Service Design and Mental Health: a bibliometric analysis using the ProKnow-C method

Design de Serviço e Saúde Mental: uma análise bibliométrica por meio do método ProKnow-C

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ABSTRACT

The aim of this research is to analyze publications on the topic of Service Design and Mental Health, as addressed in the scientific community through the Knowledge Development Process – Constructivist (ProKnow-C) method, in order to identify trends, recurring themes, relevant authors, and potential gaps in the literature. The methodology involved the selection of scientific articles from the Scopus and Web of Science databases, applying thematic alignment and academic impact criteria. From an initial set of 2,458 articles, 27 comprised the final portfolio. The results highlighted the predominance of publications with low visibility, with 21 articles having fewer than 100 citations, although five articles stood out for their higher scientific recognition. Authors such as Lia Patrício and Jane Farmer emerged as key references, with a focus on terms such as Service Design, Co-design, and Primary Health Care. The journals PLoS One and Psychiatric Services were identified as the most relevant. It is concluded that the field is still in a consolidation phase, requiring further theoretical and practical development, especially regarding participatory approaches and the integration of technologies. The study suggests a systematic analysis of the selected content and the formulation of future research questions to explore the identified gaps.

Keywords: Design and Health; Healthcare Service; Mental Health; Proknow-C.

RESUMO

A pesquisa tem como objetivo analisar as publicações sobre o tema Design de Serviço e Saúde mental, que vêm sendo abordadas na comunidade científica por meio do método *Knowledge Development Process Constructivist* (ProKnow-C), a fim de identificar tendências, temas recorrentes, autores relevantes e possíveis lacunas na literatura. A metodologia envolveu a seleção de artigos científicos nas bases *Scopus* e *Web of Science*, aplicando critérios de alinhamento temático e impacto acadêmico. Dos 2.458 artigos inicialmente identificados, 27 compuseram o portfólio final. Os resultados destacaram a predominância de publicações com baixa visibilidade, sendo 21 artigos com menos de 100 citações, embora cinco artigos tenham se destacado por maior reconhecimento científico. Autores como Lia Patrício e Jane Farmer emergiram como referências, com enfoque em termos como *Service Design, Co-design* e *Primary Health Care*. Os periódicos *PLoS One* e *Psychiatric*

Services foram os mais relevantes. Conclui-se que o campo ainda está em consolidação, necessitando de maior desenvolvimento teórico e prático, especialmente em abordagens participativas e integração de tecnologias. O estudo sugere a análise sistemática do conteúdo selecionado e a formulação de questões de pesquisa futuras para aprofundar lacunas identificadas.
Palavras-chave: Design e saúde; Serviço em Saúde; Saúde Mental; Proknow-C.

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1 INTRODUCTION

Patrício *et al*. (2020) describe that service design for healthcare has transformative potential when integrating human-centered approaches with evidence-based methods. "Accurate, relevant health information is required to support evidence-based policy and service design and to ensure that services reach and benefit target communities" (Lazarus *et al*., 2020, p. 5).

Farmer and Nimegeer (2014) argue that community participation can strengthen primary healthcare service design in rural areas by incorporating local contexts into the development of more acceptable solutions. Furthermore, Braune *et al*. (2021) emphasize that service design can enhance healthcare delivery through digital services by integrating technology into the system, fostering user engagement, and supporting collaborative clinical decision-making.

According to Poleza, Dávila, and Ribeiro Junior (2020), efficient management can significantly improve healthcare services by identifying gaps in information exchange and use among professionals. The adoption of technologies enhances work organization, streamlining processes and contributing to safer, more efficient, and patient-centered care.

When applied, service design in healthcare demonstrates potential in devising new services, in addition to being a replicable and low-cost process for community participation. However, gaining a deeper understanding of how to include multiple stakeholders in the process and manage the associated risks and impasses may reveal a weakness in this approach (Nimegeer *et al*., 2016). Nevertheless, even in different contexts, service design proves promising. Yet, the effective inclusion of diverse stakeholders may encounter challenges during the process. Persistent power imbalances can undermine equitable user participation, particularly in mental health services, requiring design approaches that are more attuned to contexts marked by coercion and vulnerability (Tindall *et al*., 2021).

Teixeira, Pinho, and Patrício (2019) highlight a scarcity of interdisciplinary studies integrating service design and healthcare. Farmer and Nimegeer (2014) argue that this collaborative approach – participation in systemic changes in healthcare service design – may yield ambiguous and unpredictable outcomes, revealing the inherent complexity of incorporating multiple knowledge systems and local contexts into service planning.

Service design can foster more inclusive and user-experience-sensitive practices, particularly in mental healthcare, by accounting for the complex relationships among professionals, patients, and institutions (Tindall *et al*., 2021). In this context, Santos and Hoffmann (2016) emphasize that service design can enhance public governance's capacity to respond to social demands more precisely and empathetically. By considering user journeys and integrating diverse stakeholders in service co-creation, it promotes greater efficiency, innovation, and alignment with public-interest objectives.

