Looking at the Spread of Precarious Employment Researches: A Literature Review

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Abstract
The globalization of economies has given rise to dynamic shifts like employment, with precarious work becoming a predominant feature across various industries. This research article investigates the landscape of precarious employment studies, employing the innovative VOS Viewer for a comprehensive literature review. The study aims to map the intricate network of research articles, identifying key themes, prolific authors, and emerging trends in the discourse surrounding precarious employment. By harnessing the power of data visualization, this research sheds light on the interconnectedness of scholarly works, offering valuable insights into the evolution and diffusion of knowledge in the field. Review of literature utilizing software tools like VOS Viewer can aid researchers in delineating current global research trends and pinpointing existing gaps in studies. Moreover, concerning precarious employment research, the keyword “precarious employment” is intricately connected to terms like Covid-19, climate change, gender, poverty, and mental health. The prominence of these keywords in visualizations suggests a significant volume of research exploring their correlations with precarious employment. Consequently, there is room for in-depth exploration in areas beyond these subjects. Shifting the focus to the Indonesian scenario, precarious employment research is linked to keywords such as commodification, COVID-19, and community resilience. This implies the existence of multiple research gaps in the Indonesian context, offering opportunities for further investigation by researchers interested in delving into precarious employment in Indonesia.

Keywords: Literature Review, Precarious Employment, VOS Viewer

Introduction
In the dynamic landscape of contemporary labor markets, the rise of precarious employment has become a defining feature, reshaping the traditional employment paradigm.1 Precarious employment refers to work arrangements marked by uncertainty, instability, and a lack of employment protections. This phenomena encompass various forms of non-standard employment, including temporary contracts, part-time work, gig economy positions, and freelance engagements.

Citing the Syndicat European Trade Union Confederation (2024), it is mentioned that young individuals are significantly more prone to engaging in precarious employment compared to their older counterparts. The prevalence of fixed-term contracts has notably surged among the youth, encompassing 43.3% of individuals aged 15 to 24 in 2015, a stark contrast to the 14.1% figure for all workers. This trend is particularly pronounced in specific countries, with rates reaching

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Looking at the Spread of Precarious Employment Researches

75% in Slovenia, 73% in Poland, 70% in Spain, 67% in Portugal, and 53% in the Netherlands. Alarmingly, a considerable portion of these young workers, such as 78% in Spain and 82% in Cyprus, find themselves unable to secure permanent employment. For many young individuals in these nations, the prevalence of fixed-term contracts has become a common, yet undesirable, aspect of their employment experience. Part-time employment also constitutes a substantial portion of the labor market for individuals aged 15-24 across the EU, accounting for 32% in 2015. Notably, this figure is markedly higher in certain countries, such as 80% in the Netherlands, 49% in Sweden, 38% in Spain, and 29% in Italy. While part-time work may be suitable for those still in education, a significant proportion desires full-time employment. In Italy, 84% of young part-time workers aspire to secure a full-time job, and in Spain, 54% are only working part-time due to the unavailability of full-time positions. Official statistics often fail to capture various other forms of precarious work. In the UK, for instance, 8% of workers in the 15-24 age group are on 'zero-hours' contracts, leaving them without any guarantee of paid work and placing them in a vulnerable bargaining position. Additionally, certain countries witness the growth of practices like bogus self-employment or the use of commercial contracts instead of employment contracts, relieving employers of legal obligations such as insurance, holiday entitlements, and employment protection. In Poland, an estimated 13% of workers find themselves in this situation, with a high likelihood that a substantial portion of them are young individuals.²

Table 1. Part-time employees as a percentage of all workers aged 15-24, and percentage of part-time workers who could not get a full-time job, 2008 and 2015

