Developments in Quality of Work-Life Research and Directions for Future Research

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Abstract
Objective of this paper was to observe trends and developments in quality of work-life research throughout the decades. Previous researchers mostly focused on systematic and general literature reviews. In this paper bibliometric analysis and systematic literature review were combined to observe the trends and developments in quality of work-life research. An electronic Scopus database search initially produced of 867 documents on quality of work-life. Further purposive screening reduced the documents to 752 altogether. Furthermore, a detailed literature review of top 10 most cited publications throughout the decades of quality of work-life research was conducted, to explore construct development, antecedents, and outcomes of quality of work-life. Bibliometric analysis revealed that most of the research was produced from United States, and in areas of business, management, and accounting. Literature review revealed that from 1970s to 1980s, the focus of quality of work-life research was mainly on construct development. From 1990s onward, researchers mostly focused on identifying antecedents and outcomes of quality of work-life at organizational and employee level. Findings of this research suggests various employee and organizational level factors which have been neglected by most influential studies of quality of work-life throughout the decades. Future researchers should focus on these factors to motivate government and organizations to incorporate these factors in their system, and to support the quality of work-life research.

Keywords
quality of work-life, dimensions, antecedents, outcomes, literature review, bibliometric analysis

Introduction
In general, quality of work-life (QWL) refers to an employee’s satisfaction with the working life. It emphasizes the quality of the relationship between the worker and the working environment (Rose et al., 2006). As its conceptualization covers a broad spectrum of factors, researchers operationalized QWL differently in different time periods. From 1960s to 1980s, QWL was limited to desirability of working conditions. Later on, need satisfaction approach emerged during 1980s and 2000s. Currently, researches are using combination of both approaches as per their judgment (Gogoleva et al., 2017). Combination of these approaches yield a broad spectrum of QWL dimensions, such as; employees’ feelings toward job content, physical work environment, pay, benefits, promotions, autonomy, teamwork, participation in decision-making, occupational health and safety, job security, communication, colleagues and managers support and work-life balance (Adhikari & Gautam, 2010), and several others. Conclusively, QWL is a combination of all those factors which are critical to attract and retain qualified employees (Mazlan et al., 2018; Mosadeghrad, 2013; Sulaiman et al., 2015).

As QWL is equally important for both employees and organizations, researchers from different fields extensively researched it. Since the origin of QWL research, interest of researchers is continuously shifting. But these trends in QWL research are not fully explored. As the previous studies conducted in this regard were quite limited in their scope. Gogoleva et al. (2017) conducted a detailed bibliometric literature review of 387 publications to explore research perspectives and problems in conceptualization and operationalization of QWL. But his research was limited to only organizational studies. Several other researchers conducted literature reviews but those reviews had their own limitations, in terms of area and time period. There is a need to conduct bibliometric analysis along with literature review to identify the past trends in QWL research. So that research gaps could be identified thoroughly, and further empirical

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research could be conducted on untouched topics and domains in QWL research.

To address this issue and to overcome this gap, a rigorous bibliometric analysis accompanied with detailed literature review was conducted in this study. The rationale behind combining bibliometric analysis with literature review was to identify: (1) Publication trends throughout the decades of QWL research, (2) Most influential publications throughout the decades of QWL research, (3) Most researched antecedents and outcomes of QWL throughout the decades of QWL research, (4) Development of QWL construct throughout the decades of QWL research, (5) New antecedents and outcomes of QWL contributed by most influential studies throughout the decades of QWL research, (6) Areas of QWL research which require additional research. To meet these objectives, a decade wise bibliometric analysis and literature review was conducted, in order to identify publication trends and main contributions in QWL research throughout the decades of QWL research. Hence, the focus of this research was mainly to observe research trends, contributed dimensions, antecedents, and outcomes of QWL during several decades of QWL research. Directions for future research are suggested based on identified trends and contributions.

Methodology

To fulfill first objective of this research, publication trends were identified through bibliometric analysis of publications throughout the decades of QWL research. For second objective, most influential publications throughout the decades of QWL research were identified through their total citations throughout the years. To achieve third, fourth, fifth, and sixth research objectives, systematic literature review of top 10 most cited publications throughout the decades of QWL research was done. To further facilitate the sixth research objective, keyword analysis was also performed. Bibliometric analysis was deemed best for this research, as it aids in identification of scientific research structure (Ronda-Pupo, 2017), current trends and future research avenues of any field (Li et al., 2017). Systematic literature review further facilitated to identify major contributions in QWL research throughout the decades, in terms of construct conceptualization and development, identification of contributing factors and outcomes, and their implications on both organizational and individual level.

For bibliometric analysis, bibliographic data was extracted through Scopus database as it is one the largest databases of scholarly publications, and covers a vast array of subject areas. Plus it is available for general public without requirement of institutional access to extract bibliographic data from it. After finalizing the database, bibliographic data extraction was performed on 11 August 2021. For this purpose, a detailed search string was constructed to extract bibliographic data from Scopus database, after identifying alternative terms for QWL used in previous studies. Although there are various dimensions of QWL but in this study focus was on those documents which focused on QWL as a whole. Hence, search string was based on various terminologies of QWL including: “quality of work life,” “quality of working life,” “work life quality,” and “working life quality.” Search string was constructed in a way that all those documents could be extracted which contain either of these terms in their title. Initially search string was searched through “Article title, Abstract, Keywords,” but it filtered even those papers which included the term QWL in their abstract but there focus was nowhere close to QWL. These publications either related the implications of their research with QWL, or just casually mentioned the term in the abstract, with no actual focus on the QWL in their research. Hence, another search was performed with the same search string through the “Article title” only. Following this search strategy, total 867 documents were extracted, starting from the first QWL publication in the Scopus database until now. Covering the QWL research published between 1974 and August 2021. Documents were further filtered based on publication stage, language, and document type. Documents were reduced to 851 after excluding 16 documents in press. Then 84 documents were excluded which were in languages other than English. Lastly, 15 documents were further excluded which were in the form of note, letter, editorial, erratum, and retracted, including documents only in the form of article, conference paper, review, book chapter, and book. After these three filtration parameters, total 752 documents were extracted.