In this context, the research aims to analyze scientific publications on service design and mental health through the Knowledge Development Process-Constructivist (ProKnow-C) method, in order to identify trends, recurring themes, relevant authors, and potential gaps in the literature.

Silva, Ramos, and Triska (2017) establish service design as an emerging multidisciplinary field intersecting innovation and user experience, while identifying research gaps in its application across diverse contexts, including healthcare, technology, and education. Schenkel *et al*. (2024) demonstrate service design's potential in sensitive areas such as accessibility, showcasing user-centered approaches that foster inclusion and empathy. The use of tools such as personas and user journey maps enables a nuanced understanding of contexts and experiences, enhancing service effectiveness through more humanized solutions, particularly in scenarios of psychosocial vulnerability.

The research is structured into five sections: (1) introduction; (2) theoretical framework, developed based on articles selected through the ProKnow-C method; (3) methodological procedures for the selection bibliographic portfolio; (4) results of the bibliometric analysis; and (5) final considerations.

2 CONCEPTUAL FRAMEWORK

2.1 Service Design

Shaw *et al*. (2018, p. 1) argue that service design "is about reinventing the service process to achieve a greater (and often different kind of) impact, as opposed to simply improving existing processes and workflows". According to Patrício *et al*. (2020), service design employs an approach that combines service conception with systems thinking.

To understand its core characteristics, service design aims to examine and simplify the relationships between service elements and consumer perspectives (Anderson, Nasr, Rayburn, 2017). Furthermore, it facilitates information visualization through holistic, creative, participatory, and user-centered approaches (Teixeira; Pinho; Patrício, 2019; Patrício *et al*., 2020).

Service design is widely employed in both business and public sector contexts to enhance processes and deliver consistent, beneficial user experiences (Braune *et al*., 2021). As Chowdhury and Quaddus (2016, p. 167) assert, "service providers shall design services that reflect the attributes of generating positive perception and experience among customers".

Patrício *et al*. (2020) emphasize that service design contributes to healthcare system transformation by adopting participatory, human-centered approaches that enable the creation of solutions better tailored to patient needs. Anderson, Nasr, and Rayburn (2017) highlight the growing interest in service design, demonstrating its application in complex sectors such as healthcare. By integrating multiple disciplines and incorporating user experiences, this approach facilitates the development of more effective services aligned with the needs of patients, caregivers, and healthcare professionals.

In demonstrating the importance of adapting its approaches to clinical environmental specificities, service design emerges as a distinct element in service conception, bridging theory and practice while fostering innovations that address users' actual needs (Marín *et al*., 2019).

Service design enhances the value of systemic approaches to process improvement in healthcare settings by accounting for the interrelationships among users, technologies, and resources, thereby promoting strategic solutions that optimize experiences for patients, caregivers, and healthcare professionals (Braune *et al*., 2021).

2.2 Health Service

Shaw *et al*. (2018) argue that user experience is fundamental to the service, as it not only encompasses understanding what is being delivered but also aims to improve and sustain the system. According to Patrício *et al*. (2020), healthcare systems worldwide seek to focus their services on people-centered care through a holistic approach. However, several barriers exist, such as lack of standardization in information collection; absence of mutual respect and trust in information sharing; organizational culture; misalignment of incentives in the external environment; among other factors that hinder the implementation of a collaborative user-oriented healthcare system.

"When consumers share control of their healthcare service experiences with caregivers, this can enhance well-being outcomes for all participants in the service system" (Anderson; Nasr; Rayburn; 2017, p. 107). Patrício *et al*. (2020) argue that a holistic and systemic approach enables the understanding and design of a healthcare system that integrates patient care with a journey capable of preventing adverse situations, thereby enhancing the overall experience within the system.

The healthcare service system emphasizes the importance of multiple stakeholders in promoting patient well-being, highlighting the need for collaborative networks between providers and patients (Patrício *et al*., 2018). Shaw *et al*. (2018, p. 3) argue that

> "it is this latter goal, to re-orient the routines of health service providers for more creative and effective services, that constitutes the more challenging objective of service design and implementation science".

According to Patrício *et al*. (2020, p. 896), when understanding healthcare routines, "Patients, nurses, family, medical specialists and other actors of the healthcare ecosystem contribute their knowledge and experience to understanding the service needs and developing new ideas". In this context, it is essential to enhance service management and efficiency to ensure quality and accessible care for users (Anderson; Nasr; Rayburn, 2017).

2.3 Mental Health

Costa, Colugnati, and Ronzani (2015) emphasize the need for coordination among mental health services through integrated networks of stakeholders in healthcare systems. As evidenced by the Institute for Health Policy Studies (IEPS), key challenges in mental health public policies include "lack of qualified information about service availability, matrix support, therapeutic itineraries, referral and counter-referral systems, and funding" (Rosa *et al*., 2022, p. 5).

