BIBLIOMETRIC ANALYSIS OF PROSOCIAL BEHAVIOR IN ADOLESCENCE

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Abstract

Prosocial behaviors have been studied in many ways. However, it is important to reveal the current status of the studies conducted in the context of adolescents and to make predictions for future studies. In order to do this, it is necessary to examine the keywords, concepts and sources used in related studies. Therefore, bibliometric analysis was utilized in this study. In the study, the Web of Science (WoS) database platform was completed using VOSviewer as the source of the analysis data. In total, a data set of 4237 studies was used. When the 25 authors with the most publications on adolescence and prosocial behaviors are examined, Gustavo Carlo ranks first with 107 studies. When the relationships between institutions were analyzed, it was determined that the strongest ties were at the University of Missouri with 107 link strengths and Leiden University with 97 link strengths. The 5 most commonly used words in the studies were Prosocial Behavior, Adolescents, Children, Adolescence and Aggression, respectively. The most critical limitation of the study is that it was not included in databases such as YÖK Thesis Archive, international databases such as SCOPUS and Pubmed, and sources that have not been circulated online.

Keywords: Adolescents, children, prosocial behavior, bibliometric analysis, review.

Ø. Introduction:

People are known as 'social animals' due to their ability to interact with other people, participate in society, and socialize with others in the workplace. A person goes through different stages of development from infancy to death in order to live an ordinary life. Throughout these developmental stages, individuals experience various emotions and can improve their human relations with the positive results they obtain. One of the behaviors that can develop these positive relationships is prosocial behavior. Prosocial behavior is a voluntary action that aims to benefit others (Eisenberg et al., 2006), such as helping, comforting and rescuing others. As a result of developing perspective-taking during adolescence, adolescents have opportunities for more prosocial behavior by showing an empathic interest in the feelings of others (Van der Graaff et al., 2018). Previous research has shown that prosocial behavior during adolescence predicts positive developmental outcomes such as self-esteem (Fu et al., 2017).

Prosocial behavior is a general term that includes the goal of helping others (Ferraro, 2019), cooperation (Bhogal, 2021), heroism (Margana et al., 2019), and justice (Bhogal et al., 2017). Many studies have been conducted to discover that prosocial behaviors play an important role in social welfare. For example, the relationship between helping others and promoting prosocial behaviors has been investigated (Klein, 2017). Moreover, different studies have been conducted to identify the factors that directly and indirectly link empathy and prosocial behaviors to aggression, especially in young children (Spataro et al., 2020). Numerous factors influencing the relationship between family characteristics and the delivery of prosocial behaviors have been linked to behavioral and developmental psychology. Regardless of whether prosocial behaviors are related to others or not, understanding how individuals who tend to do good with others by compromising their own interests perform their behaviors is another important aspect of prosocial behaviors (Kuhlmeier et al., 2014). In recent years, research on the development of positive social behaviors during childhood and adolescence has become a growing area of research in the social sciences (Gómez, 2019). In this field, there is a particular interest in analyzing the impact of social learning, socio-emotional and moral development on prosocial modeling, socialization, self-control and psychological adjustment processes (Carlo et al., 2007; Richaud & Mesurado, 2016). The treatment of prosocial behavior as a field of psychological inquiry reflects a shift in perspective in the psychosocial sciences, in contrast to the prominence of traditionally studied violent behavior in psychosocial research and interventions (Gómez & Narváez, 2018). The interest in this psychological concept reflects a shift in perspective in the social sciences that focuses on human potential rather than deficiency or illness (Gómez & Durán, 2021). In this context, prosocial behaviors have been examined from many aspects. However, it is important to reveal the current status of the studies in the context of adolescents and to make predictions for future studies. In order to do this, it is necessary to examine the keywords, concepts and sources used in related research (Pring, 2013). Therefore, bibliometric analysis was utilized in this study.

Bibliometric analysis can be done by collecting bibliographic data of a specific field in which scholars communicate their thoughts through quotations or writings (Zupic & Cater, 2015). Bibliometric analysis is believed to be helpful in analyzing the field of interest and providing insights to future researchers (Khudzari et al., 2018). It also focuses on the performance of publications in specific fields and explains the dynamics of the fields, which is why it differs from a review article (Cobo et al., 2011). In recent years, many researchers have been using various knowledge mapping tools to analyze the development trends and evolution processes of many disciplines. CiteSpace and VOSviewer are the two main visualization tools used in bibliometric research and other graphic science or scientific discipline research, both of which can create visualizations by directly importing data from Web of Science and other bibliometric databases (Song et al., 2020). Therefore, this study uses VOSviewer software to analyze citations, collaborative citations, and the most common author keywords in articles (Hwang and Tu, 2021). VOSviewer is a computer program that can create and view bibliometric maps.

