

# Educational Intervention to Improve Health Insurance Literacy for International Students: A Systematic Literature Review

Abrão da Silva Guterres, Miguel B<sup>1</sup>. and Lazar, Bruce, MBA., DM.<sup>2</sup>, Abrão da Silva Guterres, M.<sup>3</sup>

<sup>1</sup>Southern Illinois University Carbondale, IL, USA  
([miguel.abraodasilvaguterres@siu.edu](mailto:miguel.abraodasilvaguterres@siu.edu))

<sup>2</sup>Southern Illinois University Carbondale, IL, USA  
([bruce.lazar@siu.edu](mailto:bruce.lazar@siu.edu))

**Abstract:** *Universities in the United States require students to enroll in student insurance plans as part of their university policy. However, many international students often find it difficult and confusing to understand insurance terms and the benefits of health insurance itself. This review aimed to determine whether the use of educational interventions among international students attending a university in the United States improves health insurance literacy. This literature search used databases such as academic search complete, Medline, and ERIC (EBSCO) and followed the favored reporting elements for meta-analysis and systematic review guidelines. Thematically the analysis of data from 15 relevant articles germane to the study using a screening process limited to exclusion and inclusion criteria relevant to the research question. Three themes emerged relevant to the study topic and research question that transpired from the literature during the data analysis process. These three themes are the importance of increasing health literacy (67%), health information-seeking behavior (20%), and access to adequate educational tools to increase health literacy (33%). The finding showed that many international students have a knowledge deficit in health insurance literacy. The results also displayed those adequate and proper educational tools could help increase health insurance literacy among international students. The implication of these findings provides university administrators, health administrators, and health insurance providers an opportunity to determine appropriate educational interventions to enhance the ability of international students to understand health insurance.*

**Keywords:** Health Literacy, Health Insurance Literacy, Educational Intervention, International Students.

## Introduction

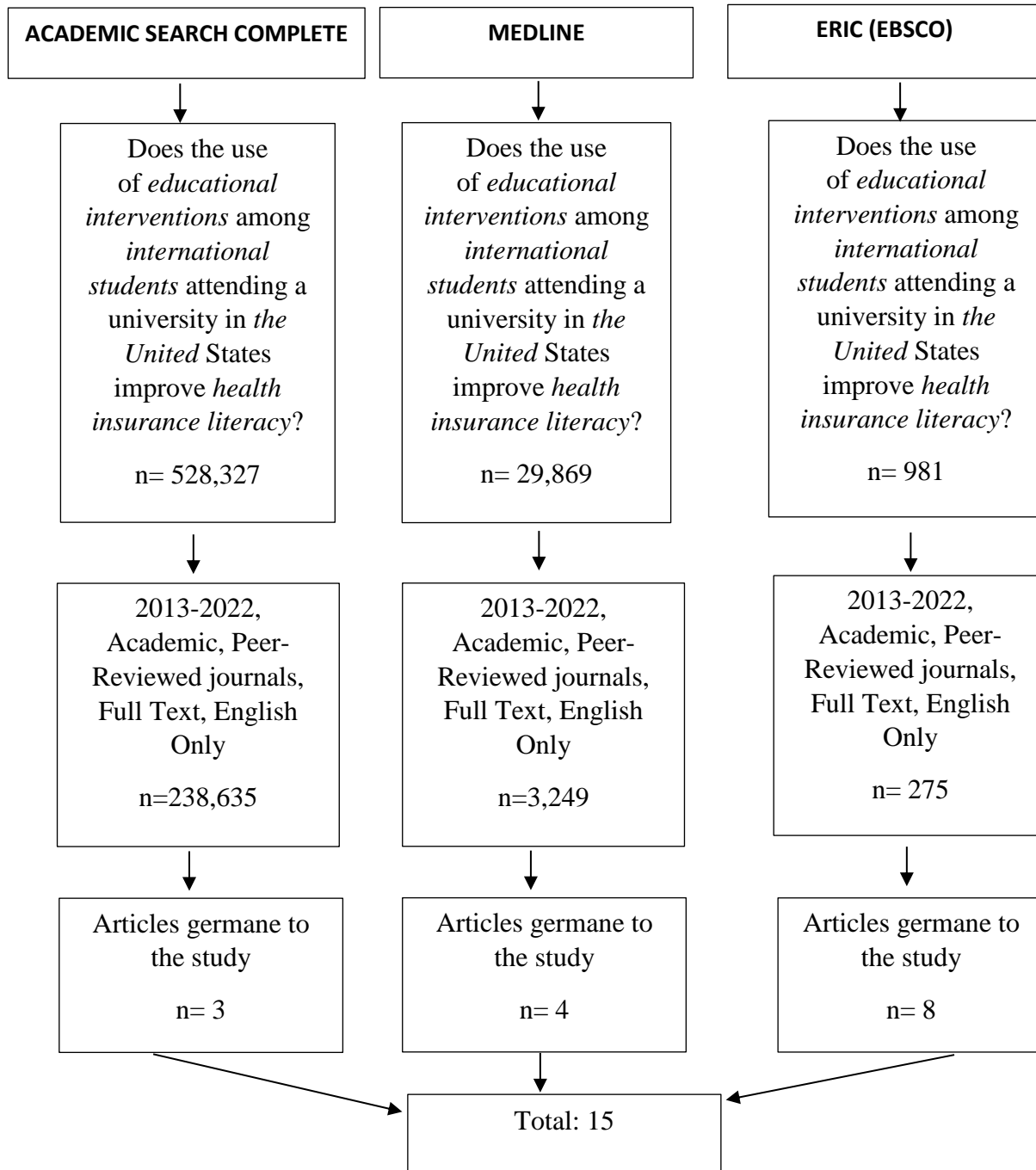
Universities in the United States often require international students to enroll in student health insurance programs; however, many international students are not well-informed on how health insurance works (Adegboyega et al., 2020). Approximately 1 in 5 college students in the United States have low health literacy, including informational seeking on health insurance (James et al., 2018). Inadequate health insurance for international students affects their ability to access necessary health services, causes financial issues, and increases their stress levels (Adegboyega et al., 2020).

