



Discovering Psychological Well-Being: A Bibliometric Review

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Abstract

Psychological well-being is among the concepts that have attracted significant attention from researchers in the fields of social life, work life, and health in recent years. We conducted bibliometric mapping and content analysis to reveal current trends in the concept and contribute to the literature. Using VOSviewer, Citespace, Bibliometrix and MS Office Excel programs, we analysed 16,885 academic studies published in the Web of Science database between 1980 and 2022. The research results show a continuous increase in publications and citations, with a notable surge observed after 2016. The United States accounts for over a third of the publications. Furthermore, the *International Journal of Environment Research and Public Health* and *Frontiers in Psychology* stand out as the most productive journals, whereas Carol D. Ryff is the most prolific and cited author in the field. When the footprints of the keywords over the past 10 years are interpreted, some notable trends are identified. Initially, research themes mainly revolved around children, dementia, and social support. However, with the COVID-19 pandemic emerging as a new thematic focus and the disruption of the person-job and person-environment order due to the repercussions of lockdowns, the emphasis has shifted from the theme of social support to mindfulness, loneliness, and support. Notably, motivation and rehabilitation have emerged as significant focal points, with increased attention on social isolation and healthcare workers in recent publications.

Keywords Well-being · Psychological well-being · Bibliometric analysis · Content analysis

1 Introduction

Positive psychology (PP) is a vibrant field of research, as the focus in mental health research has shifted from negative psychological problems to positive human behaviours (Seligman & Csikszentmihalyi, 2000). In PP, well-being is modelled as holistic (Seligman, 2012) or multidimensional (Ryff, 1989). With the emergence of PP, interest in the structure

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and nature of well-being has increased. Due to the broad research field of well-being, different approaches have been developed. The hedonic approach, which is one of the vital and ongoing popular topics in the field, sparked discussions in the 1950s and was considered close to subjective well-being (SWB) since it was subjectively inspired by positive and negative emotions and quality of life (Bradburn, 1969; Diener, 1984). Meanwhile, the eudaimonic approach started with experimental studies in the 1980s, emphasising the necessity of self-actualisation and thus revealing its potential (Keyes et al., 2002; Ryff, 1989). This approach more closely resembles the concept of psychological well-being (PWB). In the studies carried out to date, it is seen that SWB and PWB have different structures but contain related factors (Linley et al., 2009), with both approaches consisting of human values that are concerned with and increase the human capacity to investigate the necessities of a good life (Keyes et al., 2002). The two approaches are not opposites but are complementary to each other (Joshanloo, 2015).

In this study, we focus on PWB, which includes a person's overall assessment of their life and emotional state and is considered a fundamental aspect of the psychological health of individuals and groups (Stone et al., 2010). The concept of PWB, which focuses on the individual's optimal functioning (Huppert, 2009), expresses positive functions rather than psychological distress, depression, and dysfunction and draws attention to high levels of flexibility, positivity, and strong social bonds (Trpcevska, 2017). Synthesising past research findings is one of the most important tasks to advance a particular research area (Zupic & Čater, 2015, Introduction). To achieve this, we prefer the scientific mapping method, which is based on a quantitative approach and is increasingly used to show the evolution of study areas.

Bibliometric analysis is a helpful method for examining the development of fields of study that are integral to evaluating academic production (Ambhore & Ofori, 2023). These analyses are widely used in examining new, ambiguous, or complex research areas since they can provide an objective view of a particular research area without including the subjective interpretations of researchers (Liu et al., 2015; Yan et al., 2015). Bibliometric studies usually reveal the intellectual structure of the field by identifying trends in a particular research field by year, country, institution, citations, or theoretical approach (Donthu et al., 2021; Paul & Criado, 2020). Before presenting a detailed review of the PWB field and positioning research, examining the bibliometric mappings that present the research points and trends of the PP and SWB fields with which the concept is closely related is helpful.

When examining bibliometric studies in the field, we identified that there are bibliometric mappings on PP (Schui & Krampen, 2010; Wang et al., 2023) and SWB (Dominko & Verbič, 2019a; Huang et al., 2022). Despite being one of the popular research topics in PP, PWB has been analysed in only two studies and has a limited framework with the bibliometric analysis method. In the first of these, Kúld et al. (2021) examined studies focusing only on the PWB of visually impaired children with bibliometric analysis, whereas Ambhore and Ofori (2023) examined PWB studies in the fields of economics, econometrics, finance, business, management, and accounting. The researchers agree that the research area of the concept has expanded, but there is yet to be a bibliometric study that comprehensively covers the footprints of PWB's trending workspaces, leading authors, journals, and studies. Therefore, in this study, we aim to contribute to future research by presenting a detailed picture of the distribution of publications and citations in the field by years, countries, institutions, journals, authors, and the most commonly used keywords as well as to examine the publications in all research categories in the Web of Science Core Collection.

Our primary research is built on two keywords: 'psychological well-being' and 'psychological well being'. In addition, we conducted three separate searches from the Web of

Science Core Collection database to examine previous bibliometric studies in the field. The first search syntax was ‘psychological well-being’ or ‘psychological well being’ and ‘bibliometric’. The second search syntax was ‘subjective well-being’ or ‘subjective well being’ and ‘bibliometric’. The third search syntax was ‘positive psychology’ and ‘bibliometric’. In basic research published between 1980 and 2022, we identified 16,885 publications. Considering these publications, we sought answers to the following research questions:

1. Which science categories have nourished the field of PWB, and to what extent has this field grown?
2. Which countries, sources, and authors have contributed the most to the PWB field?
3. What are the most influential sources and publications in the field of PWB?
4. What themes and keywords have been prominent in the field of PWB in recent years?

The research is structured as follows: In Sect. 2, we explain the study’s background, including a literature review on PWB. In Sect. 3, we include bibliometric studies related to PWB that we analyse using content analysis techniques. Section 4 covers data and analysis methods, while Sect. 5 details the findings. In Sect. 6, we offer the discussion and conclusion. Subsequently, we provide suggestions for future studies in Sect. 7 and outline the research limitations in Sect. 8.

2 The Concept of PWB

PWB is defined as striving for perfection and revealing one’s true potential for self-realisation (Ryan & Deci, 2001; Ryff, 2014). This concept has been notable in social and working life for an average of 40 years. In essence, PWB is a state of well-being in which each individual copes with the daily stresses of life, works productively and efficiently, and contributes to society (WHO, 2014). PWB is a multifaceted structure encompassing the individual’s general happiness, life satisfaction, purpose in life, and mental and emotional health (Dhanabhakym & Sarath, 2022). According to some researchers, it is also expressed as having positive emotions and high life satisfaction (Diener et al., 2010; Gyu Park et al., 2017). For PWB, an environment where the individual can realise their potential and strengths and is able to develop accordingly is necessary (Ryan & Deci, 2001). Individuals with a high level of well-being seek purpose and meaning in their lives and establish positive relationships with other people. In addition, these individuals would think that they can make the right decisions in line with the goals they want to achieve because they feel self-confident and independent (Ryff & Keyes, 1995).