Samartzis and Talias (2020, p. 2) describe variations in mental health service quality "both between and within countries, which clinically take the form of different distances, within each health system, between the clinical guidelines of international scientific societies and daily clinical practice". In this context, the lack of information transparency across different settings limits the development of public policies "based on evidence, constrains social oversight capacity, and reduces population access to care, leaving people uninformed about treatment and prevention options" (Rosa *et al*., 2022, p. 5).

Mental health is a fundamental component of social well-being. To effectively meet population demands, this process requires a continuous and high-quality mental health service system (Samartzis; Talias, 2020). Laitila *et al*. (2018) demonstrate the importance of patient engagement in the effectiveness mental health service, highlighting three key factors: adequate infrastructure, a patient-centered approach, and multisectoral cooperation.

Chrystal *et al*. (2015, p. 7) emphasize that homeless individuals constitute a population vulnerable to mental health problems and note that factors that are "conducive to a positive primary care experience remain understudied and yet potentially important to ongoing efforts to foster patient-centered care for vulnerable populations".

The pursuit of mental health care can be influenced by the stigma associated with such services, representing a dual structural and social barrier to accessing treatment, thereby hindering the provision of care tailored to individuals' needs (Corrigan; Druss; Perlick, 2014). To overcome these barriers, service design and co-design approaches emerge as collaborative strategies involving users, professionals, and other stakeholders, enabling continuous service improvement and better alignment with population needs (Tindall *et al*., 2021).

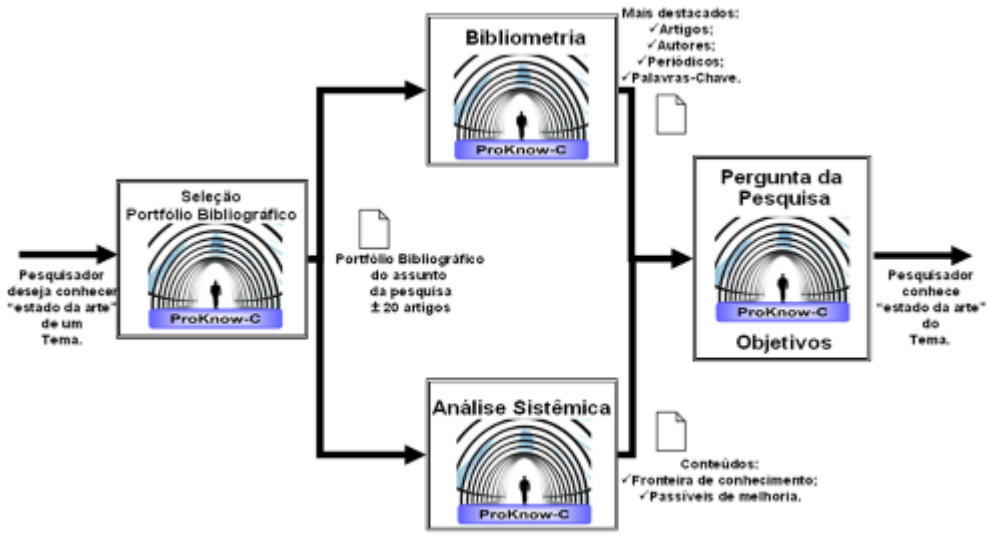
3 METHODS

To achieve this objective, we conducted a bibliometric analysis to systematically map scientific publications on Service Design and Mental Healthcare, aiming to identify: (1) temporal trends, (2) recurring themes, (3) key authors and institutions, and (4) gaps in the literature.

For the bibliometric analysis development, we employed the Knowledge Development Process-Constructivist (ProKnow-C) method. This approach integrates the foundations of the Multicriteria Decision Aid-Constructivist (MCDA-C) methodology by adopting a constructivist perspective that enables the active participation of the decision-maker in the process (Lacerda *et al.*, 2017; Lacerda *et al.*, 2021).

The method is composed of four stages (Figure 1). It provides an informational framework for selecting relevant articles to compose a bibliographic portfolio on a specific research topic (Lacerda; Ensslin; Ensslin, 2012; Lima; Lacerda; Becker, 2023). The methodological stages consist of: (i) selecting articles related to the research topic; (ii) conducting a bibliometric analysis of the document corpus; (iii) performing a systemic analysis; and (iv) formulating research questions and objectives.

Figure 1 - Steps of Proknow-C



ProKnow-C, Knowledge Development Process-Constructivist
Source: adapted from Oliveira *et al.* (2017, p. 377)

This article addresses only Stages 1 and 2 of the ProKnow-C process. Although Stages 3 and 4 remain relevant for future research, they were excluded from the current study due to scope limitations, as the focus is exclusively on the bibliographic portfolio construction and representativeness analysis. Stage 1 involved establishing: (a) research thematic axes, (b) keyword sets, (c) combined search strategies, (d) selection criteria, and (e) database filters. The search was conducted across the title, abstract, and keyword fields (Lacerda; Ensslin; Ensslin, 2012; Silva *et al.*, 2018). Two multidisciplinary databases were selected - Scopus and Web of Science - covering diverse subject areas. The detailed search strategies are presented in Table 1, with journal articles published between 2014 and 2023 serving as eligibility criteria.