A common issue affecting international and local students is the ability to seek relevant information about how health insurance works. International students have difficulties understanding medical insurance terms such as premiums, deductibles, co-pays, and cost-sharing (Nobles et al., 2018). Difficulty understanding these insurance terms and how they work would affect students' decision to enroll in campus health insurance due to low health insurance literacy (Adegboyega et al., 2020). An educational approach could help students improve health insurance literacy and help international students understand how United States student health insurance works (Adegboyega et al., 2020). Therefore, this systematic literature review aimed to determine whether the use of educational interventions among international students attending a university in the United States improve health insurance literacy.

## Method

This research process starts with Google Scholar searching for relevant information about the topic choice. Then, the next step was to choose articles that agreed with a PICO-based research question: Does the use of educational interventions among international students attending a university in the United States improve health insurance literacy? The researcher conducted literature research using ACADEMIC SEARCH COMPLETE, MEDLINE plus full text, and ERIC (EBSCO) databases primarily established on the favored reporting items for Systematic Reviews and Meta-Analyses guidelines (Hurley et al., 2017). Several relevant processes will be done during the method's phase, such as searching for relevant studies on the related topic, screening for exclusion and inclusion criteria, and identifying key themes during the synthesis. To search for relevant studies on the topic, the researcher uses keywords such as *health literacy*, *health insurance literacy*, *educational intervention*, and *international students*. These keywords provide consistency in finding relevant studies on the subject that potentially answer the research question.

For the inclusion of the review articles, this research only covers the publications that satisfy the following criteria, a. an article must be published between 2013 and 2022, b. a published article must be in a peer-reviewed academic journal, c. a published article must be in English or translated into English., c. an article must be in full text. The researcher removed five articles for the exclusion criteria due to duplicates based on the article review matrix, especially when using MEDLINE academic databases.



The article review does not involve Kappa Calculation due to limited time and difficulty in finding reviewers for articles. Therefore, our article review process only considers this method's exclusion and inclusion criteria. After thoroughly reviewing academic papers using three databases (ACADEMIC SEARCH COMPLETE, MEDLINE & ERIC -EBSCO), the researcher identified and analyzed three articles from ACADEMIC SEARCH COMPLETE, four articles from MEDLINE, and eight articles from ERIC-EBSCO. Therefore, 15 peer-reviewed academic articles are pertinent to the study itself.

**Results**

The comprehensive search criteria generated an in-depth sampling of the literature. The sample meticulously assessed 15 articles that were thematically analyzed. Table 1 presents a complete summary of the articles reviewed. Most of these studies focused on health literacy among international college students, especially health insurance literacy.

