

GEBE EĞİTİMİNE GENEL BİR BAKIŞ: WEB OF SCIENCE CORE COLLECTION
TEMELLİ BİR BİBLİYOMETRİK ANALİZ*

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ÖZET

Bu araştırmada, WoSCC veri tabanında taranan, “Gebe eğitimi” konusunda yapılmış çalışmaların, bibliyometrik analizle nicelik ve nitelik açısından değerlendirmesi amaçlanmıştır. Bu kapsamda, yıl, dil ve atıf indeksi kısıtı olmadan yapılan filtrelemede, 1980-2022 yılları arasında yapılmış, 483 araştırmaya ulaşılmıştır. İlgili alanda yapılan çalışmalara ait bulgular doğrultusunda, en üretken yazarın Hyun Kyoung Kim olduğu belirlenmiştir. Ayrıca bu alanda en çok yayının “Kadın Hastalıkları ve Doğum” alanında olduğu belirlenirken, en çok yayın sahibi kurumun “Iran University of Medical Sciences” olduğu saptanmıştır. Ortak kelime analizinde, en sık “doğum öncesi eğitim, gebelik, emzirme, doğum öncesi bakım” kelimelerine yer verildiği görülürken, ortak atıf analizinde, en fazla atıf yapılan yazarın Anita J. Gagnon olduğu belirlenmiştir. Ortak alıntı analizinde, en fazla atıf yapılan üç yayın arasında bağlantı bulunmamıştır. Ortak yazar analizinde ise, birlikte yayın yapan yazarların tek bir grup etrafında toplandığı görülmüştür. Sonuç olarak; bireylerin, gebelik, çocuk bakımı ve gelişimi hakkında bilinçlendirilme talepleri doğrultusunda, gebe eğitimlerinin daha kapsamlı ve kalıcı hale gelmesi gerektiği kanısına varılmıştır.

Anahtar Kelimeler: Bibliyometrik analiz, aile, aile eğitim programları, gestasyonel eğitim, gebe eğitimi.

**AN OVERVIEW OF PREGNANCY EDUCATION: A BIBLIOMETRIC ANALYSIS BASED
ON WEB OF SCIENCE CORE COLLECTION****ABSTRACT**

This study aims to evaluate the studies on “pregnant education” searched in the WoSCC database in terms of quantity and quality with bibliometric analysis. In this context, 483 studies conducted between 1980-2022 were reached in the filtering made without year, language and citation index constraints. It was determined that the studies in the related field were between 1980-2022 and the most prolific author was Hyun Kyoung Kim. In addition, it was found that the most publications in this field were in the field of "Gynecology and Obstetrics" and the institution with the most publications was "Iran University of Medical Sciences". In the common word analysis, it was seen that the words "prenatal education, pregnancy, breastfeeding, prenatal care" were used most frequently, while in the co-citation analysis, it was determined that the most cited author was Anita J. Gagnon. In the co-citation analysis, no link was found between the three most cited publications. In the co-authorship analysis, it was seen that the authors who published together were gathered around a single group. As a result; it was concluded that pregnancy education should be more comprehensive and permanent in line with the demands of individuals to raise awareness about pregnancy, child care and development.

Keywords: Bibliometric analysis, family, family education programs, gestational education, pregnant education.

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1. INTRODUCTION

Basic structures are needed in the construction of the concept of "society", which means more than the coexistence of individuals. These basic structures are universal in that they are found in all eras and societies (Demir, 2021). The most deep-rooted of the mentioned structures is the family. The findings of anthropological research indicate that family unity, which regulates the sexual relations of individuals and ensures the raising of children, exists in every society (Can, 2016). The family, which contains the projections of the functions of the structures that make up the social life, is a miniaturized social life with all these aspects (Çamur Duyan, 2018; Demir, 2021; Dikeçligil, 2012). The developmental responsibilities of the individuals who make up the family, which is characterized as a dynamic structure, and the turning points in their lives are included in the process called the family life cycle (Keleş, 2019). In this process, family members are expected to adapt to changing and developing conditions (Macit, 2021; Nichols, 2013). There are countless roles, conditions and behavioral patterns that individuals try to adapt throughout their lives (Bush et al., 2017). All these processes, which are seen as a source of stress for the individual at first glance, are actually developmental experiences (Erikson, 1968). The transition to parenthood, which is a period in which married adults, in a way, restructure their lives, is hectic and time-consuming due to the presence of a baby in need of care (Miller & Sollie, 1986; Rossi, 1968). The acquired parenting role, on the other hand, provides individuals with self-sufficiency, satisfaction, socially acquired maturity and a sense of continuity (Feldman vd., 2004; Peterson, 2017; Sun et al., 2019; Sönmez, 2021; Yavorsky et al., 2015).