Differences in the definition of PWB stem from researchers’ considerations of the different dimensions associated with this concept. Ryff (1989) discussed PWB’s dimensions of self-acceptance, positive relationships, autonomy, environmental mastery, life purpose, and personal growth. Seligman (2002) stated that PWB brings together positive emotions and activities. Some researchers think that having a high level of life satisfaction and experiencing positive emotions while having low levels of negative emotions indicates well-being (Diener et al., 2010). In contrast, Ryan and Deci (2001) discussed this concept within the framework of self-determination theory, focusing on three human needs: competence, belongingness, and autonomy.

Various scales (Diener et al., 2010; Hills & Argyle, 2002; Ryff, 1989; Warr, 1990; WHO, 1998) have been developed and used in empirical studies to determine the PWB

levels of individuals. In addition to comprehensive PWB scales, researchers in the literature examine the PWB of specific groups. In these studies, scales were developed to determine the PWB levels of women living in Indonesia (Eggleston et al., 2001), working individuals (Dagenais-Desmarais & Savoie, 2012), and children (Liddle & Carter, 2015).

There are many studies in the literature related to PWB and its sub-dimensions: productivity-related personal goals (McAdams & St. Aubin, 1992), altruism and helping behaviour (Batson & Powell, 2003), autonomy (Sheldon & Niemiec, 2006), self-compassion (Neff et al., 2007; Zessin et al., 2015), job demand control (Häusser et al., 2010), social support (Walen & Lachman, 2000), transformational leadership (Arnold et al., 2007), extraversion and neuroticism (DeNeve & Cooper, 1998; Ruini et al., 2003; Vitterso & Nilsen, 2002), age (Blanchflower & Oswald, 2008; Clark & Oswald, 1994; Stone et al., 2010), work and family variables (Parasuraman et al., 1996), physical activity during COVID-19 (Maugeri et al., 2020), physical exercise (Carek et al., 2011; Hassmen et al., 2000; Scully et al., 1998), work-family conflict (Parasuraman & Simmers, 2001), obesity (Wardle & Cooke, 2005), life satisfaction (Markowitz, 1998), gender and ethnicity (Crosnoe et al., 2023), and effects of the COVID-19 pandemic (De Kock et al., 2021; Heshmati et al., 2022; Ropret et al., 2023; Wolf & Schmitz, 2023) are considered together with PWB.

Synthesising past research findings is one of the most important tasks to advance a particular research area (Zupic & Čater, 2015, Introduction). The scientific mapping approach, based on quantitative research methods in addition to traditional qualitative and quantitative approaches, helps researchers understand the scope of a subject, its emerging trends, and its evolution over time (Singh et al., 2020). The bibliometric analysis “is a great way to get a reliable, clear, and unbiased quantitative estimate of the rise in scientific publications” (Kumar et al., 2023:277).

While examining the bibliometric studies in the field, it is important to consider the mapping studies written, such as those on PP and SWB, to determine how the mapping approach, which is the subject of this article, will be positioned. The following section examines previous PP, SWB, and PWB bibliometric studies. We used the bibliometric mapping approach to overcome the limitations of previous studies and to specifically understand the PWB field.

3 Bibliometric Studies in PP, SWB, and PWB

The motivation for this topic is to identify the location and contribution of PWB mapping. Examining the publications produced in these fields is important in determining how to contribute to the literature. Therefore, to observe the current state of the PP research field, we deemed it appropriate to examine the bibliometric studies written on PP and SWB before the bibliometric studies on PWB. We examined the bibliometric studies determined by three different search syntaxes from the Web of Science Core Collection database on August 8, 2023, and these are indicated in Table 1.

1. Search syntax: TITLE-ABS-KEY=(‘Psychological Well-Being’) OR (‘Psychological Well Being’) AND TITLE-ABS-KEY=(‘Bibliometric’)
2. Search syntax: TITLE-ABS-KEY=(‘Positive Psychology’) AND TITLE-ABS-KEY=(‘Bibliometric’)
3. Search syntax: TITLE-ABS-KEY=(‘Subjective Well-Being’) OR (‘Subjective Well Being’) AND TITLE-ABS-KEY=(‘Bibliometric’)

Table 1 Bibliometric studies in PP, SWB, and PWB

Authors	Database	Document type	Examined documents
Kúld et al. (2021)	2000–2018 Web of Science	Article	38
Ambhore and Ofori (2023)	1978–2022 Scopus	Article	1053
Wang et al. (2023)	1999–2021 Web of Science	Article and Review	4378
Rusk and Waters (2013)	1992–2011 Web of Science PsycINFO	Articles, Reviews, Proceedings, and Research Notes	18,000
Schui and Krampen (2010)	1999–2010 PsycINFO	Book, Article, and Dissertation	1128
Huang et al. (2022)	2002–2021 Web of Science	Article	354
Dominko and Verbič (2019a)	1915–2006 Web of Science	Article	2939
Dominko and Verbič (2019b)	1961–2016 Web of Science	Article	2114
Xu et al. (2022)	2015–2022 Google Scholar Web of Science	Article	65

The inclusion criteria for bibliometric studies in this study are as follows: written in English, identified as a review article, and included one of the aforementioned search syntaxes in the database search.

When examining bibliometric studies on PP, we found that Rusk and Waters (2013) analysed studies in the PsycINFO database between 1992 and 2011 by identifying the indexes scanned in the Web of Science database. In the study, the authors stated that the concept of PP has developed rapidly since its inception and has become conceptually remarkable. They also emphasised the interest in the field from many different disciplines. Schui and Krampen (2010) reviewed articles, books, and dissertations in the PsycINFO database between 1999 and 2010. The researchers examined the frequency of publications on PP, types of publications and media, and effects of index terms on the semantic network and psychological sub-disciplines. Wang et al. (2023) evaluated the current situation and trends in PP research between 1999 and 2021 in their study. The authors provided a scientific mapping with the most productive country, organisation, journal, and author analysis, noting steady growth in PP studies.

