Supporting Undergraduate Engineering Students Who Are Primary Caregivers to Children: A Systematic Literature Review

Dr. Julie M. Smith, CSEdResearch.org

Dr. Julie M. Smith is a senior education researcher at CSEdResearch.org. She holds degrees in Curriculum & Instruction and Software Development. She also completed a doctoral program in Learning Technologies at the University of North Texas. Her research focus is computer science education, particularly the intersection of learning analytics, learning theory, and equity and excellence. She was a research assistant at MIT's Teaching Systems Lab, working on a program aimed at improving equity in high school computer science programs; she is also co-editor of the SIGCSE Bulletin.

Supporting Undergraduate Engineering Students Who Are Primary Caregivers to Children: A Systematic Literature Review

Abstract

Introduction: Perhaps surprisingly, about one in five undergraduate students is a caregiver. These students may have different needs than other students. Because data on student caregivers is less likely to be collected than data on other student groups, there are substantial gaps in our understanding of their experiences, including their unique challenges and strengths as well as best practices for supporting them. There is very little research that focuses specifically on student caregivers who are studying engineering, a field that may require extra lab time and other subject requirements that contribute to the unique needs in the field.

Objective: The primary purpose of this study is to answer the questions (1) What does previous research indicate about the experiences of student caregivers? and (2) How does that knowledge apply to recruiting and retaining undergraduate engineering students?

Methods: This paper uses the Khan et al. [1] methodology for conducting a systematic literature review, applied to research on student caregivers, focused on (1) identifying what is known about them, including their challenges, strengths, and experiences, (2) understanding interventions designed to support them and the results of those interventions, and (3) exploring how this knowledge and evidence applies (or might apply) specifically to engineering students.

Results: Findings include that student caregivers differ from other students in significant ways: they are more likely to be women, in community college, and/or from racially minoritized backgrounds. Student caregivers also tend to have higher GPAs, and they have a tendency to feel isolated. The three major challenges that they face involve time constraints, lack of knowledge about available resources for caregiving students, and lack of access to affordable child care. Strengths of of caregiving students include a tendency to have higher motivation levels and better time management skills.

Conclusion: This research makes an important contribution in that it is one of the first to explore how the literature related to student caregivers might apply specifically to engineering students. The paper includes recommendations for better meeting the needs of caregiving students based on the review of literature and can lead to a study that inquires if these recommendations are also helpful in supporting engineering students or whether they have unique needs. Given that the demographics of student caregivers mirror the demographics of those who are underrepresented in engineering, better meeting the needs of student caregivers is likely to be a crucial piece of the

puzzle in remedying the inequities in engineering education.

1: Introduction and Background

A substantial percentage of undergraduates (22%) are parents. [2] These caregiving students are likely to have different experiences – including challenges faced and assets to draw upon–than other students as a result of their parenting roles and responsibilities. But very few venues that gather statistics on college students track their status as parents; thus, relatively little is known about the distinct experiences of caregiving students (CSt). (We use the term 'caregiving students' instead of the more common 'student parents' to acknowledge that a primary caregiver may not be a child's parent.)

One exception is this general lack of data about CSt is work by the Hope Center for College, Community, and Justice, which added questions about caregiving status to its survey in 2019.[3] In the Hope Center's survey, about 16% of the 23,000 respondents identified as CSt. The majority had significant financial challenges: 53% were food insecure and 68% were housing insecure; they also found that CSt were more likely to be female-identifying and from racially minoritized backgrounds. While CSt face many challenges, they also have, on average, higher GPAs than other students. [2] This data suggests both the challenges and the assets of CSt. Serving this population well requires a better understanding of how these and other factors contribute to their academic experience. This paper seeks to help fill that gap by answering the questions: What does previous research indicate about the experiences of student caregivers? and How does that knowledge apply to recruiting and retaining undergraduate engineering students?

A literature review on barriers and aids to CSt' academic outcomes in the United States, which its authors believe to be the first literature review of the experiences of CSt, was published in 2022. It found barriers at the individual, interpersonal, institutional, and policy levels that hindered CSt, concluding that the challenges that CSt face are systemic. This project expands upon their work by (1) including studies outside of the United States and over a longer time frame, (2) tracking CSt's areas of study, (3) exploring CSt's assets, challenges, and experiences, and (4) considering the implications for engineering education.

2: Theoretical Framework

Traditionally, much research concerned minoritized students and groups of students has implicitly adopted a deficit framework, meaning that these students were described as having problems that presented barriers to possible achievements. This perspective has been criticized recently, especially in the academic research community, as a possible contribution to the further stigmatization of these students and as problematically ignoring the strengths that they have as a result of their background, experiences, and culture. [4] Asset framing, which emphasizes these strengths, [5] is a corrective to deficit framing that is seen to be in line with the goals of diversity, equity, and inclusion for all students. In this paper, we seek to explore the assets that CSt have and to explore their challenges in a manner that does not 'blame' them for facing these challenges. [6]

3: Methodology

We used the process articulated by Khan et al. for conducting a literature review: [1] framing the question (described in the Introduction and Background), identifying germane work, assessing work quality, creating a summary, and interpreting the findings. In this section we outline our processes for identifying germane work and assessing work quality; the summary will be found in the results section, and the interpretation in the discussion and conclusion.