The pregnancy period, which includes both psychosocial and physiological changes, is an important stage in a woman's life (Mermer et al., 2010). Pregnancy is also a process of change that includes the crises that the expectant mother must overcome together with her family members (Littleton et al., 2002). Especially the first pregnancy experience is full of fear as it includes the unknowns due to the inexperience of the expectant mother (Altıparmak, 2014). Fears can be overcome when expectant mothers obtain information through various channels. Health institutions, books, childbirth preparation education given by experts are just some of the ways for expectant mothers to get information (Littleton et al., 2002; Tok & Sakalhoğlu, 2021). There are statements in the "Declaration of Barcelona on the Rights of Mother and Newborn" that expectant mothers can receive information and education on reproduction, pregnancy, childbirth and newborn (Atasay & Arslan, 2001; Tok & Sakalhoğlu, 2021). The main purpose of the education is to identify and treat the health problems of the expectant mother and newborn, and to improve their parenting skills (Turan et al., 2008). The first dimension of the pregnant education, which is discussed in three basic dimensions, focuses on pregnancy, normal birth and assistive techniques, while the second dimension focuses on what needs to be done at home and in health institutions during the birth process. The third dimension, on the other hand, covers the postpartum processes (Şeref & Gözütok, 2018).

Programs that aim to improve parents' ways of coping with the problems they have experienced in infant care and development and to improve their learning experiences are defined as family education programs. These programs not only provide individuals with the responsibility of being parents, but also enable parents to be sensitive to their children's development and needs (Bogenschneider & Johnson, 2004; Tezel Şahin & Özbey, 2007). Studies on the developmental areas of children show that the educational programs benefited by parents, who are the first teachers of children, have a direct and indirect effect on children (Chow, 2004). These programs not only provide

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social support to parents, but also enable them to establish a wide information network. Thanks to these programs, parents get to know about child development and care, determine the needs of their families, fulfill family functions, contribute positively to their children's developmental indicators in the long run, and are equipped to support their children's future school success (Staton et al., 1991). In this sense, educational interventions applied during pregnancy, which is the first stage of parenting, are considered necessary for expectant mothers to have positive experiences and to prepare for childbirth with rational expectations (Gökçe İşbir et al., 2016).

Studies in this field in Turkey and in the world show that education programs increase the knowledge level of expectant mothers, highlighting the insufficient number of these programs (Akbaş et al., 2008; Can et al., 2008; Karabulutlu, 2012; Lee & Holrody, 2009; Malata et al., 2007). Prenatal education programs date back to the 1930s in the world, and the first practices in our country were initiated with the "Health Promotion and Development Program" within the scope of the "Health Transformation Program". In the next stage, trainer trainings were organized for health personnel to provide training in "Pregnant Information Classes". In order to ensure the dissemination and continuity of these practices, it was planned that the health personnel participating in the program will carry out these trainings in their own regions. In this way, significant developments were achieved in terms of ensuring common standards in pregnant education programs implemented in our country (Dinç et al., 2014). This was also supported by the "Declaration of Barcelona on the Rights of Mother and Newborn" declared in 2001. In this declaration, it was mentioned that it is necessary to encourage the participation of the expectant mother and father in the education and that the education should be considered as an integral part of the development of the baby. In addition to the declaration stating that all expectant mothers deserve protective measures in this process, insurance companies in developed countries protect these rights of mothers (Declaration of Barcelona on the Rights of Mother and Newborn, 2001; Fabian et al., 2004). Many practices with different qualities concerning this issue exist in the world (Artieta-Pinedo et al., 2010; Firouzbakht et al., 2013; Toker & Aktaş, 2010). However, the common point of all of them is to prevent the physical and mental problems experienced by expectant mothers during pregnancy (Dinç et al., 2014; Hildingsson et al., 2013).

When the literature on the subject is examined, it is seen that the studies are generally related to pregnancy (Bostan & Kabukcuoglu, 2022; Castillo et al., 2022; Shimpuku et al., 2022), prenatal care (Das et al., 2022; Iwanowicz-Palus et al., 2022; Zbiri et al., 2021), depression (Shimpuku et al., 2022; Wu & Wang, 2022; Zhang et al., 2021), social support (McCormack et al., 2021; Rayburn & Coatsworth, 2021), self-sufficiency (Bostan & Kabukcuoglu, 2022; Diotaiuti et al., 2022; Eidouzaei et al., 2022), fear of childbirth (Buran & Aksu, 2022; Eidouzaei et al., 2022; Gökçe İşbir et al., 2022), anxiety (Diotaiuti et al., 2022; Gargari et al., 2021; Iwanowicz-Palus et al., 2022), obesity (Hurst et al., 2021; Ortiz-Felix et al., 2021), breastfeeding (Bookhart et al., 2021; Oggero & Wardell, 2022; Taha et al., 2022), parenting (Abbass-Dick et al., 2017), postpartum care (Gagnon & Sandall, 2007; Hunter et al., 2009), quality improvement (Hurst et al., 2021; Louis-Jacques et al., 2020; Takako, 2020).