When we examined bibliometric studies on SWB, Huang et al. (2022) reviewed studies on older adults between 2002 and 2021. In this context, they highlighted the most influential journals and disciplines; top contributing institutions, authors and countries; and the main research topics and trends in the field. Dominko and Verbič (2019a) followed the development of SWB research in the field of economics between 1915 and 2006. Another study by Dominko and Verbič (2019b) provided a bibliometric analysis of the field by examining SWB studies for the elderly between 1961 and 2016. In both studies, the most important articles, authors, journals, organisations and countries in this field were analysed. Xu et al. (2022) also presented a bibliometric map by examining studies on the effects of

urban green spaces on SWB of older adults between 2015 and 2022. They examined the keywords ‘partner country networks’ and ‘co-author network relations’ in the study.

Moreover, when we examined bibliometric studies in the field of PWB, we observed that only two studies have the keywords ‘psychological well-being’ in their research strategies. From these studies, Kúld et al. (2021) mapped the studies published in the Web of Science database in 2000–2017, which only include PWBs of visually impaired children, with bibliometric analysis. Ambhore and Ofori (2023) analysed studies published in the Scopus database between 1978 and 2022 on economics, econometrics, finance, business, management, and accounting to examine the impact of PWB on the economy and businesses.

In the examination of general bibliometric studies in the field, studies on PP (Rusk & Waters, 2013; Schui & Krampen, 2010; Wang et al., 2023) provide a comprehensive concept review, examining the effects of bibliometric studies on SWB, such as on older adults (Huang et al., 2022), the elderly (Dominko & Verbic, 2019b), and older people (Xu et al., 2022). Also, a bibliometric study examines studies in the field of economics (Dominko & Verbic, 2019a).

Studies on PWB are focused on specific samples, such as children with visual impairments (Kúld et al., 2021) and are mapped by research area limitations such as economics and business (Ambhore & Ofori, 2023). To fill this gap, we believe that a comprehensive bibliometric study examining all academic publications on ‘psychological well-being’ or ‘psychological well being’ in the Web of Science Core Collection database will provide stronger evidence to examine the research field of the concept.

4 Data and Bibliometric Analysis Methodology

We used a boolean logic model in the Web of Science Core Collection advanced search menu (TS = ‘Psychological Well-Being’ OR ‘Psychological Well Being’). We utilized the ‘TOPIC’ option in the advanced search screen. We did not restrict any Web of Science Core Collection research categories because including all research categories would be more appropriate for creating a holistic picture.

Bibliometric analyses summarise the intellectual structure and current trends of the research field in studies with an extensive research area or dataset that cannot be examined manually (Donthu et al., 2021). Bibliometric mapping is particularly suitable for areas where there are numerous studies or where the field is unclear. These mappings are widely used to examine new, ambiguous, or complex research areas because they provide an objective view of a particular research area without including the subjective interpretations of researchers (Liu et al., 2015; Yan et al., 2015).

We used three programs, MS Office Excel, VOSviewer ver.1.6.18 (van Eck & Waltman, 2010), Bibliometrix (Aria & Cuccurullo, 2017) and Citespace ver.6.2.R4 (Chen et al., 2010), to define and analyse the dataset. We employed the MS Office Excel program to prepare tables such as document types, citations, and documents by year. We conducted document analysis of the most popular institutions and journals and co-citation analysis of authors with the VOSviewer program. We also used Citespace and Bibliometrix (R-tool) to visualise the trends and keyword changes over the years. To utilize VOSviewer and Citespace programs, we saved the Web of Science Core Collection data in plain text format with all records and references.

4.1 Inclusion Criteria

The document types included were articles, review articles, proceedings papers, early access, book chapters, editorial materials, data papers, books, and retracted publications. We excluded non-English publications from 2023. Our reason for excluding 2023 was that the year still needed to be completed and could potentially affect annual averages adversely. Since 1980 was the date of the first study to include the concept of PWB in at least one of the titles, abstracts, or keywords in the Web of Science Core Collection database, the research covers the publications between 1980 and 2022. At the end of all processes, we included 16,885 documents in the research (as of August 8, 2023). Figure 1 shows the search strategy. We stored the data acquired in the search strategy in the appropriate folder by selecting the plain text format and marking the custom full edit from the record content section.

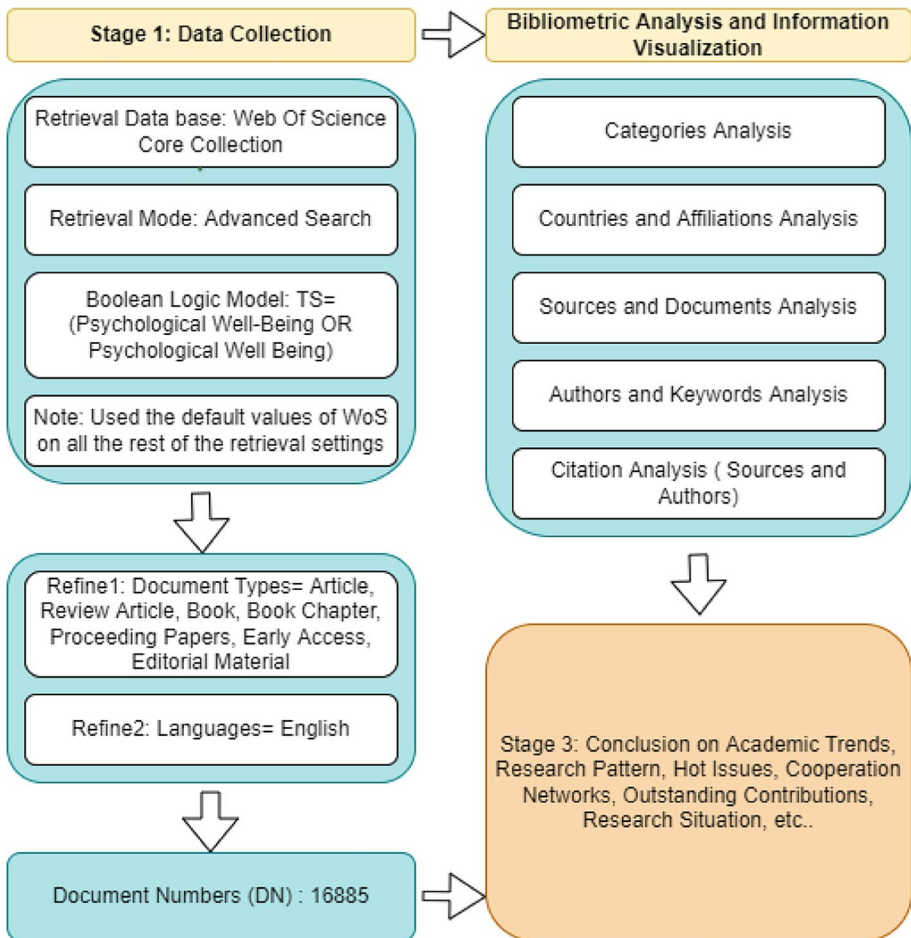


Fig. 1 Search strategy

4.2 Identification of Dataset

Table 2 provides an overview of the literature collected from the Web of Science Core Collection. Web of Science is acknowledged to cover journal citations more comprehensively than Scopus and Google Scholar (Adriaanse & Rensleigh, 2013). Due to its reliability, it is widely used as a primary data source, particularly in bibliometric studies (Zhang & Liang, 2020).