To further analyze the trends and contributions throughout the decades of QWL research, extracted documents were divided in set of several decades starting from beginning of QWL research to present. As the first Scopus indexed publication on QWL was in 1974, so data was further divided into decades of: 1970s, 1980s, 1990s, 2000s, 2010s, and early 2020s. As 2020s is in starting phase hence, documents published only in 2020 and 2021 were analyzed to observe recent advancements. The purpose of forming these small clusters was to better identify trends in QWL research throughout the decades. Important publication trends in these decades were analyzed, including: number of publications in each decade, funded publications, top contributing countries, and top contributing subject areas in QWL research. Then top 10 most cited Scopus indexed publications were shortlisted to conduct a detailed literature review, to analyze construct development, and to identify proposed dimensions, antecedents and outcomes of QWL. A brief summary of search strategy and data filtration process is provided in Figure 1. Bibliometric trend analysis of each decade in QWL research is provided in Appendix Tables 1 to 3, and brief illustrations of literature review findings are provided in Figures 2 to 4.

Focus of Research in 1970s

Bibliometric analysis indicated that first Scopus indexed article on QWL was published in 1974. Further analysis indicated that total 23 Scopus indexed publications were published.
Figure 1. Search strategy and data filtration process of research.

Figure 2. Antecedents and outcomes of quality of work-life identified in 1990s.
Source. Baba and Jamal (1991), Efraty et al. (1991), Efraty and Sirgy (1990), Elizur and Shye (1990), Hart (1994), Havlovic (1991), Igbaria et al. (1994), Lau and May (1998), and Louis (1998).
Figure 3. Antecedents and outcomes of quality of work-life identified in 2000s.
Source. Chan and Wyatt (2007), Gifford et al. (2002), Gurses et al. (2009), Huang et al. (2007), Krueger et al. (2002), Sirgy et al. (2001), and Spence Laschinger et al. (2001).

Figure 4. Antecedents and outcomes of quality of work-life identified in 2010s.
Source. Almalki, FritzGerald et al. (2012), Bragard et al. (2015), Gillet et al. (2013), Holden et al. (2011), Koonmee et al. (2010), Lee et al. (2015, 2013), Mosadeghrad et al. (2011), and Nguyen and Nguyen (2012).
in 1970s. Most of this research was published in business, management, and accounting disciplines (N=15), and was mainly contributed from United Kingdom (N=6) and United States (N=4). Further literature review of top 10 most cited Scopus indexed publications indicated that initial researchers mostly focused on exploring the construct of QWL (Spink, 1975; Taylor, 1978). Along with its several challenges (Westley, 1979), perspectives (Boisvert, 1977; Cherns, 1978; Lippitt, 1978; Newton, 1978), and antecedents (Stokes, 1978; Taylor, 1977). These top cited publications of 1970s are listed in Table 1 along with their citation metrics and ranks.

In 1970s, QWL was majorly operationalized through indicators of job satisfaction (Boisvert, 1977; Taylor, 1978). Mostly, researchers operationalized QWL as: opportunities of learning, importance in decision making, adequate performance feedback, and work control, variety, and recognition (Boisvert, 1977). But, Taylor (1977) challenged this norm and suggested a more detailed scale to measure QWL (Taylor, 1978). Taylor (1978) combined individual categories of QWL, and collective perspectives on QWL in one scale. Individual categories of QWL were composed of: adequate and fair compensation, opportunities for growth, security, safe and healthy working conditions, social integration and constitutionalism in the work organization, work and the total life space, and social relevance of work life. Collective perspectives on QWL were employer and societal QWL (Taylor, 1978).

Until 1970s it was believed that issues of QWL arise due to inequality, insecurity, anomie (Westley, 1979), and alienation (Stokes, 1978). Several indicators of these issues were proposed at that time. Issues of inequality and insecurity can be identified through strikes and sabotage due to job dissatisfaction. Anomie and alienation can be identified through sense of detachment and meaninglessness, absenteeism and increased turnover (Westley, 1979). Researchers of 1970s suggested that inequality issues can be solved through cooperative profit sharing and productivity agreements (Stokes, 1978; Westley, 1979). Insecurity issues can be solved through work self-management, and worker directors and councils. Anomie and alienation issues can be solved through socially-technically designed work groups, and job enrichment respectively (Westley, 1979). To solve issues of QWL, cooperative union management was highly supported at that time (Drexler & Lawler, 1977; Stokes, 1978; Westley, 1979). One of the most cited proposed union management program was proposed by Drexler and Lawler (1977). In short, focus of 1970s QWL research was mostly on construct exploration and development, and solving issues of QWL.

**Focus of Research in 1980s**

Bibliometric analysis of Scopus database indicated that QWL research significantly increased in 1980s, as the total publications were 102 in 1980s. Among these 102 publications 7 were funded, indicating budding interest of funding sponsors in QWL. Although highest number of publications were still in business, management, and accounting (N=39). But, a significant increase in publications was observed in fields of engineering (N=23), psychology (N=22), and social sciences (N=38). Number of publications in engineering are quite noticeable, as in 1970s there were no publications in field of engineering. Other than engineering, QWL research was conducted in various other new fields as well. Such as computer science, earth and planetary sciences, material science, nursing, and pharmacology, toxicology, and pharmaceutics. Another noticeable trend was that United States was still the highest contributing country (N=34), with much higher research contributions. But number of research contributions from United Kingdom were still same in 1980s (N=6), as it was in 1970s (N=6).

Further literature review of top 10 most cited Scopus indexed publications listed in Table 2 indicated that in 1980s along with focusing on perspectives (Nadler & Lawler EE, 1983) and defining (Levine et al., 1984) construct of QWL, researchers started to focus on development (Lawler, 1982; Mirvis & Lawler, 1984; Stein & Kanter, 1980) and current state of QWL in various work environments (Buchanan & Boddy, 1982, 1983; Kraut et al., 1989; Marks et al., 1986; Mirvis & Lawler, 1984; Smith & Nock, 1980). In 1980s, special emphasis was given to inclusion of advanced technology (Buchanan & Boddy, 1982, 1983) and computerization...
Focus of Research in 1990s

Bibliometric analysis of Scopus database indicated that researchers’ interest in QWL research was reduced to half in 1990s as compared to 1980s. As the total number of publications on QWL reduced to 52 in 1990s. Even the funding sponsors seemed uninterested in QWL, as only three studies were funded in 1990s. Most prominent subject area was still business, management, and accounting (N=22). Biochemistry, genetics, and molecular biology emerged as a new subject area in 1990s (N=1). In 1990s, United States was still the highest contributing country (N=27), and contributions from other countries were somewhat equal to each other.

