

A bibliometric analysis of emerging adulthood in the context of higher education institutions: A psychological perspectives

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ABSTRACT

In recent years, there has been a rise in studies aimed at better understanding the needs and traits of emerging adults and the role that higher education institutions play in their development and success. Despite the relevance of higher education institutions to the emerging adulthood development, there has been scant work done to synthesise the literature on this topic. A bibliometric method was utilised to retrieve 2484 journal articles from Web of Science (WoS). Utilizing co-citation analysis and co-word analysis, we determined the most influential publications, mapped the knowledge structure, and predicted future trends. The results of the co-citation analysis indicate five clusters, while the co-word analysis indicates four. The results could be used as a roadmap for the future of research on emerging adults by a variety of interested parties, including policymakers, university administrators, funders, and academics.

1. Introduction

Emerging adulthood is a critical period of development and transition for young people, as they leave adolescence and become more independent, establish their identities, and make important decisions about their careers, relationships, and lifestyles (Wood et al., 2018). This stage, typically defined as the period between the ages of 18 and 29, is marked by a range of physical, cognitive, and social changes that can have significant implications for individuals' development and well-being [11]. One important aspect of emerging adulthood is the alignment of individual values and capabilities with the broader social context, including a focus on education for development and sustainable development [34]. Higher education institutions play a significant role in supporting the development and success of emerging adults, particularly in terms of promoting education for development and sustainable development [97]. These institutions have the responsibility to not only equip students with the knowledge and skills necessary for their personal and professional growth, but also to foster a sense of social responsibility [30].

Research on emerging adulthood in the context of higher education has increased significantly in recent years, as researchers and practitioners seek to understand the challenges and opportunities faced by this age group in the postsecondary environment (Murray &

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Arnett, 2019). This research should also address the role of higher education institutions in fostering education for development and sustainable development among emerging adults [16]. Key research areas to explore include the unique developmental, social, and cultural factors that shape the experiences and outcomes of emerging adults in higher education with regard to sustainability; the key challenges and opportunities faced by emerging adults in college in relation to sustainable development; and the strategies for supporting the development and success of emerging adults in higher education with a focus on sustainable development and social responsibility [23,25,27,29,36,80]. By identifying these key areas, emerging adult research in higher education can inform the design and delivery of educational programs and support services that meet the unique needs of this important age group, while also promoting sustainable development and social responsibility [12,13,49,74]. Ultimately, this approach will help to create a generation of individuals who are not only well-prepared for their personal and professional lives but are also committed to making a positive impact on society and the environment.

1.1. Literature review

One important reason for conducting research on emerging adulthood in higher education institutions is to better understand the population's unique developmental needs and challenges. Emerging adulthood is marked by a number of developmental tasks and transitions, such as gaining independence, developing a sense of self, and forming intimate relationships [9,73]. The demands and challenges of higher education, such as academic and financial pressures, adjusting to new social environments, and navigating relationships with peers and authority figures, frequently exacerbate these tasks [38,84]. We can better understand the specific challenges faced by this population and identify strategies to support their successful navigation of these tasks and transitions by conducting research on emerging adulthood in higher education institutions.

Examining the effect of higher education on long-term outcomes and well-being is another crucial factor in research on emerging adulthood in higher education institutions. Emerging adulthood is a critical time for laying the groundwork for long-term success and well-being [72]. Higher education has the potential to provide a variety of benefits, such as increased economic opportunities, personal and professional development, and social connectedness [24]. Higher education, on the other hand, can have negative effects on emerging adults, such as increased stress and anxiety [56], or a lack of support and resources to navigate the challenges of this stage of development [72]. We can better understand the long-term outcomes and wellbeing of this population and develop strategies to support their success and wellbeing by researching emerging adulthood in higher education institutions.

Research on emerging adulthood in this context can inform policies and practises within higher education institutions in addition to examining the unique developmental needs and long-term outcomes of emerging adults in higher education. Higher education institutions have a unique opportunity to support the development and well-being of emerging adults through a variety of policies and practises, such as academic and financial assistance, social connectedness and engagement promotion, and mental health and wellness resources [76]. However, research on the effectiveness of these interventions in supporting the development and well-being of emerging adults is lacking [10,33]. We can identify evidence-based interventions and practises that support the growth and wellbeing of this population and provide guidance for policies and practises within higher education institutions by researching emerging adulthood in these institutions.