Table 1 - Keyword Search Strategy

Axis Combinations	Databases	
	Scopus	Web of Science
"Service Design" AND "Health Service"	682	121
"Service Design" AND Hospital	403	100
"Service Design" AND "Mental Health"	273	122
"Service System" AND "Health Service"	1038	223
"Service System" AND Hospital	617	234
"Service System" AND "Mental Health"	417	210
Total	4440	

Source: Authors (2024)

Following the search completion, the article screening process commenced. For this phase, we employed the reference manager Mendeley (version 1.19.8) to store files in RIS format and remove duplicates, yielding 2,458 articles. Subsequently, title screening was conducted based on thematic alignment with the research objectives, resulting in the exclusion of 1,913 articles and the advancement of 545 articles to the subsequent screening phase.

From these 545 articles, Google Scholar was used to verify the citation count of each paperç. The articles were ranked in descending order of citations and exported to a spreadsheet in the online version of Excel. Subsequently, Pareto's Principle was applied to establish a threshold value for identifying the most scientifically influential publications (Lacerda; Ensslin; Ensslin, 2012).

Among the 545 articles, one exhibited an exceptionally high citation count (2,079), standing out from the others. To prevent sample bias, this article was excluded from the Pareto Principle percentage calculation. The remaining articles accounted for a total of 11,301 citations, with 158 articles representing 80.27% of all citations, thereby confirming their scientific impact. Additionally, articles cited 22 times or more were included, consistent with the Pareto Principle (Lacerda, Ensslin, Ensslin, 2012).

The subsequent screening filter involved abstract review. From this process, 114 articles were excluded due to thematic misalignment, while 44 were selected for their relevance to the research scope and established scientific recognition.

Regarding the 387 articles lacking scientific recognition (representing 19.73% of citations under Pareto's Principle), an additional screening process was implemented using the following criteria: (i) articles published within the last two years (insufficient time to accumulate citations); and (ii) articles older than two years required at least one co-author appearing among the 44 pre-selected papers (those with thematic alignment and scientific recognition) (Lacerda; Ensslin; Ensslin, 2012). This process yielded only one included article, as depicted in Figure 2.

Figure 2 - Research Portfolio Selection Process

Source: Authors (2024)

Following comprehensive screening, 45 articles were selected for full-text review. This process yielded 27 articles comprise the final research portfolio, as detailed in Table 2.

Table 2 - Articles Comprising the Research Portfolio

Id.	Authors	Title
1	Corrigan; Druss; Perlick (2014)	The impact of mental illness stigma on seeking and participating in mental health care
2	Anderson; Nasr; Rayburn (2017)	Transformative service research and service design: synergistic effects in healthcare
3	Patrício *et al.* (2020)	Leveraging service design for healthcare transformation: toward people-centered, integrated, and technology-enabled healthcare systems
4	Shaw *et al.* (2018)	Beyond "implementation": digital health innovation and service design
5	Chowdhury; Quaddus (2016)	A multi-phased QFD based optimization approach to sustainable service design
6	Patrício *et al.* (2018)	Service Design for Value Networks: Enabling Value Cocreation Interactions in Healthcare
7	Halsall *et al.* (2019)	Trends in mental health system transformation: Integrating youth services within the Canadian context
8	Samartzis; Talias (2020)	Assessing and improving the quality in mental health services
9	Farmer; Nimegeer (2014)	Community participation to design rural primary healthcare services
10	Chrystal *et al.* (2015)	Experience of primary care among homeless individuals with mental health conditions

11	Tindall *et al.* (2021)	A first-hand experience of co-design in mental health service design: Opportunities, challenges, and lessons
12	Voronka (2019)	The mental health peer worker as informant: performing authenticity and the paradoxes of passing
13	Jacob *et al.* (2016)	Designing services for frequent attenders to the emergency department: A characterisation of this population to inform service design
14	Orlowski *et al.* (2016)	A Rural Youth Consumer Perspective of Technology to Enhance Face-to-Face Mental Health Services
15	Kerman *et al.* (2019)	Perceptions of Service Use Among Currently and Formerly Homeless Adults with Mental Health Problems
16	Ding (2015)	The impact of service design and process management on clinical quality: An exploration of synergetic effects
17	Marín *et al.* (2019)	Integrating a gait analysis test in hospital rehabilitation: A service design approach
18	Laitila *et al.* (2018)	Service users' views regarding user involvement in mental health services: A qualitative study
19	Liu *et al.* (2018)	Survey on the use of mental health services and help-seeking behaviors in a community population in Northwestern China
20	Braune *et al.* (2021)	Shaping workflows in digital and remote diabetes care during the COVID-19 pandemic via service design: Prospective, longitudinal, open-label feasibility trial
21	Teixeira; Pinho; Patrício (2019)	Bringing service design to the development of health information systems: The case of the Portuguese national electronic health record
22	Hu *et al.* (2017)	Expanding the mental health workforce in China: Narrowing the mental health service gap
23	Nimegeer *et al.* (2016)	Community participation for rural healthcare design: Description and critique of a method
24	Han *et al.* (2018)	Service design oriented multidisciplinary collaborative team care service model development for resolving drug related problems
25	Lazarus *et al.* (2020)	Novel health systems service design checklist to improve healthcare access for marginalised, underserved communities in Europe
26	Salgado *et al.* (2017)	Using a service design model to develop the "Passport to Safer Birth" in Nigeria and Uganda
27	Ramos *et al.* (2022)	Cyclical experience-based design: A proposal for engaging stakeholders in a co-creative model for primary health care service design

