Career indecision: a systematic literature review

K.G. Priyashantha
0000-0002-9440-1416
Department of Human Resource Management, Faculty of Management and Finance, University of Ruhuna, Matara, Sri Lanka
+94715303373
prigayan@badm.ruh.ac.lk
W.E. Dahanayake
General Sir John Kotelawala Defence University, Sri Lanka
waruniedahanayake@gmail.com
M.N. Maduwanthi,
Department of Human Resource Management, Faculty of Management and Finance, University of Ruhuna, Matara, Sri Lanka
maduwanthimn93@gmail.com

ABSTRACT

Purpose
Research has been conducted to investigate the factors that influence career indecision. This study attempted to synthesize empirical research on career indecision to (1) find the common determinants over the last two decades and (2) find the factors/areas that need to be addressed for future research on career indecision.

Design/methodology/approach
This study used the systematic literature review methodology and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Following the predetermined inclusion criteria, 118 articles from the Scopus database were included for review.

Findings
From this research, we found four main determinants for career indecision, (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, and (4) level of individual readiness for career choice, have been researched in the last two decades. Additionally, eight factors/areas were found to be addressed in future research on career indecision. They include those four common determinants, the other three determinants (1) individual differences, (2) contextual /environmental factors, (3) social factors, and one outcome, subjective well-being.

Research limitations/implications
The study had limitations in conducting this research, and the findings of the study provide some theoretical and future research implications.

Practical implications
The seven determinants and the only outcome provide some implications for practitioners and policymakers.

Originality/value
The study found seven determinants and one outcome of career indecision derived from empirical studies conducted during 2000-2021.

Keywords: Career Decision Making, Career Indecision, PRISMA, Systematic Literature Review,

1. Introduction

Career decision-making refers to the ability of an individual's thought processes to incorporate self-knowledge with occupational knowledge to make occupational choices (Brown & Brooks, 1996). Individuals confident of their passion and possessing self-identification skills and abilities can direct their informed occupational knowledge to choose the best career that suits them. This career decision-making process has become a foremost developmental task for many young adults (Citarella, 2018). Nevertheless, when individuals are undecided about their preferred career directions, they become career indecisive, often deemed a critical issue among high school and university students (Gyarteng-Mensah et al., 2022; Lipshits-Braziler et al., 2016).

Career indecision is "the inability to specify an educational or occupational choice" (Kelly & Lee, 2002). This phenomenon has been extensively researched in vocational psychology (Gati et al., 2011a; Holland & Holland, 1977). This phenomenon is described with different determinants grounded by decision theory (Germeijs & De Boeck, 2002), self-determination theory (Ryan & Deci, 2000), social cognitive career theory (Lent et al., 2002), Gestalt psychotherapy theory (Marco et al., 2003), to name a few. The determinants emphasized many aspects. Some research shows that expanding educational and vocational options are determinants of career indecision. These options equip the students with sufficient education and skill development that determine students' commitment to a chosen career field. Such commitments can evoke anxiety and distress among the students, as the wrong decision would bring negative repercussions (Lipshits-Braziler et al., 2016). Other research studies have focused on various determinants (Dahanayake & Priyashantha, 2020; Maduwanthi & Priyashantha, 2018, 2020). Some of these have been categorized as social (Abu Talib & Tan, 2009; Jung, 2018), emotional (Fabio et al., 2013), and cognitive and personality-related facets (Brown et al., 2012; Gati et al., 2011a).

Additionally, various other determinants can be found in the empirical research landscape in various contexts. They require to be analyzed for clustering and synthesizing in a logical base. Such a synthesis will contribute to the theory and instrument development and help identify the research gaps and future research directions. Furthermore, knowing the empirically proven determinants of career indecision might benefit policymakers and career counselors in determining necessary actions and treatments (Zobell et al., 2019). Even though there were some meta-analyses (Bian, 2021; Udayar et al., 2020), they have limitations in addressing the determinants of carer indecision in empirical studies conducted during the 2000-2020 year period. Thus, there is a solid need to synthesize such determinants.

Accordingly, this study was conducted as a systematic literature review, which systematically and quantitatively analyzed selected empirical literature on career indecision in the last two decades. The objectives of this research were to (1) find the common determinants in career indecision over the last two decades and (2) find the factors/areas that need to be addressed for future research on career indecision.

2. Methods and methodology
2.1. Study selection process and methods

The research was carried out in a Systematic Literature Review (SLR). The article selection, analysis, and reporting of the findings were made following the "Preferred Reporting Items for

Systematic Reviews and Meta-Analyses (PRISMA)" guidelines (Liberati et al., 2009). The PRISMA is highly recommended for SLRs as it prevents bias in article selection, analysis, and reporting of the findings (Petticrew & Roberts, 2006; Priyashantha et al., 2021a, 2021b).

The PRISMA flow diagram used to select the articles consists of three steps: "Identification, Screening, and Included." The identification stage includes choosing search terms, criteria, and databases. Accordingly, "Career Indecision" was the search term and criterion. Then Scopus was the database used to search the articles.

Article screening included automatic and manual screening, retrieval of screened articles, and determining their eligibility for review. At this point, the inclusion criteria were applied to include the articles. The article inclusion criteria are given in table 1. Accordingly, the year range from 2000-2021 was selected as an inclusion criterion as no similar studies specifically targeted the period. Empirical journal articles were used as an inclusion criterion for three reasons. Firstly, they are recommended for systematic literature reviews (Tranfield et al., 2003; Xiao & Watson, 2019)(Tranfield et al., 2003; Xiao & Watson, 2019). Secondly, they maintain consistency in methodological quality in getting findings (Okoli & Schabram, 2010), ensuring all selected articles' internal validity (Petticrew & Roberts, 2006). Finally, journal articles are treated as reliable since they undergo a rigorous peer-review procedure.

The automatic screening was done through the default limiting features of Scopus. Thus, the limiting options included the year range; 2000-2021, document type; articles, source type; journal, and language; English, based on the inclusion criteria. After that, the remaining articles' complete versions were downloaded and manually screened. At the manual screening, the study authors independently reviewed each abstract of the downloaded article and assessed them against the inclusion criteria. After removing unnecessary articles, the study authors manually and independently examined the remaining articles for their methodological eligibility. The eligibility assessment guarantees that articles of high methodological quality are included (Meline, 2006). A detailed explanation of how many articles were excluded on each criterion is given in section 3.1.

2.2. Article risk of bias assessment

The quality of a review is reduced due to researcher bias in article selection and analysis (Kitchenham & Charters, 2007). The selection bias can be avoided by following a review protocol, a systematic, objective article selection procedure (Priyashantha et al., 2022; Xiao & Watson, 2019), and performing a parallel independent quality assessment of articles by two or more researchers (Brereton et al., 2007). The analysis bias can be avoided through a preliminary protocol design that predetermines the analysis methods (Xiao & Watson, 2019). Thus, they all were followed in this study to avoid bias.