<table>
<thead>
<tr>
<th>Country</th>
<th>All part-time 2008</th>
<th>All part-time 2015</th>
<th>All part-time/ could not get a full-time job</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Union (28 countries)</td>
<td>26.2</td>
<td>32.1</td>
<td>28.0</td>
</tr>
<tr>
<td>Belgium</td>
<td>20.7</td>
<td>27.4</td>
<td>23.5</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3.3</td>
<td>5.7</td>
<td>:</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>5.5</td>
<td>10.8</td>
<td>12.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>57.4</td>
<td>67.0</td>
<td>8.2</td>
</tr>
<tr>
<td>Germany</td>
<td>20.8</td>
<td>23.6</td>
<td>10.1</td>
</tr>
<tr>
<td>Estonia</td>
<td>13.2</td>
<td>22.7</td>
<td>:</td>
</tr>
<tr>
<td>Ireland</td>
<td>26.2</td>
<td>44.5</td>
<td>30.4</td>
</tr>
<tr>
<td>Greece</td>
<td>13.2</td>
<td>23.1</td>
<td>63.9</td>
</tr>
<tr>
<td>Spain</td>
<td>22.9</td>
<td>37.9</td>
<td>54.3</td>
</tr>
<tr>
<td>France</td>
<td>22.7</td>
<td>24.8</td>
<td>55.8</td>
</tr>
<tr>
<td>Croatia</td>
<td>6.7</td>
<td>12.8</td>
<td>24.4</td>
</tr>
<tr>
<td>Italy</td>
<td>20.7</td>
<td>29.5</td>
<td>83.7</td>
</tr>
<tr>
<td>Cyprus</td>
<td>12.1</td>
<td>26.0</td>
<td>69.4</td>
</tr>
<tr>
<td>Latvia</td>
<td>10.1</td>
<td>12.2</td>
<td>:</td>
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<tr>
<td>Lithuania</td>
<td>10.2</td>
<td>11.4</td>
<td>:</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>7.0</td>
<td>28.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Hungary</td>
<td>5.7</td>
<td>6.8</td>
<td>45.4</td>
</tr>
</tbody>
</table>

² [https://www.etuc.org/](https://www.etuc.org/). accessed on January 5, 2024
The surge in precarious employment is intricately linked to broader socio-economic shifts, including globalization, technological advancements, and changes in organizational structures. As businesses seek flexibility and cost-effectiveness, traditional notions of employment security and steady career trajectories have given way to a more fluid and contingent workforce. This transformation has profound implications for workers, influencing their job security, income stability, and overall well-being.

Understanding the multifaceted nature of precarious employment requires a comprehensive exploration that goes beyond surface-level observations. This article seeks to provide an in-depth examination of the complexities surrounding precarious employment, addressing key dimensions such as economic impacts. The economic ramifications of precarious employment extend beyond individual workers to encompass broader societal issues. Job insecurity, wage disparities, and limited access to social benefits can contribute to economic inequalities and hinder overall economic growth. Besides, there are also social consequences. Precarious employment has social implications, affecting the mental health, job satisfaction, and social integration of workers. Examining the social consequences sheds light on the human side of precarious work, emphasizing the importance of well-being in contemporary workplaces. Then, policy challenges, policymakers face the challenge of adapting regulatory frameworks to protect workers in an evolving job market. Balancing the need for flexibility with ensuring fair labor standards poses a delicate policy challenge that requires nuanced solutions. Global Perspectives, precarious employment is a global phenomenon, but its manifestations and impacts vary across different regions and industries. Exploring global perspectives helps uncover common trends and unique challenges faced by workers in diverse contexts.

There were many researches related to the precarious employment, such as Nichols, et al. (2022). The study investigates the involvement of community health workers, particularly Accredited Social Health Activists (ASHAs), in addressing the challenges posed by the COVID-19 pandemic in India. Employing a phenomenological approach, the research concentrates on the personal experiences of participants, predominantly women residing in rural regions of Himachal Pradesh. Telephone interviews form the core of the research methodology, facilitating the establishment of rapport and the acquisition of candid narratives from the participants. The findings indicate that ASHAs responded to the government's call for action with a sense of pride, yet their commitment also stemmed from a fear of disappointing their communities. Dissent surfaced

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Malta</td>
<td>14.1</td>
<td>22.8</td>
<td>18.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>70.9</td>
<td>80.0</td>
<td>9.6</td>
</tr>
<tr>
<td>Austria</td>
<td>18.2</td>
<td>22.7</td>
<td>15.5</td>
</tr>
<tr>
<td>Poland</td>
<td>14.2</td>
<td>14.1</td>
<td>25.6</td>
</tr>
<tr>
<td>Portugal</td>
<td>10.8</td>
<td>22.6</td>
<td>49.3</td>
</tr>
<tr>
<td>Romania</td>
<td>14.7</td>
<td>19.2</td>
<td>74.1</td>
</tr>
<tr>
<td>Slovenia</td>
<td>31.5</td>
<td>41.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Slovakia</td>
<td>3.5</td>
<td>11.8</td>
<td>28.6</td>
</tr>
<tr>
<td>Finland</td>
<td>36.8</td>
<td>41.7</td>
<td>24.9</td>
</tr>
<tr>
<td>Sweden</td>
<td>45.7</td>
<td>49.0</td>
<td>41.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>34.7</td>
<td>37.6</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Source: https://www.etuc.org
Looking at the Spread of Precarious Employment Researches …