During the pregnancy period, when expectant mothers experience fear, anxiety and inability to cope with various difficulties and encounter traumatic situations, systematic and practical education given on the issues they need in order to feel adequate and strong gain importance (Agrati & Lonstein, 2016; Doğan et al., 2017; Hamama-Raz et al., 2017; O'Hara & Wisner, 2014; Ouzounian & Elkayam, 2012). It is known that thanks to this education, the self-confidence of expectant mothers increases

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and they adapt to the process more quickly. In addition, it has been determined that the false information that expectant mothers have acquired from traditional, non-functional practices has changed thanks to this education (Barimani et al., 2018; Turgut et al., 2017). In this context, it is very valuable to receive the needed support and manage the process correctly during the pregnancy process, which is of vital importance (Agrati & Lonstein, 2016; Kadioğlu et al., 2019; Mete et al., 2017). The issue of "pregnant education", about which practices and studies are based on ancient times, has again become the focus of different disciplines today. For this reason, it has been determined that there are many studies on the related subject in the literature. In this direction, it is important to examine the studies on "pregnant education" with the bibliometric analysis method, which enables the determination of intact subjects by examining large masses and revealing the transformation of the subject. As a result, the main purpose of this study is to evaluate the studies on "pregnant education" searched in the WoSCC database in terms of quantity and quality with bibliometric analysis. For this purpose, answers to the following sub-objectives have been sought;

1. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by years?
2. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by the most prolific authors and the total number of citations?
3. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC, by subject areas?
4. What are the results of the bibliometric analysis of the studies searched with the keyword "Pregnant education" in WoSCC by institutions?
5. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by common keywords?
6. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by the co-cited authors?
7. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by the citation analysis?
8. What is the distribution of the studies searched with the keyword "Pregnant education" in WoSCC by the co-publishing authors?

2. METHOD

In the study, the publications searched in the WoSCC database and discussing the keyword "pregnant education" were examined with the bibliometric analysis method. Bibliometric analysis enables us to create visual maps by considering the studies in the literature from a multidimensional perspective. Today, the basic quality of studies is determined by its effect on knowledge production and scientific research. Bibliometric analysis, which is valuable in this respect, contributes to grounding new studies by revealing the discovered shortcomings of existing research. In addition, this method, whose importance is increasing day by day, is valuable as it visualizes research with mathematical and statistical analyzes (Rialti et al., 2019). In addition, bibliographic information allows researchers working in the field to examine the author and publication context in the relevant field. The fact that it does not contain subjective evaluations and has measurable qualities makes this analysis reliable. In this context, WoSCC is a reliable database that is frequently used in bibliometric studies (Muritala et al., 2020).

2.1.Process

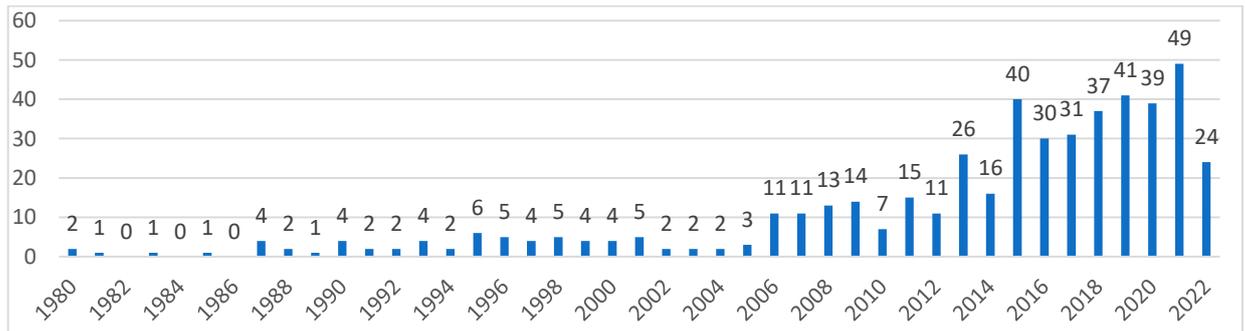
In the study, the data obtained as a result of searching the terms "Gestational education", "Prenatal education", "Pregnant education" and "Pregnancy education" in the WoSCC database were reached in August 2022. With its scope and high impact quality, WoSCC provides authors with metadata about the main qualities of the studies (Brito-Ochoa et al., 2020; Wang et al., 2016). It was searched in the WoSCC database with the code TS=("Gestational education" OR "Prenatal education" OR "Pregnant education" OR "Pregnancy education"). 483 studies were obtained by filtering without year, language and citation index restrictions. The relevant studies were searched in seven citation indexes as of 1980 [Social Sciences Citation Index (SSCI), Emerging Search Citation Index (ESCI), Science Citation Index Expanded (SCI-EXPANDED), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index-Social Science & Humanities (CPCI-SSH), Book Citation Index-Social Sciences & Humanities (BKCI-SSH), Book Citation Index-Science (BKCI-S)].