2.3. Methods of analysis

The analysis method used in this study was bibliometric analysis. The tools like Biblioshiny and VOSviewer were used to generate the results for analysis. Bibliometric analysis is a scientific technique for examining scientific activity in a study (Paule-Vianez et al., 2020). Two types of it include (1) evaluation, performance, and scientific productivity analysis, and (2) scientific maps (Cobo et al., 2012). The maps, generally called bibliometric networks, are built based on different information from an article (Callon et al., 1983). One such is the keywords in an article. The co-occurrence of keywords in an article could result in a variety of relationships between keywords. (Aparicio et al., 2019). The relativization of the links between the keywords is required to obtain

crucial information in a study. As a result, by default, the VOSviewer employs association strength normalization and generates a network in two dimensions known as "keyword co-occurrence network visualization." That has nodes representing each keyword located close to each other in a cluster if they are strongly related (van Eck & Waltman, 2014). As a result, a cluster can be used to represent a shared theme (Priyashantha et al., 2021a, 2021b). The study's first goal was to identify the common areas addressed; hence this keyword co-occurrence analysis was used to achieve that.

The keyword density visualization is a variation of keyword co-occurrence network visualization. It was used to accomplish the study's second objective: to find the factors/areas that need to be addressed for future research in career indecision. According to the VOSviewer manual, the density of keywords at each location in the density visualization map is depicted by color ranges ranging from blue to green, yellow, and red by default. The closer a location's color is red, the more keywords it has nearby and the higher its weight. The fewer keywords nearby and the lower the weights, the closer a point's color is to green. The color yellow denotes that the keywords in a point are average. Thus, the keywords in the blue and green areas are said to be focused on more research.

Biblioshiny of R software was also used to generate "basic information about the article set," "year-by-year article publishes," and "average citations received." The VOSviewer software created the "country-wise article publications" and "journal-wise article publishes." These were shown to give an overview of the profile of the article set chosen for the review.

3. Results and findings

3.1. Study selection

The first stage required identifying the articles as the PRISMA article selection flow diagram was used to select the articles to be reviewed. Scopus generated 450 articles at this point for the predetermined search criteria mentioned in section 2.1. The automatic screening functionality of Scopus was used for the initial screening of those articles. The task was completed with the inclusion criteria listed in table 1.

Table 1. Article inclusion criteria

| Inclusion criterion	Focus on;
1	publications from 2000-2021
2	publications with the keyword; career indecision
3	publications in academic journals.
4	publications as articles
5	the articles in the English language
6	empirical research that employed quantitative methodologies and meta-analyses

Source: Authors conception, 2022

Out of the 450 articles, 66 were rejected as they did not meet the first inclusion criterion. There were 158 articles with the keyword career indecision, and the remaining 226 articles were excluded because they did not meet the second inclusion criterion. The third inclusion criterion was a focus on publications in academic journals. As a result, the books (n=8), conference proceedings (n=6), and book series (n=2) on career indecision were excluded because they did not meet the third

criterion. Then the reviews (n=11), book chapters (n=8), conference papers (n=7), and notes (n=1) were also excluded as they did not meet the fourth criterion. Other than that, the articles in other languages (n=26) were excluded as they did not meet the fifth inclusion criterion, focusing on the article in English.

Then 123 articles were retained for manual screening, and their list containing title, authors, journal, publication year, abstract, and received citations were downloaded into an MS excel sheet. After that, the study authors independently assessed each abstract against the inclusion criteria and found that three articles were irrelevant according to the fourth inclusion criterion. They were excluded based on concept papers (n=2) and irrelevant papers(n=1). The remaining 120 articles were screened by the authors manually for their eligibility assessment. The sixth inclusion criterion mentioned in table 1, "empirical research that employed quantitative methodologies and meta-analyses," was used in that task. Accordingly, three articles (qualitative reviews n=2 and viewpoint articles n=1) were excluded as they did not meet the sixth inclusion criterion. Finally, 118 articles were retained for review, and the MS Excel sheet was then adjusted to meet the bibliographic analysis. The article selection flow diagram is depicted in Figure 1.

Figure 1. PRISMA article selection flow diagram
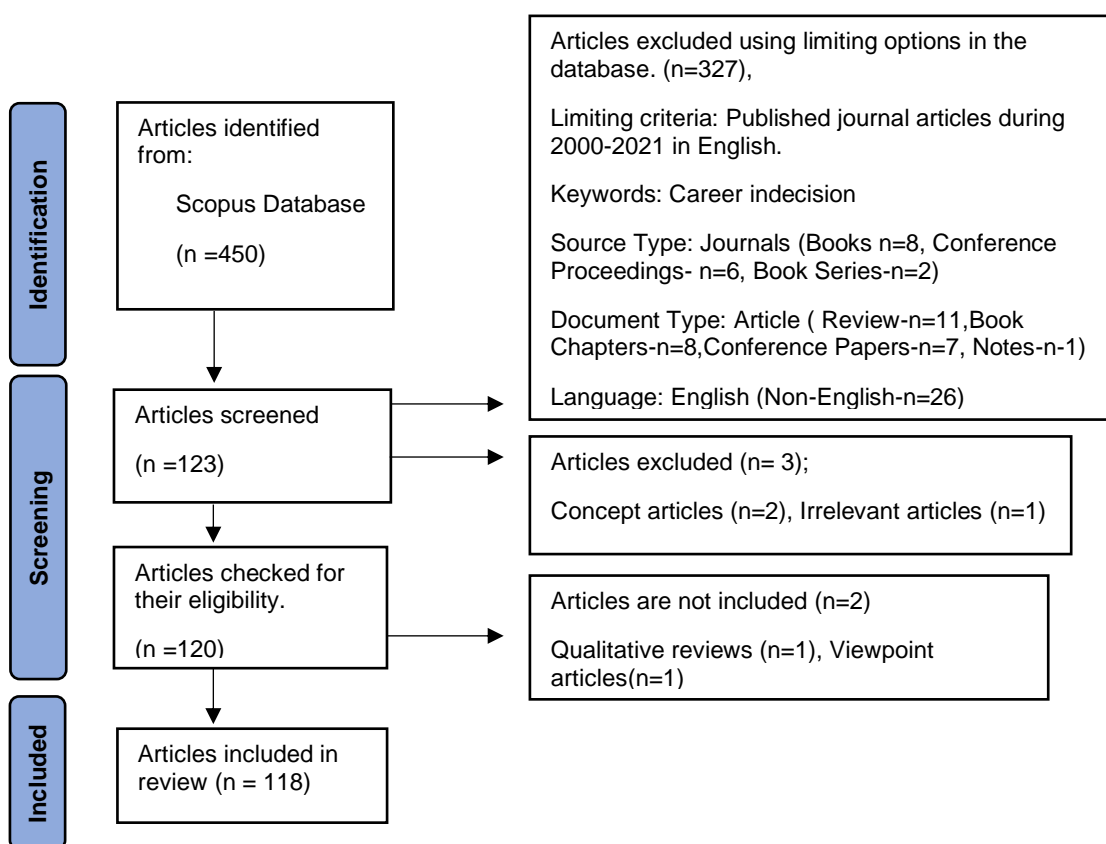
Source: Review data, 2022

3.2. Article characteristics

Table 2 shows the primary information of the articles included in the review. There were 118 articles published from 2000 to 2021 in 38 journals by 232 authors in 27 countries. The average citation received

per article is 20.76, and the total number of references considered for the review was 5494. Further, the total keywords included in the review were 288.