Source: Authors (2024)

These articles will undergo bibliometric analysis as part of Stage 2 of the Proknow-C framework, which consists of three phases: (i) bibliometric analysis of the selected articles; (ii) bibliometric analysis of the references contained within these articles; and (iii) classification of the

articles according to their academic relevance within the sample (Lacerda; Ensslin; Ensslin, 2012; Silveira; Lacerda; Dias, 2024)

4 BIBLIOMETRIC ANALYSIS

The study examined four key bibliometric indicators: (1) journals (publication sources), (2) authors (productivity and collaboration patterns), (3) keywords (co-occurrence analysis), and (4) citations (scientific impact).

4.1 Bibliometric analysis of selected articles

The research portfolio (n = 27) was analyzed, beginning with the journal indicator. Twenty-five distinct journals were identified, as shown in Figure 3.

Figure 3 - Journals in the Research Portfolio

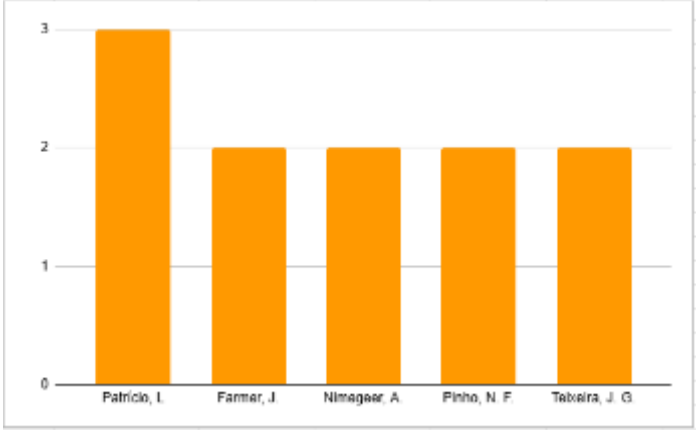
Journals	Nº
PLoS One	3
Archives of psychiatric nursing	1
BMC health services research	1
BMJ open	1
Clinical Medicine	1
Community Mental Health Journal	1
Disability & Society	1
Health & Social Care in the Community	1
Healthcare Management Forum	1
International journal of environmental research and public health	1
International Journal of Gynecology & Obstetrics	1
International journal of medical informatics	1
International Journal of Mental Health Nursing	1
International Journal of Production Economics	1
JMIR mHealth and uHealth	1
Journal of Child and Family Studies	1
Journal of Operations Management	1
Journal of Service Management	1
NPJ digital medicine	1
Psychiatric Services	1
Psychiatry Research	1
Psychological Science in the Public Interest	1
Service Science	1
The International Journal of Health Planning and Management	1
The Service Industries Journal	1

Source: Authors (2024)

PLoS ONE was the only journal featuring three publications in the portfolio, while all others contained just one article each.

With respect to the author indicator, the sample contained 141 distinct authors. As demonstrated in Figure 4, only five authors showed significant publication frequency, while the remaining 136 authors were single-article contributors.

Figure 4 - Most Relevant Authors in the Research Portfolio



Source: Authors (2024)

Among the 141 identified authors, Lia Patrício emerged as the most prolific contributor, with three articles. Jane Farmer, Amy Nimegeer, Nelson Figueiredo de Pinho, and Jorge Grenha Teixeira each contributed two publications. For enhanced academic profiling, supplementary data was extracted from Scopus database, with complete metrics presented in Table 3.

Table 3 - Characteristics of the Prominent Authors in the Research Portfolio

Author	Country of Affiliation	h-index	Documents Indexed in Scopus	Citations Received in Scopus	First Document Indexed in Scopus
Patrício, L	Portugal	28	60	4.672	2003
Farmer, J.	Australia	32	153	2.878	1996
Nimegeer, A.	United Kingdom	7	8	187	2011
Pinho, N. F.	Belgium	5	14	282	2012
Teixeira, J. G.	Portugal	12	26	1.105	2011

Source: Authors (2025)

The affiliation of these authors is predominantly concentrated in Europe (n = 4). Regarding publications, Jane Farmer stands out with 153 works, followed by Lia Patrício with 60, both indexed in the Scopus database. In addition, both are the most cited authors in the database, with Lia Patrício accumulating 4,672 citations and Jane Farmer, 2,878. Another highlight is Jane Farmer's long publication history, with her first indexed work dating back to 1996.