Additionally, studies of emerging adulthood in higher education settings can advance knowledge of how higher education influences the experiences and outcomes of emerging adults. Higher education is frequently regarded as a critical stepping stone to adult success and well-being [95], and emerging adults are increasingly expected to pursue higher education as a means of achieving these goals [4]. However, the relationship between higher education and emerging adult outcomes is complex and nuanced, and more research is needed to better understand higher education's impact on this population [83]; (Wood et al., 2018).

1.2. Present study

This study seeks to gain a comprehensive understanding of the literature on emerging adulthood in the context of higher education institutions. According to the authors' knowledge, no bibliometric analysis has yet been conducted in this domain. Accordingly, this study placed an emphasis on comprehending the literature on emerging adulthood in higher education institutions through a bibliometric approach. Based on two bibliometric studies, this research fills a gap by giving a lens on past, present, and future research fields.

Consequently, the following study objectives are based on the specific bibliometric analysis.

Table 1

Search string, inclusion, and exclusion criteria.

Wos Database	Social Science Citation Index (SSCI) and Science Citation Index Expanded (SCIE)
Time Period	Up to May 9, 2023
Search field	Topic
Search keywords	("Emerging adult*") AND ("Universit*" OR "higher education institution" OR "institution of higher learning" OR "college*")
Citation Topics Meso	All
Document Type	Article
Languages	English

1. To evaluate notable past research and investigate current trends in emerging adulthood research in higher education using co-citation analysis.
2. To identify emerging trends in emerging adulthood research in the context of higher education by using co-word analysis.

2. Methods

2.1. Search string

The search string applied in this bibliometric analysis is shown in Table 1. The investigation was conducted using the Web of Science (WOS) database’s Topic Search (TS) function, with the search limited to article titles, abstracts, and keywords. The search string for emerging adulthood includes “emerging adult*” while for higher education institutions include “Universit*” OR “higher education institution” OR “institution of higher learning” OR “college*”. All the articles retrieved was from the year 2002 and 2023. The search in the WOS database was conducted on May 9, 2023. The preliminary search returned 2926 publications. Only the article is used to determine the document type. We chose to focus our bibliometric research on articles because they provide the most relevant and reliable literature, since they are the peer-reviewed in their full version [46]. Despite this, the number of publications in the journal is sufficient. Before conducting the bibliometric analysis, all the publications were examined for inconsistencies and duplications to ensure data integrity. The next criterion is that all articles must be written in English to ensure consistency and uniformity. Finally, we only selected the Science Citation Index Expanded (SCIE) and the Social Science Citation Index (SSCI) databases in the Web of Science (WoS) Core Collection. The inclusion and exclusion criteria for this review are detailed in Table 1. According to the inclusion and exclusion criteria, the screening procedure retained 2484 articles.

2.2. Procedures of bibliometric analysis

Bibliometric analysis is a data-driven research method that enables researchers to identify and interpret patterns and trends in scientific literature [64]. It entails employing various statistical techniques to examine the characteristics and patterns of scientific publications, such as co-citation patterns among different authors and journals, and keyword co-occurrence in scientific articles. Bibliometric analysis can identify research gaps that must be filled as well as the most promising areas for future research [39].

Co-citation analysis involves the examination of co-citation patterns among various authors and journals [100]. [99] defines co-citation as the citation of two or more documents in the same context. Co-citation analysis begins with the collection of bibliographic data from various sources, such as databases, journals, and books. The data is then analyzed to determine how many times two or more scholarly works have been cited in conjunction. The information is then used to build a co-citation network, which is a measure of the connections between scholarly works [69].

Another bibliometric analysis procedure that identifies relationships between keywords and phrases in the literature is co-occurrence keyword analysis [89]. Co-word analysis, as defined by Ref. [26]; is a method for determining the relationships between the keywords used in a set of documents. It can be used to evaluate the quality and validity of scientific research, because articles