This software, developed by Van Eck and Waltman (2010), is often used to create literature maps and co-author relationships, perform collaborative citation analysis and literature matching analysis. Unlike most computer programs for bibliometrics, VOSviewer pays special attention to the graphical representation of bibliometrics and plays an important role in the field of large bibliometric maps due to easy interpretation (van Eck and Waltman, 2010). More importantly, VOSviewer can perform text mining and build a network of important terms in the

literature (Flis and van Eck, 2018), playing an indispensable role especially for exploring literature reviews over time. For this reason, it has been widely used in bibliometric studies in various fields over the last decade.

The main problem statement of the research: "What is the bibliometric distribution of prosocial behaviors in adolescence?" In this study, answers to the following research questions were sought for a more detailed examination of the studies on prosocial behaviors in adolescence:

- What is the distribution of publications in the relevant field by journal and year of publication?

- Which are the most cited publications in the relevant publications?

- What kind of cooperation structure exists between institutions?

- What is the structure of the authors' co-citation?

- What is the structure of the common word?

1. Methodology:

The research model is bibliometrics. In this context, the relevant literature was analyzed bibliometrically. All articles in this study were obtained from Science Citation Index (SCI), Science Citation Index-Expanded (SCI-E), Social Science Citation Index (SSCI), Arts & Humanities Citation Index (AHCI) and Emerging Sources Citation Index (ESCI) databases from the Web of Science (WOS) platform created by the Institute for Scientific Information. This platform provides high-quality literature datasets and is often used in science measurement research and scientific surveys of the literature (Su et al., 2020; Tang et al., 2021).

1.1. Data Collection:

In this study, Web of Science (WoS) database platform was used as the source of the analysis data. On July 24, 2023, the search format from the Web of Science database was All Fields = ["Prosocial*" AND "Adoles*"]. The use of "*" (asterisk) in the search word of the study means that it should include all the word suffixes to be used after this word. Without time limitation (1976-2023), 4318 studies were accessed. It was assumed that the studies were related to adolescents' prosocial behaviors. In addition, since the number of studies that may be unrelated may be small and the results will not affect the general result of the bibliometric analysis, it can be seen as a limitation that not all studies were examined one by one in terms of suitability. However, since the data will only be drawn from journals indexed in SCI, SCI-E, SSCI, AHCI and ESCI indexes, 81 studies were excluded from the total data set by filtering books, book chapters, conference papers and editorials, and a data set including 4237 studies in total was created. The basic data filtering process is shown in Figure 1.
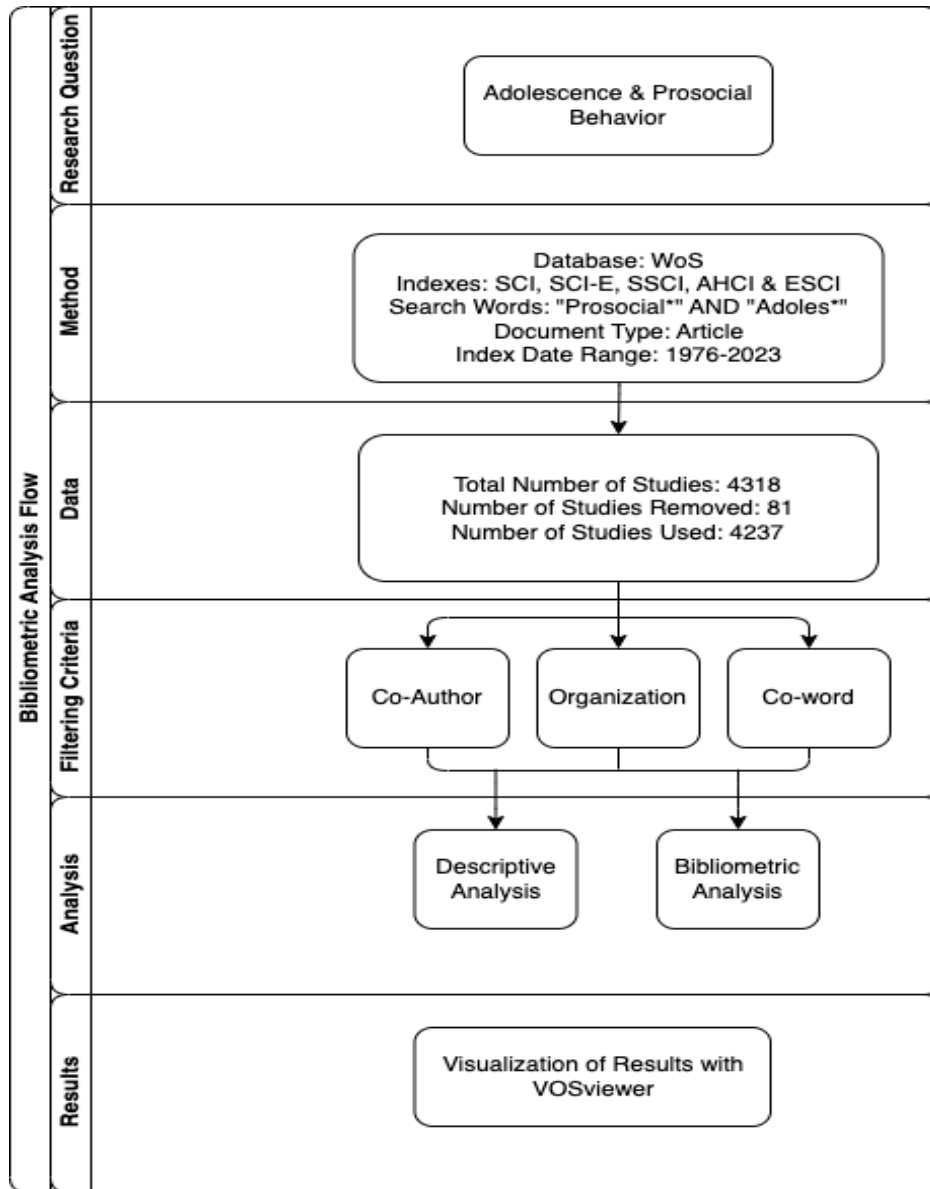
Figure 1. Data Filtering Process