We followed the guidelines in the PRISMA 2020 statement [7] for our work, including completing the paper checklist, abstract checklist, and the flow diagram. Figure 1 shows an overview of the process by which germane research studies were found.

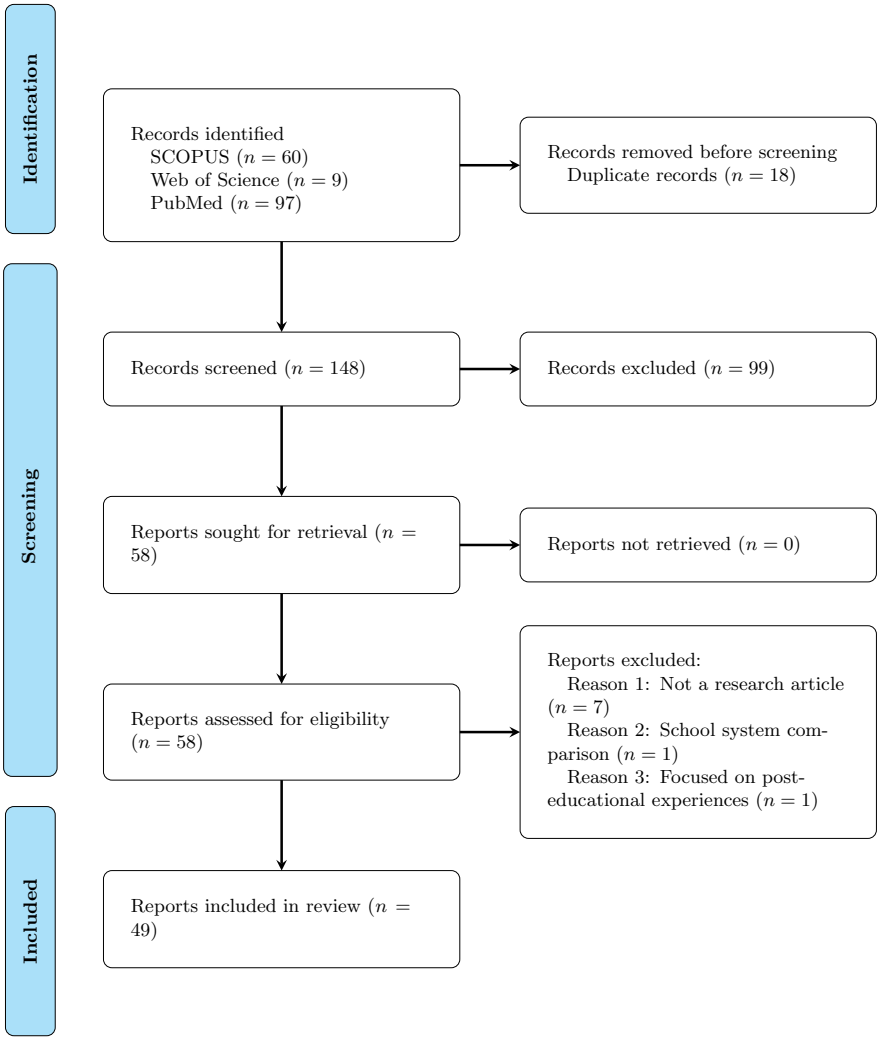

Figure 1: PRISMA chart

Three databases (SCOPUS, Web of Science Core Collection, and PubMed) were searched in October 2023 to identify studies with relevant keywords (note that the "Text Word" feature was used in PubMed). Specifically, we used this query: *KEY("student parent" OR "student parents" OR "student-parent" OR "student-parents" OR "student caregiver" OR "student caregivers"*

OR "caregiving students" OR "caregiving student" OR "student carer" OR "student carers"). Articles returned by the query ($n = 166$) were entered into Rayyan.ai. [8] (Note that the AI features of Rayyan.ai were not used in this study.)

Eighteen duplicate articles were deleted. The titles and abstracts of the remaining articles ($n = 148$) were reviewed by the author; articles were excluded unless they addressed some facet of the experience of CSt. (While it might seem based on the keywords that all articles would qualify for inclusion, that was not the case due to how some of the databases encode punctuation; e.g., "students' parents.") This process resulted in 58 included studies. The full text of each of these studies was reviewed, and nine were excluded because they were not research articles ($n = 7$), were a comparison of school systems ($n = 1$), or focused on the post-education experiences of students ($n = 1$). The remaining articles ($n = 49$) were included in this systematic literature review.