An affinity matrix demonstrated the frequency of mention or the discussion of a specific topic. In this review, a constructed affinity matrix-assisted in determining common themes in the literature about perceived health insurance literacy among international students attending colleges in the United States. Table 2 provides an affinity matrix with three themes for the study. They are a) the importance of increasing health literacy levels among international college students, b) health information-seeking behavior among international college students, and c) access to adequate health literacy educational tools. There were 18 mentions of relevant information in the articles about using educational intervention to improve health insurance literacy among international students attending university in the United States.

From the findings, 10 out of 15 (67%) articles reported on the importance of increasing health literacy levels among international college students {1,2,3,4,8,9,11,13, 14,15}. 3 of 15 (20%) articles reported health information-seeking behavior among international college students {1,5,12}. Lastly, 5 out of 15 (33%) articles reported access to adequate health literacy educational tools for international college students {2,4,6,7,10}.

Table 1. Summary of the findings

| Title  | Findings  |
|--|---|
| <i>A qualitative analysis on Health literacy Among International College Students (Adegboyega et al., 2020) [1]</i>            | Incorporating international college students into the U.S health care system is critical to help them understand and make a rational choice on their health insurance. This approach will also help improve access to health care and the effective use of healthcare services (Adegboyega et al., 2020).   |
| <i>A pilot study on health literacy among visiting college students in the U.S. (Noblin et al., 2022) [2]</i>                  | The purpose of this article is to understand the health literacy level of visiting students from Colombia and compare it with Hispanic adults' understanding of health literacy. This study finds that Hispanic adults often feel less confident interpreting health information (Noblin et al., 2022).   |
| <i>A mixed methods study on health insurance literacy among college students. (Nobles et al., 2019) [3]</i>                    | It is critical to understand how health insurance works. Primarily health insurance terms. This article examines students' knowledge to identify health insurance terms such as cost-sharing. Improving health literacy among these students will reduce confusion about health insurance terms. To reach that, proper educational intervention is critical to target those with a knowledge deficit in health insurance (Nobles et al., 2019). |
| <i>A pilot project on educating international students about medication access and usage in the US (Shen et al., 2020) [4]</i> | This article aims to use an educational program to educate international students on medication access and use. This approach is part of improving health literacy, which will equip them with excellent knowledge of accessing proper health information like medication, access, and usage (Shen et al., 2020)  |
| <i>Health Information Seeking Behavior Among College Students (Basch et al., 2018) [5]</i>                                     | The study aims to assess campus resources that students can use to access and improve health information-seeking behavior. In addition, this study also aims to adopt online tools to enhance students' health information-seeking behavior (Basch et al., 2018).   |
| <i>An understanding on whether college students are health literate. (Dolezel et al., 2020) [6]</i>                            | The finding of this study is that most college students had sufficient health literacy. However, the finding suggests further incorporating health literacy into the  |