1.2. Data Analysis:

While analyzing the data, some information about the studies obtained with descriptive statistics is given first. The descriptive analyzes were obtained through the WoS system. VOSviewer program was used for bibliometric analysis. The data of 4237 studies downloaded from WoS were uploaded to the VOSviewer program and the analysis was completed.

2. Findings:

2.1. Descriptive Findings:

When the studies are analyzed, the first studies in which prosocial and adolescence periods are mentioned together start in 1976. Until 1992, the number of citations and publications were around 1, but after 1992, both the number of citations and publications started to increase cumulatively. Figure 2 shows the graph showing the increase in both the number of citations and the number of publications.
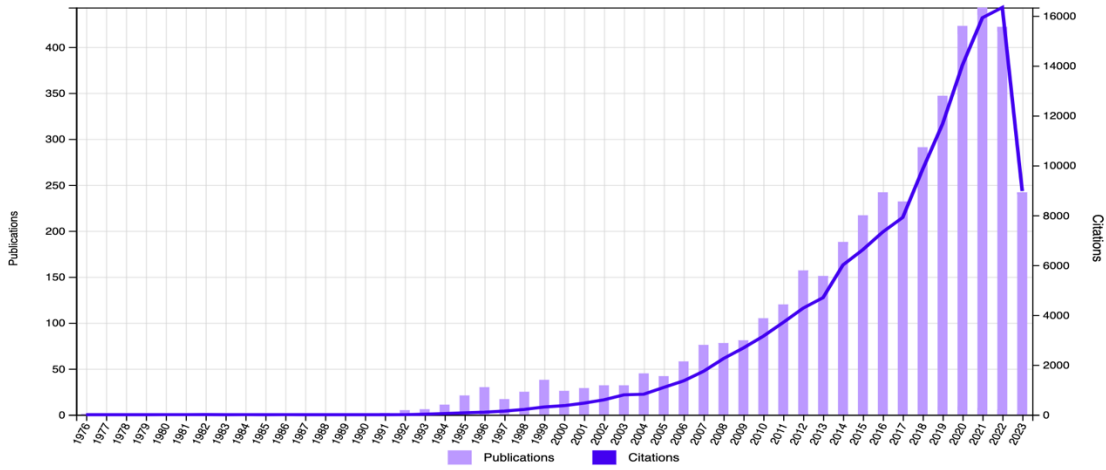
Figure 2. Number of Citations and Publications by Years

When the publications are analyzed, it is seen that after 2019, more than 400 publications were made annually. Citations are increasing in a similar way and it was determined that more than 14,000 citations were made in the last three years. It was concluded that 133,574 citations were made to 4237 studies, of which 17,326 citations were self-citations. When the H-Index of the studies was analyzed, it was found to be 143. In other words, at least 143 studies were cited 143 times.