For each study included in the review, the following data was collated: year of publication, student level (e.g., undergraduate), student geographic location, student area of study, special concern (e.g., mental health of CSt), number of students in study, findings, implications for engineering, notes on study quality, and general notes. In our assessment, all of the studies were of sufficient quality to merit inclusion in this systematic literature review.

4: Results

4.1 Study Metadata

Figure 2 shows the count of papers for each year; note that not all years before 2015 are represented in the chart. There is a clear pattern of increasing publications related to CSt, and the spike in 2023 is likely to be even greater by year's end since the review was conducted in October. Some but not all of the recent surge in studies is related to the impact of the COVID-19 pandemic on CSt. No single journal has published more than two articles that were included in this review, suggesting that research about CSt is spread throughout venues with other focal points (i.e., there is no *Journal of Student Parents*).

Figure 3 shows CSt's major areas of study where it was specified; note that most studies ($n = 33$) did not specify the area of study. Fully half of studies that did specify areas of study involve students in health care fields (nursing, medicine, etc.).

Table 1 shows the count of papers by student classification as community college, undergraduate, and/or graduate students (where specified).

Table 2 shows the number of studies with participants from each country (where specified).

Table 3 shows the count of studies by their method(s) of data gathering.

4.2 Descriptive Data

Studies in this dataset describe CSt and their experiences across several dimensions. First, multiple studies have found that CSt are more likely than average to be students of color. [9, 10] Second, one study explored CSt's time use in depth, finding that CSt with children younger than 6

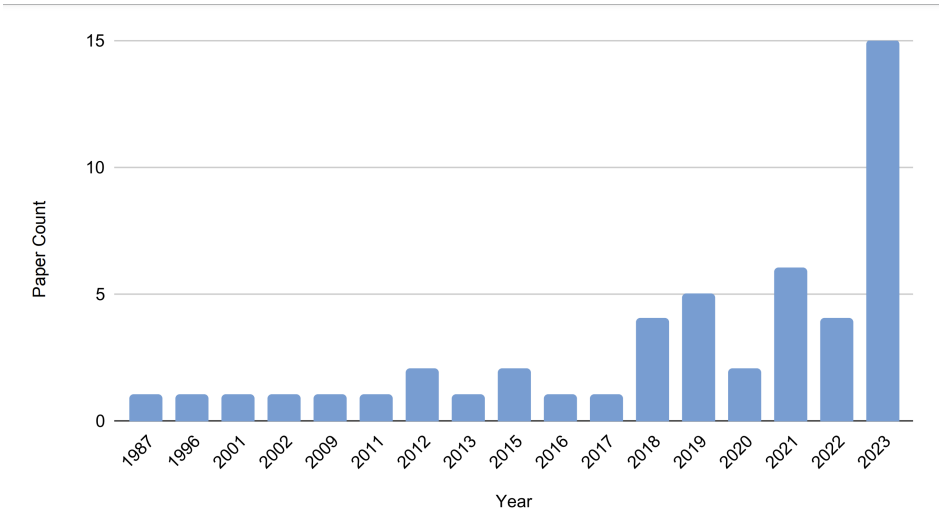

Figure 2: Number of Articles per Year *(note that not all years before 2015 are represented)*

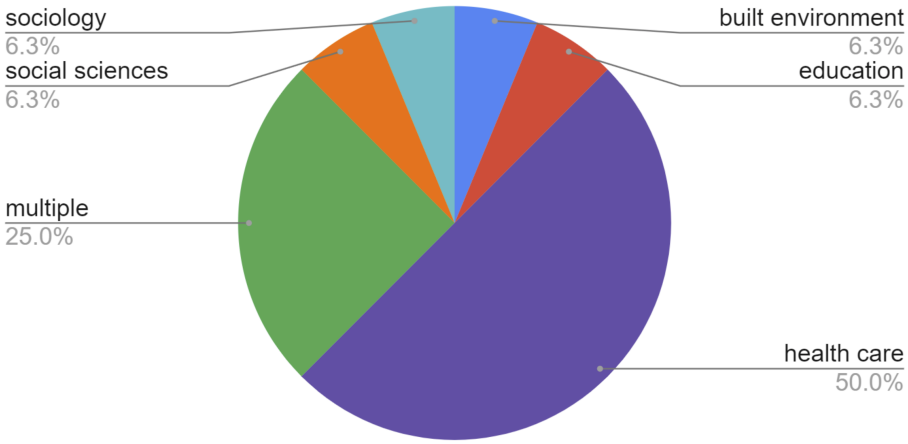

Figure 3: Student Area of Study Where Specified *(note that 33 studies did not specify area)*