concerning the unevenness in the demands placed on them. Furthermore, the article explores the repercussions of employing war-related rhetoric in influencing the morale of ASHAs and underscores the vulnerability of India’s public health system, heavily reliant on ASHA workers with lower incomes. A distinctive contribution of the article lies in delineating how government rhetoric molds ASHAs’ perceptions of their roles and their relationship with the state. Additionally, it examines the impact of employing war metaphors in public addresses and communications related to COVID-19. In summary, the article provides valuable insights into the experiences of community health workers amidst the COVID-19 pandemic in India and emphasizes the necessity of comprehending how government rhetoric influences the morale and actions of these essential workers. Similar researches were conducted in Barcelona¹, in India, and Santiago de Chile². Another study on precarious workers also includes workers in the creative industry, particularly in the film and theater industry in Ghana³. This research describes how these workers struggled amidst Covid-19 by engaging in digitization, diversification, and social engagement. Additionally, there is research on user co-creator labor as well as gamers.

This article aims to contribute to the ongoing discourse on precarious employment by providing a comprehensive background that encapsulates its origins, manifestations, and implications. By investigating the intricacies of this complex phenomenon, we seek to inform researchers, policymakers, and practitioners about the multifaceted nature of precarious employment and stimulate further inquiry into potential solutions and mitigations. Besides, by having the map of researches on precarious employment, this research provided the gaps which can be filled by the next researchers who are interested in this theme.

Method

This research used VOS Viewer as a software tool used in bibliometric analysis to visualize and explore the structure of scientific literature. It helps the researchers gain insights into patterns of publication, citation networks, and collaborations within a specific research field. Some steps used in conducting this research were as follows:

1. Data Collection
   In this step, the researchers gathered relevant bibliographic data and obtained a comprehensive dataset of scholarly articles, including information such as titles, authors, abstracts, keywords, publication years, and citation counts. In this context, the researchers used the “precarious employment” keyword in the https://www.sciencedirect.com/. The data used was from 1987 – 2024.

2. Import Data into VOS Viewer
   In this step, the researchers opened the VOS Viewer application and imported bibliographic data by loading the cleaned dataset into VOS Viewer. The data used were in the form of RIS format.

3. Adjust Parameters

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In this stage, the researchers set analysis parameters, including defined parameters such as the time frame for the analysis, the minimum number of citations for inclusion, and the unit of analysis authors, journals, and keywords.

4. Generate Network Visualization

In the next stage, generating network visualization, the researchers created a network map. VOS Viewer used network visualization techniques to represent relationships between different elements, such as authors, keywords, or publications. Nodes represent these elements, and links between nodes indicate connections.

5. Analyze Metrics and Statistics

In this stage, the researchers utilized bibliometric indicators. VOS Viewer provided various bibliometric indicators, such as centrality and density, to assess the significance of nodes within the network. These metrics can help identify influential authors, key publications, or emerging trends.

By employing VOS Viewer in the literature review research process, researchers can uncover hidden patterns, visualize research landscapes, and make informed decisions about the structure and content of their literature review. The tool enhances the efficiency of identifying seminal works, prominent authors, and research trends within a particular field.

Results and Discussion

VOS Viewer, which stands for Visualizing Scientific Landscapes, plays a crucial role in mapping research by providing a powerful tool for bibliometric analysis and visualization. With the keyword “precarious employment,” a total of 1,837 publications were found spanning from 1999 to 2024. The publications were categorized into various types, including 157 Review articles, 1,566 Research articles, 20 Conference abstracts, 2 Book reviews, 3 Case reports, 5 Correspondence, 2 Data articles, 16 Discussion pieces, 18 Editorials, 8 Mini reviews, 1 News article, 1 Practice guidelines, 26 Short communications, and 12 categorized as Other.