2.2.Data Analysis

The "tab limited file" and "excel" files of the information obtained from 483 studies on "pregnant education" in WoSCC were recorded. Descriptive analyzes were made using the information on WoSCC's own system, and co-word, co-citation, citation and co-authorship analysis were made with the help of VOS-viewer 1.6.15 program. The VOS-viewer software tool enables to create maps based on data. The program designed to examine bibliometric networks can also be used in studies based on various network data (Tuncer et al., 2022; Van Eck & Waltman, 2021; Yu et al., 2020).

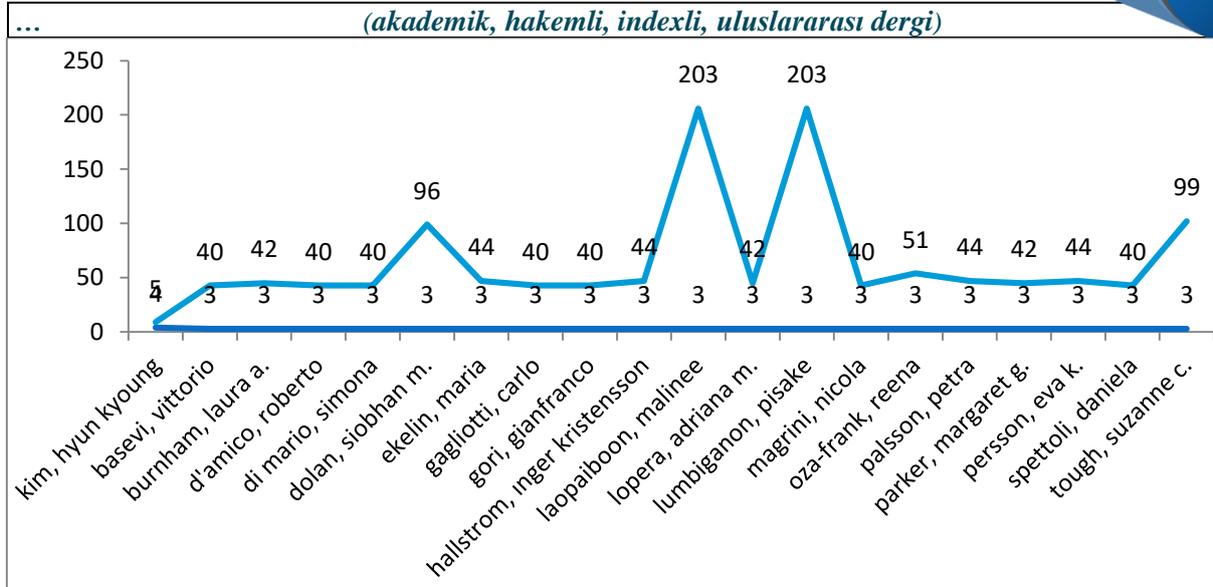
3. RESULTS

The distribution of studies on "pregnant education" in the WoSCC database by years is shown in Graph 1. When Graph 1 is examined, it is seen that the studies on the subject were carried out between 1980-2022 and had a significant upward trend as of 2006.



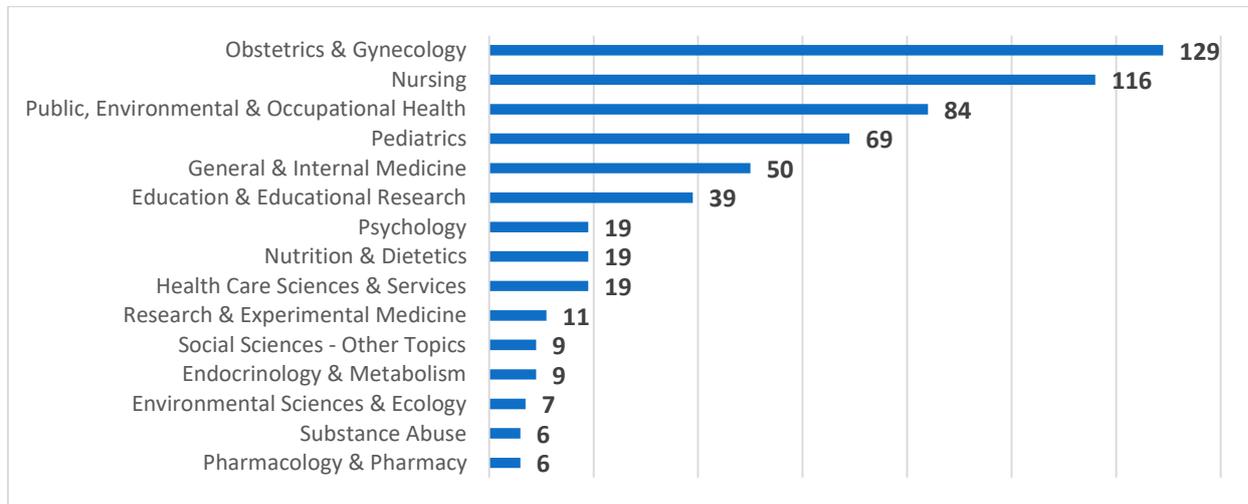
Graph 1. Distribution of Studies on Pregnant Education by Years

In the WoSCC database, the most prolific authors on "pregnant education" and the distribution of the total number of citations to their studies are shown in Graph 2. Hyun Kyoung Kim (f=5) ranks first among the authors who have published the most on the subject. Among these authors, the most cited authors are Malinee Laopaiboon (f=203) and Pisake Lumbiganon (f=203).