Table 2 shows the document types of the studies examined in the field. More than 90% of the publications are articles. The proportion of books, editorial materials, data papers, and book chapters is below 1% (0.8%) in the studies examined.

4.3 Data Standardisation

Data standardisation is needed to obtain consolidated information, even when using a single database in bibliometric studies. In addition, the data used for bibliometric analyses may contain misspellings or inaccuracies that require editing (Cobo et al., 2011). We followed two steps to address this issue.

First, we removed duplicate and misspelled items. Sometimes, data may contain items representing the same person, concept, or object with different spellings. To prevent this, we reviewed the data in plain text format and made corrections, especially for author names. For example, ‘Ryff CD’ can also be spelled as ‘Ryff Carol D.’ Similarly, ‘Deci EL’ might be spelled as ‘Deci Edward L.’ We identified and fixed a similar problem in keywords ‘positive psychology’ or ‘PP’. Moreover, to analyse PWB under a single keyword, we consistently used the term ‘well-being’ (as opposed to ‘well being’).

Second, we sought to overcome data visualisation constraints. This was particularly relevant for category, source, journal, and author reviews. Images representing all institutions or individuals would often be overwhelming for the reader. Therefore, we limited the table to the top 20 strongest. In keyword analysis, it is impractical to include all publications between 1980 and 2022 in a single table. Instead, we found that examining the past 10 years provides more recent insights into trends. Even then, the merged network between keywords in the past 10 years consists of 200 keywords with 2,001 keyword associations and at least one link.

Table 2 Document type

	Record count	% of 16,885
Articles	15,257	90.4
Review articles	1141	6.8
Proceeding papers	627	3.7
Early access	245	1.5
Book chapters	142	0.8
Editorial materials	129	0.8
Data papers	6	0.0
Books	3	0.0

Source Web of Science Core Collection, Authors’ own work

5 Findings

5.1 Citation and Publication Counts

Figure 2 shows the number of citations and publications related to PWB. The number of citations and publications offers insight into the field’s popularity. Increasing the number of studies in the field contributes to the growth of both theoretical and practical knowledge.

According to the Web of Science database, the first publication in the field was made in 1980, marking the initial interest in this field. Since 1994, over 100 publications have been produced annually, indicating a growing research interest. This trend accelerated significantly after 2005, with over 200 publications annually, and surpassed 500 publications annually by 2010. A notable surge in publications occurred in 2016. After 2016, it has been observed that the publications on the subject have gained popularity and increased by an average of 20% each year compared to the previous year. Although this growth plateaued in 2022, citation rates have continued to increase compared to the previous year since the first publication. When examining the citations after 2016, we observed that the publications in the field receive an average of 17% (17.3%) more citations each year compared to the previous year.

5.2 Research Areas (Web of Science Database)

Table 3 shows the category distribution of publications in the PWB search. These categories give an idea of the current trends and workload of the field.

When examining the studies, psychology, multidisciplinary, public environment, occupational health, and psychiatry emerge as the most widely published categories. We observed that these three categories contain more than one third (34%) of the total publications. The distribution is generally more homogeneous in other areas. Education, environmental sciences, social work, and sociology each represent more than 2% of publications,

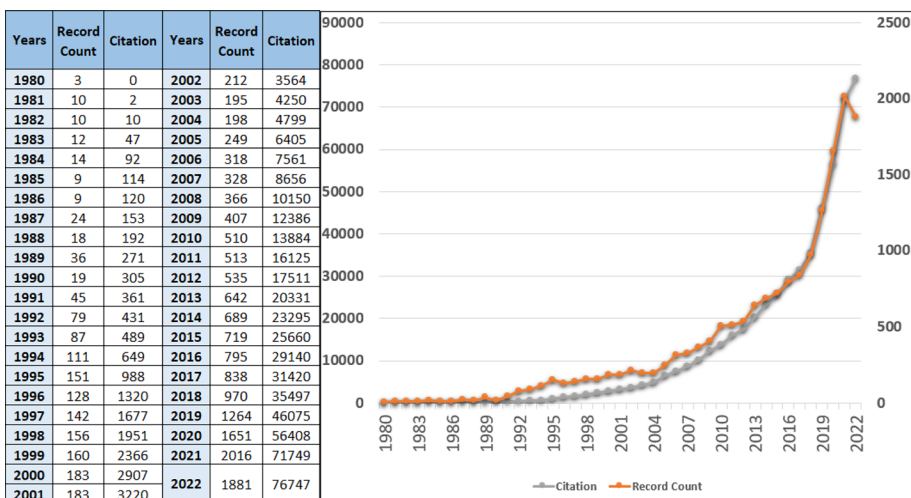


Fig. 2 Citations and publications by years. Source Web of Science Core Collection, Authors’ own work

Table 3 Web of science categories

No	Web of science categories	Record count	% of 16,885
1	Psychology multidisciplinary	2155	12.8
2	Public environmental occupational health	1927	11.4
3	Psychiatry	1818	10.8
4	Psychology clinical	1211	7.2
5	Psychology social	978	5.8
6	Gerontology	774	4.6
7	Psychology developmental	751	4.4
8	Psychology	742	4.4
9	Nursing	694	4.1
10	Medicine general internal	665	3.9
11	Psychology applied	653	3.9
12	Social sciences interdisciplinary	626	3.7
13	Health care sciences services	607	3.6
14	Geriatrics gerontology	590	3.5
15	Family studies	535	3.2
16	Rehabilitation	507	3.0
17	Education educational research	498	2.9
18	Oncology	487	2.9
19	Environmental sciences	461	2.7
20	Clinical neurology	455	2.7

Source Web of Science Core Collection, Authors' own work

particularly in health and medicine-intensive research fields. Notably, each of the top 20 disciplines in the field has over 450 publications. In addition, the density of social sciences among the top 20 disciplines is relatively lower compared to health sciences.

5.3 Global Publishing Trends

Figure 3 presents a colour-coded world map illustrating the geographical distribution of publications between 1980 and 2022. We examined the top 20 publishing countries in the field and assigned five colour codes based on the number of publications.