Student Classification	**Count**
Undergraduate	24
Graduate	10
Community College	6
Undergraduate and Graduate	5
Community College and Undergraduate	2
Community College, Undergraduate, and Graduate	1

Table 1: Number of Studies by Student Classification

years old are spending 86 hours per week more than other students on non-discretionary tasks, almost all of which is childcare. [10] Given these time constraints, it is perhaps no surprise that CSt have a preference of flexibility in their schooling, including hybrid and online classes. [11, 12]

Country	Count
US	27
UK	7
Australia	4
Germany	2
Canada	1
Chile	1
New Zealand	1

Table 2: Number of Studies by Country

Method	Count
Interviews	21
Survey	16
Focus Group(s)	2
Institutional Data, Interviews, and Survey	2
Interviews and Survey	2
Institutional Data and Survey	1
Case Study	1
Focus Group(s) and Interviews	1
Pilot Study	1

Table 3: Number of Studies by Method

4.3 Challenges of Caregiving Students

The studies in this review describe three main challenges for CSt: time constraints, lack of knowledge of available resources, and lack of access to child care.

It is perhaps no surprise that the most common finding in surveys of the challenges faced by CSt is that they operate under intense time constraints. [13–16] CSt also frame this challenge as that of struggling to balance multiple roles [17] or feeling concerns over being an inadequate caregiver and/or inadequate student. [18] CSt also report feeling invisible as caregivers. [19]

A common finding was that CSt were unaware of available resources that might mitigate their time constraints, [9, 20–22] including what financial assistance or childcare options were available. That a significant portion of CSt are also first generation college students means that they may lack familial sources of information about navigating college. [14] When CSt do find out about available resources, it is often by word of mouth. [23] Lack of knowledge of available resources is also a problem for faculty and staff in their work with CSt. [24] A related challenge is the expectation that some resources are available when they are in fact not: one study found that over one-fifth of respondents believed before enrolling that the campus would have childcare although it did not. [11]

Also frequently mentioned was the need for more options for CSt for affordable, accessible childcare; [9, 25] one study found that, for about one-third of those CSt studied, barriers to childcare interfered with their education. [20]

In light of these challenges, it is perhaps not surprising that CSt require longer to complete their degree. [11] And while some studies found substantial mental health challenges for CSt, rates of anxiety and depression in CSt did not vary significantly by ethnicity. [26] Similarly, for CSt in graduate school, there was not a significant difference in motivation, satisfaction, or stress based on gender. [27]

4.4 Assets of Caregiving Students

The studies included in this review catalogue many assets that CSt bring to their educational experiences. First, their presence encourages a caregiving ethic in schools. [28] This ethic may be related to how the experience of caregiving impacts their priorities and goals: one study showed that educational aspirations changed after becoming a parent as students (in this case, Latina mothers) preferred work that allowed them to help other people. [29]

CSt describe many personal qualities and skills that they have developed as a result of their caregiving roles, and they articulate how these factors make them better students. These qualities and skills include time management skills, organizational skills, patience, self-discipline, determination, and compassion. [15, 30] CSt are more motivated than other students (although the older age of CSt may be a contributing factor). [27] These attributes and skills translate into CSt having higher GPAs than other students. [11]

The vast majority of studies focus on exploring the perceptions and experiences of CSt via survey and/or interview – there is very little work assessing the results of specific interventions. One exception to this trend is a study to assess the experiences of CSt who used a family-friendly library space. Interestingly, they found that its main value was for socializing with other CSt and that there was a very strong sentiment that the space enabled caregivers to remain in school. [31]

Figure 4 shows a summary of the findings of the review.

5: Discussion

Perhaps the most significant finding of this systematic literature review is that there is relatively little literature on the experience of CSt despite the fact that they comprise a substantial proportion of higher education students. What research does exist consists predominately of interviews and surveys assessing CSt's perceptions of their experiences (and not, for example, the results of interventions designed to support their educational experiences). This research shows that CSt face three main challenges: time constraints, lack of knowledge of available resources, and lack of availability of affordable child care. Assets of CSt include their increased motivation, organizational skills, and patience; these assets may be responsible for the higher GPAs that CSt have relative to their peers.

As outlined above, none of the studies included in this review focused specifically on engineering students. One study, which involved students from a variety of areas of study, consisted of 23% engineering students; [32] another study involved students studying the built environment [13] (an interdisciplinary field appropriate for students considering careers in construction, architecture,