Graph 2. The Most Prolific Authors on Pregnancy Education and The Distribution of The Total Number of Citations to Their Studies

When the distribution of studies on "pregnant education" in the WoSCC database by subject areas is examined in Graph 3, it is observed that the most studies were conducted in the field of Gynecology and Obstetrics (f=129), followed by the fields of Nursing (f=116), Public, Environmental and Occupational Health (f=84), Pediatrics (f=69), Internal Medicine (f=50) and Education and Educational Research (f=39), respectively.



Graph 3. Distribution of Studies on Pregnant Education by Subject Areas

When the bibliometric analysis results of the studies on "pregnant education" by institutions in the WoSCC database are examined in Figure 1, it is seen that two related clusters are formed. The relationship between the institutions that make up the clusters is shown in red and green in the figure. In the red cluster, the university with the highest number of connections is Calgary University with 45 connection strength, while in the green cluster, the university with the highest number of connections is Iran University of Medical Sciences with the highest number of studies on the related subject and 114 connection strength. The connection strengths of the other universities in the red

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cluster are University of Ottawa (41), University of British Columbia (30), University of Michigan (22), Carolina University (22), Emory University (18), University of Wisconsin (16), University of Manitoba (11), respectively. In addition, although its connection strength is lower than other universities, University of Ottawa was determined to be the most productive university in pregnancy education research with 192 citations (Figure 1).

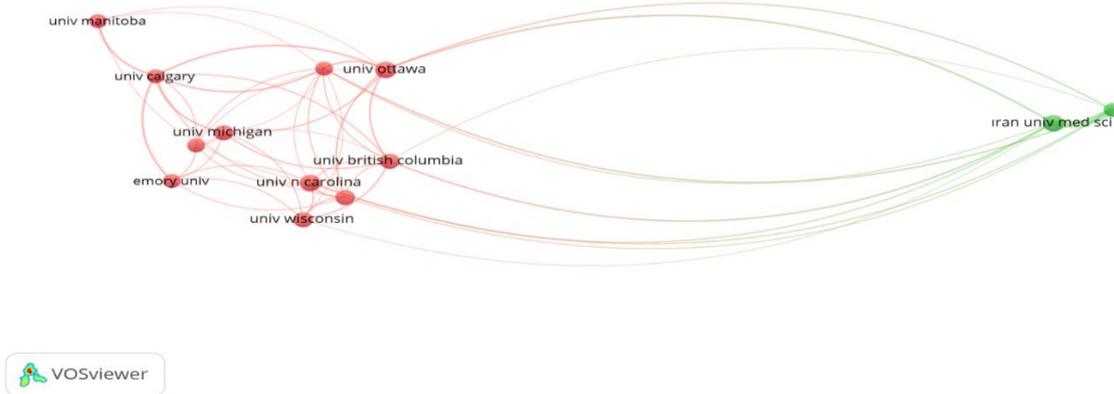


Figure 1. Bibliometric Analysis Results of Studies on Pregnant Education by Institutions

In co-word analysis with bibliometric analysis, the unit of analysis focused on while analyzing the publications is "words". Unlike co-authorship, and co-citation analyses, co-word analysis is a technique that reflects the scope of the publication (Donthu et al., 2021). In co-word analysis, words are mostly produced from titles, abstracts, and keywords (Baker et al., 2020; Burton et al., 2020; Donthu et al., 2020). In bibliometric analysis, the size of the circles and the frequency of use of words are directly proportional, and the circles get larger as the frequency of use increases. When the co-word analysis results of the studies on "pregnant education" in the WoSCC database are examined in Figure 2, the frequencies of the first five most frequently used words are prenatal education (f=130), pregnancy (f=80), breastfeeding (f=38), prenatal care (f=28), pregnant women (f=18), respectively. It is seen that the image (Figure 2) obtained based on the keywords of the research consists of five clusters. In the figure, the concept of pregnancy education is also associated with concepts such as depression, anxiety, obesity, social support, health education, self-sufficiency, fear of childbirth, newborn education, parenting.