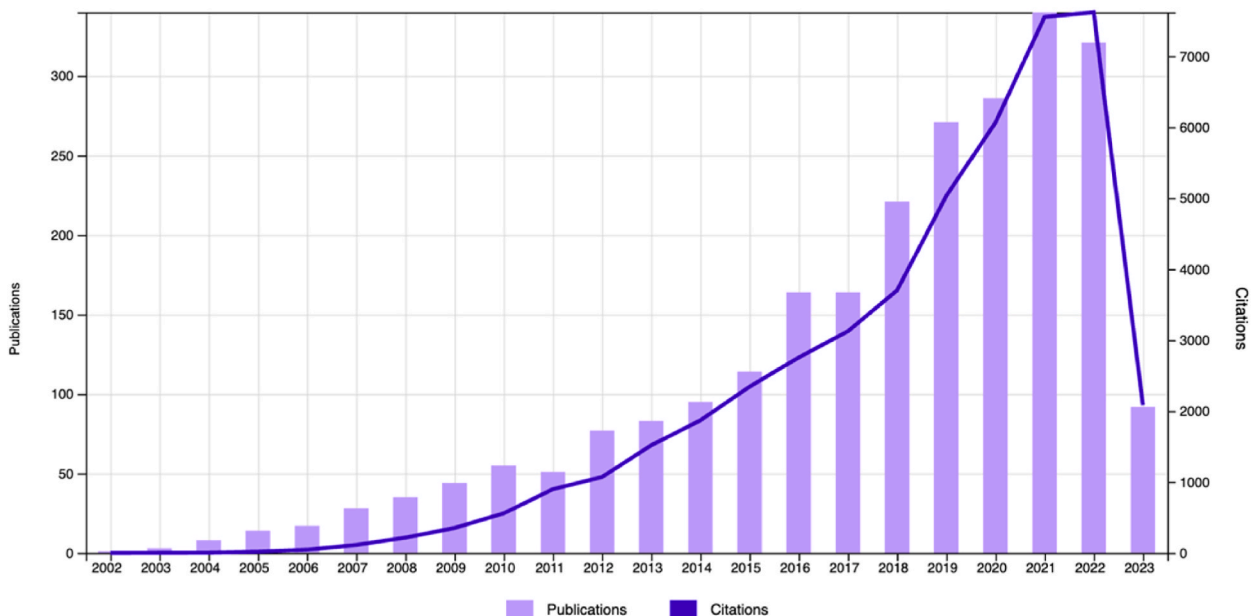


Fig. 1. Quantity of publications and citations between 2002 and 2023.

with keywords that frequently co-occur with other keywords are generally thought to be more influential and impactful [103]. The strength of co-word analysis is that it can predict future trends by producing the meaning of a field structure [19].

However, there are several limitations to bibliometric analysis that must be considered when employing these procedures. According to Ref. [69]; bibliometric analysis can be biased toward specific languages, disciplines, or geographical regions because it is dependent on the availability of scientific literature in a specific database. It is also influenced by the use of various citation styles and practises, as well as the inclusion or exclusion of specific types of publications, such as conference proceedings or grey literature. Despite these limitations, bibliometric analysis can be a useful tool for researchers in assessing the impact and influence of scientific research, as well as identifying emerging research trends and key players in a specific field. Bibliometric analysis, according to Ref. [89]; can be used in conjunction with other research methods, such as qualitative analysis or expert interviews, to provide a more comprehensive understanding of a specific topic or issue.

3. Result and discussion

3.1. Trends in publication and descriptive analysis

According to the WOS database, these papers ($N = 2484$) were cited 46,920 times, with 42,347 times without self-citations. With an H-index of 88, the average number of citations per item was 18.89. These 2484 papers demonstrate a rising tide of interest in the topic of emerging adulthood among academics in higher education institutions. The first publication appeared in 2002 and since then the publication has grown exponentially with a total of 340 publications in 2021, and a slight decrease in 2022 with 321 publications. The quantity of scholarly works devoted to the study of emerging adulthood in higher education institutions is expected to rise in the years ahead. The quantity of articles published and their corresponding citation counts from 2002 through 2023 are shown in Fig. 1.

3.2. Co-citation analysis

The co-citation analysis threshold citation was set at 45, bringing the total number of cited references to 60. Fig. 2 depicts a network analysis of emerging adulthood in higher education institutions based on the cited references. Table 2 displays the top ten highest co-cited total link strength. The top three cited works are [4] (1158 citations) [40], (215 citations), and [7] (231 citations).