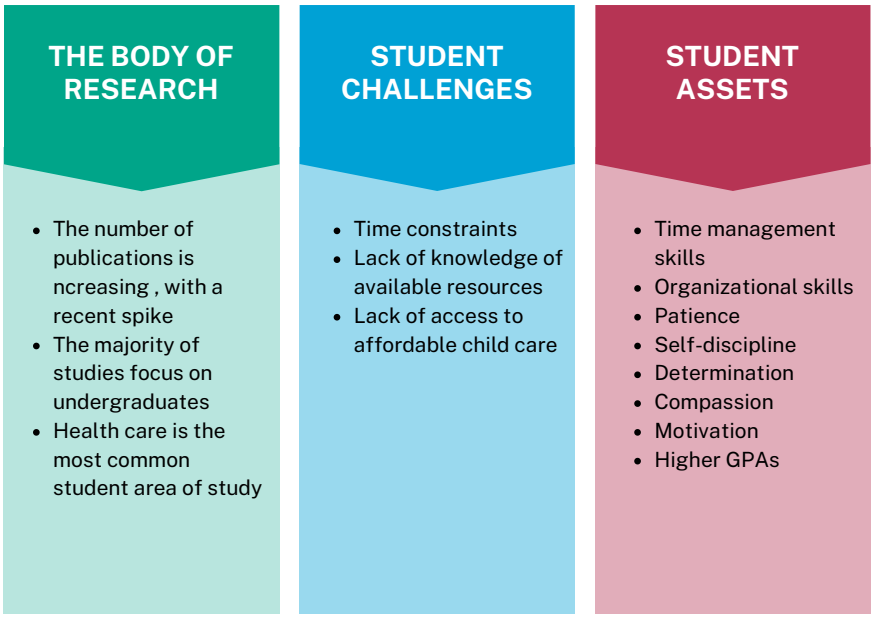

Figure 4: Summary of Findings

real estate, and similar fields), which is engineering-adjacent. But no study focused specifically on engineering students. It is thus unknown whether and how the experience of CSt studying engineering differs from other CSt. Extant data, though limited, shows that engineering students devote more time to their coursework than students in other majors; [33] it is not known whether CSt's time constraints would make their success in engineering less likely, whether their time management skills and organizational ability would make success more likely, or whether these two factors would balance each other. And there is a lack of evidence showing what approaches would be most effective to recruit and retain CSt studying engineering.

On the basis of this literature review and the gaps in the literature, we make the following recommendations to prepare institutions of higher education to better serve the needs of CSt, especially those studying engineering:

Consider Caregiving Status an Equity Issue CSt often feel isolated and invisible, despite their relatively large numbers. Considering CSt as an underserved group and framing caregiving status as a factor to be considered in discussions of equity sets a foundational for better meeting the needs of CSt. Further, CSt are more likely to be from groups traditionally marginalized in higher education, especially in engineering. Thus, better meeting the needs of CSt is one way to better meet the needs of many students from minoritized gender and racial/ethnic backgrounds. A climate hospitable to CSt may prove to be one way to encourage the involvement of engineering students from all genders and racial groups, even when there are restrictions on tools such as affirmative action in college admissions and other DEI efforts.

Collect More Data Relative to other individual characteristics (such as gender and race), very few entities collect data on a student's caregiving status. This makes it difficult to understand the nature of CSt's experiences. While some themes, such as time constraints, were clear in the literature, there are some concerns with the generalizability of qualitative studies, [34] making it

difficult to understand the broader landscape of CSt's experiences. Further, much of the data that is collected about CSt is reported in white papers, [35–38] which may be harder to locate (i.e., via databases of academic literature) and/or lack sufficient peer review. In some cases, lack of data about CSt makes it difficult for schools to link these students to available resources; [22] many schools are not aware of how many CSt are enrolled. [16] Clearly, more robust data is needed to better understand the experiences of CSt.

Conduct More Research This literature review identified only a few dozen research articles, a modest count given that CSt constitute nearly a quarter of all undergraduate students. The research base contains very little evidence of the results of interventions designed to improve CSt experience, and this lack of research may be contributing to a disconnection between extant resources and meeting CSt's needs: for example, one study found that existing childcare programs may not be widely used. [39] Further, with rare exceptions, [15] studies focus on currently enrolled CSt and not those who have had to discontinue their education, which likely contributes to survivorship bias. Future research should include caregivers who wanted to pursue more education but were unable to as well as those who began an academic program but did finish it; these perspectives would provide a fuller picture of the barriers to academic success for caregivers. Additionally, research using methods other than surveys and interviews, both of which suffer from limitations such as low response rates and difficulty in scaling, could create a fuller picture of the experiences of CSt.

As mentioned above, no studies in this review focused specifically on engineering students. Previous research suggests that engineering students differ from other students – including from other students studying science – in a variety of ways, including time to graduation, number of major changes, number of credits completed, and number of hours attempted each term. [40] Thus, there is reason to consider whether CSt studying engineering differ from other CSt.