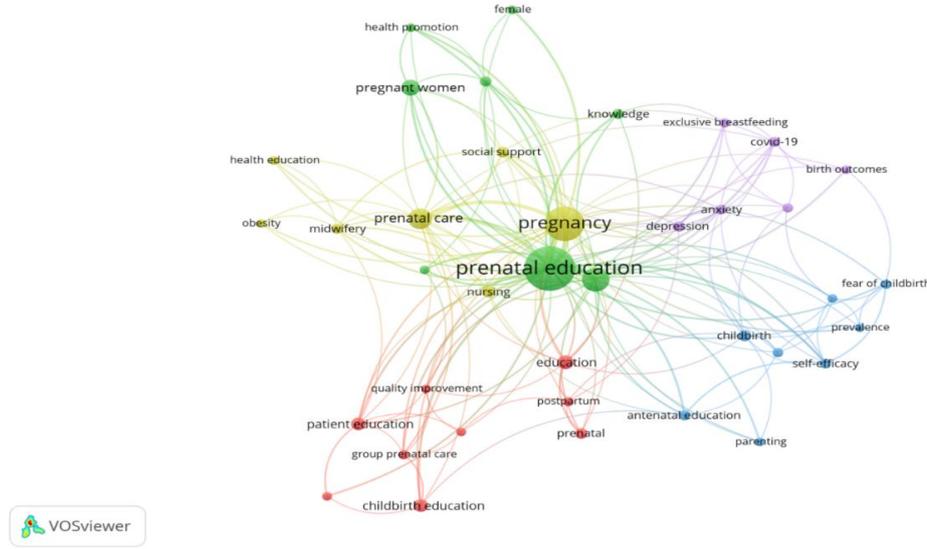


Figure 2. Co-word Analysis

Co-citation analysis is a scientific mapping technique that assumes that publications that are often cited together are thematically similar (Hjørland, 2013). This analysis can also be used to reveal the intellectual structure of the research area (Rossetto et al., 2018). Two publications are linked when they appear together in a common citation network, in another publication's reference list. The most important benefit of co-citation analysis, besides revealing the most influential publication, is the thematic clustering of scholars. In co-citation analysis, thematic clustering is formed depending on the cited publications. In addition, in co-citation analysis, only highly cited publications are focused on, and new or less cited publications are excluded from thematic clusters (Donthu et al., 2021). When the results of the common citation analysis of the studies on "pregnant education" in the WoSCC database are examined in Figure 3, it is seen that there are clusters that interact with each other. The relationship between cited authors is indicated by colors. It is observed that, the most cited author with 212 citations on pregnancy education is Anita J. Gagnon with her article titled "Individual or group antenatal education for childbirth or parenthood, or both", followed by Razurel et al. (2011) with 101 citations, Noel-Weiss et al. (2006) with 92 citations, Kistin et al. (1990) with 90 citations, Massey et al. (2006) with 85 citations, Khunpradit et al. (2011) with 81 citations, Robertson et al. (2009) with 64 citations and Ferguson (Sferruzzi-Perri, 2013) with 59 citations.

As an indicator of intellectual collaboration, co-authorship analysis reveals links between academics in a research field (Acedo et al., 2006; Donthu et al., 2021). When the results of the co-authorship analysis of the studies on "pregnant education" in the WoSCC database are examined in Figure 5, it is seen that the co-publishing authors are gathered around a single group. Regarding the co-authorship analysis, it was concluded that the publication of the authors in the figure received 40 citations and had the same connection strength (18).