Based on the co-citation analysis, the following describes each cluster and its label. The clusters represent a collection of items

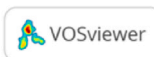
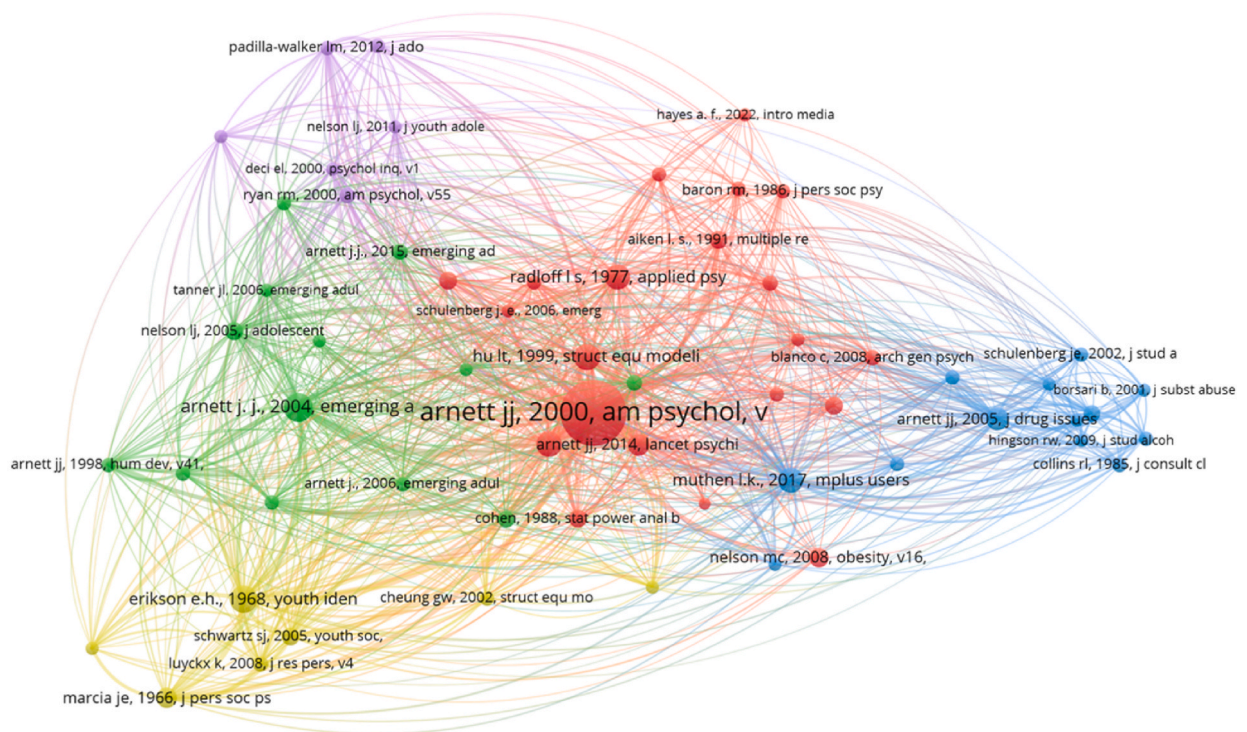


Fig. 2. Co-citation analysis.

Table 2
Top 10 documents with the highest co-citation and total link strength.

Documents	Citation	Total link strength
[4]. Emerging adulthood: A theory of development from the late teens through the twenties. <i>American psychologist</i> , 55 (5), 469.	1158	2639
[40]. <i>Identity youth and crisis</i> (No. 7). WW Norton & company.	215	805
[7]. Emerging adulthood: The winding road from the late teens through the twenties. Oxford University Press.	231	736
[87]. The CES-D scale: A self-report depression scale for research in the general population. <i>Applied psychological measurement</i> , 1 (3), 385–401.	171	594
[53]. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. <i>Structural equation modeling: a multidisciplinary journal</i> , 6 (1), 1–55.	198	544
[75]. (2017). <i>Mplus User's Guide</i> . Muthén & Muthén.	172	540
[9]. Emerging adulthood: What is it, and what is it good for? <i>Child development perspectives</i> , 1 (2), 68–73.	182	499
[67]. Development and validation of ego-identity status. <i>Journal of Personality and Social Psychology</i> , 3 (5), 551–558.	110	452
[8]. The developmental context of substance use in emerging adulthood. <i>Journal of drug issues</i> , 35 (2), 235–254.	139	441
[77]. Distinguishing features of emerging adulthood: The role of self-classification as an adult. <i>Journal of adolescent research</i> , 20 (2), 242–262.	89	392

Source: Author interpretation based on VOSviewer analysis.

related to a single theme. Items that appear in similar themes are clustered together and are denoted by a node of the same colour (McAllister et al., 2022).