Further literature review of top 10 most cited Scopus indexed publications indicated that in 1990s, focus of researchers was mainly on identification of QWL antecedents (Baba & Jamal, 1991; Efraty & Sirgy, 1990; Efraty et al., 1991; Hart, 1994; Igbaiara et al., 1994) and its outcomes (Efraty & Sirgy, 1990; Efraty et al., 1991; Elizur & Shye, 1990; Havlovic, 1991; Lau & May, 1998; Louis, 1998). These top cited publications of 1990s are listed in Table 3 along with their citation metrics and ranks.

Researchers studied various work related (Baba & Jamal, 1991; Hart, 1994; Igbaiara et al., 1994) and personal factors (Efraty & Sirgy, 1990; Efraty et al., 1991; Hart, 1994) which could improve or reduce QWL. It was identified that some job related factors such as: routinization of job context (Baba & Jamal, 1991), positive work experiences (Hart, 1994), higher job involvement, salary, intrinsic, and extrinsic rewards (Igbaiara et al., 1994) could enhance QWL. Whereas, Routinization of job content (Baba & Jamal, 1991), negative work experiences (Hart, 1994), and higher job involvement (Igbaiara et al., 1994) could reduce QWL. Higher job involvement plays dual role, because it could enhance both positive work experiences and heighten the adverse effects of role stressors at the same time (Igbaiara et al., 1994).

Several contributing personal factors were identified as well (Efraty & Sirgy, 1990; Efraty et al., 1991; Hart, 1994). It was identified that positive work experiences, and higher morale (Hart, 1994) could enhance QWL. Whereas, negative work experiences, psychological distress (Hart, 1994), and personal alienation could reduce QWL (Efraty & Sirgy, 1990; Efraty et al., 1991). Positive work experiences actually enhance employee’s morale, whereas, negative work experiences enhance psychological distress. Both morale and psychological distress were found to be strong contributors of QWL. But they act opposite to each other, psychological distress reduce QWL, whereas morale enhance QWL (Hart, 1994).
Furthermore, various outcomes of better QWL were studied at both organizational level (Havlovic, 1991; Lau & May, 1998) and employee level (Efraty & Sirgy, 1990; Elizur & Shye, 1990; Louis, 1998). Researchers identified that at the organizational level, higher QWL could enhance an organization's growth and profitability (Lau & May, 1998), and could reduce employee absenteeism, minor accidents, grievances, and quits (Havlovic, 1991). At employee level, higher QWL contribute toward higher employee's quality of life (Elizur & Shye, 1990), commitment, efficacy (Louis, 1998), organizational identification, job satisfaction, job involvement (Efraty & Sirgy, 1990; Efraty et al., 1991), job effort, job performance, and lower personal alienation (Efraty & Sirgy, 1990).

To conclude, various job related and personal antecedents, and various organizational level and employee level outcomes of QWL were identified in 1990s. Figure 2 illustrates these identified antecedents and outcomes of QWL based on top 10 most cited Scopus indexed publications of 1990s.

### Focus of Research in 2000s

Bibliometric analysis of Scopus database indicated that researchers' and sponsors' interest in QWL research increased again in 2000s. As total number of publications in 2000s were 87, and 6 out of these were funded. Unlike 1970s to 1990s, most of the publications in 2000s were from field of medicine (N=37), proceeded by social sciences (N=26), and business, management, and accounting (N=22). Health professions, mathematics, and neuroscience emerged as new subject areas in QWL research in 2000s. United States was still the highest contributing country in 2000s with 32 publications.

Further literature review of top 10 most cited Scopus indexed publications listed in Table 4 indicated that in 2000s, researchers mainly focused on filling the gaps in conceptualization (Hsu & Kernohan, 2006; Martel & Dupuis, 2006) and instrumentation (Martel & Dupuis, 2006; Sirgy et al., 2001) of QWL, and its implications in various work environments (Chan & Wyatt, 2007; Gallie, 2003; Huang et al., 2007; Sirgy et al., 2001), especially in fields of medicine, nursing (Gifford et al., 2002; Gurses et al., 2009; Huang et al., 2007; Sirgy et al., 2001), and health professions (Krueger et al., 2002). Various countries implemented policies to enhance QWL in 2000s. Gallie (2003) compared employee’s perceived QWL between Scandinavian countries and other European Union countries. Perceived quality of work tasks, involvement in decision making, career opportunities, and job security were observed to analyze level of QWL in these countries. In Denmark and Sweden, comparatively higher quality of work tasks, and better opportunities of participation were observed as compared to other countries.

Researchers identified several new domains of QWL in 2000s. The most cited dimensions were of Hsu and Kernohan (2006), Martel and Dupuis (2006), and Sirgy et al. (2001). Sirgy et al. (2001) developed a new measure of QWL based on need satisfaction and spillover theories. The focus of this measure was to capture the perceived need satisfaction of employees from company’s work environment, job requirements, supervisory behavior, and ancillary programs. They identified seven major needs of employees with several sub dimensions. These dimensions and their sub dimensions are: health and safety needs (protection inside work, protection outside work, and focus on good health), economic and family needs (pay, job security, and other family needs), social needs (collegiality at work and leisure time off work), esteem needs (work recognition within organization, and work recognition outside

### Table 3. Top 10 Most Cited Publications in Quality of Work-Life Research During 1990s.

| Publication title                                                                 | Author                      | TC  | QR  | GS  | TCY  |
|----------------------------------------------------------------------------------|-----------------------------|-----|-----|-----|------|
| Work experiences, job involvement, and quality of work life among information systems personnel | Igbaria et al. (1994)       | 159 | Q1  | 26  | 5.89 |
| Teacher quality of work life: Integrating work experiences, psychological distress and morale | Hart (1994)                | 95  | Q1  | 24  | 3.52 |
| Effects of teacher quality of work life in secondary schools on commitment and sense of efficacy | Louis (1998)               | 91  | Q1  | 10  | 3.96 |
| The effects of quality of working life (QWL) on employee behavioral responses     | Efraty and Sirgy (1990)     | 85  | Q1  | 50  | 2.74 |
| Quality of work life and its relation to quality of life                          | Elizur and Shye (1990)      | 78  | Q1  | 51  | 2.52 |
| A win-win paradigm for quality of work life and business performance              | Lau and May (1998)          | 74  | Q1  | 7   | 3.22 |
| Routinization of job context and job content as related to employees’ quality of working life: A study of Canadian nurses | Baba and Jamal (1991)        | 71  | Q1  | 43  | 2.37 |
| Quality of work life and human resource outcomes                                  | Havlovic (1991)             | 55  | Q2  | 42  | 1.83 |
| The effects of personal alienation on organizational identification: A quality-of-work-life model | Efraty et al. (1991)        | 53  | Q1  | 40  | 1.77 |
| An interactive quality of work life model applied to organizational transition     | Knox and Irving (1997)      | 36  | Q2  | 16  | 1.5  |