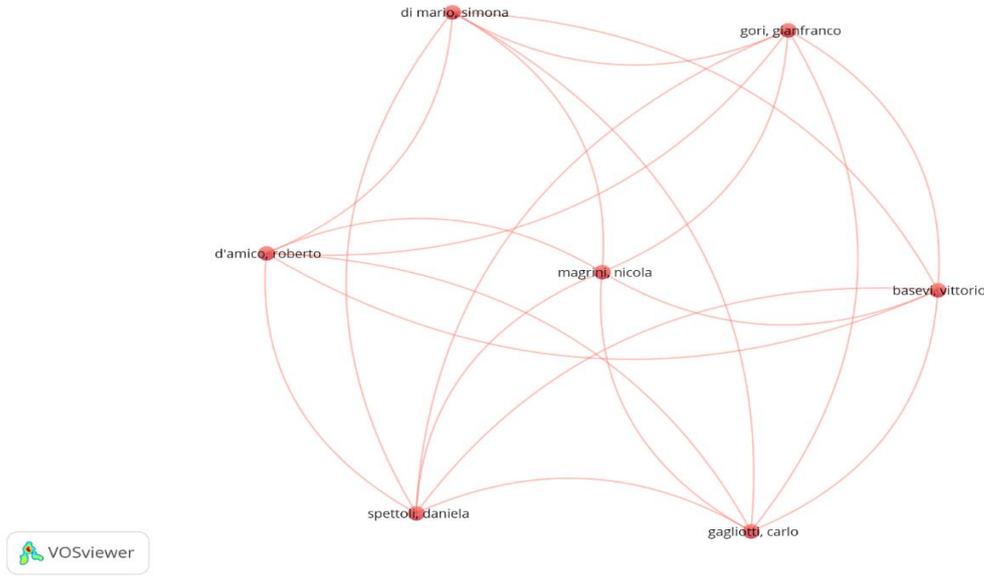


Figure 5. Co-authorship Analysis

4. CONCLUSION and DISCUSSION

Pregnancy is a process in which women go through physical and mental changes. Couples who are going to be parents for the first time experience anxiety both before and after childbirth due to the fear of baby care and childbirth (Callister, 2004). Until the end of the 1900s, couples were supported by the family and social environment by providing childbirth preparation education (Eriksson et al., 2006). Structured pregnancy education started in the 1930s, and its content and scope have been expanded and its importance has increased even more today (Charlotte et al., 2007; Waldenström et al., 2006). While perinatal education was previously perceived as a complete course that prepares couples for birth and parenthood, today it includes education classes from the prenatal period to the first months of parenthood, as well as early and late birth education (Humenic, 2004). In this study, 483 studies conducted on "pregnant education", which has a cumulative history, and searched in the WoSCC database, were examined by bibliometric analysis method. When the descriptive data of the distribution of the studies by years are examined, it is observed that there has been an increase in the studies since 2006. This is explained by the fact that the health personnel working in the field provide more guidance to the patients about the information on pregnancy education given through various channels. In addition, as a result of the transformation of the family structure from a large family to a nuclear family, the fact that expectant mothers need a person or institution to guide them in this regard is considered as a reason for the increase in pregnant education. The fact that the most research on pregnant education is in 2021 is explained by the existence of the article "Pregnant women and their relatives should be educated about the pregnancy process and childbirth" included in the

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"Quality Standards in Health (Hospital)" published by the Ministry of Health of the Republic of Turkey in June 2020. In his study, Hyun Kyoung Kim, who was determined as the most prolific author on the relevant subject, developed an environmentally friendly care program during pregnancy due to the increase in environmental pollution worldwide (Jeong & Kim, 2020). In his other studies, he focused on the effect of internet-based prenatal interventions (Chae & Kim, 2021), and the effectiveness of the training program using comics to raise awareness about protection from the negative effects of environmental pollution during pregnancy (Kim et al., 2021). Among the most prolific authors, the studies co-published by Malinee Laopaiboon and Pisake Lumbiganon received the most citations. In their study, the authors focused on the effect of prenatal breastfeeding education on increasing the duration of breastfeeding (Lumbiganon et al., 2016). In another study on interventions to reduce cesarean delivery except in obligatory cases (Chen et al., 2018), they examined the effect of childbirth education workshops that were given to mothers before birth and encouraged vaginal birth. In another similar study aimed at reducing cesarean delivery, it was concluded that the education given to reduce the fear and anxiety of mothers in the prenatal period, the group therapy applied and the information booklets were effective in the decision-making processes of the mothers (Khunpradit et al., 2011). As a result of the analysis, it can be said that the reason for the difference between the authors with the highest number of publications and the authors with the highest number of citations is that the cited publications are old in terms of the year they were published. In addition, based on the most cited studies, it was determined that the general tendency was mostly related to reducing cesarean delivery and promoting vaginal delivery in the publications on pregnant education.

When the bibliometric analysis results were analyzed according to the subject areas related to pregnancy education, studies in different disciplines were reached. However, as expected, the most publications were in the field of obstetrics and gynecology. Other subject areas associated with pregnancy education are "nursing", "public, environmental and occupational health", "pediatrics", "internal medicine" and "education and educational research". When an evaluation is made based on the most cited studies on pregnant education in the field of nursing, it is seen that there are studies expressing the necessity of supporting pregnant women about childbirth and parenting with individual or group trainings given in the antenatal period (Gagnon & Sandall, 2007), and the necessity of providing prenatal education that support adequate and proper nutrition of mothers in the prenatal period based on the importance of breast milk (Gatti, 2008). In another study, the relationship of control, which is a cognitive quality (Ross & Sastry, 1999) discussed in various ways such as locus of control, instrumentalism, self-sufficiency, mastery, self-direction, personal autonomy and helplessness, with psychological adaptation, that is, anxiety and depressive symptoms, during the transition to parenthood was examined. In the study, which stated that having a high sense of control is associated with proactive behavior and positive psychological outcomes (Mirowsky & Ross, 1999), it was concluded that parents with a high sense of control showed higher psychological well-being and less depressive behaviors (Keeton et al., 2008). In studies on pregnant education in the field of public, environmental and occupational health, the relationship between environmental exposure to tobacco and the birth weight of babies in non-smoking mothers who received education in the antenatal period was examined (Rebagliato et al., 1995), and in another study, the effects of sleep and physical activity levels of pregnant women who participated in prenatal education on their psychological health levels (Lee et al., 2021) were examined. In the field of pediatrics, in the study

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that aimed to determine the effects of breastfeeding problems encountered in the postpartum period and the effects of interventions for these problems (Karaçam & Sağlık, 2018), it was concluded that due to the lack of knowledge and experience of mothers about breastfeeding, they need education and that the education provided in the prenatal period increases the motivation of mothers about breastfeeding. In a study on pregnant education in the field of internal medicine, in the case of congenital toxoplasmosis, which is considered a rare but potentially serious infection in mothers, pregnancy education given to mothers was accepted as the most effective and harmless intervention method that reduces the risk of infection (Di Mario et al., 2015). In a study on education and educational research, which is another field with the most research on pregnant education, the necessity of conceptualizing prenatal education as an interdisciplinary field that benefits from different disciplines was discussed. This study did not only focus on mother-child or parent-child interaction, but also expressed the necessity of expanding the pedagogical definition and scope of pregnant education as a collaborative field of disciplines such as health, medicine, education and law (de la Herran Gascon, 2015). When the disciplines related to pregnancy education are examined, it is seen that studies mostly focus on reducing birth anxiety in the prenatal period and correct breastfeeding and feeding methods in the postpartum period. From this point of view, it was concluded that not only mothers but also parents should be supported together in pregnant education, that they should be guided in pre- and postnatal physiological and psychological issues, and that issues such as growth and development in children can be included in education.