- Cluster 1 (red) consist of 21 publication is labelled as “**emerging adulthood and mental health**” [4]. defined emerging adulthood as a distinct developmental stage between adolescence and full-fledged adulthood, typically occurring from the late teens to the twenties. This stage is distinguished by identity exploration, instability, self-focus, and a sense of being in-between [9]. Emerging adults frequently face unique mental health challenges as they navigate this period of transition [15]. According to research, college students and their non-college attending peers have a higher prevalence of mental health issues than other age groups [20, 57]. These issues include depression, anxiety, and low self-esteem [45,101]. Changes in weight-related behaviors [79], decreased life satisfaction [37], and decreased social support [113] are all factors that contribute to these mental health issues. It is critical to address these mental health challenges as emerging adults transition to adulthood in order to promote overall well-being and successful adaptation to adult roles and responsibilities [94]. Understanding emerging adults’ unique experiences and their implications for mental health can help inform prevention, intervention, and treatment strategies for this critical age group.
- Cluster 2 (green) comprises 13 publications labelled as “**emerging adulthood and transitional challenges**”. This cluster highlights research on the concept of “emerging adulthood” and the various challenges and developmental changes faced by individuals during this period of transition. This cluster of publications examines several facets of emerging adulthood, including family relationships and support systems [2], cultural and ethnic differences [6], and the role of college context in development [12]. In addition, they investigate how emerging adults perceive their transition to adulthood [5,77] and the obstacles they face, such as forming romantic relationships [98]. The recognition that emerging adulthood is a crucial turning point in human development is a central theme throughout the cluster [104]. For instance, the transition to university life has been associated with significant developmental changes [60]. In addition, self-identification as an adult [77] and reorienting during this period [104] are deemed necessary for individuals to successfully navigate the challenges of emerging adulthood.
- Cluster 3 (blue) includes 13 publications labelled “**alcohol and substance use in emerging adulthood**”. This cluster examines the role of social influences, developmental transitions, and personal motivations in shaping alcohol and substance use patterns among emerging adults, particularly college students. Peer influences on drinking behaviors [22], the effects of social interaction and role model status on alcohol consumption [31], and the motivations for alcohol use among adolescents [32] are central themes within this cluster. The research also emphasizes the significance of understanding the epidemiology of alcohol and drug use among college students [81], the changes in substance use during the transition to adulthood [109], and the role of protective factors in preventing substance use and problem use in emerging adulthood [102]. In addition, this cluster examines trends in alcohol-related morbidity and mortality among college students in the United States [52].
- Cluster 4 (yellow) comprises of 7 publications is labelled as “**identity formation in emerging adulthood**”. These publications examine the development and exploration of identity during emerging adulthood, focusing on the processes of exploration, commitment, and crisis resolution, as well as the role of personal agency in shaping an individual’s identity during this crucial developmental period [40]. seminal work on identity formation emphasizes identity crisis as a fundamental aspect of adolescent development. He stresses the significance of resolving this crisis in order to attain a coherent sense of self [67,68]. extends Erikson’s work by introducing the concept of ego-identity status, which classifies the identity development of adolescents into four statuses based on their levels of commitment and exploration [66]. contribute to this body of knowledge by extending Marcia’s four-dimensional model to include ruminative exploration. They highlight the importance of considering both adaptive and maladaptive identity formation explorations [96]. introduce the concepts of identity and agency in emerging adulthood and describe two developmental pathways in the process of individualization. They emphasize the significance of personal agency in identity formation and the transition to adulthood.
- Cluster 5 (purple) comprises of 6 publications is labelled as “**parental control and emerging adult well-being**”. The publications focus on parental control and its effect on the well-being and development of adolescents and young adults [18]. reintroduced the

notion of parental psychological control and emphasized the significance of studying this understudied aspect of parenting [78]. examined parenting in emerging adulthood and identified clusters of parenting styles and their associated variables [82]. refined the concept of parental control by defining helicopter parenting as a distinct construct characterized by excessive involvement and control in the lives of emerging adult children [90]. focused on the facilitation of intrinsic motivation, social development, and well-being via the self-determination theory, which resonates with the study of parental control and its effects on emerging adults. Last but not least [92], investigated the impact of helicopter parenting on the well-being of college students, shedding light on the consequences of this form of parental control.

The co-citation analysis summary, which includes cluster label, number of articles, and representative publication, is shown in Table 3.