Furthermore, these publications span various subject areas, including 1,018 articles in Social Sciences, 504 in Medicine and Dentistry, 255 in Environmental Science, 235 in Economics, Econometrics and Finance, 221 in Psychology, 148 in Business, Management, and Accounting, 126 in Agricultural and Biological Sciences, 124 in Arts and Humanities, 76 in Nursing and Health Professions, and 66 in Energy.

Next, the results above were sorted with specifications for research articles, social science, in English, and open access. As a result, it was filtered down to 925 publications with the following breakdown: 31 publications in 2024, 236 in 2023, 201 in 2022, 135 in 2021, 79 in 2020, 50 in 2019,
Looking at the Spread of Precarious Employment Researches


Subsequently, the database of the aforementioned 925 publications was input into the VOS Viewer application, and the following Figure 1 illustrates that the keyword “precarious employment” is closely associated with several other keywords, such as Covid-19, climate change, gender, poverty, and mental health. The larger keywords in the visualization indicate that there is a considerable amount of studies or research discussing their correlations with precarious employment.

**Figure 1.** Network Visualisation of Precarious Employment Term

![Network Visualisation of Precarious Employment Term](image1)

**Figure 2.** Overlay Visualisation of Precarious Employment Term

![Overlay Visualisation of Precarious Employment Term](image2)
Figure 2 above illustrates the overlay visualization of the keyword “precarious employment.” Overlay visualization in VOS Viewer is a feature that allows researchers to enhance and customize their network visualizations by incorporating additional information or attributes into the existing network structure. This technique enables a more comprehensive analysis by visually representing diverse aspects of the data within the same network map. The map above displays specific years with trends or dominant research related to precarious employment.

One of the highly dominant and closely related keywords in precarious employment research is the keyword Covid-19. This is because there are several professions classified as vulnerable in precarious employment, such as healthcare workers or part-timers working during the COVID-19 pandemic. The correlation between precarious employment and COVID-19 is multifaceted and has implications for both workers and public health. Precarious employment often involves non-standard work arrangements, such as temporary contracts, gig work, or part-time positions. Workers in these arrangements may be more vulnerable to economic shocks, including those triggered by the COVID-19 pandemic. Job insecurity and income instability are common features of precarious employment, making individuals in such positions susceptible to financial hardships during economic downturns. Besides, precarious employment is prevalent in sectors that were disproportionately affected by COVID-19-related restrictions and lockdowns, such as the service industry, hospitality, and gig economy. Workers in these sectors faced job losses, reduced working hours, and income insecurity, highlighting the precarious nature of their employment. Similar researches were also carried out by McNamara et al.\textsuperscript{6}, Mai, et al.\textsuperscript{7}, Gray, et al.\textsuperscript{8}, Hummel, et al.\textsuperscript{9}; Alon\textsuperscript{10} and Han\textsuperscript{11}.


Precarious workers often lack access to employment benefits such as health insurance, paid sick leave, and unemployment benefits. This lack of social protection is particularly problematic during a health crisis like the COVID-19 pandemic, where access to healthcare and financial support becomes crucial. This kind of employment may involve working in jobs with a higher risk of exposure to the virus, such as frontline service jobs or positions that do not allow for remote work. This increased exposure can contribute to the higher health risks for precarious workers during the pandemic. Precarious employment may involve working conditions that make it challenging for individuals to adhere to safety measures recommended during the pandemic. For example, gig workers may have limited control over their work environments, making it difficult to implement social distancing or other preventive measures.

The correlation between precarious employment and COVID-19 is often intertwined with other social issues such as gender, race, and socioeconomic status. Certain demographic groups disproportionately engage in precarious work, and these groups may also face unequal impacts of the pandemic. The challenges faced by precarious workers during the COVID-19 pandemic have prompted discussions about the need for improved labor protections, social safety nets, and advocacy for workers' rights. Policymakers and advocates are addressing the vulnerabilities exposed by the pandemic and working towards creating more resilient and equitable labor markets.