Note. TC = total citations; QR = quartile rank; GS = Google scholar rank; TCY = total citations per year.
Table 4. Top 10 Most Cited Publications in Quality of Work-Life Research During 2000s.

| Publication title                                                                 | Author                        | TC  | QR  | GS   | TCY  |
|----------------------------------------------------------------------------------|-------------------------------|-----|-----|------|------|
| A new measure of quality of work life (QWL) based on need satisfaction and spillover theories | Sirgy et al. (2001)           | 334 | Q1  | 83   | 16.7 |
| The relationship between hospital unit culture and nurses’ quality of work life  | Gifford et al. (2002)         | 164 | Q3  | 77   | 8.63 |
| The quality of working life: is Scandinavia different?                           | Gallie (2003)                 | 122 | Q1  | 69   | 6.78 |
| Quality of work life: Theoretical and methodological problems, and presentation of a new model and measuring instrument | Martel and Dupuis (2006)      | 118 | Q1  | 53   | 7.87 |
| Impact of performance obstacles on intensive care nurses’ workload, perceived quality and safety of care, and quality of working life | Gurses et al. (2009)          | 89  | Q1  | 6    | 7.42 |
| Organization specific predictors of job satisfaction: Findings from a Canadian multi-site quality of work life cross-sectional survey | Krueger et al. (2002)         | 84  | Q2  | 74   | 4.42 |
| The effects of quality of work life on commitment and turnover intention          | Huang et al. (2007)           | 82  | Q3  | 49   | 5.86 |
| Testing Karasek’s Demands-Control Model in restructured healthcare settings: Effects of job strain on staff nurses’ quality of work life | Laschinger et al. (2001)      | 75  | Q2  | 78   | 3.75 |
| Dimensions of hospital nurses’ quality of working life                            | Hsu and Kernohan (2006)       | 70  | Q1  | 54   | 4.67 |
| Quality of work life: A study of employees in Shanghai, China                     | Chan and Wyatt (2007)         | 67  | Q2  | 44   | 4.79 |

Note. TC = total citations; QR = quartile rank; GS = Google scholar rank; TCY = total citations per year.

Researchers identified several new personal (Chan & Wyatt, 2007) and organizational antecedents (Gifford et al., 2002; Gurses et al., 2009; Spence Laschinger et al., 2001) and employee level outcomes of QWL as well (Chan & Wyatt, 2007; Huang et al., 2007). They identified that higher QWL can enhance employee’s career commitment (Huang et al., 2007), general well-being (Chan & Wyatt, 2007), affective commitment, life satisfaction (Chan & Wyatt, 2007; Huang et al., 2007), and satisfaction in other domains of life (Sirgy et al., 2001). Moreover, higher QWL can also reduce turnover intentions of employees (Chan & Wyatt, 2007; Huang et al., 2007). As some dimensions of QWL were found to act opposite to each other. Such as job characteristics can increase turnover intentions, whereas work-life balance can decrease turnover intentions (Huang et al., 2007). It was further identified that higher job strain on employees (Spence Laschinger et al., 2001), and presence of human relations cultural values in organizations can enhance employee’s QWL (Gifford et al., 2002). Whereas, negative affectivity (Chan & Wyatt, 2007), workload, and performance obstacles related to tasks, environment, organization, and technologies and tools (Gurses et al., 2009) can reduce employee’s QWL (Chan & Wyatt, 2007; Gurses et al., 2009).

To conclude, focus of 2000s QWL research was mainly on instrument development, and testing antecedents and outcomes of QWL in different work settings. Figure 3 illustrates the antecedents and outcomes of QWL based on top 10 most cited Scopus indexed publications of 2000s.

Focus of Research in 2010's

Bibliometric analysis of Scopus database indicated tremendously increased interest of researchers and funding sponsors...
in QWL research in 2010s. As the total publications in 2010s were 386, and 57 were funded among these. Highest number of publications were again in business, management, and accounting (N=127). But, a significant increase in publications was observed in fields of social sciences (N=107), medicine (N=69), engineering (N=60), and economics, econometrics, and finance (N=43). Along with these subject areas, QWL research emerged in various other fields as well in 2010s. Such as: agricultural and biological sciences, chemical engineering, chemistry, dentistry, energy, immunology and microbiology, multidisciplinary, physics and astronomy. Unlike previous decades, in 2010s India was the highest contributing country (N=69), proceeded by Iran (N=58), United States (N=46), and Malaysia (N=21). Publications from other 59 countries were equal to and less than 15 from each.

Further literature review of top 10 most cited Scopus indexed publications listed in Table 5 indicated that in 2010s, focus of researchers was mainly on testing previously proposed antecedents and outcomes of QWL in various work settings (Almalki, FitzGerald et al., 2012; Bragard et al., 2015; Holden et al., 2011; Koonmee et al., 2010; Lee et al., 2013, 2015; Mosadeghrad et al., 2011; Nguyen & Nguyen, 2012), and proposing new ones (Gillet et al., 2013; Koonmee et al., 2010; Mosadeghrad et al., 2011; Nguyen & Nguyen, 2012). Except one study which only examined the QWL of nurses in Saudi Arabia (Almalki, Fitzgerald et al., 2012). Most of the top cited studies on QWL in 2010s were conducted on health care professionals (Bragard et al., 2015; Mosadeghrad et al., 2011), especially nurses (Almalki, Fitzgerald et al., 2012; Almalki, FitzGerald et al., 2012; Gillet et al., 2013; Holden et al., 2011; Lee et al., 2013), fewer were on organization’s employees (Koonmee et al., 2010; Nguyen & Nguyen, 2012).

Results of 2010s research affirmed that higher QWL can enhance employee’s job satisfaction (Bragard et al., 2015; Koonmee et al., 2010; Lee et al., 2015), organizational commitment (Koonmee et al., 2010), job performance, and quality of life (Nguyen & Nguyen, 2012), and can reduce their turnover intentions (Almalki, FitzGerald et al., 2012; Almalki, FitzGerald et al., 2012; Gillet et al., 2013; Holden et al., 2011; Lee et al., 2013; Mosadeghrad, 2013). They further affirmed that workload can reduce QWL in terms of increased burnout and job dissatisfaction (Holden et al., 2011).