|  |  |
|--|--|
| <p><i>The efficacy of an online video in promoting health insurance literacy amongst students. (Montagni et al., 2018) [7]</i></p>   | <p>college curriculum for all majors (Dolezel et al., 2020).<br/>This study aims to increase health insurance literacy through digital or communication tools as one of the innovations to effectively share health insurance information with students (Montagni et al., 2018).</p> |
| <p><i>Health literacy: exploring disparities among college students. (Rababah et al., 20219) [8]</i></p>   | <p>This study identified how demographic characteristics influence health literacy among college students. The implications of this study will open an opportunity for educational interventions like health promotion and inter-professional education (Rababah et al., 2019).</p>  |
| <p><i>Understanding Health Literacy: A literature Review. (Kim et al., 2013) [9]</i></p>   | <p>This study focuses on how health insurance literacy affects and impacts purchasers' decisions through educational materials (Kim et al., 2013).</p>   |
| <p><i>A cross sectional study on health literacy, digital literacy, and e-Health literacy in Danish nursing students at entry and graduate level. (Holt et al., 2020) [10]</i></p>         | <p>This study aims to find an educational approach that health educators should consider when planning to improve students' health literacy (Holt et al., 2020).</p>   |
| <p><i>Development of Health Insurance Literacy Measure (HILM): Conceptualizing and Measuring Consumer Ability to Choose and Use Private Health Insurance. (Paez et al., 2014) [11]</i></p> | <p>This study targets to deliver a conceptual version to analyze how an individual might enroll in health insurance via assessing the knowledge, information in search of behavior, document literacy, and cognitive capabilities (Paez et al., 2014)</p>                            |
| <p><i>Domestic and International College Students: Health Insurance Information Seeking and Use. (Mackert et al., 2017) [12]</i></p>   | <p>This study aims to determine the challenges of international and domestic students in health insurance information seeking. Also, this study compares the discriminant elements among health insurance facts seekers and non-seekers (Mackert et al., 2017)</p>                   |
| <p><i>An understanding on health literacy levels and influencing factors in university students (Usyal et al., 2019) [13]</i></p>  | <p>Health literacy is critical for university students to increase individual health responsibility. This study also adds to the importance of using educational intervention by incorporating health literacy into the school curriculum (Usyal et al., 2019).</p>                  |
| <p><i>What do urban college students really think about health insurance? A qualitative study. (Palmedo et al., 2020) [14]</i></p>   | <p>This study reveals how students perceive health insurance to help improve campus enrolment (Palmedo et al., 2020).</p>  |
| <p><i>Health insurance literacy and health service utilization among college students (James et al., 2020) [15]</i></p>  | <p>The finding of this study is to identify a correlation between student health insurance and healthcare utilization. The result of this study emphasizes how health insurance affects healthcare use among college students (James et al., 2020).</p>                              |

Table 2. Frequency of occurrence in the literature.

| Benefits  | Occurrences             | Instances of Attributes (n) | Percentage (%) |
|---|-------------------------|-----------------------------|----------------|
| Theme 1: The importance of increasing health literacy levels among international college students | 1,2,3,4,8,9,11,13,14,15 | 10                          | 67%            |

|  |             |   |     |
|--|-------------|---|-----|
| Theme 2: Health information-seeking behavior among international college students                | 1,5,12      | 3 | 20% |
| Theme 3: Access to adequate health literacy educational tools for international college students | 2,6,4,7,10, | 5 | 33% |

## Discussion

### *a. The importance of increasing health literacy level among international college students*

Increasing health insurance literacy is critical for individual insurance holders (Adegboyega et al., 2020; Noblin et al., 2022). In the United States, enrolling in student health insurance is part of the Affordable Care Act's comprehensive implementation. It urges universities to engage by enrolling students in the health insurance program market (Palmedo et al., 2020). An insurance plan offered may be comprehensive for domestic students; however, for many international students, understanding health insurance still becomes a significant challenge (Adegboyega et al., 2020; Noblin et al., 2022; Nobles et al., 2019; Palmedo et al., 2020). For many universities, enrolling in campus insurance plans is mandatory or part of the university's policy (Adegboyega et al., 2020). These challenges typically revolve around health insurance terminologies such as co-pays, deductibles, and premiums (Nobles et al., 2019), the financial aspect of the insurance plan (Adegboyega et al., 2020; Kim et al., 2013), and the benefit of health insurance utilization (Adegboyega et al., 2020; Shen et al., 2020). Health insurance is one of the most complicated healthcare services or products (Paez et al., 2014); therefore, Kim et al. (2013) emphasized that health insurance providers should provide necessary details on the financial aspects of the plan, reliable information, and easy to comprehend and navigate through the plan. Doing this will help accommodate international students to guide and locate the best fitting insurance plans (Adegboyega et al., 2020; Paez et al., 2014). Universities should evaluate the influence factors that affect students enrolling in student health insurance plans (Adegboyega et al., 2020; Uysal et al., 2019). Providing a more comprehensive insurance plan for international students is one of the keys to ensuring the effective utilization of the plan and access to healthcare services (Adegboyega et al., 2020; Shen et al., 2020; James et al., 2018). Therefore, increasing basic health literacy and health insurance among international students is critical to ensuring full utilization of the healthcare services and benefits (Adegboyega et al., 2020; Rababah et al., 2019; Uysal et al., 2019).