Table 2. Primary information about the article set

| Description	Results
Timespan	2000:2021
Journals	38
Articles	118
Average years from publication	8.56
Average citations per article	20.76
Average citations per year per doc	1.823
References	5494
Author's Keywords	288
Authors	232
Countries	27

Source: Review Data, 2022

Annual article production, average article citations received per year, the most relevant sources from which the articles are published, and country-specific article publications are all essential characteristics of the article set. Thus, Figure 2 shows the annual article production, indicating a gradual increase. That shows researchers increasing concern about career indecision. Figure 3 shows the average article citations received per year. It reveals a gradual decrease in citations. Citations received for an article represent its popularity. Thus, the decreasing trend of citations indicates a decrease in career indecision research's popularity. The most relevant sources of the articles published are shown in Figure 4. It shows the 20 journals which published the highest number of articles. Accordingly, the Journal of Career Assessment (39 articles), Journal of Vocational Behavior (22 articles), and Journal of Career Development (22 articles) are first, second and third, respectively, in career indecision article publications. Besides that, Career Development Quarterly has published seven articles. Three articles each have been published by the Journal of Counselling Psychology and the Orientation Scolaireet Professionnelle.   The Australian Journal of Career Development, The Frontiers in Psychology, and the International Journal for Education and Vocation have published two articles each. The rest of the journals listed in figure 4 has published one article each. Figure 5 depicts the number of articles published in each country. The size of the colored nodes in the figure represents the number of publications in each country. As a result, the United States of America (39 articles), Israel (29 articles), France (9 articles), and South Korea (9 articles) rank first, second, and third in country-wise publications, respectively.
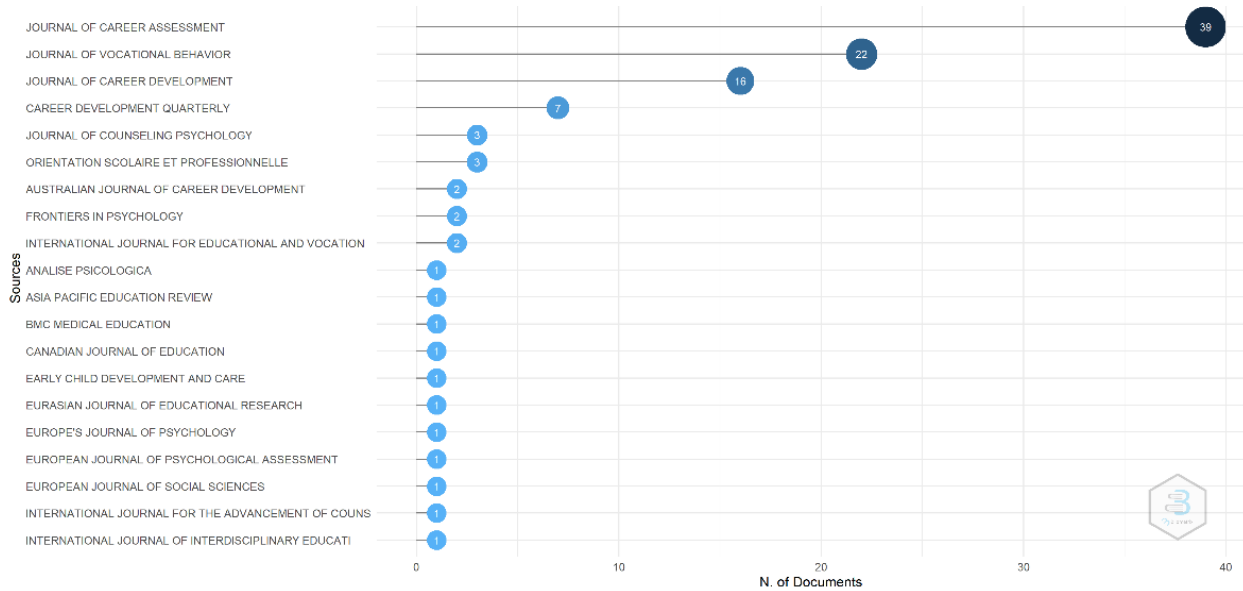
Figure 2. Annual article production
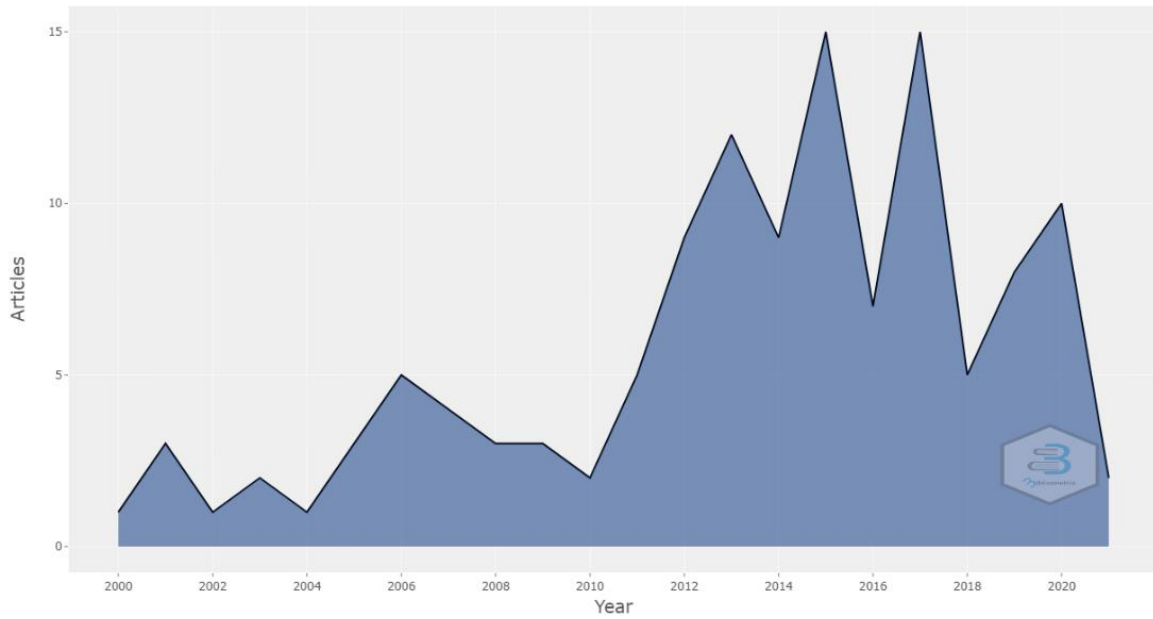
Source: Review Data, 2022