Highlight Caregiving Students' Assets It is true that CSt face substantial challenges, but they also bring a distinct set of strengths. As mentioned previously, CSt have higher GPAs than other students despite the additional demands on their time. The presence of CSt can add an extra dimension to the campus and to the classroom: one study has noted their maturity, empathy, leadership capacity, and adoption of a distinct viewpoint informed by their caregiving. [15] Schools should therefore view CSt as having a distinct set of strengths as well as challenges. Faculty and staff can emphasize the strengths that CSt bring to their studies [41, 42] and the profound value they can bring to the institution. Acknowledging these strengths may help mitigate the sense of isolation that some CSt report.

Adopt Supportive Policies and Programs Time constraints, one of the main challenges of CSt, can be eased by a variety of policies. For example, providing CSt with priority course registration, [21] an option sometimes offered to student athletes, would likely make it easier for CSt to plan a course schedule that meshes well with their childcare arrangements. Policies that allow CSt a leave of absence could be helpful.[43] Support for CSt is often ad hoc,[24] although formal policies (e.g., for lactation time and space) may benefit students. [44]

Other resources for CSt might include a parent resource center, playgroups, and clothing exchanges. [9] A CSt support network, which CSt mention difficulty finding or creating themselves,[13] might also be useful, especially since isolation is correlated with anxiety for CSt.

[26]

One aspect of successful programs for CSt is ease of access: CSt cite their busy schedules as impediments to accessing extant resources. [22]

Improve Awareness of Access to Policies and Programs One of the major challenges to CSt identified in the literature is that they are unaware of what resources exist on campus to support them. It is admittedly a challenge, given the time constraints under which most CSt operate, to make information about resources easily available to them (e.g., they may be less likely than other students to read lengthy emails from the university). Grouping services (physically, on the school's website, etc.) may help. [14] Colleges and universities could also do more to make CSt aware of community- and goverment-based resources that are available to them,[43] such as SNAP food benefits. They can also strive to make it as easy as possible for CSt to access those resources on campus. For example, one CSt noted that she skipped meals because she was unable to use her SNAP food benefits on campus; [3] making it possible to use these benefits on campus would make it easier for CSt.

Promote a Caregiving Ethic The vision of a 'care-free' student is the norm, and it is part of what makes CSt feel marginalized. [28] Elevating the profile of CSt is a natural venue for advancing a caregiving ethic in campus communities; Highlighting student caregivers in (e.g., university websites) might contribute to the development of an ethic of care. Advancing this ethic may also help CSt escape the worries of being an inadequate student or caregiver, and the extension of this ethic may be particularly beneficial to subjects such as engineering that are traditionally perceived as masculine.

6: Conclusions

Because this study relied on keywords as the initial mechanism for identifying research on CSt, it is possible that relevant works lacking one of the specified keywords were not included. Particularly significant gaps may exist regarding works that are primarily about another topic but nonetheless have important impacts on what is known about CSt. For example, a report on the impacts of intimate partner violence (IPV) found that two-thirds of IPV survivors felt that their experiences had disrupted their educational plans; while not all participants in this study were parents, the authors note that many respondents reported that their partner disrupted their child care arrangements, leading to interference with their educational pursuits, [45] a finding supported by other research on IPV and CSt. [46]

To our knowledge, this paper is the first to explore how the experience of caregiving might impact undergraduate engineering students specifically. As a first step to better understanding their experiences, this paper systematically explored literature on CSt, identifying their challenges and assets. Much more research on student parents in general and CSt who are studying engineering is needed. Future work might include comparative assessments of the perceptions, experiences, and outcomes of CSt who are studying engineering with those in other areas of study, which would lay a foundation for developing interventions needed to support CSt in engineering.

Acknowledgements

This work is supported by the National Science Foundation under award #2119930. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

References

[1] Khan, K. S.; Kunz, R.; Kleijnen, J.; Antes, G. Five steps to conducting a systematic review. *Journal of the Royal Society of Medicine* **2003**, *96*, 118–121.

[2] Cruse, L. R.; Holtzman, T.; Gault, B.; Croom, D.; Polk, P. Parents in College: By the Numbers. *Institute for Women's Policy Research* **2019**, Publisher: ERIC.

[3] Goldrick-Rab, S.; Welton, C.; Coca, V. *Parenting While In College: Basic Needs Insecurity Among Students with Children*; 2020.

[4] Mejia, J. A.; Revelo, R. A.; Villanueva, I.; Mejia, J. Critical Theoretical Frameworks in Engineering Education: An Anti-Deficit and Liberative Approach. *Education Sciences* **2018**, *8*, 158, Number: 4 Publisher: Multidisciplinary Digital Publishing Institute.

[5] González, N.; Moll, L. C.; Amanti, C. *Funds of knowledge: Theorizing practices in households, communities, and classrooms*; Routledge, 2006.

[6] Gray, R.; McDonald, S.; Stroupe, D. What you find depends on how you see: examining asset and deficit perspectives of preservice science teachers' knowledge and learning. *Studies in Science Education* **2022**, *58*, 49–80, Publisher: Routledge _eprint: https://doi.org/10.1080/03057267.2021.1897932.