Regarding the keyword indicator, the textual analysis identified 88 unique descriptors across the 27-article portfolio. Figure 5 displays the resulting word cloud.

Figure 5 - Word Cloud of Keywords

Source: Authors (2025)

The term "Service Design" was the most frequently used, appearing 10 times, followed by "Co-design" and "Primary health care," which were cited 3 times each. Additionally, "Community engagement," "Community participation," "Electronic Health Records," "Health care," "Health Information Systems," "Health services," "Healthcare services," "Mental health," "Rural health," and "Sustainability" were mentioned twice. The remaining terms appeared only once.

From the word cloud, an emerging relationship between Service Design and Co-design can be observed, indicating a trend toward collaboration in the development of healthcare solutions. The presence of terms related to Primary Health Care, Community Engagement, and Community Participation highlights a research focus on community involvement. Furthermore, the occurrence of terms linked to Electronic Health Records and Health Information Systems underscores the intersection between service studies and health technology. The mapping reveals potential trends and discussions that have been prioritized in academic research on Service Design applied to healthcare, allowing for the identification of current directions and opportunities for future exploration.

4.2 Bibliometric analysis of the references of the selected articles

An analysis was conducted of the references from the 27 articles comprising the research portfolio, with emphasis on the journals, the articles' citation counts, and the authors. A total of 1,196 cited articles were identified in the references, including only peer-reviewed journal articles; the remaining items were excluded.

In the journal indicator, the analysis identified 514 distinct journals in the research portfolio's references. Figure 6 below displays the 20 most frequently occurring ones.

Figure 6 - Journals of the References in the Research Portfolio

Journals	Nº
Psychiatric Services	47
Journal of Service Research	23
Journal of Operations Management	19
BMC Health Services Research	16
Schizophrenia Bulletin	16
The Lancet	14
Harvard Business Review	13
Journal of Service Management	13
Social science & medicine	13
American Journal of Public Health	11
Diabetes Technology & Therapeutics	11
JAMA - Journal of the American Medical Association	11
Psychiatric Rehabilitation Journal	11
World Psychiatry	11
American Journal of Psychiatry	10
International Journal of Medical Informatics	10
Journal of Services Marketing	10
Medical Care	10
PLoS One	10
Social Psychiatry and Psychiatric Epidemiology	10

Source: Authors (2024)

The journal Psychiatric Services was the most prominent, appearing in 47 articles, followed by the Journal of Service Research (23 articles) and the Journal of Operations Management (19 articles). Among these highlighted journals, Psychiatric Services, Journal of Operations Management, BMC Health Services Research, Journal of Service Management, International Journal of Medical Informatics, and PLoS One accounted for the highest number of publications in the bibliographic portfolio, with the latter being the most significant.

In the citation indicator, among the 1,196 articles analyzed, the 10 most cited articles were identified, as shown in Table 4 below.

Table 4 - Top 10 Most Cited Articles in the Research Portfolio References

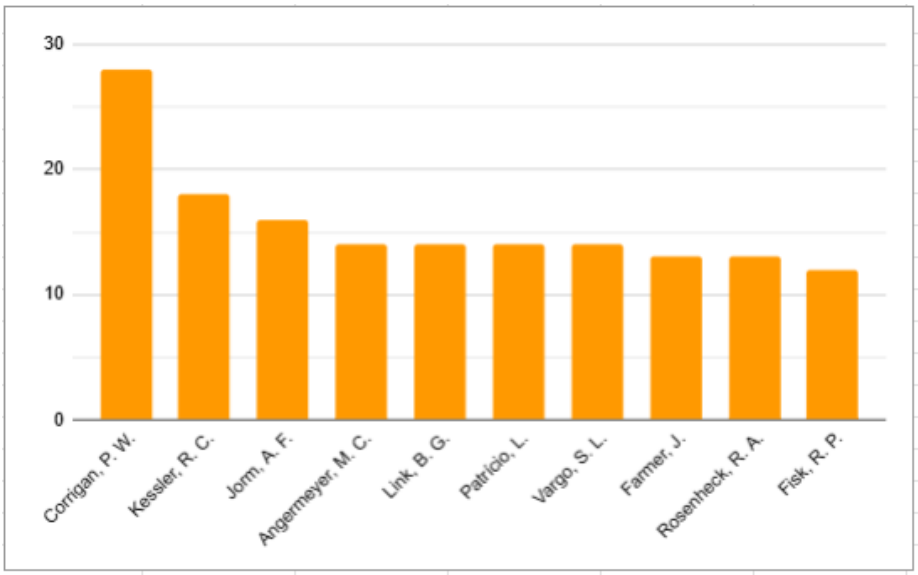
Number of Citations	Author	Title
219.575	Braun; Clarke (2006)	Using thematic analysis in psychology
124.889	Zadeh (1965)	Fuzzy sets
46.901	Parasuraman; Zeithaml; Berry (1985)	A conceptual model of service quality and its implications for future research
43.521	Kroenke; Spitzer; Williams (2001)	The PHQ-9: Validity of a brief depression severity measure.
42.604	Harris *et al.* (2009)	Research electronic data capture (REDCap)--a metadata-driven methodology and workflow process for providing translational research informatics support.