Figure 4. Network Visualisation of Precarious Employment Term related to Covid-19

Figure 5 illustrates the correlation between precarious employment and gender. It is a complex and multifaceted phenomenon that reflects and reinforces gender inequalities in the labor market. Firstly, it is related to Occupational Segregation. Women often find themselves concentrated in precarious and low-wage sectors, such as part-time work, temporary positions, and jobs without employment benefits. This concentration is a result of occupational segregation, where certain industries or occupations are dominated by one gender, contributing to the prevalence of precarious employment among women. Secondly, it is related to Wage Disparities. Precarious employment is frequently associated with lower wages and fewer employment benefits. Women, on average, face wage disparities compared to men, and their overrepresentation in precarious jobs exacerbates this wage gap. The lack of job security and benefits can further contribute to financial instability for women. Thirdly, it is related to Vulnerability to Economic Shocks. Women in precarious employment may be more vulnerable to economic downturns and shocks. For example,
during economic crises or periods of instability, part-time and temporary positions, which are common forms of precarious work for women, may be more susceptible to layoffs and reduced hours. Then, fourthly, it is related to Limited Career Advancement. Precarious employment often offers limited opportunities for career advancement and professional development. This lack of upward mobility disproportionately affects women, hindering their ability to progress in their careers and contributing to the perpetuation of gender-based inequalities in the workplace. Fifthly, Unstable Work Schedules, many precarious jobs, such as those in the gig economy or part-time positions, come with unpredictable and irregular work schedules. This instability can disproportionately affect women, especially those with caregiving responsibilities, making it challenging to balance work and family commitments. Similar research was also carried out by Cranford, et al. and Valero, et al. (2020)

Then, about Intersectionality with Other Factors. The correlation between precarious employment and gender intersects with other social factors such as race, ethnicity, and socioeconomic status. Women from marginalized or minority groups may face compounded challenges in accessing stable and well-compensated employment. It is also related to Informal and Unprotected Work, in which women are often overrepresented in informal and unprotected employment, including domestic work, temporary jobs, and informal sectors. These forms of employment lack the legal protections and benefits associated with formal employment, further amplifying the vulnerability of women in the workforce. Then, the last one is about Policy and Advocacy Implications. Recognizing and addressing the gendered aspects of precarious employment necessitate targeted policy interventions and advocacy efforts. This includes measures to ensure equal pay, improve job security, enhance work-life balance, and promote access to opportunities for career advancement for women in precarious employment.

Figure 5. Network Visualisation of Precarious Employment Term related to gender Term

Figure 6 illustrates the correlation between precarious employment and mental health is significant, as the uncertain and often challenging conditions associated with precarious work can have adverse effects on individuals' psychological well-being. Precarious employment is

characterized by job insecurity, including temporary contracts, part-time work, and gig economy positions. The constant fear of losing one’s job or facing financial instability can contribute to stress and anxiety, impacting mental health. Precarious workers often have limited or no access to employment benefits such as health insurance, paid sick leave, or mental health support. This lack of social and financial security can exacerbate mental health challenges, as individuals may hesitate to seek help due to concerns about affordability or job repercussions. Precarious employment is associated with irregular income and financial instability. Fluctuating income levels can lead to increased stress and anxiety about meeting basic needs, paying bills, and planning for the future, all of which can negatively impact mental health. Many precarious jobs, especially those in the gig economy, provide limited control over work conditions. Workers may face unpredictable schedules, lack of control over tasks, and minimal workplace support, leading to a sense of powerlessness that can contribute to mental health issues. This issue was also being researched by Torkel Rönnblad, et al., in which their research found that 3328 distinct records, out of which 16 studies meeting the inclusion criteria were deemed of satisfactory quality. We found moderate quality evidence (GRADE score 3 out of 4) indicating a negative impact of job insecurity on mental health, with a summary odds ratio (OR) of 1.52 and a confidence interval (CI) of 95% ranging from 1.35 to 1.70. However, evidence for the effects of temporary employment or irregular work hours on mental health was of very low quality (GRADE 1 out of 4). Additionally, all five studies examining multidimensional exposures revealed adverse effects, with a weighted average OR of 2.01 and a CI of 95% ranging from 1.60 to 2.53. Similar researches were also carried out by Benach, et al., and Lewchuk, et al.