[7] Page, M. J.; McKenzie, J. E.; Bossuyt, P. M.; Boutron, I.; Hoffmann, T. C.; Mulrow, C. D.; Shamseer, L.; Tetzlaff, J. M.; Akl, E. A.; Brennan, S. E.; others The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic reviews* **2021**, *10*, 1–11, Publisher: BioMed Central.

[8] Ouzzani, M.; Hammady, H.; Fedorowicz, Z.; Elmagarmid, A. Rayyan—a web and mobile app for systematic reviews. *Systematic Reviews* **2016**, *5*, 210.

[9] Dayne, N.; Jung, Y.; Roy, R. Childcare, Campus Support Services, and Other Barriers for College Students Who are Parents at a 4-Year Hispanic Serving Institution. *Journal of Hispanic Higher Education* **2023**, *22*, 18–32.

[10] Wladis, C.; Hachey, A. C.; Conway, K. M. The Representation of Minority, Female, and Non-Traditional STEM Majors in the Online Environment at Community Colleges: A Nationally Representative Study. *Community College Review* **2015**, *43*, 89–114.

[11] Reilly, K. A.; Levintova, E. M. Student Parents and HIPs: Missing Out on High-Impact Practices. *The Journal of Continuing Higher Education* **2023**, *71*, 98–110.

[12] Cuming, T.; Verdon, S.; Hoffman, L.; Hopf, S. C.; Brown, L. Mothers' experiences of engaging in blended online learning in higher education. *International Journal of Lifelong Education* **2023**, *42*, 177–194, Publisher: Routledge _eprint: https://doi.org/10.1080/02601370.2023.2173815.

[13] Rhoden, M. D.; Kinchington, F. Examining the Challenges Faced by International Women with Preschool Children Studying for a Postgraduate Built Environment Degree in the UK. *Journal of International Students* **2021**, *11*.

[14] Huerta, A. H.; Rios-Aguilar, C.; Ramirez, D. "I Had to Figure It Out": A Case Study of How Community College Student Parents of Color Navigate College and Careers - Adrian H. Huerta, Cecilia Rios-Aguilar, Daisy Ramirez, 2022. 2022; https://journals.sagepub.com/doi/10.1177/00915521211061425.

[15] Andrewartha, L.; Knight, E.; Simpson, A.; Beattie, H. Balancing the books: how we can better support students who are parents. *Journal of Higher Education Policy and Management* **2023**, *45*, 160–173, Publisher: Routledge _eprint: https://doi.org/10.1080/1360080X.2023.2180164.

[16] Lindsay, T. N.; Gillum, N. L. Exploring Single-Mother College Students' Perceptions of Their College-Related Experiences and of Campus Services. *The Journal of Continuing Higher Education* **2018**, *66*, 188–199, Publisher: Routledge _eprint: https://doi.org/10.1080/07377363.2018.1537657.

[17] Holmes, S. E.; Nikiforidou, Z. 'They don't realise how hard it is'. Investigating the lived experiences of higher education students with parental responsibilities during the Covid-19 pandemic - Holmes - 2023 - Higher Education Quarterly - Wiley Online Library. **2023**,

[18] Estes, D. K. Managing the student-parent dilemma: Mothers and fathers in higher education. *Symbolic Interaction* **2011**, *34*, 198–219, Place: US Publisher: University of California Press.

[19] Lucchini-Raies, C.; Márquez-Doren, F.; Herrera-López, L. M.; Valdés, C.; Rodríguez, N. The lived experience of undergraduate student parents: roles compatibility challenge. *Investigación y Educación en Enfermería* **2018**, *36*, Number: 2.

[20] Manze, M.; Watnick, D.; Freudenberg, N. How do childcare and pregnancy affect the academic success of college students? *Journal of American College Health* **2023**, *71*, 460–467, Publisher: Taylor & Francis _eprint: https://doi.org/10.1080/07448481.2021.1895174.

[21] Navarro-Cruz, G. E.; Dávila, B. A.; Amaya, A.; Orozco-Barajas, I. Accommodating life's demands: Childcare choices for student parents in higher education. *Early Childhood Research Quarterly* **2023**, *62*, 217–228.

[22] Askelson, N.; Ryan, G.; Pieper, F.; Bash-Brooks, W.; Rasmusson, A.; Greene, M.; Buckert, A. Perspectives on Implementation: Challenges and Successes of a Program Designed to Support Expectant and Parenting Community College Students in Rural, Midwestern State. *Maternal and Child Health Journal* **2020**, *24*, 152–162, Company: Springer Distributor: Springer Institution: Springer Label: Springer Number: 2 Publisher: Springer US.

[23] Mulholland, M. R.; Gulliver, L. S. M. Support of parenting in undergraduate medical training in New Zealand. *Medical Teacher* **2023**, *0*, 1–7, Publisher: Taylor & Francis _eprint: https://doi.org/10.1080/0142159X.2023.2249210.