Along with affirming these pre-identified antecedents and outcomes, researchers identified several new antecedents and outcomes as well in 2010s. It was identified that QWL can enhance team spirit (Koonmee et al., 2010), and work engagement (Gillet et al., 2013), and can reduce burnout (Bragard et al., 2015). It was further identified that better disturbance handling, higher job proud, job security (Mosadeghrad, 2013), implicit institutionalization, explicit institutionalization (Koonmee et al., 2010), psychological capital (Nguyen & Nguyen, 2012), interactional justice and distributive justice (Gillet et al., 2013) can enhance QWL. Transformational leadership can also enhance QWL indirectly through interactional justice and distributive justice (Gillet et al., 2013). Whereas, job stress (Mosadeghrad, 2013) can reduce QWL.

To conclude, various organizational and personal antecedents, and various employee level outcomes of QWL were affirmed and identified in 2010s. Figure 4 illustrates the antecedents and outcomes of QWL based on top 10 most cited Scopus indexed publications of 2010s.

Focus of Research in Early 2020s

Bibliometric analysis of Scopus database indicated that in early 2020s significant amount of funded research was conducted on QWL. As the total publication in early 2020s were 102 and more than one third (N=40) of these publications were funded. Indicating the increased interest of funding agencies in QWL. Most of this research was conducted in the field of business, management, and accounting (N=35), followed by medicine (N=26), and social sciences (N=21). Veterinary emerged as the new subject area in QWL research in early 2020s. Unlike previous decades, Indonesia (N=15) was the highest contributor of QWL research, followed by Iran (N=14), India (N=13), and Malaysia (N=12).

Further literature review of top 10 most cited Scopus indexed publications indicated that in early 2020s, researchers mainly emphasized on testing the predetermined outcomes (Agus & Selvaraj, 2020; Alrawadieh et al., 2020; Diana et al., 2020; Ko, 2021; Mohammadi & Karupiah, 2020; Muskat & Reitsamer, 2020) of QWL in various work settings, and proposing some new antecedents (Alrawadieh et al., 2020; Kim et al., 2020; Ko, 2021) and outcomes (Agus & Selvaraj, 2020; Kim et al., 2020; Permarupan et al., 2020) of QWL. These top cited publications of early 2020s are listed in Table 6 along with their citation metrics and ranks.

Results of early 2020s research affirmed various predetermined employee level outcomes of QWL. It was affirmed that various dimensions of QWL can contribute toward enhanced employee’s performance (Mohammadi & Karupiah, 2020), organizational commitment (Agus & Selvaraj, 2020; Diana et al., 2020; Ko, 2021), job satisfaction (Diana et al., 2020; Muskat & Reitsamer, 2020), life satisfaction (Alrawadieh et al., 2020), and subjective well-being (Ko, 2021).

Several new organizational and employee level antecedents and outcomes of QWL were also identified in early 2020s. Researchers identified that organizational social capital (Ko, 2021), corporate social responsibility, organizational identification (Kim et al., 2020), and emotional dissonance (Alrawadieh et al., 2020) can enhance employee’s QWL. It was further revealed that higher QWL can enhance employee’s psychological empowerment (Permarupan et al., 2020), and their intention to stay in the organization (Agus & Selvaraj, 2020; Kim et al., 2020).

In remaining two most influential studies of early 2020s, one tested the QWL scale developed by Sirgy et al. (2001) in Brazil and Portugal, and deemed it as a reliable and valid scale in these two countries (Sinvil et al., 2020). The other only observed the current status of QWL of employees in Saudi Arabia (Allam & Shaik, 2020).
To conclude, various employee level outcomes of QWL were affirmed in early 2020s, and several new organizational and personal antecedents and employee level outcomes of QWL were identified. Figure 5 illustrates the antecedents and outcomes of QWL based on top 10 most cited Scopus indexed publications of early 2020s.

Conclusion, Limitations, and Future Recommendations

Bibliometric trend analysis of QWL research throughout its decades revealed that since the origin of QWL research, mostly research was conducted in the discipline of Business, management, and accounting, followed by social sciences, and medicine (As indicated by Table 1 in Appendix). Initially most of this research was produced from United States, this trend sustained until 2000s, as majority of publications in 2010s were contributed from India. Later on the contributions from other Asian countries increased in early 2020s (As indicated by Table 3 in Appendix). Hence, currently Asian countries are the main contributors of QWL research. Furthermore, most of this is funded by agencies (As indicated by Table 2 in Appendix), indicating the increased interest of government and corporate sectors in QWL of employees.

Further literature review of most cited publications on QWL, revealed that during initial phases of QWL research focus of research was mainly on construct exploration, conceptual development, and identification and eradication of QWL issues on employee and organizational level (As indicated by most influential studies of 1970s and 1980s). Later on in 1990s, researchers started to focus on identification of antecedents and outcomes of QWL. From 1990s to early 2020s several new antecedents and outcomes of QWL were identified (These identified antecedents and outcomes are enlisted in Figures 2–5).

Figure 2 indicates that in 1990s most influential researches were quite diverse in their focused areas. As researchers explored various antecedents and outcomes of QWL both at employee level and organizational level during 1990s. But in later decades the contribution of these antecedents and outcomes reduced to some extent (As indicated by enlisted antecedents and outcomes in Figures 3–5). Although various organizational level and personal level antecedents were explored by the researchers from 2000s to early 2020s, but only employee level outcomes of QWL were explored in these decades. Moreover the mostly those factors were observed which could enhance the QWL, and less emphasize was given to the factors which could be harmful for the QWL of employees (Refer to Figures 3–5). Same goes for the outcomes of QWL. The focus was mainly on positive consequences of enhanced QWL. Hence, the QWL research has reached on a certain saturation point as repetitive factors are being focused in the QWL research as it is progressing. As only three new antecedents and two new outcomes of QWL were contributed in early 2020s.