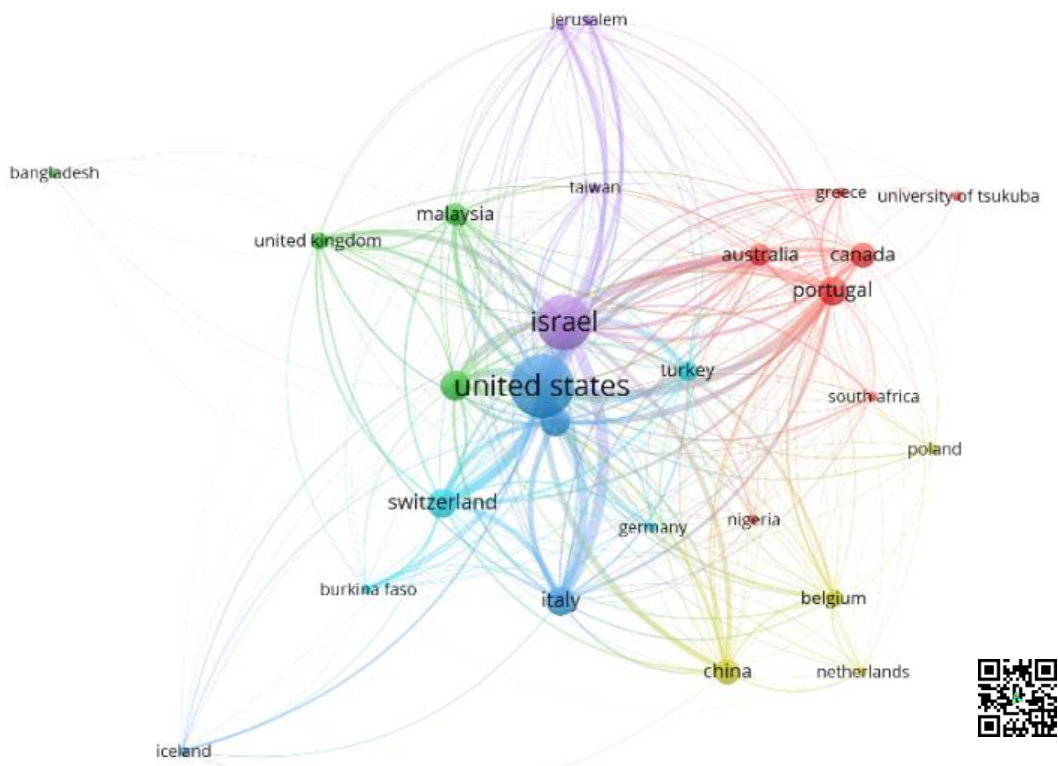Figure 3 Average article citations received per year
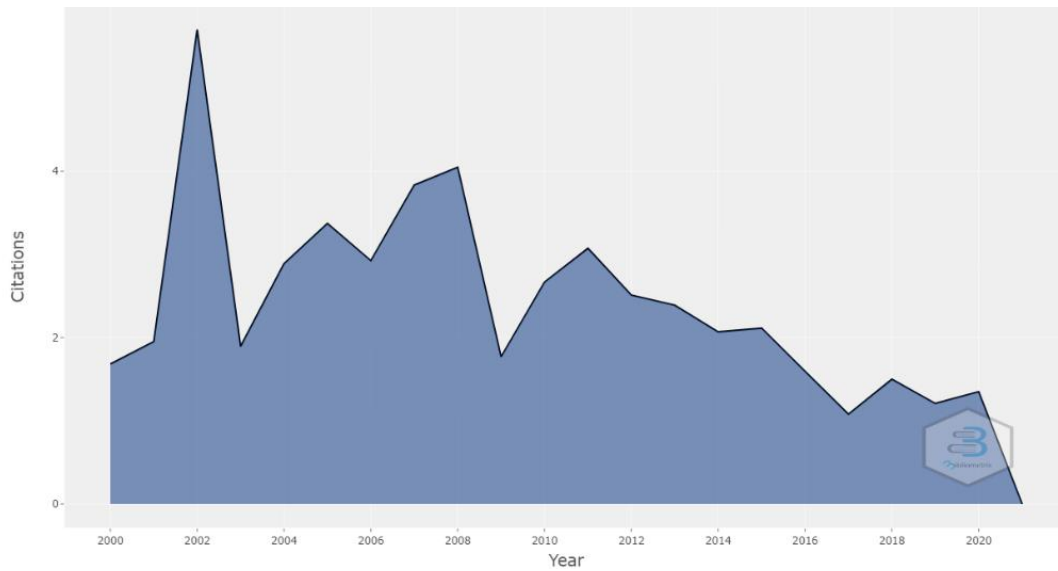
Source: Review Data, 2022

Figure 4. The most relevant sources the articles published

Source: Review Data, 2022

Figure 5 Country-wise article publications

Source: Review Data, 2022

Additionally, table 3 shows the research design used for the selected articles. Out of the 118 articles, 94 used cross-sectional design, 22 used a longitudinal design, and two used meta-analyses as their research design. As a result, most of the included articles represented cross-sectional design studies. Thus, table 3 information reveals the methodological quality of the included articles.

Table 3. The research design of the included articles

| Research design	Number of articles
Cross-sectional studies	94
Longitudinal studies	22
Meta-analyses	02
Total articles	118

Source: Review data, 2022

3.3. Results of articles

This section contains the results of the articles and their synthesis. The section is divided into two sections to fulfill the study's two objectives: (1) to find the common determinants in career indecision over the last two decades and (2) to find the factors/areas that need to be addressed for future research in career indecision. The first objective is addressed in Section 3.3.1, while the second is addressed in Section 3.3.2.

3.3.1. Common determinants in career indecision over the last two decades

The keyword co-occurrence network visualization, shown in figure 6, was created using VOSviewer version 1.6.18 to address the study's first objective. The keywords with a minimum of 5 occurrences and above in the articles were considered to create it. There were 12 keywords, including the main keyword, career indecision, and its interrelationships with other keywords are denoted in figure 6. The line thickness in the figure denotes the strength of the relationship between the keywords. The size of the node denotes the frequency of occurrences. Higher frequency denotes higher the size of the nodes. Thus, while strongly correlating career counseling, career decision-making, and career decision-making difficulty with career indecision, they can be said to have frequently occurred in studies. It means that those four areas have been widely researched.