4. Co-word analysis

A total of 74 keywords were found from a minimum of 60 occurrences. The co-word analysis revealed that ‘emerging adulthood’ was the most frequently occurring keyword (1057 occurrences), followed by college-students (528 occurrences) and ‘emerging adults’ (505 occurrences). Table 4 shows the top 15 co-word analysis keywords. As a result, Fig. 3 depicts the network structure of keyword co-occurrence. There are five identifiable clusters in the figure. All can be inferred to be closely related. Based on each cluster, the following were further discussed and elaborated.

- Cluster 1 (Red): This cluster is made up of 19 keywords titled “**college binge drinking: patterns, predictors, and consequences**”. The phenomenon of binge drinking among college students is multifaceted and requires additional research to understand its patterns, predictors, and consequences. Students frequently engage in binge drinking in this age group of emerging adulthood [35]. Some students increase their alcohol consumption during their college years, while others maintain a moderate level [106]. Developing targeted interventions to reduce the harmful effects of excessive alcohol use requires identifying the predictors of these distinct patterns [55]. Peer influence, family history, mental health problems, and socio-cultural norms may be risk factors [1,21,48]. Academic performance, social relationships, mental health, and long-term physical health are all negatively affected by binge drinking [47,108]. Understanding the complexities of binge drinking in college will aid in the development of effective prevention strategies and support systems to mitigate the negative effects on young adults.
- Cluster 2 (green): This cluster contains 19 keywords titled “**university adjustment**”. First-year university students face a significant transition as they move from high school to university during the crucial phase of emerging adulthood [61,86]. This period is characterized by the development of their identity, personality, and perception of life, as they explore new associations and attachments [59,105]. The well-being and satisfaction of college students are directly influenced by the support networks they receive from their peers, families, and educational institutions [70,71]. As young adults navigate this complex and transformative phase, it becomes crucial to comprehend the role of effective adjustment strategies. By fostering a sense of self and cultivating resilience, students can successfully embrace the challenges and opportunities of their university experience, resulting in a more stable and satisfying life [51,65]. Universities can improve students’ overall well-being by emphasizing supportive environments and student-centered interventions, paving the way for a smooth transition into adulthood.
- Cluster 3 (Blue): This cluster consists of 12 keywords titled “**mental health disparities and coping mechanisms**”. This cluster examines the prevalence and impact of mental health issues such as anxiety, depression, and stress, with a focus on gender differences, self-esteem, and social support [41]. Mental health is a growing concern in modern society, with symptoms manifesting in various ways and affecting individuals differently. Men and women experience unique stressors and societal expectations that impact their overall well-being [63,85,107]. Individuals with low self-esteem are more susceptible to developing anxiety and depression [42,112], making self-esteem an additional important factor. Social support is essential for mitigating the effects of mental health problems, as it provides individuals with a network of emotional, informational, and practical assistance to manage stressors and symptoms [54,62]. Understanding these dynamics can facilitate the creation of targeted interventions and the development of effective strategies for promoting mental health and resiliency in diverse populations.
- Cluster 4 (Yellow): This cluster contains 10 keywords titled “**youth and family dynamics**”. This cluster focuses on the interplay of multiple factors influencing the growth, development, and well-being of young people within the family context. This cluster investigates the influence of diverse experiences, attitudes, and behaviors on adolescents and children, with a focus on the roles of gender and family dynamics in shaping their health and overall development [28]. This cluster seeks to comprehend how the attitudes and behaviors of family members can influence the experiences of youth and children, both positively and negatively

Table 3

Co-citation clusters on emerging adulthood in higher education institutions.

Cluster	Cluster label	Number of articles	Representative publications
1 (red)	Emerging adulthood and mental health	21	[4,9,15,20,37,45,57,79,94,101,113].
2 (Green)	Emerging adulthood and transitional challenges	13	[2,5,6,12,60,77,98,104].
3 (Blue)	Alcohol and substance use in emerging adulthood	13	[22,31,32,52,81,91,102,109].
4 (yellow)	Identity formation in emerging adulthood	7	[40,66–68,96]
5 (Purple)	Parental control and emerging adult well-being	6	[18,78,82,90,92]

Table 5
Co-word analysis on emerging adulthood in HEIs.