So, there is still room for further exploration. Especially in personal preceding factors, and organizational outcomes of QWL. Furthermore, the emphasis should be given to the

| Table 5. Top 10 Most Cited Publications in Quality of Work-Life Research During 2010s. |
|---------------------------------------------------------------|-----------------|------|-----|-----|
| Publication title                                             | Author          | TC   | QR  | GS  | TCY |
| A human factors framework and study of the effect of nursing  | Holden et al. (2011) | 121 Q1 | 379 | 12.1 |
| workload on patient safety and employee quality of working life |                 |      |     |     |     |
| Ethics institutionalization, quality of work life, and employee job-related outcomes: A survey of human resource managers in Thailand | Koommee et al. (2010) | 96 Q1 | 386 | 8.73 |
| A study of relationship between job stress, quality of working life and turnover intention among hospital employees | Mosadeghrad et al. (2011) | 86 Q2 | 362 | 8.6 |
| The relationship between quality of work life and turnover intention of primary health care nurses in Saudi Arabia. | Almalki et al. (2012) | 83 Q2 | 350 | 9.22 |
| Quality of work life, burnout, and stress in emergency department physicians: A qualitative review | Bragard et al. (2015) | 76 Q1 | 189 | 12.67 |
| The mediating role of organizational justice in the relationship between transformational leadership and nurses’ quality of work life: A cross-sectional questionnaire survey | Gillet et al. (2013) | 62 Q1 | 289 | 7.75 |
| Quality of work life and job satisfaction among frontline hotel employees a self-determination and need satisfaction theory approach | Lee et al. (2015) | 61 Q1 | 215 | 10.17 |
| Psychological capital, quality of work life, and quality of life of marketers: evidence from Vietnam | Nguyen and Nguyen (2012) | 56 Q2 | 336 | 6.22 |
| Predicting quality of work life on nurses’ intention to leave | Lee et al. (2013) | 52 Q1 | 295 | 6.5 |
| Quality of work life among primary health care nurses in the Jazan region, Saudi Arabia: A cross-sectional study | Almalki et al. (2012) | 51 Q1 | 327 | 5.67 |

Note. TC = total citations; QR = quartile rank; GS = Google scholar rank; TCY = total citations per year.
### Table 6. Top 10 Most Cited Publications in Quality of Work-Life Research During Early 2020s.

| Publication title                                                                 | Author                          | TC   | QR  | GS  | TCY |
|----------------------------------------------------------------------------------|---------------------------------|------|-----|-----|-----|
| The impact of emotional dissonance on quality of work life and life satisfaction of tour guides | Alrawadieh et al. (2020)         | 12   | Q1  | 77  | 12  |
| Effects of CSR on employee retention via identification and quality-of-work-life  | Kim et al. (2020)               | 7    | Q1  | 68  | 7   |
| Quality of work life and Generation Y: How gender and organizational type moderate job satisfaction | Muskat and Reitsamer (2020)     | 7    | Q2  | 78  | 7   |
| Building nurses’ organizational commitment by providing good quality of work life | Diana et al. (2020)             | 7    | Q2  | 97  | 7   |
| An examination of the links between organizational social capital and employee well-being: Focusing on the mediating role of quality of work life | Ko (20251)                      | 6    | Q1  | 12  | 6   |
| Predicting nurses burnout through quality of work life and psychological empowerment: A study toward sustainable healthcare services in Malaysia | Permarupan et al. (2020)        | 6    | Q1  | 99  | 6   |
| Quality of work life and academic staff performance: a comparative study in public and private universities in Malaysia | Mohammadi and Karupiah (2020)   | 5    | Q1  | 63  | 5   |
| The quality of work life scale: Validity evidence from Brazil and Portugal       | Sinval et al. (2020)            | 4    | Q2  | 46  | 4   |
| The mediating role of employee commitment in the relationship between quality of work life and the intention to stay | Agus and Selvaraj (2020)        | 3    | Q2  | 50  | 3   |
| A study on quality of work life amongst employees working in the Kingdom of Saudi Arabia | Allam and Shaik (2020)          | 3    | Q2  | 102 | 3   |

Note. TC = total citations; QR = quartile rank; GS = Google scholar rank; TCY = total citations per year.

![Diagram of Quality of Work-life Antecedents and Outcomes](source.png)

**Figure 5.** Antecedents and outcomes of quality of work-life identified in early 2020s.

Source. Agus and Selvaraj (2020), Alrawadieh et al. (2020), Diana et al. (2020), Ko (2021), Mohammadi and Karupiah (2020), Muskat and Reitsamer (2020), Kim et al. (2020), and Permarupan et al. (2020).
identification of preceding personal factors, because terms such as QWL are mostly subjective in nature. Although there are several objective factors (Adhikari & Gautam, 2010), but those factors are mainly affected by subjective factors, such as employees’ perception, and satisfaction from their work environment (Rose et al., 2006). Moreover, future researchers should also work on identification of suppressors of QWL and negative consequences of lower QWL. So, that they could be avoided in order to maintain higher QWL in organizations.

As the most influential research only highlighted the most researched areas, so, it was not sufficient to guide for future research areas. Further keyword analysis was performed to better address the sixth research objective and highlight the research areas which were least focused in QWL research. These keywords are enlisted in Table 4 of Appendix in order of their occurrence frequency. These keywords occurrences suggest that the least researched factors which require further exploration are: family, compensation, attention, affective commitment, psychological adaptation, salary, organizational performance, occupational diseases, and interpersonal communication, quality of health, health, health status, and health care.

Hence, future researchers should try to explore family related influencing factors and outcomes of QWL, such as: family support, family to work conflict, dependents care, satisfaction with family life, spousal relationships, and efficacy in fulfilling family responsibilities. Researchers should also explore health related antecedents and outcomes of QWL both at organizational and personal level. Such as: lifestyle, eating habits, nutritional status, chronic diseases, mental health, and psychological wellbeing. Plus various other organizational factors should be considered by researchers which are directly related to job and organizational performance, and should be tested as individual factors rather than dimensions of other constructs. Moreover, there is a need to test these factors at a large scale in various disciplines and countries, while maintaining higher research quality. As these factors has not been focused by most influential studies. These quality studies will not only aid in identifying the contribution of these factors, but will also facilitate in enhancing employee’s QWL at a much larger scale. Furthermore, identification of organizational level positive and negative outcomes of QWL will motivate the organizations to emphasize QWL of their employees. Plus, organizations might increase their focus on introducing employee friendly policies to boost QWL of their employees.

Lastly, this research was limited in terms of its scope and targeted database. As the focus was mainly on the trends, and research contributions throughout the decades of QWL research, and analysis was based on bibliographic data extracted from Scopus database. So, future researchers should also study trends and research contributions from bibliographic data of other databases, such as: Web of Sciences, and Google Scholar. They could also employ other analysis techniques to identify important antecedents and outcomes of QWL, with consideration of the effect sizes.