40.937	Heckman (1979)	Sample selection bias as a specification error
34.156	Arnstein (1969)	A ladder of citizen participation.
31.801	Graneheim; Lundman (2004)	Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness
31.346	Tong; Sainsbury; Craig (2007)	Consolidated criteria for reporting qualitative research (COREQ): a 32- item checklist for interviews and focus groups.
30.152	Elo; Kyngäs (2008)	The qualitative content analysis process

Source: Authors (2025)

In the author indicator, 3,775 distinct authors were identified in the bibliographic portfolio references, with the top 10 most prominent shown in Figure 7 below.

Figure 7 - Most Relevant Authors in the References of the Research Portfolio



Source: Authors (2024)

Author Patrick William Corrigan stands out with 28 articles, followed by Ronald C. Kessler (n=18), Anthony F. Jorm (n=16), Matthias Claus Angermeyer (n=14), Bruce George Link (n=14), Lia Patrício (n=14), Stephen Louis Vargo (n=14), Jane Farmer (n=13), Robert Alan Rosenheck (n=13), and Raymond P. Fisk (n=12). Additional author data were collected from the Scopus database, with complete results presented in Table 5 below.

Table 5 - Characteristics of the Prominent Authors in the References of the Research Portfolio

Author	Country of Affiliation	h-index	Documents Indexed in Scopus	Citations Received in Scopus	First Document Indexed in Scopus
Corrigan, P. W.	United States	103	472	42.827	1996
Kessler, R. C.	United States	263	1.262	312.338	1996
Jorm, A. F.	Australia	119	790	64.752	1996
Angermeyer, M. C.	Austria	112	635	60.095	1996
Link, B. G.	United States	96	336	48.269	1996
Patrício, L	Portugal	28	60	4.672	2003
Vargo, S. L.	United States	59	121	38.642	1998
Farmer, J.	Australia	32	153	2.878	1996
Rosenheck, R. A.	United States	107	993	54.359	1996
Fisk, R. P.	United States	32	86	6.208	1996

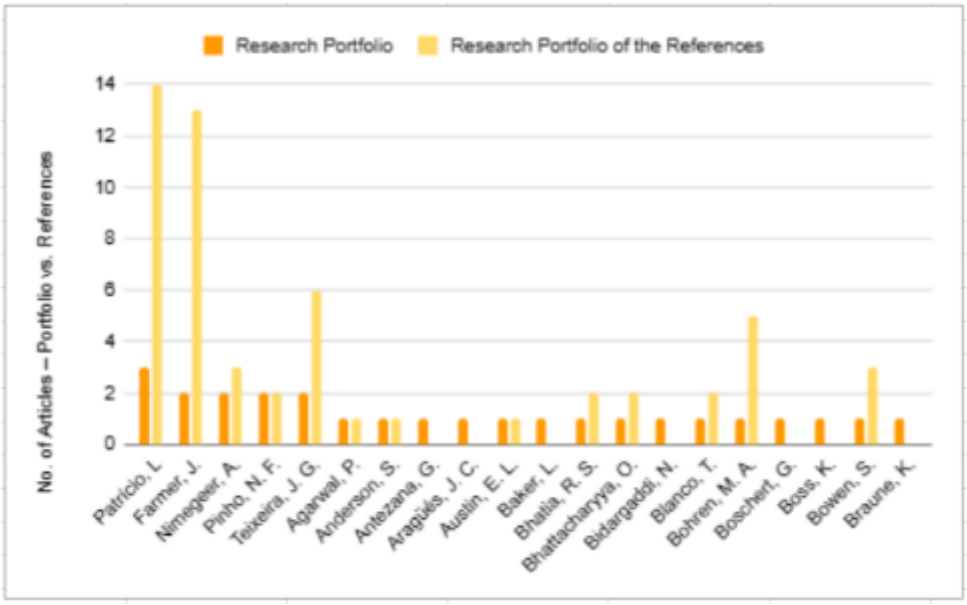
Source: Authors (2025)

This analysis reveals institutional affiliations concentrated in North America (n=6), followed by Europe (n=2) and Oceania (n=2). Regarding scholarly output, Ronald C. Kessler leads with 1,262 Scopus-indexed publications, preceding Robert Alan Rosenheck, who has 993 publications. In citation impact, Ronald C. Kessler dominates with 312,338 citations, followed by Anthony F. Jorm, with 64,752 citations. Female researchers Lia Patrício and Jane Farmer also emerge as prominent contributors in the research portfolio.

4.3 Classification of articles according to academic relevance

This analysis incorporated both authors and journals from the research portfolio and its references, comprising a total corpus of 1,223 articles. Author relevance was established through a comparative analysis between the 10 most prominent portfolio authors and those appearing in the references, as illustrated in Figure 8.