Cluster No and colour	Cluster label	Number of keywords	Representative Keywords
1 (red)	College binge drinking: Patterns, predictors, and consequences	19	Alcohol-use, binge drinking, college students, consumption, emerging adults, risk, substance use, trajectories, predictors, consequences, patterns
2 (green)	University adjustment	19	Adjustment, associations, attachment, college, emerging adulthood, identity, life, perceptions, personality, satisfaction, self, students, support, transition, university, well-being
3 (blue)	Mental health disparities and coping mechanisms	12	Anxiety, depression, gender-differences, mental health, prevalence, self-esteem, social support, stress, symptoms
4 (yellow)	Youth and family dynamics	10	Adolescents, attitudes, behaviors, children, experiences, family, gender, health, impact, youth.

4.1. Implications

This article reviews the current state of research on emerging adulthood in the context of higher education and offers valuable insight into the nuances of this new and coherent body of work. It provides a comprehensive conceptual map of the field to deepen our knowledge of the interconnections between the most researched topics and the most powerful figures in the field [43]. The article sheds light on the intellectual structure of the emerging adulthood field of study within the context of higher education institutions by means of a systematic bibliographic analysis of co-citations and co-words. By using these findings, scholars can better orientate their work within the field and pinpoint gaps in the current body of knowledge [58]. For instance, further research could expand on the five overarching theme clusters that emerged from a more comprehensive review of specialised literatures to examine key findings and major debates within each theme. Mental health, transitional challenges, alcohol and substance use, identity formation, and parental control are all interconnected and have important theoretical implications.

Alcohol and substance use in university students suggest that specific factors contribute to the development of substance abuse in this population, including social influences, developmental transitions, and personal motivations. This underscores the importance of future research into these risk factors to prevent and intervene in alcohol and substance abuse among university students. Recognizing the significance of exploration, commitment, and crisis resolution in identity formation during the transition to adulthood is essential. As first-year university students navigate the complexities of emerging adulthood, it is vital to understand the role of personal agency and effective adjustment strategies in shaping their self-identity. By fostering supportive environments and student-centered interventions, universities can contribute to a more stable and satisfying transition into adulthood for their students. Furthermore, understanding the intricate dynamics of mental health in emerging adults, including the role of gender differences, self-esteem, and social support, is crucial for early intervention and prevention. By comprehending the complex factors contributing to mental health issues, researchers and practitioners can develop targeted strategies to promote mental well-being and resilience in diverse populations, ultimately reducing the long-term negative outcomes associated with untreated mental health concerns. Parenting control highlights the importance of understanding the impact of parenting on the mental health and self-identity of emerging adults. Comprehending how individuals navigate the challenges and opportunities presented by parental control and its effect on the well-being and development of adolescents and young adults, as well as how this process influences their growth and sense of self, is essential.

4.2. Limitations and conclusion

While this review paper does much to shed light on the burgeoning field of research on emerging adulthood in the context of higher education, it is not without its foibles. The practise of conducting systematic literature reviews utilizing bibliometrics is widely accepted in other fields, such as higher education [44], but it is just starting to gain traction in psychology. This review of the literature only includes WoS-indexed sources; any potentially relevant publications that were not WoS-indexed were omitted. It is also essential to acknowledge the constraints of the search string and inclusion/exclusion criteria with the key term. To make the results easier to interpret, publications that were not indexed by SSCI and SCIE, were not written in English, and were not articles were excluded from the analysis. The interpretability of the authors' inductive reasoning determines the subjectivity of classifying the research theme. Depending on how these results are interpreted, one might arrive at a different conclusion regarding the study's main finding. Additionally, due to the search being conducted on May 9, 2023, the dataset may not comprehensively cover articles published in 2022 and 2023. This limitation could result in an incomplete understanding of the most recent trends and findings in the research area.

This bibliometric study provides a unique and valuable new angle on the topic of emerging adulthood in the context of higher education institutions. This research uses co-citation and co-word analysis to survey scholarly articles on emerging adulthood in the context of higher education institutions; map the network of this particular topic; and forecast future developments in this field. There was a total of 2484 publications retrieved from the WoS database. An increasing body of research has been conducted on the topic since 2002, and this trend is expected to continue in the years to come, making the topic increasingly relevant to higher education institutions. As a result, the co-citation analysis yields five research themes, whereas the co-word analysis yields four themes related to emerging adulthood in higher education institutions.

Author contribution statement

Walton Wider: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Muhammad Ashraf Fauzi: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Su Wan Gan: Chin Choo Yap: Mohd Wafiy Akmal Bin Ahmad Khadri: Siti Sarah Maidin: Analyzed and interpreted the data; Wrote the paper.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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