Figure 6. The map of keyword co-occurrence network visualization
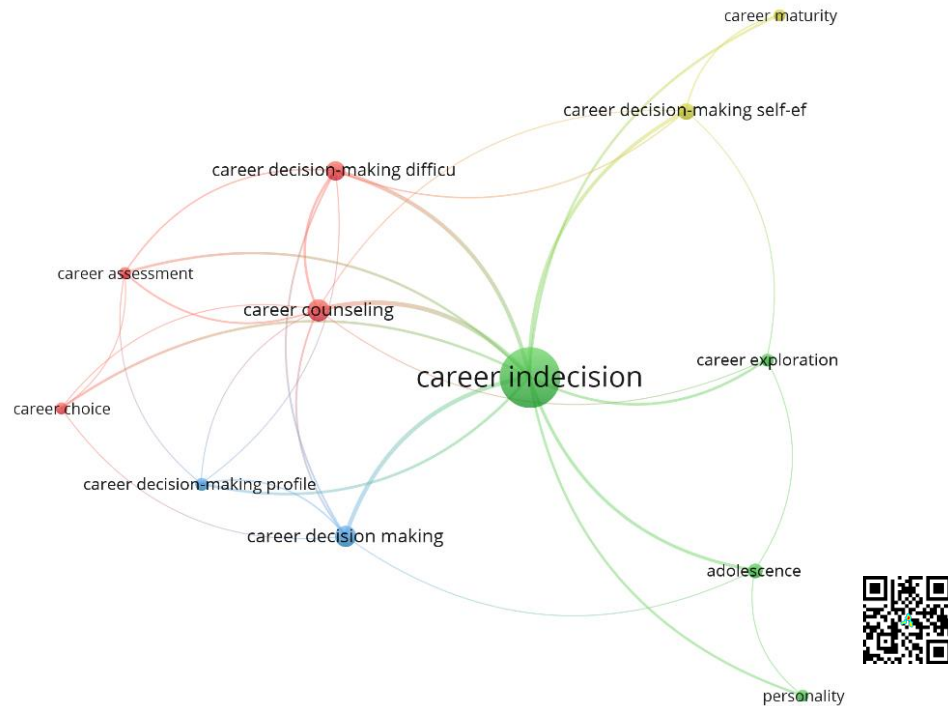
Source: Review Data, 2022

Four clusters denote the nodes in figure 6 in different colors; red, green, blue, and yellow. Different clusters portray how investigations have differed in different areas of investigations. The different clusters of keywords and their basic bibliometric information are given in table 4. Thus, the four clusters seem to represent the common themes of (1) career-related decision-making difficulties, (2) adolescents' differences, (3) individual and situational career decision-making profiles, and (4) level of individual readiness for career choice. These findings related to each theme are explained below.

Table 4. Keywords categorised into clusters based on the co-occurrence results and basic bibliometric information for each cluster

Cluster /color	Cluster theme	Keywords	Authors	Total citations received	Journals
1-Red (4 keywords)	Career-related decision-making difficulties	career assessment	(Gati & Levin, 2014), (Saka & Gati, 2007), (Vidal-Brown & Thompson, 2001), (Abu Talib & Tan, 2009),(Essig & Kelly, 2013).	1110	Journal of Career Assessment, Career Development Quarterly, Journal of Career Development, Journal of Vocational Behavior Japanese Journal of Educational Psychology, KEDI Journal of Educational Policy, Sleep and Hypnosis Journal of Hospitality and Tourism Education International Journal for Educational and Vocational Guidance
		career choice	(Faria, 2013), (Hacker et al., 2013), (Gadassi et al., 2015), (Hagiwara & Sakurai, 2008), (Page et al., 2008),		
		career counseling	(Braunstein-Bercovitz & Lipshits-Braziler, 2017), (Argyropoulou et al., 2007), (Lipshits-Braziler, Gati, et al., 2017), (Lipshits-Braziler et al., 2016),(Lipshits-Braziler et al., 2015), (Aky,ol & Bacanlı, 2019), (Obi, 2015), (Maree, 2020), (Stauffer et al., 2013),(Vertsberger & Gati, 2016)		
		career decision-making difficulties	(Lam & Santos, 2018),(Phang et al., 2020), (Akyol & Bacanlı, 2019), (Levin et al., 2020), (Silva et al., 2021),(Gadassi et al., 2013)		
2-Green (4 keywords)	Adolescents' differences	adolescence,	(Citarella, 2018), (Emmanuelle, 2009),(Faria, 2013), Marcionetti & Rossier, 2017),(Nalbantoglu Yilmaz & Cetin Gunduz, 2018), (Vignoli, 2015)	360	Eurasian Journal of Educational Research International Journal of Interdisciplinary Educational Studies Journal of Career Assessment Journal of Vocational Behavior Journal of Career Development Career Development Quarterly TPM - Testing, Psychometrics, Methodology in Applied Psychology Universal Journal of Educational Research Journal of Counseling Psychology
		career exploration,	(Park et al., 2017),(Vignoli, 2015),(Paixão & Gamboa, 2017) , (Kin & Rameli, 2020) Marcionetti & Rossier, 2017), (Faria, 2013)		
		career indecision,			
		personality,	(Marcionetti & Rossier, 2017), (Kin & Rameli, 2020), (Park et al., 2020), (Penn & Lent, 2019), (Park et al., 2017), (Gadassi et al., 2015)		
3-Blue (2 Keywords)	Individual and situational career decision-making profiles	career decision-making,	(Gadassi et al., 2012, 2013) (Gati et al., 2010, 2012) (Lam & Santos, 2018)	151	Journal of Counseling Psychology Journal of Career Assessment Journal of Vocational Behavior Journal of Career Development
		career decision-making profiles	(Gati et al., 2010), (Lipshits-Braziler et al., 2019), (Vertsberger & Gati, 2015), (Gadassi et al., 2013),(Ginevra et al., 2012), (Willner et al., 2015)		
4- Yellow (2 Keywords)	Level of Individual readiness for career choice	career decision-making self-efficacy,	(Park et al., 2021) (Park et al., 2020), (Udayar et al., 2020). (Penn & Lent, 2019). (Citarella, 2018). (Mao et al., 2017).	178	Career Development Quarterly Sustainability (Switzerland) Journal of Career Assessment International Journal of Interdisciplinary Educational Studies Journal of Career Development Frontiers in Psychology Journal of Vocational Behavior
		career maturity	(Park, 2015),(Creed et al., 2005),(Patton & Creed, 2007).		

Source: Review Data, 2022

Cluster 1-Red: Career-related decision-making difficulties

The keywords career assessment, career choice, career counseling, and career decision-making difficulties fell into this cluster. As the cluster should share a common theme, including the source journals and citation information for the cluster is crucial. Accordingly, the nine journals which carried articles containing those keywords are listed in table 4. Furthermore, 1110 citations were found for the articles containing those keywords. As a result of the abundance of empirical research and citations, the data in this cluster has a substantial impact. Moreover, the findings associated with each keyword are explained as follows.

Career assessment: The lack of career assessment determines career indecision (Essig & Kelly, 2013). Career assessment tools include the Career Decision-Making Difficulties Questionnaire, the Career Decision-Making Profile questionnaire (Gati & Levin, 2014), and the Emotional and Personality-Related Career Decision-Making Difficulties Questionnaire (Gati & Levin, 2014; Saka & Gati, 2007)**.** Further, Career Assessment Diagnostic Inventory (CADI)(Vidal-Brown & Thompson, 2001) and The Career Factor Inventory (CFI) (Abu Talib & Tan, 2009) have also been used for carer assessments.