Appendix

Table 1. Number of Publications in Each Subject Area (1970s–Early 2020s).

| Sr. No. | Subject area                                      | Decade   |
|--------|--------------------------------------------------|----------|
|        |                                                  | 1970s | 1980s | 1990s | 2000s | 2010s | Early 2020s |
| 1      | Agricultural and biological sciences             | — | — | — | — | 13 | 1 |
| 2      | Arts and humanities                              | 2 | 12 | 6 | 6 | 15 | 3 |
| 3      | Biochemistry, genetics, and molecular biology    | — | — | 1 | — | 12 | — |
| 4      | Business, management, and accounting             | 15 | 39 | 22 | 22 | 127 | 35 |
| 5      | Chemical engineering                             | — | — | — | — | 1 | — |
| 6      | Chemistry                                        | — | — | — | — | 4 | — |
| 7      | Computer science                                 | — | 3 | 3 | 3 | 33 | 16 |
| 8      | Decision sciences                                | 2 | 3 | 4 | 4 | 16 | 10 |
| 9      | Dentistry                                        | — | — | — | — | 1 | — |
| 10     | Earth and planetary science                      | — | 3 | — | — | 1 | — |
| 11     | Economics, econometrics, and finance              | 2 | 7 | — | — | 2 | 43 |
| 12     | Energy                                           | — | — | — | — | 6 | 4 |
| 13     | Engineering                                      | — | 23 | 7 | 4 | 60 | 14 |
| 14     | Environmental science                            | 1 | 2 | — | — | 22 | 3 |
| 15     | Health professions                               | — | — | — | — | 13 | 8 |

(continued)
Table 1. (continued)

| Sr. No. | Subject area                                  | 1970s | 1980s | 1990s | 2000s | 2010s | Early 2020s |
|---------|----------------------------------------------|-------|-------|-------|-------|-------|-------------|
| 16      | Immunology and microbiology                  |       |       |       |       | 1     |             |
| 17      | Materials science                            |       | 1     |       |       | 5     |             |
| 18      | Mathematics                                  |       |       |       | 1     | 5     | 1           |
| 19      | Medicine                                     | 3     | 18    | 12    | 37    | 69    | 26          |
| 20      | Multidisciplinary                            |       |       |       |       | 12    | 2           |
| 21      | Neuroscience                                 |       |       | 9     | 2     | 1     |             |
| 22      | Nursing                                      |       | 4     | 3     | 17    | 31    | 14          |
| 23      | Pharmacology, toxicology, and pharmaceutics  |       |       |       | 1     | 4     | 3           |
| 24      | Physics and astronomy                        |       |       |       |       |       | 1           |
| 25      | Psychology                                   | 4     | 22    | 11    | 11    | 30    | 9           |
| 26      | Social Sciences                              | 9     | 28    | 14    | 26    | 107   | 21          |
| 27      | Veterinary                                   |       |       |       |       |       | 1           |

Table 2. Number of Funded Publications (1970s–Early 2020s).

| Decade       | Funded publications |
|--------------|---------------------|
| 1970s        | 0                   |
| 1980s        | 7                   |
| 1990s        | 3                   |
| 2000s        | 6                   |
| 2010s        | 57                  |
| Early 2020s  | 40                  |

Table 3. Number of publications from each country (1970s–Early 2020s).