Precarious employment, including irregular working hours and lack of benefits, can contribute to a significant work-life imbalance. Struggling to balance work responsibilities with personal and family commitments can lead to burnout, stress, and feelings of inadequacy, impacting mental well-being. Some forms of precarious work, such as remote or gig jobs, can result in social isolation. Limited interaction with colleagues and the absence of a supportive work community may lead to feelings of loneliness and negatively affect mental health. Precarious workers often have limited control over their work tasks, schedules, and overall job conditions. This lack of autonomy can contribute to feelings of frustration and helplessness, which are detrimental to mental health. Precarious employment is sometimes associated with societal stigma, as individuals in such positions may be perceived as less successful or less committed to their careers. This stigma, coupled with the lack of visibility of mental health challenges in the workplace, can discourage individuals from seeking help. The cumulative effect of prolonged exposure to precarious work conditions can contribute to the development or exacerbation of mental health disorders over time. Persistent stressors and challenges may lead to conditions such as anxiety, depression, or burnout. Recognizing the correlation between precarious employment and mental health underscores the importance of implementing policies that address job insecurity, improve working conditions, and provide adequate social and mental health support for workers in non-standard employment.


arrangements. This was also investigated by Vives, et al.\textsuperscript{17}; Antonio ALOISI, Valerio DE STEFANO\textsuperscript{18}

Figure 6. Network Visualisation of Precarious Employment Term related to mental health Term

Then, in the context of Indonesia, the researches on precarious employment are related to some keywords, including commodification, Covid-19, and community resilience. So, it can be concluded that in the Indonesian context, there are so many research gaps that can be used by further researchers to explore more about precarious employment in Indonesia.

Figure 7. Network Visualisation of Precarious Employment Term related to mental health Term


Looking at the Spread of Precarious Employment Researches

Figure 7. Network Visualisation of Precarious Employment Term related to the authorship

Figure 8. Overlay Visualisation of Precarious Employment Term related to the authorship

Figure 9. Density Visualisation of Precarious Employment Term related to the authorship
Based on the documents found, several authors dominate the studies on precarious employment. Therefore, the articles they have written can serve as references for subsequent researchers. The co-authorship map of precarious employment research can be visualized in the previous three visualization figures above in figure 7, figure 8, and figure 9.

VOS Viewer, which stands for Visualizing Scientific Landscapes, plays a crucial role in mapping research by providing a powerful tool for bibliometric analysis and visualization. VOS Viewer allows researchers to create network visualizations, where elements such as authors, keywords, or publications are represented as nodes. The connections or links between nodes illustrate relationships, collaborations, or citations, providing a clear and intuitive map of the research landscape. The software identifies clusters or groups of related elements within the network. These clusters often represent thematic areas or research subfields, enabling researchers to discern patterns, trends, and distinct knowledge domains within a specific research topic.

VOS Viewer offers bibliometric indicators, including citation counts, co-authorship patterns, and other metrics. These indicators help assess the significance and impact of individual elements in the network, aiding researchers in identifying influential authors, key publications, or emerging trends. Researchers can set specific time frames for analysis, allowing them to observe how the research landscape evolves. This temporal aspect provides insights into the progression of research topics, the emergence of new subfields, and the impact of influential works over different periods.

VOS Viewer allows users to customize visualizations by adjusting layout options, colors, and node sizes. Researchers can also apply filters to focus on specific elements, such as highly cited publications or authors, providing a tailored and more detailed view of the research network. After generating visualizations, researchers can export the results in various formats, including images or data files. This facilitates the integration of VOS Viewer outputs into research papers, presentations, or reports, enhancing the communication of findings.

VOS Viewer helps researchers analyze collaboration patterns by visualizing co-authorship networks. This feature is particularly valuable for understanding research networks, interdisciplinary collaborations, and the flow of knowledge within a specific field. The software allows researchers to explore the significance of keywords within the network. Identifying key terms and their relationships provides insights into the vocabulary and thematic content of the research landscape. In summary, VOS Viewer serves as a versatile and user-friendly tool for researchers to visually map and analyze scientific landscapes, offering a holistic understanding of the relationships and dynamics within a particular field of study.

Then, related to the previous research, there were some authors using VOS Viewer, including Purnomo, et al.19 entitled Trend on E-Commerce Researches: A Portrait Using VOSviewer. In this research, the authors explained that the emergence of e-commerce has significantly impacted various sectors, including retail, logistics, and marketing. It has revolutionized traditional retail models, giving rise to online marketplaces and the expansion of direct-to-consumer (D2C) brands. Additionally, e-commerce has disrupted conventional supply chain management, emphasizing the importance of efficient order fulfillment and last-mile delivery solutions. This study aimed to explore the global landscape of e-commerce research, utilizing bibliographic analysis through VOSviewer. The Scopus database was the primary data source retrieved from

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Looking at the Spread of Precarious Employment Researches

https://www.sciencedirect.com/page. The VOSviewer visualization analysis revealed a dominance of global e-commerce research focused on themes such as digitalization, artificial intelligence, and the impact of COVID-19. The findings from this bibliographic study offer insights for researchers to identify potential research gaps in the field.