Career choice: Career choice difficulties/ anxiety determines career indecision (Faria, 2013; Hacker et al., 2013; Hagiwara & Sakurai, 2008). The comprehensive information gathering, analytic information processing, a more internal locus of control, more effort invested, less procrastination, greater speed of making the final decision, less dependence on others, and less desire to please others are some factors affecting career choices (Gadassi et al., 2015).

Career counseling: Career counseling is an effective coping mechanism/ determinant for dealing with career indecision (Akyol & Bacanlı, 2019; Argyropoulou et al., 2007; Maree, 2020; Obi, 2015; Stauffer et al., 2013; Vertsberger & Gati, 2016). It is sought by its higher expected effectiveness, perceived severity of career-planning difficulties, and motivation to engage in career-adjustment activities (Braunstein-Bercovitz & Lipshits-Braziler, 2017). Counselors perceive productive coping and support-seeking as good strategies for career indecision. Productive coping entails six strategies: instrumental information seeking, emotional information seeking, problem-solving, flexibility, accommodation, and self-regulation(Lipshits-Braziler et al., 2015). Support-seeking includes instrumental support, emotional support, and delegation (Lipshits-Braziler et al., 2015, 2016; Lipshits-Braziler, Gati, et al., 2017).

Career decision-making difficulties: career decision-making difficulties determine career indecision (Lam & Santos, 2018; Phang et al., 2020; Silva et al., 2021; Taber, 2013). Career decision-making difficulties are measured through Career Decision-making Difficulties Questionnaire (CDDQ) (Akyol & Bacanlı, 2019; Levin et al., 2020). Thus, career decision-making difficulties can be reduced through workshops and counseling programs that develop career decision-making self-efficacy (Gadassi et al., 2013).

Regarding the findings under each keyword, lack of career assessments, lack of career choice, and absence of career counseling are reasonably said to be considered under the common theme of career decision-making difficulties.

Cluster 2-Green: Adolescents' differences

The keywords that fell into this cluster were adolescence, career exploration, career indecision, and personality. Since the subject of the investigation of this study was career indecision, the other three keywords, excluding career indecision, were considered for review. As stated in cluster 1, as these keywords should share a common, evaluating the source journals and citation information for the cluster is crucial. Accordingly, we found nine journals as the sources for articles containing those keywords, while such articles received 360 citations, as listed in Table 4. As stated in cluster 1, more citations and source journals for the cluster imply an abundance of empirical investigations, and the cluster is deemed to have a significant impact. Further, findings associated with each keyword are explained below.

Adolescence: Most career indecision research has been done with adolescents (Citarella, 2018; Emmanuelle, 2009; Faria, 2013; Marcionetti & Rossier, 2017; Nalbantoglu Yilmaz & Cetin Gunduz, 2018; Vignoli, 2015) as they are open to different careers.

Career Exploration: Career exploration reduces career indecision (Faria, 2013; Kin & Rameli, 2020; Marcionetti & Rossier, 2017; Paixão & Gamboa, 2017; K. Park et al., 2017; Vignoli, 2015).

Personality: Personality determines career indecision (Gadassi et al., 2012; Kin & Rameli, 2020; Marcionetti & Rossier, 2017; Penn & Lent, 2019). Notably, emotional intelligence reduces career indecision, and ego resilience and self-control also reduce career indecision through a higher future perspective (Park et al., 2020). Besides, Neuroticism and conscientiousness, parents' awareness levels predict career indecision (Faria, 2013; Marcionetti & Rossier, 2017; Penn & Lent, 2019).

Thus, the career exploration problems with lack of motivation, personality problems, and parents' awareness levels mentioned above seem to represent the adolescents' differences.

Cluster 3-Blue: Individual and situational career decision-making profiles

Two keywords, career decision-making and career decision-making profile, fell into this cluster. Since they could share common characteristics, it is essential to state the source journals and citation information for the cluster. Accordingly, four journals were identified with articles containing these keywords, with a citation count of 151, as listed in table 4. The information indicates a reasonably low level of publications and citations compared to the first and second clusters. Further, the findings associated with each keyword are explained as follows.

Career Decision Making: Most career decision-making profiles have been investigated with the keyword career decision-making (Gadassi et al., 2012, 2013; Gati et al., 2010, 2012; Lam & Santos, 2018).

Career Decision-Making Profile (CDMP): The CDMP is how individuals make career decisions (Gati et al., 2010). The CDMP has 12 individual and situational dimensions representing a continuum on a bipolar scale (Lipshits-Braziler et al., 2019). Out of the dimensions, "comprehensive information gathering," "analytic information processing," "internal locus of control," "much effort invested," "less procrastination," "greater speed of making the final decision," less dependence on others, and "less desire to please others" results to lower career indecision (Gadassi et al., 2013, 2013; Ginevra et al., 2012; Vertsberger & Gati, 2015; Willner et al., 2015).

When evaluating the findings, the CDMP describes how individuals make career decisions based on situational and individual factors. Hence, considering a theme on Individual and situational career decision-making profiles is reasonable.

Cluster 4 – Yellow: Level of individual readiness for career choice

Decision-making self-efficacy and career maturity were the keywords that fell into this cluster. The articles associated with these two keywords have been published in seven journals. Table 4 lists the titles of those journals. In addition, the two keywords associated with each article have received 178 citations. The following subheadings explain the findings related to these two keywords.

Career Decision-Making Self-Efficacy: Career decision-making self-efficacy determines career indecision negatively (Faurie & Giacometti, 2017; Mao et al., 2017; Park et al., 2021; Park et al., 2020; Penn & Lent, 2019). Self-efficacy has different types: generalized self-efficacy, process-related self-efficacy, content-related self-efficacy, and self-esteem, which reduces career indecision (Udayar et al., 2020).

Career Maturity: Career maturity is the ability and stability in a career (Super, 1980). More career matured people make independent career-related choices(Prideaux & Creed, 2001) and less career indecision (Creed et al., 2005; I.-J. Park, 2015; Patton & Creed, 2007).

The findings above appear that both the keywords are related to the individual rather than contextual (Lipshits-Braziler et al., 2017). Moreover, meta-analytic research has proven that the lack of readiness is described by low career decision-making self-efficacy and low career-related maturity (Brown & Rector, 2008; Gati & Saka, 2001; Xu & Bhang, 2019). Thus, a common theme of "level of individual readiness for career choice" is reasonable for this cluster.

As illustrated in Figure 6, all keywords are connected to career indecision. It means that each keyword is associated with career indecision. The corresponding findings for each cluster's keywords emphasize that the keywords are determinants of career indecision. Therefore, four common themes, (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, and (4)level of individual readiness for career choice, developed for each cluster, can be treated as determinants of career indecision. Additionally, we identified that many journals had published articles on the first and second determinant categories rather than the third and fourth. Furthermore, the amount of citations for an article reflects its impact. As a result, more citations for each category of determinants suggest a greater influence. As a result, the first and second categories of determinants have a significant impact.