In the study, when the bibliometric analysis results were analyzed according to the institutions conducting research on pregnant education, the most research on the subject came from Iran University of Medical Sciences. The reason for Iran to come to the fore in the analyzes is thought to be the studies of the "National Committee for Reducing Maternal and Child Mortality", which was established in Iran in 1995, to examine the underlying causes of maternal and newborn deaths. In addition, it was concluded that the program developed under the name of "National Maternal Mortality Observation System", established in 2000, contributed to this field by detecting, recording and monitoring pregnancy-related deaths and producing solutions in the context of cause and effect. In these studies, the effects of pregnancy-adaptation education on maternal-fetal attachment and adaptation were examined in pregnant women with a history of infant loss (Baghdari et al., 2016). In addition, the effect of using computerized decision aid systems on the decision of the appropriate delivery method, the vaginal or cesarean delivery, of mothers for a healthy birth (Eslami et al., 2015), the effect of a computer-based support developed to solve the problems caused by pregnancy-induced hypertension and gestational diabetes (Aslani et al., 2014), the effect of breastfeeding education with the participation of grandmothers on breastfeeding self-sufficiency and infant nutrition (Gharaei et al., 2020), the effect of cognitive-behavioral education given to women on self-sufficiency for birth, fear of birth and gaining the role of motherhood (Eidouzaei et al., 2022), the effects of face-to-face and virtual birth preparation education on the fear of birth and pregnancy experiences were examined (Mousavi et al., 2021).

In the co-word analysis of studies on pregnant education, the most frequently used keywords are prenatal education (Gagnon & Sandall, 2007; Gatti, 2008; Noel-Weiss et al., 2006; Shimpuku et al., 2022), pregnancy (Castillo et al., 2022; Diotaiuti et al., 2022; Shimpuku et al., 2022), breastfeeding (Brocato et al., 2022; Oggero & Wardell, 2022; Taha et al., 2022); prenatal care (Castillo et al., 2022; Dhanasekaran et al., 2022; Wu et al., 2022), pregnant women (Bostan &

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Kabukcuoğlu, 2022; Iwanowicz-Palus et al., 2022; Smeltzer et al., 2022). Based on this, pregnant education is primarily highlighted as the most general word in the key words of the studies conducted on pregnant education. Other words in the studies are depression, anxiety, obesity, social support, health education, self-sufficiency, fear of birth, newborn education and parent. As a result, pregnant education has been associated with these words in studies. According to the findings of co-citation and citation analysis of studies on pregnant education in the research, Gagnon's studies are the most cited studies. In one of these studies, postpartum pain in both immigrant and non-immigrant women in Canada was addressed (Mahon et al., 2017). The study of Gagnon and Sandall (2007), on the other hand, is the study with the highest communication strength in both co-citation and citation analysis. In this study, prenatal education programs aimed at improving childbirth and parenting are recommended for pregnant women and their spouses. In this comprehensive study on pregnancy, parenting and birth, the effects of prenatal programs on anxiety, sense of control, pain, birth and birth support, breastfeeding, infant care, psychological and social adaptation were examined. As a result of the co-authorship analysis conducted in the study, Nicola Magrini is at the center of the author collaborations. Scientific study of Di Mario, Basevi, Gagliotti, Spettoli, Gori, D'Amico, and Magrini (2009; 2013; 2015), which includes prenatal education content for congenital toxoplasmosis, reflects the co-authorship collaboration. In this study, it was concluded that pregnant education was discussed by different disciplines, but the majority of the studies were related to the field of health (such as medicine, nursing, midwifery). Today, starting from the prenatal period, pregnant education should be more comprehensive and permanent in line with the demands of individuals to raise awareness about pregnancy, child care and development.

5. LIMITATIONS

This study is valuable in terms of guiding future studies on pregnant education and bibliometric analysis. The study conducted with a limited data set provides a general framework for pregnant education. For this reason, a multidimensional analysis of the subject can be made by considering the concept of pregnancy education with different variables or keywords. The limitations of the study are stated below.

- Using WoSCC database to obtain research data,
- Accessing data using phrases "Gestational education", "Prenatal education", "Pregnant education" and "Pregnancy education" and "topic" filtering in the WoSCC database,
- Evaluating the studies in the context of year, author, subject area, institution, co-word, co-citation, citation, co-authorship.

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