| Sr. No. | Country            | 1970s | 1980s | 1990s | 2000s | 2010s | Early 2020s |
|---------|--------------------|-------|-------|-------|-------|-------|-------------|
| 1       | Albania            |       |       |       |       | 1     |             |
| 2       | Algeria            |       |       |       |       | 2     |             |
| 3       | Australia          | 1     | 1     | 2     | 4     | 12    | 4           |
| 4       | Austria            |       |       |       | 10    | 3     | 1           |
| 5       | Bahrain            |       |       | 1     | 2     |       |             |
| 6       | Bangladesh         |       |       |       | 6     |       |             |
| 7       | Belgium            | 1     |       |       | 1     | 4     |             |
| 8       | Brazil             |       |       |       | 2     | 6     | 1           |
| 9       | Bulgaria           |       |       |       |       | 1     |             |
| 10      | Canada             | 3     | 7     | 2     | 10    | 15    | 4           |
| 11      | Chile              |       |       |       |       | 1     |             |
| 12      | China              |       |       |       | 2     | 8     | 4           |
| 13      | Colombia           |       |       |       |       | 5     | 1           |
| 14      | Croatia            |       |       |       | 3     |       | 1           |
| 15      | Czech Republic     |       |       |       |       | 1     |             |
| 16      | Denmark            |       |       |       | 14    | 5     | 1           |
| 17      | Egypt              |       |       |       |       | 2     | 1           |
| 18      | Finland            |       |       | 1     | 3     | 3     |             |
| 19      | France             |       |       | 2     | 1     | 9     | 2           |
| 20      | Germany            |       | 1     |       | 1     | 3     | 1           |
| Sr. No. | Country          | 1970s | 1980s | 1990s | 2000s | 2010s | Early 2020s |
|---------|------------------|-------|-------|-------|-------|-------|-------------|
| 21      | Ghana            | —     | —     | —     | —     | 2     | —           |
| 22      | Greece           | —     | —     | —     | 1     | —     | —           |
| 23      | Hong Kong        | —     | —     | —     | 1     | 3     | —           |
| 24      | India            | —     | —     | —     | 1     | 69    | 13          |
| 25      | Indonesia        | —     | —     | —     | —     | 14    | 15          |
| 26      | Iran             | —     | —     | —     | 3     | 58    | 14          |
| 27      | Iraq             | —     | —     | —     | —     | 1     | 1           |
| 28      | Ireland          | —     | —     | 1     | —     | 1     | —           |
| 29      | Israel           | —     | 2     | 3     | 13    | 4     | 1           |
| 30      | Italy            | —     | —     | —     | 4     | 1     | 3           |
| 31      | Jamaica          | —     | —     | —     | —     | 2     | —           |
| 32      | Japan            | —     | 2     | —     | —     | 2     | 1           |
| 33      | Jordan           | —     | —     | —     | —     | 1     | 1           |
| 34      | Kazakhstan       | —     | —     | —     | —     | 1     | —           |
| 35      | Kiribati         | —     | —     | 1     | —     | —     | —           |
| 36      | Kuwait           | —     | —     | —     | —     | 21    | 12          |
| 37      | Lithuania        | —     | —     | —     | —     | 2     | —           |
| 38      | Macao            | —     | —     | —     | 1     | 1     | —           |
| 39      | Malaysia         | —     | —     | —     | 1     | 2     | 1           |
| 40      | Mexico           | —     | —     | —     | —     | 3     | 2           |
| 41      | Morocco          | —     | —     | —     | —     | —     | 1           |
| 42      | Nepal            | —     | —     | —     | —     | 2     | —           |
| 43      | Netherlands      | —     | —     | 6     | 7     | 12    | 2           |
| 44      | New Zealand      | —     | —     | 1     | —     | —     | —           |
| 45      | Nigeria          | —     | —     | —     | —     | 9     | 1           |
| 46      | Norway           | —     | 1     | —     | 12    | 3     | —           |
| 47      | Oman             | —     | —     | —     | —     | 1     | 1           |
| 48      | Pakistan         | —     | —     | —     | —     | 3     | 2           |
| 49      | Peru             | —     | —     | —     | —     | —     | 1           |
| 50      | Philippines      | —     | —     | —     | —     | 2     | —           |
| 51      | Poland           | —     | —     | —     | —     | 1     | —           |
| 52      | Portugal         | —     | —     | —     | 1     | 3     | 2           |
| 53      | Russian Federation | —  | —     | —     | —     | 5     | —           |
| 54      | Saudi Arabia     | —     | —     | —     | —     | 12    | 3           |
| 55      | Serbia           | —     | —     | —     | —     | 1     | —           |
| 56      | Singapore        | —     | 1     | —     | 1     | —     | —           |
| 57      | Slovakia         | —     | —     | —     | —     | 1     | —           |
| 58      | Slovenia         | —     | —     | —     | —     | 1     | —           |
| 59      | South Africa     | —     | —     | —     | 1     | 9     | 2           |
| 60      | South Korea      | —     | —     | —     | —     | 6     | 5           |
| 61      | Spain            | —     | —     | —     | 2     | 5     | 3           |
| 62      | Sweden           | —     | —     | —     | 1     | —     | —           |
| 63      | Switzerland      | —     | —     | —     | —     | 3     | —           |
| 64      | Taiwan           | —     | —     | —     | 1     | 7     | —           |
| 65      | Thailand         | —     | —     | —     | 1     | 11    | 3           |
| 66      | Turkey           | —     | —     | —     | —     | 14    | 8           |
| 67      | Ukraine          | —     | —     | —     | —     | 1     | —           |
| 68      | United Arab Emirates | —  | —     | —     | —     | 3     | —           |
| 69      | United Kingdom   | 6     | 6     | 1     | 7     | 11    | 1           |
| 70      | United States    | 4     | 34    | 27    | 32    | 46    | 7           |
| 71      | Vietnam          | —     | —     | —     | —     | 5     | 2           |
| Sr. No. | Keyword                                | f   | Keyword                               | f   | Keyword                                | f   |
|---------|----------------------------------------|-----|---------------------------------------|-----|----------------------------------------|-----|
| 1       | Quality of work life                   | 253 | Organization and management           | 207 | Malaysia                               | 11  |
| 2       | Job satisfaction                       | 191 | Quality of work life (QWL)            | 177 | Mental health                          | 11  |
| 3       | Human                                  | 181 | Quality of work-life                 | 161 | Social support                         | 11  |
| 4       | Quality of life                        | 153 | Working conditions                    | 141 | Analysis of variance                   | 10  |
| 5       | Article                                | 132 | Nursing staff, hospital               | 113 | Health                                 | 10  |
| 6       | Quality of working life                | 111 | Turnover intention                    | 110 | Health care personnel                  | 10  |
| 7       | Female                                 | 100 | United states                         | 87  | Manager                                | 10  |
| 8       | Adult                                  | 99  | Satisfaction                          | 82  | Methodology                            | 10  |
| 9       | Male                                   | 93  | Surveys                               | 79  | Multicenter study                      | 10  |
| 10      | Humans                                 | 90  | Organization                          | 78  | Patient care                           | 10  |
| 11      | Questionnaire                          | 82  | Priority journal                      | 74  | Work engagement                        | 10  |
| 12      | Middle aged                            | 44  | Review                                | 38  | Attitude                               | 9   |
| 13      | Nurse                                  | 44  | Burnout, professional                 | 38  | Career                                 | 9   |
| 14      | Controlled study                       | 42  | Canada                                | 33  | Demography                             | 9   |
| 15      | Psychological aspect                   | 41  | Stress, psychological                 | 31  | Human resource management              | 9   |
| 16      | Psychology                             | 39  | Workload                              | 29  | Income                                 | 10  |
| 17      | Workplace                              | 39  | Young adult                           | 29  | Qualitative research                   | 9   |
| 18      | Cross-sectional study                  | 38  | Leadership                            | 29  | Regression analysis                    | 9   |
| 19      | Work environment                       | 36  | Ergonomics                            | 29  | Stress                                 | 9   |
| 20      | Nurses                                 | 35  | Quality control                       | 30  | University hospital                    | 9   |
| 21      | Productivity                           | 32  | Health care organization              | 25  | Cancer survivors                       | 8   |
| 22      | Organizational commitment              | 31  | Hospital                              | 19  | China                                  | 8   |
| 23      | Employment                             | 29  | Mental stress                         | 19  | Factor analysis                        | 8   |
| 24      | Job performance                        | 29  | Motivation                            | 19  | Health care                            | 8   |
| 25      | Nursing staff                          | 29  | Wellbeing                             | 19  | Health personnel attitude              | 8   |
| 26      | Burnout                                | 28  | Work-life balance                     | 18  | Health status                          | 8   |
| 27      | Personnel Management                   | 28  | Employees                             | 18  | Job involvement                        | 8   |
| 28      | Surveys and questionnaires             | 28  | Gender                                | 18  | Multiple regression                    | 8   |
| 29      | Human experiment                       | 27  | Health care quality                   | 17  | Organizational culture                 | 8   |
| 30      | Major clinical study                   | 26  | Performance                           | 17  | Outcome assessment                     | 8   |
| 31      | Cross-sectional studies                | 25  | Structural equation modeling          | 16  | Psychological capital                  | 8   |
| 32      | Employee                               | 24  | Attitude of health personnel          | 16  | Public health                          | 8   |
| 33      | QWL                                    | 24  | Decision making                       | 12  | QOL                                    | 8   |
| 34      | Nursing                                | 22  | India                                 | 12  | Quality                                | 8   |
| 35      | Questionnaires                         | 22  | Management                            | 12  | Quality of health care                 | 8   |
| 36      | Work                                   | 22  | Perception                            | 12  | Quality of work                        | 8   |
| 37      | Education                              | 21  | Personnel turnover                    | 12  | Randomized controlled trial            | 8   |
| 38      | Iran                                   | 21  | Staff                                 | 11  | Work experience                        | 8   |
| 39      | Job stress                             | 21  | Aged                                  | 11  | Work life                              | 8   |
| 40      | Occupational health                    | 21  | Information processing                | 11  | Work satisfaction                      | 8   |

Note. f = Frequency.
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