3.3.2. Factors/areas that need to be addressed for future research

To achieve the study's second objective, we checked all the keywords used in the research to see whether the factors/areas represented by the keywords could create established knowledge. The areas represented by the keywords that cannot generate established knowledge should be subjected to further research. To determine this, we created keyword co-occurrence density visualization using VOSviewer by entering all the keywords shown in figure 7. The density visualization map usually consists of three colors, red, yellow, and green, as shown in figure 7.

Keywords falling into the red area implies much research related to the area represented by the keywords. Hence, there is established knowledge related to that area (van Eck & Waltman, 2014).

According to Figure 7, career indecision is the only keyword that falls into the red area. Although it is implied that there has been a large amount of research related to career indecision, it is difficult to determine that there is a connection with other keywords as non of the other keywords have fallen into the red area. Moreover, if a keyword falls in the yellow area, it implies a moderate amount of research, whereas keywords falling in the green area means very little research is done. In that case, moderate and little research does not create established knowledge. Complying with this argument, the four determinants, explained in section 3.3.1, indicate insufficient research for established knowledge as they fall into the yellow and green areas in figure 7. Thus, future researchers need to conduct further research focusing on those areas.

Figure 7. The map of Keyword co-occurrence density visualization
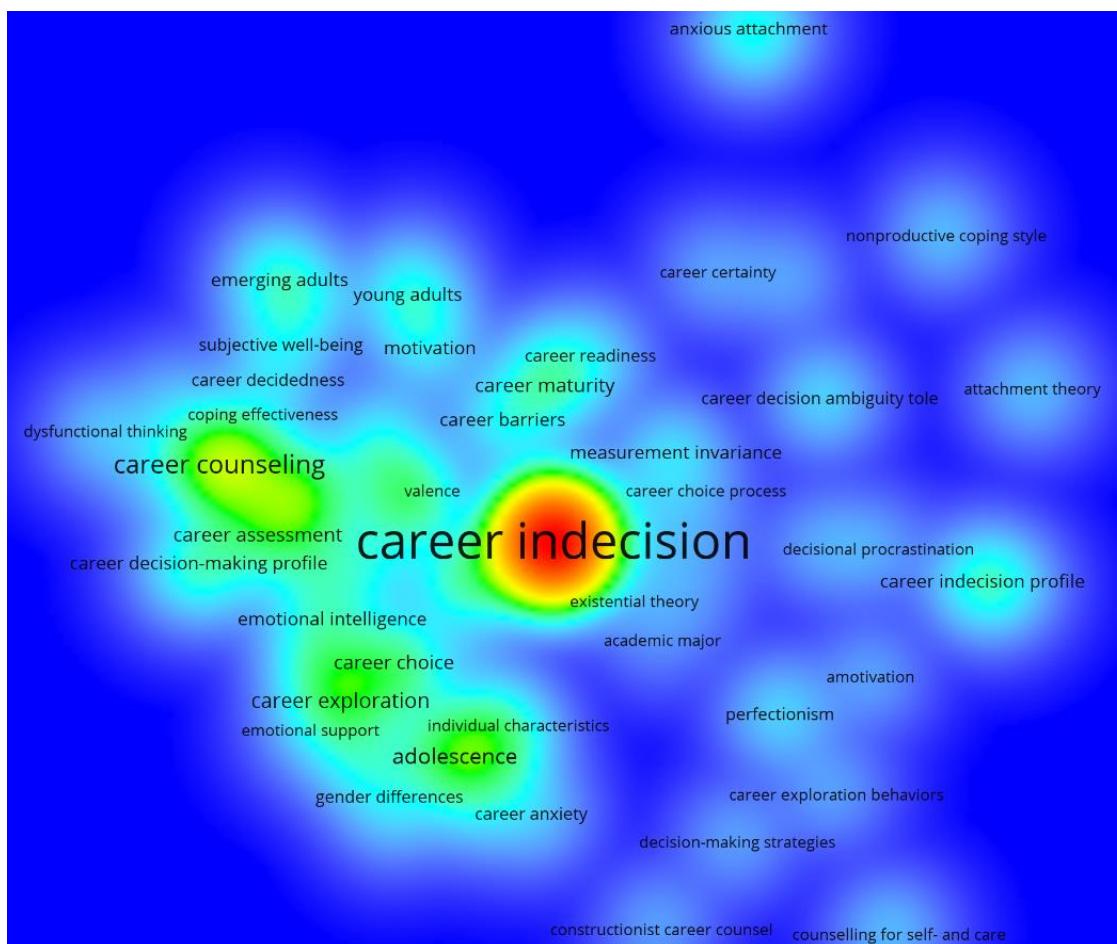
Source: Review data, 2022

Furthermore, while we discovered four determinants of career indecision using keywords with more than five occurrences, as shown in section 3.3.1, we wanted to see whether keywords with fewer than five occurrences represented common areas. As a result, we utilized VOSviewer to pick keywords with fewer than five occurrences, which were then clustered into four, as shown in Table 5.

Table 5. Keywords categorized into clusters with keywords fewer than five occurrences in articles

Theme	Keywords	Author	Citations	Journal
Individual differences	Perfectionism, motivation, decisional procrastination, career decisional ambiguity tolerance, career readiness, valence, emotional intelligence, dysfunctional thinking, perceived coping effectiveness, gender differences, career anxiety, anxious attachment, subjective well-being, non-productive coping style, Decision-making strategies (aspiration and procrastination)	(Gati et al., 2011b),(Kang et al., 2020),(Page et al., 2008), (Hagiwara & Sakurai, 2008),(Jung, 2018), (Bańka & Hauziński, 2015), (Park et al., 2019), (Kleiman et al., 2004), (Walker & Tracey, 2012). (Phang et al., 2020),(Puffer, 2011), (Boysan & Kagan, 2016)(Lipshits-Braziler, Tatar, et al., 2017), (Lipshits-Braziler, Tatar, et al., 2017) (Atitsogbe et al., 2018) Lam & Santos, 2018), (Braunstein-Bercovitz, 2014), (Nalbantoglu Yilmaz & Cetin Gunduz, 2018),(Shin & Kelly, 2015)	437	Asia Pacific Education Review Journal of Career Assessment Journal of Psychologists and Counsellors in Schools Career Development Quarterly Sleep and Hypnosis Journal of Vocational Behavior Journal of Counseling Psychology Social Psychology of Education
Contextual /environmental factors	Academic major, career barriers, career certainty,	(Kin & Rameli, 2020), (Jaensch et al., 2015), (Constantine & Flores, 2006)	35	Universal Journal of Educational Research, Journal of Vocational Behavior Journal of Career Assessment
Social factors	emotional support, emerging adults, young adults,	(Mao et al., 2017). (Uthayakumar et al., 2010), (Park et al., 2021)	12	Journal of Career Development International Journal for Educational and Vocational Guidance Journal of Career Development
Outcomes	Subjective well-being		28	Journal of Vocational Behavior

The four clusters shown in table 5 share the common themes of individual differences, contextual/environmental factors, social factors, and outcomes of career indecision. The theme of individual differences represents 17 keywords. Articles in nine journals have reported those keywords. Since this cluster has received the highest citations compared to the other 3 clusters, its impact is said to be higher. The second cluster contained three keywords representing the common theme of contextual /environmental factors. Articles in three journals have reported them, and the cluster has received 35 citations. The third cluster represents the social factors, which have three keywords. Articles have been reported in three journals, and the cluster received the least number of citations. The fourth cluster represents the outcome of career indecision. The only keyword included in it was subjective well-being. An article published by the Journal of Vocational Behavior has reported it and obtained 28 citations. In addition to the journal and citation information, the main findings related to each keyword are given below.