A total of 150 countries or regions contributed to 16,885 publications. The colour indicators for the categories based on the number of publications are as follows: dark green for the first category (10% and above), light blue for the second category (6%–8%), green for the third category (4%–6%), turquoise for the fourth category (2%–4%), and yellow for the last category of countries (1%–2%). The United States hosted 33.9% of all publications, followed by the United Kingdom (11.3%), and Australia (7.0%). It is seen that each of the 20 most productive countries contributed to the field with at least 223 studies.

5.4 Most Prolific Sources

Figure 4 displays the bibliometric map of the sources with the highest number of publications in PWB. All publications related to the field were produced by 4,101 sources.

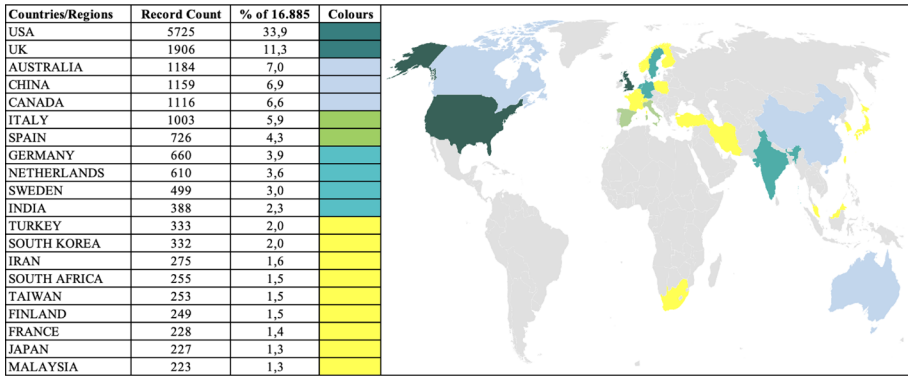


Fig. 3 Global geographical distribution and trend of publications. *Source* Web of Science Core Collection, Authors' own work

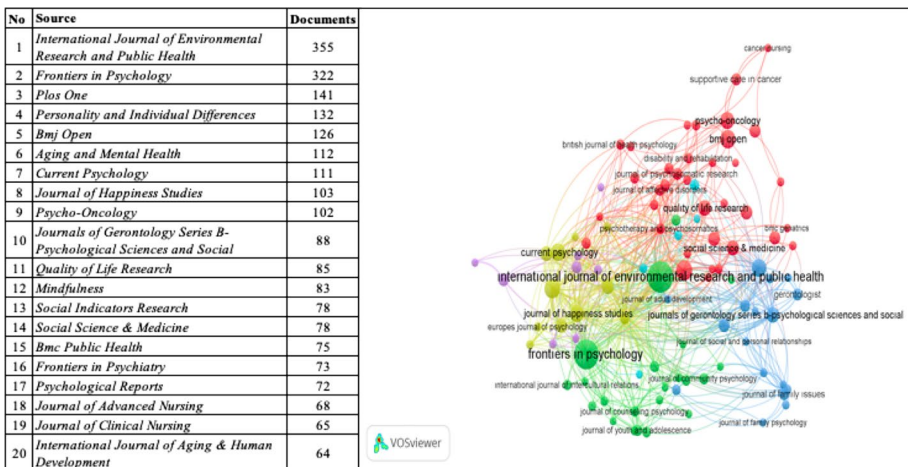


Fig. 4 Most prolific sources. *Source* Web of Science Core Collection, Authors' own work. The higher-resolution image can be explored at: <https://tinyurl.com/yus4s2nc>

The most prolific sources are represented in five clusters. Journals in the same colour set often show that they publish articles with similar content and are closely related to each other. The size of each circle reflects the total number of journal publications. We also reviewed publications and citations for the 20 most productive sources. The *International Journal of Environmental Research and Public Health* (355 publications) and *Frontiers in Psychology* (322 publications) were the two most prolific sources. After these two journals, we observed that the article productivity rate in the top 20 is below 1%. In addition, we found that the top 10 most productive journals out of 4101 different sources published 9.4% of the total research in the field of PWB. This indicates that many sources produce few articles in the field. Additionally, Fig. 4 shows the 20 most prominent sources in the field, which had more than 64 documents and 440 citations.

5.5 Most Influential Sources Based on Citations

Citation rates of sources, documents, or authors provide information about their impact on the field (Zupic & Cater, 2015). Citation analysis is a basic science mapping technique that reflects the intellectual connections between publications (Appio et al., 2014). In bibliometric studies, VOSviewer provides clear visuals to highlight the values (such as keywords, resources, and loyalties) that are the subject of the analysis and to reveal the networks of relationships among them. Figure 5 presents a network visualisation among the top 100 most popular sources based on citation counts.

The size of the circle area represents the number of most cited sources, whereas the width of the connecting lines between sources indicates collaboration effectiveness. The results show many cross-citation links, especially among journals with large circle area sizes. *The Journal of Personality and Social Psychology* (24,698 citations) is the most cited journal, followed by *Social Sciences and Medicine* (7191 citations), *Personality and Individual Differences* (6628 citations), and the *Journal of Health and Social Behavior* (6551 citations). Another important finding is that the first four of these journals received an average of 11.9% (45,068 out of 539,278) of the total citations. It is apparent that the top 100 related journals in the field have at least 26 publications and 250 citations. Figure 5 shows the top 20 sources with the highest citation rates in the field.

5.6 The Most Influential Documents

Table 4 shows the 20 most influential publications according to the number of citations. The impact of a study is directly related to the citations it receives (Liu et al., 2015).

We analysed the 20 most cited documents in the field using the content analysis technique. Brown and Ryan (2003), in the most cited publication (6410 citations), examined the role of mindfulness in PWB, both theoretically and empirically. They also developed

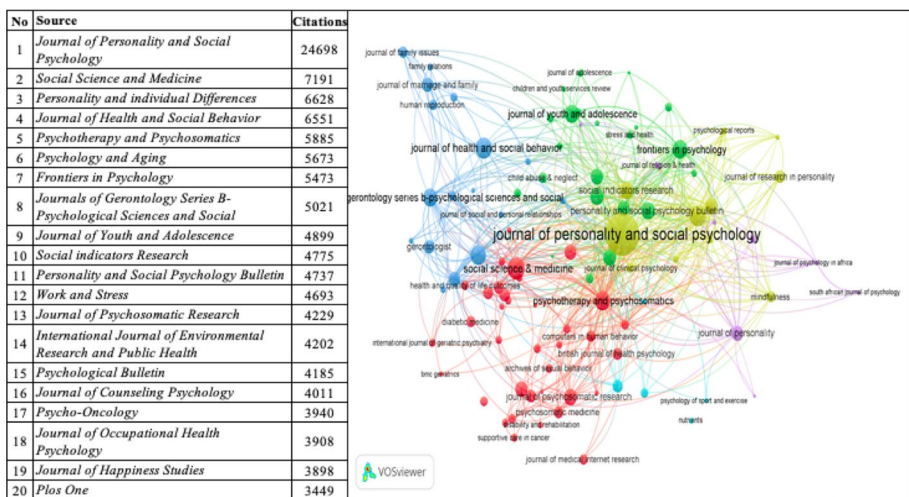


Fig. 5 Most influential sources by citation. Source Web of Science Core Collection, Authors' own work. The higher-resolution image can be explored at: <https://tinyurl.com/yp42y28n>