Another research was carried out by Hidayati\textsuperscript{20} entitled Mapping Business English Researches Globally: A Bibliometric Analysis Using VOS Viewer. The primary objectives of this study encompass three key aspects: 1) providing an overview of global business English research, 2) delineating research and co-authorship patterns in English within the realm of business English, and 3) identifying research gaps while offering recommendations for further exploration in the field of Business English. This research adopts a literature review approach, utilizing the Scopus database accessed through https://www.sciencedirect.com/page, with a focus on articles published in Scopus.

The analysis of the data was carried out using the VOS viewer software. The findings revealed that opportunities for future research in Business English exist, particularly in the broader domain. Notably, discussions about Business English in an Indonesian setting were predominantly limited to Scopus, with a prevailing emphasis on China and Singapore. Furthermore, Business English demonstrated a strong connection with the sphere of professional communication, encompassing both oral and written language. The context of Business English research predominantly centered on higher education, leaving unexplored territories such as vocational high schools that prepare graduates for specific professions like hospitality and healthcare. Similar researches were also carried out by Gu et al.\textsuperscript{21}, Chen\textsuperscript{22}, Sumarni\textsuperscript{23}, Hidayati, et al.\textsuperscript{24}, and Wili Tama & Sumarni\textsuperscript{25}.

Then, referring to the ScienceDirect database related to the precarious employment keyword, there are some most relevant research recommended to read according to the database as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Publisher</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sleep mediates the relationship between precarious employment and mental health</td>
<td>Sleep Medicine: X</td>
<td>Jaydarifard, et al.\textsuperscript{26}</td>
</tr>
<tr>
<td>2</td>
<td>The gendered associations between precarious employment and mental health in working-age</td>
<td>Social Science &amp; Medicine</td>
<td>Ervin, et al.\textsuperscript{27}</td>
</tr>
</tbody>
</table>

\textsuperscript{25} Wili Tama, Y., & Sumarni, S. (2023). TRENDS OF VIRTUAL REALITY IN ENGLISH LANGUAGE LEARNING.
Australians: A longitudinal analysis using 16 waves of the HILDA survey

3. Characteristics and Socio-Demographic Distribution of Precarious Employment Among Korean Wage Workers: A Proposition of Multidimensional Approach Using a Summative Score

4. Job quality and precarious employment among lesbian, gay, and bisexual workers: A national study

5. Precarious employment and workplace health outcomes in Britain

6. Precarious employment and associated health and social consequences; a systematic review

7. Changes in Precarious Employment and Health in the United States Amidst the COVID-19 Pandemic

8. Precarious employment and health: A qualitative study in Venezuelan immigrant population in Colombia

9. Trajectories of precarious employment and the risk of myocardial infarction and stroke among middle-aged workers in Sweden: A register-based cohort study

10. The impact of precarious employment on mental health: The case of Italy

**Conclusion**

Based on the presentation above, it can be concluded that a literature review using software tools such as VOS Viewer can assist researchers in mapping current global trends in studies. Additionally, it helps identify study gaps. Furthermore, in the context of precarious employment studies, the keyword "precarious employment" is closely linked to other keywords like Covid-19, climate change, gender, poverty, and mental health. The prominence of these keywords in the

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visualization suggests a substantial amount of research discussing their correlations with precarious employment. Therefore, studies beyond these areas can still be explored in greater depth. Moving on to the Indonesian context, research on precarious employment is associated with keywords such as commodification, Covid-19, and community resilience. Consequently, it can be inferred that there are numerous research gaps in the Indonesian context, providing opportunities for further exploration by researchers interested in studying precarious employment in Indonesia. The limitation of this research was that the articles used as the database were limited on the open access research articles in the social sciences. So, the next researchers could expand the articles used from the various fields to get broader mapping.

References


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Looking at the Spread of Precarious Employment Researches