When the top 25 of the journals with the highest number of publications on prosocial and adolescence were analyzed, it was seen that "Journal of Youth and Adolescence" had the highest number of publications with 137 studies. It was found that the journal was in the Q1 quartile in SSCI and the first publication date started in 1972. Figure 3 shows the names and publication numbers of the 25 journals with the highest number of publications on prosocial and adolescent issues.

Figure 3. Journals and Number of Publications

The first two journals are in the Q1 quartile and there is a rapid decline in the number of publications of the journals after the 2nd journal, but after the 3rd journal, the number of publications generally decreases by 10 by 10 and after the 40s, it decreases more steadily.

The 20 most cited studies were analyzed. In this context, Robert Goodman has the first two ranked studies. One of the reasons for this may be that he is the person who developed measurement tools including prosocial behaviors in adolescence. Table 1 presents the titles of the related studies.

Table 1: The 20 Most Cited Studies

Title	Author(s)	Year	Journal	Citiation
The strengths and difficulties questionnaire: A research note	Goodman, R	1997	Journal of Child Psychology and Psychiatry and Allied Disciplines	8898
Psychometric properties of the strengths and difficulties questionnaire	Goodman, R	2001	Journal of the American Academy of Child and Adolescent Psychiatry	4343
Emotion, regulation, and moral development	Eisenberg, N	2000	Annual Review of Psychology	1341
Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment	Card, Noel A. et al.	2008	Child Development	1161
A family process model of economic hardship and adjustment of early adolescent boys	Conger, RD et al.	1992	Child Development	1082
Comparing the strengths and difficulties questionnaire and the child behavior checklist: Is small beautiful?	Goodman, R & Scott, S	1999	Journal of Abnormal Child Psychology	1034
Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters?	Eccles, JS & Barber, BL	1999	Journal of Adolescent Research	830
Dispositional emotionality and regulation: Their role in predicting quality of social functioning	Eisenberg, N et al.	2000	Journal of Personality and Social Psychology	769
Social relationships and motivation in middle school: The role of parents, teachers, and peers	Wentzel, KR	1998	Journal of Educational Psychology	766
The Strengths and Difficulties Questionnaire (SDQ) - Further evidence for its reliability and validity in a community sample of Dutch children and adolescents	Muris, P et al.	2003	European Child & Adolescent Psychiatry	583
Treating children with early-onset conduct problems: Intervention outcomes for parent, child, and teacher training	Webster-Stratton, C et al.	2004	Journal of Clinical Child and Adolescent Psychology	544
Disentangling the whys from the whats of aggressive behaviour	Little, TD et al.	2003	International Journal of Behavioral Development	543
Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning	Bandura, A et al.	2003	Child Development	541
Children, Adolescents, and the Media	Strasburger, Victor C et al.	2013	Pediatrics	482
Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness	Jones, Damon E. et al.	2015	American Journal of Public Health	478
Prosocial foundations of children's academic achievement	Caprara, GV et al.	2000	Psychological Science	478
Heterogeneity of popular boys: Antisocial and prosocial configurations	Rodkin, PC et al.	2000	Developmental Psychology	477
The development of a measure of prosocial behaviors for late adolescents	Carlo, G & Randall, BA	2002	Journal of Youth and Adolescence	461
Perceived discrimination and the adjustment of African American youths: A five-year longitudinal analysis with contextual moderation effects	Brody, Gene H. et al.	2006	Child Development	452
What adolescents learn in organized youth activities: A survey of self-reported developmental experiences	Hansen, DM et al.	2003	Journal of Research on Adolescence	451

When the 20 most cited studies in Table 1 are analyzed, it is seen that the first six studies received more than 1000 citations. It is seen that not all of the studies focus only on prosocial behaviors in adolescence. In this context, it is seen that the studies also used the variables affecting adolescence and prosocial behavior. It is seen that the majority of the studies are from the field of Psychology.

When the 25 authors with the most publications on adolescence and prosocial behaviors are examined, Gustavo Carlo ranks first with 107 studies. When the next rankings were examined, it was determined that Laura Padilla-Walker was the first with 54 studies. The number of studies of the top 25 authors is presented in Figure 4.