Table 4 The most influential documents

No	Authors	Sources	Document types	Citations
1	Brown and Ryan (2003)	Journal of Personality and Social Psychology	Review	6410
2	Ryff (1989)	Journal of Personality and Social Psychology	Article	5479
3	Ryan and Deci (2001)	Annual Review of Psychology	Review	5023
4	Ryff and Keyes (1995)	Journal of Personality and Social Psychology	Article	4246
5	Ellison et al. (2007)	Journal of Computer-Mediated Communication	Article	2721
6	Kraut et al. (1998)	American Psychologist	Article	2296
7	Armsden and Greenberg (1987)	Journal of Youth and Adolescence	Article	2293
8	Diener et al. (2010)	Social Indicators Research	Article	1965
9	Kawachi and Berkman (2001)	Journal of Urban Health-Bulletin of the New York Academy of Medicine	Article	1965
10	Thoits (2011)	Journal of Health and Social Behavior	Article	1962
11	Wolch et al. (2014)	Landscape and Urban Planning	Article	1940
12	Coleman et al. (2012)	International Journal of Transgenderism	Article	1931
13	Topp et al. (2015)	Psychotherapy and Psychosomatics	Article	1732
14	Pinquart and Sorensen (2003)	Psychology and Aging	Review	1643
15	Vindegard and Benros (2020)	Brain Behavior and Immunity	Review	1624
16	Baer et al. (2008)	Assessment	Article	1606
17	Lorig et al. (1999)	Medical Care	Article	1522
18	Ryan and Frederick (1997)	Journal of Personality	Article	1454
19	Ryan and Deci (2001)	Canadian Psychology-Psychologie Canadienne	Article	1421
20	Keyes et al. (2002)	Journal of Personality and Social Psychology	Review	1409

Source Web of Science Core Collection, Authors' own work

the Attention Awareness Scale to evaluate the role of mindfulness. Similarly, Ryff and Keyes (1995) and Diener et al. (2010) conducted scale development studies to evaluate PWB, development, and positive–negative emotions.

Ryff (1989), who discussed the definition of PWB through theoretical studies, criticisms of its definition, its dimensions, meaning, the conditions that gave birth to it, and the differences according to place and time, received 5647 citations. Ryan and Deci (2001) received 5008 citations. In the studies examined, PWB and its sub-dimensions—social bonding and social support (Thoits, 2011), chronic illness (Lorig et al., 1999), subjective vitality (Ryan & Frederick, 1997), awareness (Baer et al., 2008; Brown & Ryan, 2003), urban green areas (Wolch et al., 2014), SWB (Keyes et al., 2002)—have been discussed theoretically and empirically. In addition, researchers have examined the relationship between mental health, which is a frequently encountered topic in the PWB literature, and aspects such as social capital (Kawachi & Berkman, 2001) and COVID-19 (Vindegard & Benros, 2020). Also, Topp et al. (2015) systematically examined 213 articles using the well-being index created by the World Health Organization.

5.7 Most Notable Authors

Here, we discuss the authors with the most publications in the field of PWB. Table 5 shows the number of publications the authors have contributed to the PWB field. The 20 most notable authors named in the table have at least 20 studies in the field.

University of Wisconsin-Madison psychology professor Carol Diane Ryff is noted as the most prolific author with 51 publications, followed by Kim (44 publications), Fava (43 publications), Burke (37 publications), and Ruini (36 publications). When we examined the citations of the authors in Table 5, Ryff was at the top of the list with 18,459 citations, followed by Fava (2367), Kubzansky (1554), and Ruini (1539) as the most influential writers.

5.8 Analysis of Keywords

We planned keyword analysis in three stages. The first one (Fig. 6) allows us to visualize the 40-year thematic evolution of the PWB field with the most frequently preferred keywords. The second one (Fig. 7) was prepared to examine these keywords in more detail for the last 10 years. The third table (Table 6) allows us to see in which years the most frequently preferred keywords in the last 10 years had a citation burst. The connection of themes occurs from the algorithm of the program and calculates from the frequency with which concepts co-occur. The thematic evolution discussed herein does not prove the transformation between concepts, but it facilitates the tracking of themes debated in the field.

Table 5 The most notable authors

No	Authors	Documents	Citations
1	Ryff, Carol D	51	18,459
2	Kim, Jungsik	44	1354
3	Fava, Giovanni A	43	2367
4	Burke, Ryan J	37	754
5	Ruini, Chiara	36	1539
6	Shek, Daniel T. L	35	1247
7	Kubzansky, Laura D	31	1554
8	Kim, Eric S	29	1141
9	Lee, Jiwon	27	258
10	Li, Xiaoming	23	582
11	Wissing, Marie P	23	205
12	Chen, Ying	22	296
13	Golombok, Susan	22	1229
14	Huffman, Jeff C	22	332
15	Rafanelli, Chiara	22	286
16	Auquier, Pascal	21	406
17	Castelnuovo, Gianluca	21	259
18	Lee, Soo-Mi	21	910
19	Hastings, Richard P	20	463
20	Kim, Min-Seong	20	412