Individual differences: Individual differences account for self-oriented perfectionism (Gati et al., 2011b; Kang et al., 2020; Page et al., 2008), level of motivation (Hagiwara & Sakurai, 2008; Jung,

2018), decisional procrastination (Bańka & Hauziński, 2015), career decisional ambiguity tolerance (Park et al., 2019), career readiness (Kleiman et al., 2004), and valence (Walker & Tracey, 2012). Additionally, emotional intelligence (Phang et al., 2020; Puffer, 2011), dysfunctional thinking (Boysan & Kagan, 2016), perceived effectiveness of coping strategies (Lipshits-Braziler, Tatar, et al., 2017), and perceived non-productive coping style (Lipshits-Braziler, Tatar, et al., 2017) accounts the individual differences. Furthermore, gender differences (Atitsogbe et al., 2018; Lam & Santos, 2018), anxious attachment (Braunstein-Bercovitz, 2014), career anxiety (Nalbantoglu Yilmaz & Cetin Gunduz, 2018), and decision-making strategies (aspiration and procrastination)(Shin & Kelly, 2015) also represent the individual differences. Thus, all these individual differences were found to impact career indecision.

The contextual /environmental factors: The contextual /environmental factors account for the academic major of the students (Kin & Rameli, 2020), barriers to careers (Jaensch et al., 2015), and level of certainty of the career (Constantine & Flores, 2006). They were found to impact career indecision.

The social factors: The social factors include the parents' and counselors' emotional support (Mao et al., 2017). They were found to impact career indecision. Additionally, researchers have investigated emerging adults (Uthayakumar et al., 2010) or young adults (Park et al., 2021) as the subject of this career indecision, which was also categorized into this category.

Outcomes: The only outcome of career indecision found was subjective well-being (Uthayakumar et al., 2010).

In a nutshell, as this section deals with the study's second objective of finding factors/areas that need to be addressed in future research in career indecision, two ways were deployed with keywords. The first was the keywords with more than five occurrences, and the second was those with less than five occurrences. Analysis of keywords with more than five occurrences found four determinants as; (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, and (4)level of individual readiness for career choice. Analysis of keywords with less than five occurrences derived four areas, including three types of determinants; (1) individual differences, (2) contextual /environmental factors, (3) social factors, and one outcome (subjective well-being). Based on these two analyses, we found seven determinants and one outcome. Since these were systematically and logically identified through the keyword co-occurrence density visualization, as mentioned in figure 7, it was revealed that the findings were insufficient for established knowledge. Therefore, future researchers should focus on all these eight areas for more research.

3.4. Reporting bias assessment

The PRISMA guidelines provide a standard reporting format that eliminates biases caused due to missing the results of the included articles to be reported. Thus, the current study's report complied with the PRISMA format that avoided the authors using their format.

4. Discussion

This study was designed based on the SLR that attempted to synthesize the career indecision empirical research published during the 2000-2021 period. It was based on two objectives; to (1) find the common determinants in career indecision over the last two decades and (2) to find the factors/areas that need to be addressed for future research on career indecision. The first objective was achieved by finding four common career indecision determinants. They are (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, and (4) level of individual readiness for career choice. The second objective was achieved by finding seven determinants and one outcome of career indecision recommended for future research. The seven areas of determinants include; (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, (4) level of individual readiness for career choice, (5) individual differences, (6) contextual /environmental factors, and (7) social factors. The only outcome of career indecision found was subjective well-being.

All seven determinants and one outcome can be integrated into a holistic model and tested by future researchers. Since each common determinant and outcome were obtained from different keywords, they might also be viewed as dimensions for each determinant and outcome. These keywords would help construct a measurement instrument to test the suggested holistic model. These are the study's main theoretical contributions.

Additionally, the study found gaps in determinants such as cultural values, institutional and technological support for dealing with career indecision, and more outcomes of career indecision.

Although this study satisfied almost all of the SLR requirements, one limitation was that the articles were drawn from a single database. Extracting more articles could have been done if more databases had been targeted. Moreover, the study selected only the empirical studies to maintain the articles' validity as they complied with the systematic literature review methodology. The results could have been different if other article types had been selected.

5. Conclusion.

Various determinants determine occupational decision-making in career-related lives. More research has been conducted to investigate the determinants that influence career indecision. This study attempted to synthesize the career indecision empirical research to (1) find the common determinants in career indecision over the last two decades and (2) find the factors/areas that need to be addressed for future research on career indecision. A systematic literature review methodology, along with PRISMA guidelines, was adopted. Following the predetermined inclusion criteria, 118 articles were included for the review from the Scopus database.

The first objective was achieved by findings of four areas of determinants for career indecision. They include; (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, and (4) level of individual readiness for career choice. The second objective was achieved by finding eight areas for future research. They include all those common four determinants found for objective one, three more determinants; (1)

individual differences, (2) contextual/environmental factors, and (3) social factors, and the only outcome, subjective well-being.

6. Practicality and research implications

When the practicality of the findings is concerned, the seven determinants of career indecision imply that policymakers, decision-makers, or employees must systematically assess the causes before taking ad-hoc interventions. Notably, assessing career decision-making difficulties and career decision-making profiles, knowing individual differences, and understanding contextual and social factors for career indecision will help decision-makers to make counseling interventions. Knowing those factors by the counselors will help increase their counseling sessions' effectiveness. These different determinants imply that the decision-makers and the counselors are required to follow different strategies. Knowing that there are such determinants and outcomes of career indecision encourages indecisive career employees to seek counseling interventions. Additionally, as our study found that employee well-being can be increased by reducing career indecision, the decision makers imply investing more effort in increasing career decisiveness.

The theoretical implication includes the seven determinants, and the only outcome, subjective well-being, can be incorporated into a comprehensive conceptual model. As a result, hypotheses can be developed for each determinant and outcome as they have been found based on empirical evidence. In this manner, the model may be empirically tested, and the measuring instrument can be created by utilizing the areas represented by each keyword in each cluster.

The findings have numerous implications for future researchers. Firstly, the seven determinants and outcomes we identified can be researched. The seven determinants include (1) career-related decision-making difficulties, (2) adolescent differences, (3) individual and situational career decision-making profiles, (4) level of individual readiness for career choice, (5) individual differences, (6) contextual/environmental factors, and (7) social factors whereas the only outcome derived was subjective well-being. The gaps identified in this research, such as the determinants of cultural values and institutional and technological support on career indecision and more individual, organizational, and social outcomes, could be regarded as possible implications in future research.

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