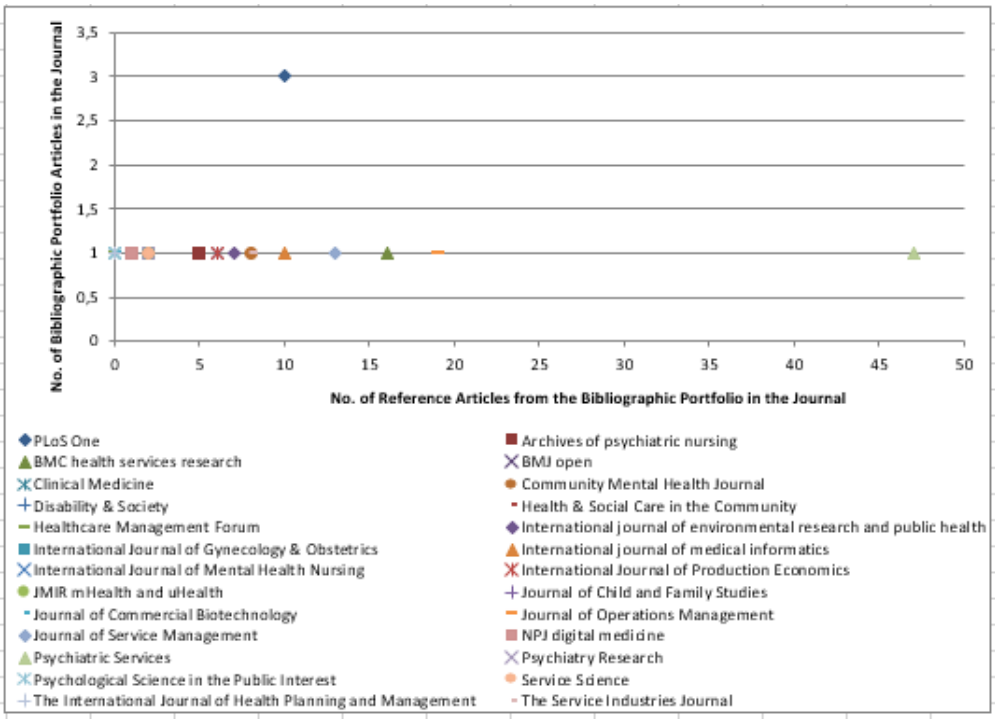
Figure 8 - Authors' Relevance



Source: Authors (2025)

When comparing the most cited authors from the research portfolio with its references, the analysis reveals that Lia Patrício appears with three citations in the portfolio versus 14 in the references; Jane Farmer with two and 13, respectively; and Jorge Grenha Teixeira with two and six. Regarding reference citations, Patrick William Corrigan stands out with 28 citations (only one in the portfolio), while Raymond P. Fisk has 12 citations in the references compared to one in the portfolio. For the journal indicator, a comparison was made between the portfolio and its references, as shown in Figure 9.

Figure 9 - Most Representative Journal



Source: Authors (2025)

When comparing the most cited articles from the research portfolio with its references, PLoS One emerges as the most representative journal on the topic, with three articles in the portfolio versus 10 in the references. Another notable case is Psychiatric Services, represented by one article in the portfolio compared to 47 in the references.

In the indicator of author representativeness in the portfolio articles, the analysis examined the relationship between (1) the most cited authors in the portfolio's references and (2) their Google Scholar citation counts, as demonstrated in Figure 10.

Figure 10 - Authors' Representativeness

Source: Authors (2025)

Analysis reveals that among the 27 research portfolio articles, only six have received more than 100 citations. The remaining 21 articles, while thematically relevant (first quadrant), show limited academic recognition. The third quadrant contains five articles with established academic recognition (authors cited more than 15 times). The fourth quadrant features one article with dual distinction: academic impact (author citations) and scientific influence (over 2,000 citations).

5 CONCLUSIONS

This research examined publications on Service Design and Mental Health using the ProKnow-C method, which identified a bibliographic portfolio of 27 scientific articles. The analysis revealed that: (i) 21 articles have fewer than 100 citations, indicating limited scientific recognition; (ii) 5 articles exceed 100 citations; and (iii) 1 prominent article, authored by a leading researcher, has over 2,000 citations. These findings suggest that the field of "Service Design and Mental Health" remains in a consolidation phase and requires greater academic visibility.

The analysis identified the following prominent authors: Lia Patrício, Jane Farmer, Amy Nimegeer, Nelson Figueiredo de Pinho, and Jorge Grenha Teixeira. Regarding journals, PLoS One emerged as the most significant, while the most frequent keywords were Service Design, Co-design, and Primary health care.

The ProKnow-C application enabled identification of the most relevant articles on the topic. However, subsequent methodological phases are still required: (i) systematic content analysis, to thoroughly examine the theoretical approaches, research methods, and application contexts of the selected articles; and (ii) research question formulation, to map gaps in the literature and guide future studies. Together, these phases aim to advance knowledge in Service Design and Mental Health by strengthening its conceptual foundation and identifying new research directions.

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