### *b. Health information-seeking behavior among international college Students*

Many students often are not well-informed before enrolling in a student health insurance plan (Adegboyega et al., 2020). Most of the time, many people do not consider health insurance as part of health literacy (James et al., 2020). Therefore, a minimal program often provides education on health insurance information (James et al., 2020). International students often receive health insurance information from friends and families (Basch et al., 2018, James et al., 2020). Many utilize connections they make on the Internet to learn about preferable health insurance plans before deciding (Bach et al., 2018, James et al., 2020). For many international students, information seeking on health insurance is not common (Adegboyega et al., 2020). Therefore, improving information-seeking behavior on health insurance is critical for decision-making (Adegboyega et al., 2020; James et al., 2020).

### *c. Access to adequate health literacy educational tools for international college students*

Educating international students on health insurance is critical (Noblin et al., 2022). There are various educational approaches or modes to help international students understand student health insurance, such as utilizing digital communication (Montagni et al., 2018; Holt et al., 2020), providing education on medication access and other health services (Shen et al., 2020), and providing adequate conceptual model on health insurance literacy (Paez et al., 2014). A study done by Basch and colleagues on the effectiveness of using effective digital communication showed that 19 out of 30 students (63.3%) could not define a student's health insurance before watching the video. After the video interaction, 24 out of 30 students (80%) in the same study were able to define student health insurance (Basch et al., 2018).

Therefore, using the right educational approach is critical to helping international students increase their health insurance literacy. In addition, it also helps them to make the right and best decisions, be more self-efficacy and responsible for their health (Adegboyega et al., 2020; James et al., 2020)

## Limitation

The main limitation of this study is the limited peer-reviewed and academic journals to support this study. After conducting a thorough analysis of the articles review, 15 articles were germane to the study topic. Due to the limited number of supporting peer-reviewed articles, an extension of the search occurred over the last ten years, ranging from 2013 to 2022.



## Conclusion

Universities in the United States increasingly require students to enroll in health insurance plans. However, many students, especially international students, struggle to understand how the insurance plan works. This systematic literature review aimed to determine whether using educational interventions among international students attending a university in the United States improves health insurance literacy. This literature review explored its research question and developed themes that include the importance of increasing health literacy, including health insurance literacy, health information-seeking behavior, and access to adequate educational tools for increasing health insurance literacy among international students. The significant findings in this review are that many international students are still confused about the insurance plan utilization, benefit, and even insurance terms. Health information-seeking behavior is a deficit among international college students. The existence and use of digital communication tools are effective educational tools to improve students' knowledge and increase health insurance literacy. Further research can focus on school policy for providing comprehensive health insurance and adequate means to support students exploring health insurance plans and benefits. University administrators, health administrators, and health insurance providers should provide more comprehensive health insurance through effective collaboration and seek more advanced and innovative ways to educate international students to increase health insurance literacy.

## References

- Adebola Adegboyega; Chigozie A. Nkwonta; Jean Edward. (2020). Health Insurance Literacy Among International College Students: A Qualitative Analysis. *Journal of International Students*, 10(1), 50-68. doi:10.32674/jis.v10i1.1097
- Alice Noblin; Meghan Hufstader Gabriel; Kendall Cortelyou-Ward; Kristen. (2022). Health literacy among visiting college students in the U.S.: A pilot study. *JOURNAL OF AMERICAN COLLEGE HEALTH*, 70(2), 589–597. doi:https://doi.org/10.1080/07448481.2020.1758114
- Alicia L. Nobles; Brett A. Curtis; Duc A. Ngo; Emily Vardell; Christopher P. Holstege. (2019). Health insurance literacy: A mixed methods study of college students. *JOURNAL OF AMERICAN COLLEGE HEALTH*, 67(5), 469–478. doi:https://doi.org/10.1080/07448481.2018.1486844
- Brenda Shen; Helen Kim; Chelsea Pekny; Jennifer L. Rodis. (2020). Educating international students about medication access and usage in the US: A pilot project. *JOURNAL OF AMERICAN COLLEGE HEALTH*, 67(8), 927–930. doi:https://doi.org/10.1080/07448481.2019.1646261
- Corey H. Basch; Sarah A. MacLean; Rachelle-Ann Romero; Danna Ethan. (2018). Health Information Seeking Behavior Among College Students. *Journal of Community Health*, 1094–1099. doi:https://doi.org/10.1007/s10900-018-0526-9
- Diane Dolezel; Ram Shanmugam; Eileen E. Morrison., (2020). Are college students health literate? *JOURNAL OF AMERICAN COLLEGE HEALTH*, 68(3), 242–249. doi:https://doi.org/10.1080/07448481.2018.1539001
- Eoghan T.Hurely; James Cashman; Keith A. Synnott; John M. O'Byrne; Frank G. Lyons. (2012). Cemented versus Cementless Total Hip Arthroplasty in paget's Disease of Bone: A Systematic Review. *The Journal of Hip Surgery*, 01(02), 087-092. doi:DOI: 10.1055/s-0037-1603629
- Ilaria Montagni; Jason Koman; Edouard Lhomme; Christophe Tzourio. (2018). Efficacy of an online video to promote health insurance literacy among students. *Journal for Communication Studies*, 11(1), 29-48.
- Jehad A. Rababah; Mohammed M. Al-Hammouri; Barbara L. Drew; Mohammed Aldalaykeh. (2019). Health literacy: exploring disparities among college students. *BMC public health*, 2-11.
- Jinhee Kim; Bonnie Braun; Andrew D. Williams. (2013). Understanding Health Insurance Literacy: A Literature Review. *American Association of Family and Consumer Sciences*, 42(1), 3-13. doi:10.1111/fcsr.12034
- Kamila Adellund Holt; Dorthe Overgaard;Lisbeth Vinberg Engel; Lars Kayser. (2020). Health literacy, digital literacy and eHealth literacy in Danish nursing students at entry and graduate level: a cross sectional study. *BMC Nursing*, 2-12.
- Kathryn A. Paez; Coretta J. Mallery; Hamonijoie Noel; Christopher Pugliese; Veronica E. McScorley; Jennifer L. Lucado; Deepa Ganachari. (2014). Development of the Health Insurance Literacy Measure (HILM): Conceptualizing and Measuring