Figure 4. Authors and Number of Publications

Finally, when the 25 institutions with the highest number of publications are analyzed, the University of California ranks first with 171 studies. This is followed by the University of London with 137 studies. The number of studies of the top 25 institutions is given in Figure 5.
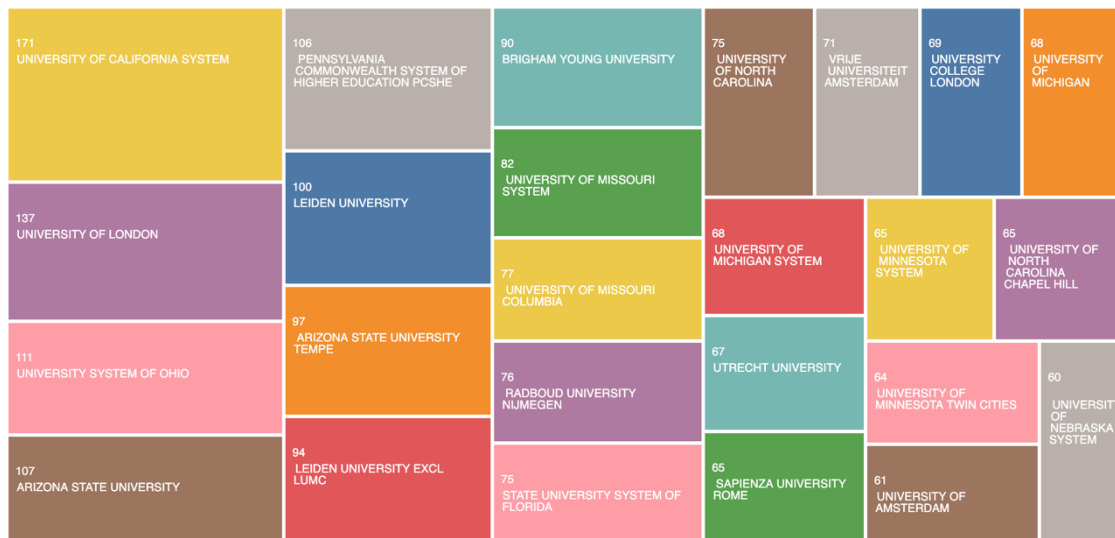

Figure 5. Institutions and Number of Publications

2.2. VOSviewer Findings:

When a co-authorship analysis was conducted based on institutional relationships as shown in Figure 6, it was observed that there were a total of 3003 institutions. However, when a restriction was applied, requiring at least 20 publications from one institution and at least 50 citations from the studies, it was found that 81 studies met the criteria.
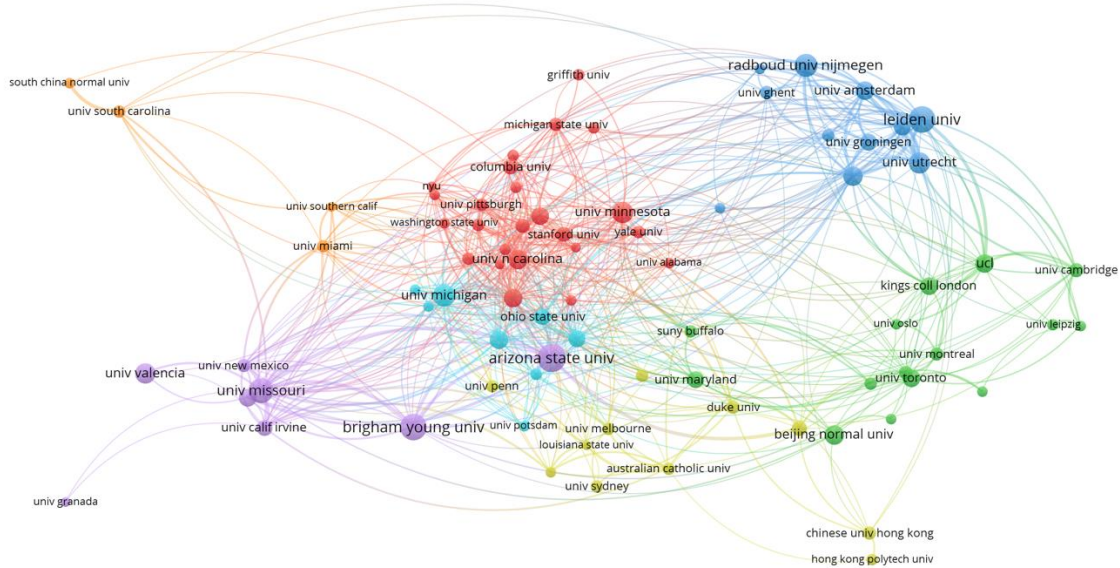