Source Web of Science Core Collection, Authors' own work

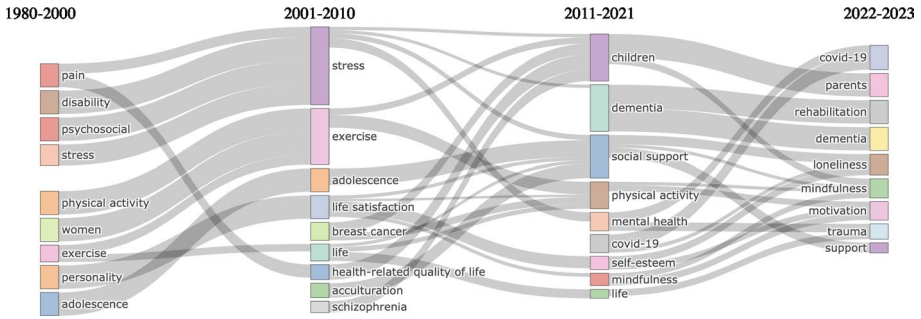


Fig. 6 Thematic evolution of PWB field

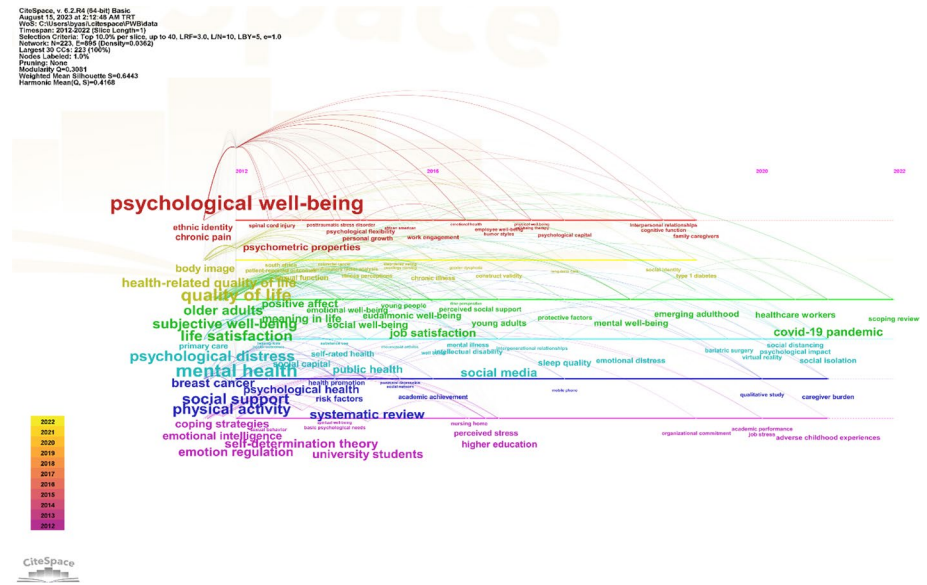


Fig. 7 Analysis of keyword footprints

When the thematic evolution of PWB is examined, the most prominent themes until the early 2000s were pain, disability, and stress, while women and adolescence constituted the most frequently researched examples (Christopher, 1999; Norris et al., 1992; Sumi, 1997). However, from the early 2000s onward, discussions expanded to encompass topics rooted in assessing psychological well-being through positive functionality, such as life satisfaction and quality of life (Keyes et al., 2002; Seligman & Csikszentmihalyi, 2000).

During the third phase of thematic evolution (2011–2021), the global impact of the COVID-19 pandemic profoundly influenced the trajectory of studies in the field. At the onset of this period, strong research themes revolved around children, dementia, and social support, with the pandemic emerging as a new thematic focus. Over time, COVID-19 became an increasingly prevalent subject of investigation. In recent years, due to the repercussions of lockdowns and disruptions in the person-job and person-environment order, the emphasis has shifted from the theme of social support to mindfulness, loneliness, and

Table 6 Top 40 keywords with the strongest citation bursts (2012–2022)

Keywords	Year	Strength	Begin	End	2012 - 2022
quality of life	2012	5.82	2012	2013	
psychological adjustment	2012	5.78	2012	2017	
ethnic identity	2012	5.78	2012	2017	
positive affect	2013	6.68	2013	2018	
meaning making	2013	6.1	2013	2013	
self-rated health	2014	9.63	2014	2015	
social well-being	2014	6.35	2014	2018	
sense of coherence	2012	6.32	2014	2015	
work-family conflict	2014	6.06	2014	2015	
academic achievement	2015	7.85	2015	2016	
chronic illness	2015	7.85	2015	2016	
intellectual disability	2016	8.64	2016	2017	
young adults	2016	7.99	2016	2017	
negative affect	2013	5.31	2016	2018	
psychological capital	2017	5.92	2017	2017	
palliative care	2013	11.32	2018	2019	
type 1 diabetes	2019	6.71	2019	2019	
family caregivers	2019	6.71	2019	2019	
cognitive function	2019	5.59	2019	2019	
organizational commitment	2019	5.59	2019	2019	
interpersonal relationships	2019	5.59	2019	2019	
social identity	2019	5.59	2019	2019	
public health	2014	10.69	2020	2022	
virtual reality	2020	7.92	2020	2020	
bariatric surgery	2020	6.93	2020	2020	
job stress	2020	5.94	2020	2020	
academic performance	2020	5.94	2020	2020	
qualitative study	2020	5.94	2020	2020	
sleep quality	2017	5.5	2020	2022	
covid-19 pandemic	2021	20.32	2021	2022	
social isolation	2021	12.63	2021	2022	
university students	2014	8.53	2021	2022	
social distancing	2021	8.11	2021	2022	
adverse childhood experiences	2021	8.11	2021	2022	
psychological impact	2021	8.11	2021	2022	
healthcare workers	2021	7.3	2021	2022	
caregiver burden	2021	7.21	2021	2022	
higher education	2016	6.68	2021	2022	
mental health	2012	6.47	2021	2022	
college students	2013	6.17	2021	2022	

support. Notably, motivation and rehabilitation have emerged as significant focal points in recent years.

Figure 7 shows the most frequently used keywords and clusters in the past 10 years. Reviewing keywords allows for highlighting critical topics that are new or outdated, often in demand over the years.

The keywords analysis first provided insights into the research keywords with which PWB was examined together due to their close association with one another in 2012, such as 'quality of life', 'older adults', 'life satisfaction', 'mental health', 'social support', 'SWB', and 'emotion regulation'. These keywords are frequently examined together. For PWB, studies dealing with social media and ethnic identity were more widely published between 2012 and 2018. In 2019, the COVID-19 pandemic stood out as a new phenomenon. The most common keywords associated with COVID-19 in post-2019 publications are 'health care workers', 'social distancing', 'university students', 'social isolation', 'caregiver burden', and 'psychological impact'. It is not surprising that these words came to prominence. With the pandemic, online education and university students (Agrawal & Krishna, 2021; Aw et al., 2023; Li et al., 2021) have become research areas that have garnered great interest. In addition, researchers have focused on social distancing (Jakhar & Kharya, 2021; Silva et al., 2021), social isolation (Birditt et al., 2021; De la Rosa, 2022), and effects on public health in different sample groups during the curfews.

As seen in Table 6, keywords such as 'quality of life', 'mental health', 'life satisfaction', 'COVID-19 pandemic', 'emotional intelligence', and 'physical activity' come to the forefront in studies related to PWB that have been conducted in the last 10 years. Especially in the post-2015 period, it would be helpful to divide it into pre-COVID-19 (2015–2018) and the COVID-19 period (2019–2022). Before COVID-19, 'job satisfaction', 'public health', 'social well-being', 'perceived stress', and 'ethnic identity' were frequently preferred keywords in the PWB field. After the emergence of COVID-19, keywords such as 'COVID-19 pandemic', 'social isolation', 'social distance', 'health workers', and 'higher education' were discussed together with PWB. We found that they had strong citations bursts as they were frequently used.

