Affairs*, *37*(5), 694–701. https://doi.org/10.1377/hlthaff.2017.1624

Glasgow, R. E., Kwan, B. M., & Matlock, D. D. (2018). Realizing the full potential of precision health: The need to include patient-reported health behavior, mental health, social determinants, and patient preferences data. *Journal of Clinical and Translational Science*, *2*(3), 183–185. https://doi.org/10.1017/cts.2018.31

Goyal Mehra, C., Raymond, A. M., & Prabhu, R. (2022). A personalized multi-interventional approach focusing on customized nutrition, progressive fitness, and lifestyle modification resulted in the reduction of HbA1c, fasting blood sugar and weight in type 2 diabetes: a retrospective study. *BMC Endocrine Disorders*, *22*(1), 290. https://doi.org/10.1186/s12902-022-01212-2

Havas, K., Douglas, C., & Bonner, A. (2017). Person-centred care in chronic kidney disease: a cross-sectional study of patients' desires for self-management support. *BMC Nephrology*, *18*(1), 1–9. https://doi.org/10.1186/s12882-016-0416-2

Ionut, ȚTRANU. (2015). Data mining in healthcare: decision making and precision. In *Database Systems Journal: Vol. VI* (Issue 4, pp. 33–40). dbjournal.ro. https://www.dbjournal.ro/archive/22/22.pdf#page=34

Lam, W. H., Lam, W. S., Jaaman, S. H., & Lee, P. F. (2022). Bibliometric Analysis of Information Theoretic Studies. *Entropy*, *24*(10). https://doi.org/10.3390/e24101359

Lv, Z., & Qiao, L. (2020). Analysis of healthcare big data. *Future Generation Computer Systems*, *109*, 103–110. https://doi.org/https://doi.org/10.1016/j.future.2020.03.039

Mahato, K., Srivastava, A., & Chandra, P. (2017). Paper based diagnostics for personalized health care: Emerging technologies and commercial aspects. *Biosensors and Bioelectronics*, *96*(February), 246–259. https://doi.org/10.1016/j.bios.2017.05.001

Moriello, N. S., Pinchera, B., & Gentile, I. (2024). Personalized care approaches to hepatitis C therapy: recent advances and future directions. *Expert Review of Anti-Infective Therapy*, *22*(4), 139–151. https://doi.org/10.1080/14787210.2024.2328336

Neff, K. J. (2017). The personalized medicine report:opportunity,challenges,and the future. *Pmc*. http://www.personalizedmedicinecoalition.org/Userfiles/PMC-Corporate/file/The-Personalized-Medicine-Report1.pdf

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Park, J., Lukkahatai, N., Perrin, N., Kim, Y., Saligan, L. N., & Won, C. W. (2021). Symptom profiles, health-related quality of life, and clinical blood markers among korean community-dwelling older adults living with chronic conditions. *International Journal of Environmental Research and Public Health*, *18*(4), 1–12. https://doi.org/10.3390/ijerph18041745

Pranata, S., Vivienne Wu, S. F., Tiffany Wang, T. J., Liang, S. Y., Chuang, Y. H., Lu, K. C., & Khoiriyah, K. (2022). Discovering Elements and Developing Strategies to Implement the Tailored Care Education for Patients with Diabetes through A Systematic Review. *Nurse Media Journal of Nursing*, *12*(1), 75–87. https://doi.org/10.14710/nmjn.v12i1.44336

Pranata, S., Wu, S. V., Alizargar, J., Liu, J., Liang, S., & Lu, Y. (2021). *Precision Health Care Elements , Definitions and Strategies for Patients with Diabetes : A Literature Review*. 1–14.

Record, J. D., Ziegelstein, R. C., Christmas, C., Rand, C. S., & Hanyok, L. A. (2021). Delivering personalized care at a distance: How telemedicine can foster getting to know the patient as a person. *Journal of Personalized Medicine*, *11*(2), 1–11. https://doi.org/10.3390/jpm11020137

Scheen, A. J. (2016). Precision medicine: The future in diabetes care? *Diabetes Research and Clinical Practice*, *117*, 12–21. https://doi.org/10.1016/j.diabres.2016.04.033

Schiano Moriello, N., Pinchera, B., & Gentile, I. (2024). Personalized care approaches to hepatitis C therapy: recent advances and future directions. *Expert Review of Anti-Infective Therapy*, *22*(4), 139–151. https://doi.org/10.1080/14787210.2024.2328336

Singh, V. (2023). Current challenges and future implications of exploiting the omics data into nutrigenetics and nutrigenomics for personalized diagnosis and nutrition-based care. *Nutrition*, *110*, 112002. https://doi.org/10.1016/j.nut.2023.112002

Subramanian, S., & Hirsch, I. B. (2014). Personalized diabetes management: Moving from algorithmic to individualized therapy. *Diabetes Spectrum*, *27*(2), 87–91. https://doi.org/10.2337/diaspect.27.2.87

Tuot, D. S., Crowley, S. T., Katz, L. A., Leung, J., Alcantara-Cadillo, D. K., Ruser, C., Talbot-Montgomery, E., & Vassalotti, J. A. (2022). Usability Testing of the Kidney Score Platform to Enhance Communication About Kidney Disease in Primary Care Settings: Qualitative Think-Aloud Study. *JMIR Formative Research*, *6*(9), e40001. https://doi.org/10.2196/40001

Zhao, X., Li, X., Liu, Y., Calzone, K., Xu, J., Xiao, X., & Wang, H. (2022). Genetic and genomic nursing competency among nurses in tertiary general hospitals and cancer hospitals in mainland China: a nationwide survey. *BMJ Open*, *12*(12), e066296. https://doi.org/10.1136/bmjopen-2022-066296

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