Figure 6. Institution Based Co-Author Analysis

When the inter-institutional relations are analyzed, it is found that the strongest ties are at the University of Missouri with 107 link strengths and Leiden University with 97 link strengths. It is concluded that these connections are from the Netherlands and the USA. It is seen that 7 different clusters are formed in total. Hacettepe University was found to have a connection from Turkey.

When the co-citation analysis of the publications included in the study was performed, it was found that 11,985 authors were cited. When the criterion of having at least 10 studies and over 100 citations was selected, it was seen that there were 60 authors.
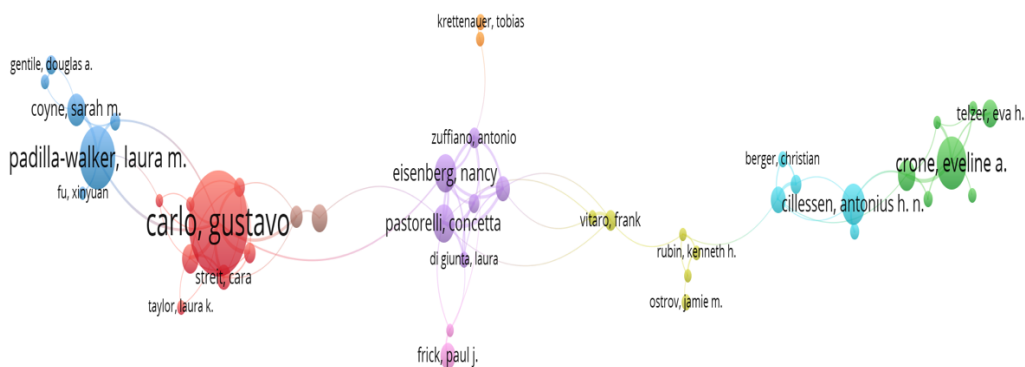

Figure 7. Co-Citation Author Analysis

When the co-citation analysis in Figure 7 is analyzed, it is determined that the highest link strength of Gustavo Carlo is 94. The following author's link strength was found to be 64. When the co-cited authors were analyzed, it was seen that Nancy Eisenberg, Laura Padilla-Walker and Gustavo Carlo were cited together. Accordingly, these three authors have the most publications and the most citations together. Other authors were found to form smaller clusters.

When the citation analysis of the publications included in the study was performed, it was seen that there were 90 studies in 4237 publications when the criterion of at least 200 citations was selected. When the authors of the studies were analyzed, 35 studies were excluded from the analysis due to their low link strength. Figure 8 shows the analysis of the most cited authors.
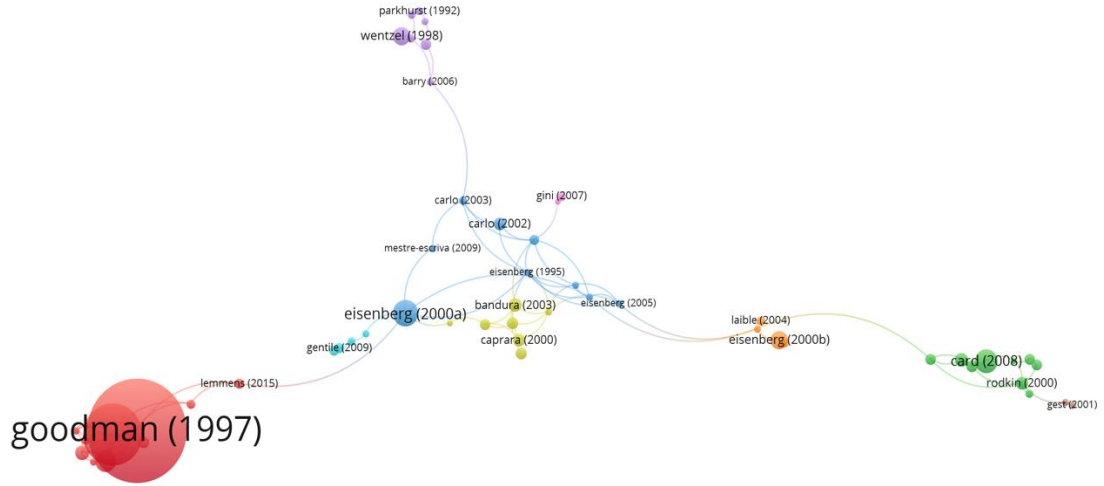

Figure 8. Author Citation Analysis

Accordingly, Robert Goodman has the highest link strength with 10 link strengths. After him, Nancy Eisenberg was observed. Accordingly, these two authors have the highest number of citations in 4237 publications. It was also seen that 11 clusters occurred in total.