Consumer Ability to Choose and Use Private Health Insurance. *Journal of Health Communication*, 225–239.  
doi:10.1080/10810730.2014.936568

Michael Mackert; Hyeseung E. Koh; Amanda Mabry-Flynn; Sara Champlin; Anna Beal. (2017). Domestic and International College Students: Health Insurance Information Seeking and Use. *Journal of International Students*, 7(3), 542-561.  
doi:10.5281/zenodo.570016

Neşe Uysal; Erdal Ceylan; Ayşegül Koç. (2019). Health literacy level and influencing factors in university students. *Health and Social Care in the Community*, 505-511. doi:10.1111/hsc.12883

P. Christopher Palmedo; Eleni K. Murphy; Katrina F. Mateo; Jennifer Gallo. (2020). What do urban college students really think about health insurance? A qualitative study. *JOURNAL OF AMERICAN COLLEGE HEALTH*, 68(1), 68-78.  
doi:https://doi.org/10.1080/07448481.2018.1515756

Tyler G. James; Meagan K. Sullivan; Leanne Dumeny; Katherine Lindsey; JeeWon Cheong; Guy Nicolette. (2020). Health insurance literacy and health service utilization among college students. *Journal of American College Health*, 68(2), 200-206. doi:https://doi.org/10.1080/07448481.2018.1538151

**Miguel** is finishing his Master of Health Administration degree at Southern Illinois University Carbondale, IL, the USA. He also did his bachelor's degree in healthcare administration at Methodist University in Fayetteville, NC, USA. Miguel is passionate about working to improve the healthcare system in his country, Timor-Leste. Currently, he works with the WHO country office for Timor-Leste as National Professional Officer for Health System Strengthening.

([miguel.abraodasilvaguterres@siu.edu](mailto:miguel.abraodasilvaguterres@siu.edu))

Southern Illinois University Carbondale, IL, USA

**Dr. Bruce Lazar** is a global educator, investigator, and consultant. His professional span consists of teaching, lecturing, and running with organizational leaders to stabilize and remodel operations within diverse organizations. He has a passion for studies and has earned an MBA and a Doctor of Management.

([bruce.lazar@siu.edu](mailto:bruce.lazar@siu.edu))

Southern Illinois University Carbondale, IL, USA

**Abrão da Silva Guterres, M.** conceptualized the study concept, and Lazar, B. worked with Abrão da Silva Guterres, M. In developing and needed adjustments in the systematic literature review. Lazar, B. encouraged scholar Abrão da Silva Guterres, M. to research the subject matter, and Lazar, B. tested the evaluation. Abrão da Silva Guterres, M. drafted the first manuscripts, and Lazar, B. assessed, provided adjustments needed, and approved the complete manuscript as submitted.

---