6 Discussion and Conclusion

In this study, we performed bibliometric mapping of the publications in the field of PWB between 1980 and 2022. Unlike previous bibliometric studies in the PWB field, which were constrained by sample (Kúld et al., 2021) and domain (Ambhore & Ofori, 2023) limitations, we attempted to shed more light on the academic publications produced in this field. We used this mapping to examine document types, Web of Science categories, countries, source titles, links, authors, and keywords.

Findings revealed that the field has been gradually developing every year since 1980. When we examined the citations, we observed that the citation rates of the publications have increased every year since the first publication. After 2016, the publications in the field received 17% (17.3%) more citations each year compared to the previous year. Authors of recent PWB studies in business and economics also draw attention to increased publications in the past 10 years (Ambhore & Ofori, 2023). Despite producing publications for the past 40 years, the field of PWB has not lost its relevance and continues to grow. That growth appears to be much faster (10.28% by year) than the general growth of science (4.10% by year, according to Bornmann et al., 2021).

The fields of public environment, occupational health, and psychiatry, especially psychology multidisciplinary, emerge as the categories with the most publications. These three categories cover more than one third (34%) of the total publications. It is stated in the SWB bibliometric study of Huang et al. (2022) that most publications are in psychology and medicine. When we analysed the global publication production, we observed that the United States (33.9%) produces more than one third of the publications, followed by the United Kingdom (11.25%), Australia (7.01%), China (6.81%), and Canada (6.64%). Given that publications covering the field were produced from a total of 150 countries, the fact that these five countries alone account for almost two thirds (65.74%) of the total publications is remarkable. Similar trends can also be seen in the SWB research. Although developed European countries and the United States dominate the research field, it should be noted that China, Japan, South Korea, and Australia have limited influence (Huang et al., 2022). Dominko and Verbič (2019a) reviewed the SWB research in economics and found that the United States is the top country with 1,169 articles and the United Kingdom is the second with 354 articles. Similarly, Dominko and Verbič (2019b) found that the United States is the leading country with 856 articles in SWB.

The top 10 most productive journals out of 4,101 different sources published 9.4% of the total research in the field of PWB. To date, 51,753 authors have contributed to the PWB field. Among these authors, Carol D. Ryff of the University of Wisconsin-Madison is the leading author (51 publications), followed by Jungsik Kim (44 publications), Giovanni A. Fava (43 publications), Ryan J. Burke (37 publications), and Chiara Ruini (36 publications), who stand out as the most prolific authors. Additionally, in terms of the number of citations, Ryff holds the first place with 18,459 citations.

In the keyword review, we identified the trends of the past 10 years in the studies. Before the pandemic, keywords such as ‘job satisfaction’, ‘public health’, ‘social media’, ‘social capital’, ‘perceived stress’, and ‘mental well-being’ were prominent. However, with the emergence of COVID-19, keywords such as ‘health workers’, ‘higher education’, and ‘social isolation’ came to the forefront. Similarly, in the fields of PP and SWB, COVID-19 emerged as a focal point (Huang et al., 2022; Wang et al., 2023). Accordingly, COVID-19 acted as a catalyst that changed the direction of PWB, PP, and SWB studies.

As a result, while ‘children’ was a dominant theme during the period when the pandemic was felt all over the world, keywords such as ‘college students’ and ‘higher education’ have emerged as notable citation bursts in recent years in the PWB field. Studies have shifted focus towards support and illness agendas concerning higher education students and the elderly, replacing the emphasis on social support with concepts of rehabilitation and motivation.

Prominent topics such as physical activity and social support, which have been explored in the context of PWB, have relatively diminished in significance. Ostensibly, the extensive literature on how PWB is provided has been reassessed with variables such as loneliness, mindfulness, and discussions of parent and family support in cases like trauma and dementia.

With this bibliometric study, we shed light on the ‘bests’ of the PWB field along with the contributing structures and individuals. Our research revealed the developmental trajectory of the field, the extent of each country’s contribution to the production of publications in the field, popular research categories, journals, publications, and authors. In particular, our findings on trends enabled us to examine the active development of the field since 1980 and its trends in the past 10 years.

The COVID-19 pandemic has affected PWB like many other fields. In addition to pre-pandemic research focuses such as older adults, there has been an increase in

studies addressing young individuals, university students, and healthcare workers. PWB has achieved strong acceptance within the PP fields. We anticipate that the importance of PWB will continue to grow, given the ongoing burst of research focusing on social distancing, online education, and social isolation. It will be a substantial area where the effects are examined for new variables in the post-pandemic period.

7 Recommendations for Future Research

This research has illuminated the knowledge and current trends in the field through meticulous examination of the literature on PWB using the bibliometric analysis method. The comprehensive analyses conducted in the study provide guiding outputs for both academics and practitioners.

We have demonstrated that the COVID-19 pandemic has broadened the scope of variables and examples related to PWB discussions. It appears that PWB in children has not been adequately examined in the post-COVID period, indicating a research gap in this area. It is crucial to explore the variables affecting post-pandemic PWB across different age and education groups, including students. There is a need for research on the psychological impact of the pandemic and strategies to address it. We believe that studies aimed at enhancing psychological functionality, which may have declined due to health issues or traumas during the pandemic, will contribute significantly to the field. Given the disruption of the person-work and person-environment dynamics during the pandemic, the discussions on social support were interrupted. We expect that PWB studies will contribute to revitalizing workplace dynamics by fostering new motivation sources and enhancing work-person harmony in Generation Z as a new social support mechanism.

The concept of PWB is not extensively discussed in social sciences compared to other fields. Therefore, there is an opportunity to delve deeper into PWB within this domain. While recent bibliometric studies, such as the one conducted by Wang et al. (2023) in the field of PP, offer valuable insights, bibliometric mappings in SWB provide additional evidence of the overall picture of the area, particularly among older adults (Huang et al., 2022), the elderly (Dominko & Verbic, 2019b), and older people (Xu et al., 2022). Expanding bibliometric mappings to include various age groups or broader research categories related to SWB will enhance our understanding of the similarities and differences between the two fields.

8 Limitations

It is important to acknowledge some limitations of this study. First, there may be existing studies that should have been included but were not due to our reliance on a single database. We incorporated studies that included PWB concepts in at least one of the titles or keywords in the abstract. Researchers may interpret the field differently by employing different date restrictions or a similar search syntax that includes multiple databases. Despite this limitation, we believe that this study will effectively inform and guide future research endeavours.

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Declarations

Conflict of interest The authors declare no conflict of interest.

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