By conducting a common word analysis, the most common keywords used in the studies were identified. The results obtained accordingly are analyzed in Figure 9.
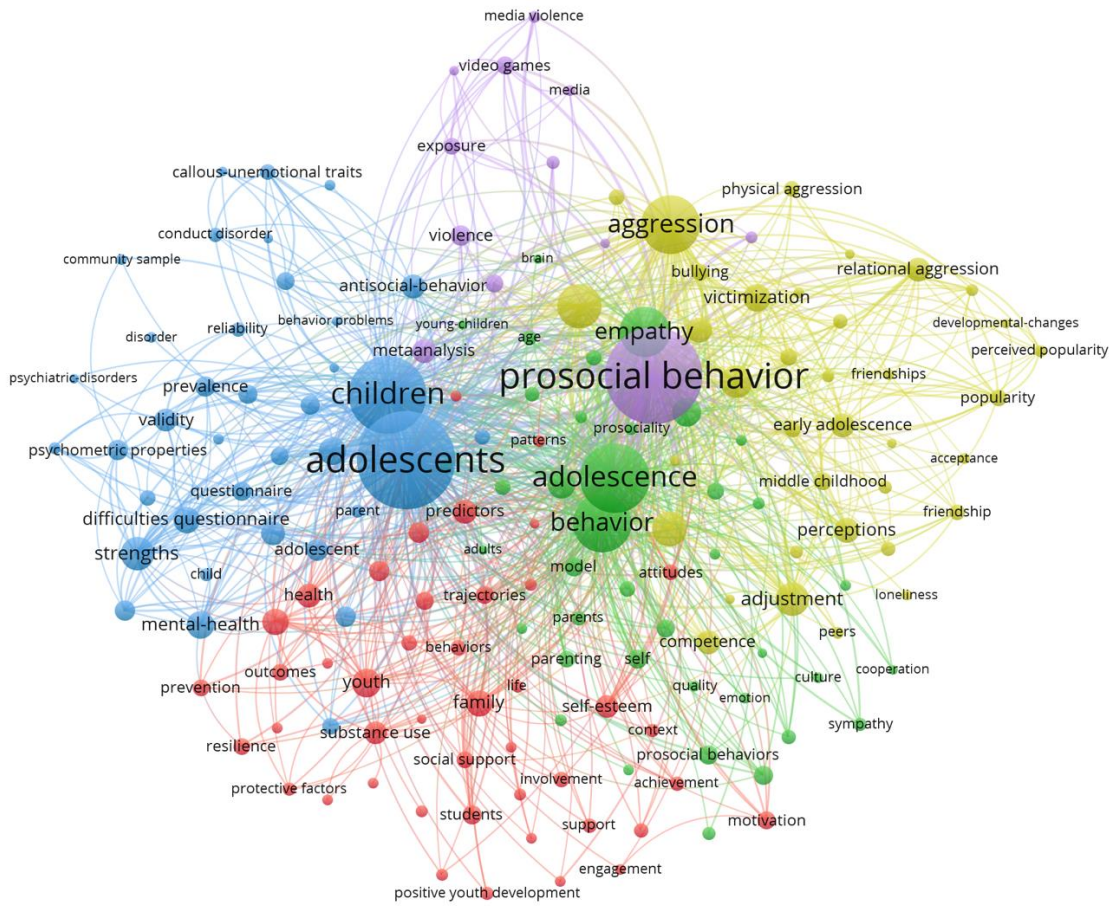
Figure 9. Common Word Analysis

Figure 9 shows that there are 10,417 words used in publications. For the estimation point, a limitation was made with the studies in which at least 50 words were used in common and it was found that 168 studies used common words. The 5 most commonly used words were Prosocial Behavior (6424), Adolescents (6010), Children (4873), Adolescence (4188) and Aggression (3779). In total, it was determined that 44 different clusters were formed. Among the words, aggression (anger) stands out. Because when the related literature is examined, it is seen that anger control can affect prosocial behaviors. In addition, it was also found that another word was empathy. Because it is important to have developed empathy skills in order for prosocial behaviors to take place. When evaluated in this context, it is seen that the common words are related to each other on a theoretical basis.

3. Conclusion and Recommendations:

In the context of declining global fertility rates, studies have found less prosocial behavior in children and adolescents (Brooks et al., 2021). As a result, the number of children and adolescents with social problems, such as children's antisocial behavior, youth addictive behavior, and crimes that cause great harm to themselves, others, and social stability, has increased considerably (Caprara et al., 2014; Airaksinen et al., 2016). Methods to improve the prosocial behavior of children and adolescents have become an urgent issue for psychologists and educators (Carlo & Padilla-Walker, 2020). Therefore, the continuous development of social cognition and emotional regulation, changes in familial, relational, and educational processes are important to expand the study of prosocial behavior, with a greater focus on adolescence (El

Mallah, 2020). Therefore, by conducting this study, a general picture of related studies was drawn.

Over the last four decades, there has been an increase in research revealing the positive effects of prosociality on social-psychological adjustment outcomes and subsequent success (Caprara et al., 2000; Layous et al., 2012; Weinstein & Ryan, 2010). However, a review of common measurement practices, as well as the relatively limited assessment of psychometric properties on existing instruments, reveals the potential benefits to be gained by both expanding the range of commonly used methods and considering the integration of innovative, non-traditional approaches.

With this study, a holistic evaluation of the publications on adolescence and prosocial behaviors in WoS was aimed. Although there are review studies on prosocial behaviors in the relevant literature, there is no study that is limited to adolescence, shows the journals and countries that are active in this field, and shows the most cited studies and authors in this field. Therefore, this study reflects the trends on this topic in international citation indexes. In addition, influential researchers working on this topic and their collaborations are presented by visualizing the relationships between them.

Since bibliometric studies are analytical tools, they are very important to show the big picture in subject studies. Thanks to this study, it guides researchers working in the relevant field to scientifically explore phenomena that are recognized but not concretely proven. Since researchers and institutions that are active on the concepts of adolescence and prosociality have been identified, a picture of the research contents and orientations of the researchers has been drawn. Thus, researchers who will work in this field will be able to evaluate the current situation and turn to original research areas. Because the study identifies the articles and authors that shape the field and constitutes the references of these publications. Reference texts are one of the elements that can keep researchers in scientific interaction in interaction (Karagöz & Şeref, 2019). In addition, it will be a reference library for researchers in the field. In this respect, it will be possible to consider the most frequently cited studies and the most frequently cited authors in the studies on adolescence and prosociality.

Regarding adolescence and prosociality, Leiden University from the Netherlands and Missouri University from the USA have the strongest links. When evaluated in this context, it was determined that there were 1904 studies from the USA and 349 studies from the Netherlands. However, although there are 410 studies from China, it is seen that there is not as much connection strength as in the Netherlands. This can be said that the USA and the Netherlands have established links with various countries or various authors more than China. When the University of Missouri is analyzed, it is seen that Gustavo Carlo, who has the most studies, has been working there before. Because when Gustavo Carlo's co-citation analysis was analyzed, it was determined that he had the highest link strength (94). This may be the reason why the University of Missouri is a pioneer in prosocial and adolescence studies.

When the author citation analysis was analyzed, Robert Goodman was found to have the highest link strength. Because "The Strengths and Difficulties Questionnaire" (SDQ) developed by Goodman (1997) is a measurement tool that includes prosocial behaviors. The SDQ is designed as a questionnaire to assess children's overall psychosocial functioning and is used to assess positives (such as prosocial behaviors) and difficulties (such as behavior problems). The fact that it is one of the first instruments in this field and that it is comprehensive may explain its

high number of citations. For this reason, it emerged as the most cited study in the co-author citation analysis. In addition, another name that appears in the research is Gustavo Carlo. When his most cited article was analyzed, it was seen that he developed a tool to measure the prosocial tendencies of adolescents.

In future studies, it is recommended to examine prosocial behaviors bibliometrically by including different age groups. In addition, a meta-analysis of experimental studies of prosocial behaviors or the inclusion of the family can be conducted.

The fact that databases such as YOK Thesis Archive, international databases such as SCOPUS and Pubmed, and sources that have not been circulated online were not included is the most critical limitation of the study. For this reason, it is recommended that the study be extended to other databases by including areas other than WoS.

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