[24] Springer, K. W.; Parker, B. K.; Leviten-Reid, C. Making Space for Graduate Student Parents: Practice and Politics. *Journal of Family Issues* **2009**, *30*, 435–457.

[25] Niehues, J.; Prospero, K.; Fegert, J. M.; Liebhardt, H. Familienfreundlichkeit im Medizinstudium in Baden-Württemberg. Ergebnisse einer landesweiten Studie. *GMS Zeitschrift für Medizinische Ausbildung* **2012**, *29*, Doc33, Publisher: German Medical Science GMS Publishing House.

[26] Cho, S. H.; Roy, R. N.; Dayne, N. Student–Parents' Mental Health: Factors Affecting Anxiety and Depression. *Family and Consumer Sciences Research Journal* **2021**, *49*, 254–269.

[27] Yoo, H. J.; Marshall, D. T. Understanding Graduate Student Parents: Influence of Parental Status, Gender, and Major on Graduate Students' Motivation, Stress, and Satisfaction. *Journal of College Student Retention: Research, Theory & Practice* **2022**, 152102512110722.

[28] Moreau, M.-P.; Kerner, C. Care in academia: an exploration of student parents' experiences. *British Journal of Sociology of Education* **2015**, *36*, 215–233.

[29] Navarro-Cruz, G. E.; Dávila, B. A.; Kouyoumdjian, C. From Teen Parent to Student Parent: Latina Mothers' Persistence in Higher Education. *Journal of Hispanic Higher Education* **2021**, *20*, 466–480, Publisher: SAGE Publications.

[30] Mirick, R. G.; Wladkowski, S. P. Making it Work: Pregnant and Parenting Doctoral Students' Attributions of Persistence. *Advances in Social Work* **2019**, *19*, 349–368, Number: 2.

[31] Graff, T. C.; Ridge, R. D.; Zaugg, H. A Space for Every Student: Assessing the Utility of a Family Friendly Study Room in a University Library. *Journal of Library Administration* **2019**, *59*, 629–655.

[32] Dolson, J. M.; Deemer, E. D. The Relationship Between Perceived Discrimination and School/Work–Family Conflict Among Graduate Student-Parents. *Journal of Career Development* **2022**, *49*, 174–187.

[33] Time Spent on Selected Activities by Related-Major Category: Data Analysis Examples: Working with NSSE Data: NSSE: Evidence-Based Improvement in Higher Education: Indiana University. https://nsse.indiana.edu//nsse/working-with-nsse-data/data-use-examples/time-spent-by-major.html.

[34] Carminati, L. Generalizability in Qualitative Research: A Tale of Two Traditions. *Qualitative Health Research* **2018**, *28*, 2094–2101.

[35] Reed, S.; Grosz, M.; Kurlaender, M.; Cooper, S. A portrait of student parents in the California community colleges. *UC Davis Wheelhouse Center for Community College Leadership and Research* **2021**, *6*, 1–14.

[36] Pendleton, V.; Atella, J. Academic Outcomes of Undergraduate Student Parents Served by the University of Minnesota's Student Parent Help Center. A Retrospective Study (2000-2018). *Wilder Research* **2020**, Publisher: ERIC.

[37] Heckstall, I.; Collins, C. *Expand Access to Affordable High-Quality Child Care to Better Serve Black Student Fathers*; 2023.

[38] Costello, C. B. *Increasing Opportunities for Low-Income Women and Student Parents in Science, Technology, Engineering, and Math at Community Colleges. Report# C388.*; ERIC, 2012.

[39] Medved, C. E.; Heisler, J. A Negotiated Order Exploration of Critical Student-Faculty Interactions: Student-Parents Manage Multiple Roles. *Communication Education* **2002**, *51*, 105–120, Publisher: Routledge _eprint: https://doi.org/10.1080/03634520216510.

[40] Zhang, G.; Thorndyke, B.; Carter, R.; Anderson, T.; Ohland, M. Are Engineering Students Different from Others? ASEE Southeast Section Conference.

[41] Meachin, K.; Webb, C. Training to do women's work in a man's world. *Nurse Education Today* **1996**, *16*, 180–188.

[42] Pizzolato, J. E.; Olson, A. B.; Monje-Paulson, L. N. Finding Motivation to Learn: Exploring Achievement Goals in California Community College CalWORKs Students | Journal of Adult Development. 2017; https://link.springer.com/article/10.1007/s10804-017-9267-8.

[43] Theisen, M. R.; McGeorge, C. R.; Walsdorf, A. A. Graduate Student Parents' Perceptions of Resources to Support Degree Completion: Implications for Family Therapy Programs. *Journal of Feminist Family Therapy* **2018**, *30*, 46–70, Publisher: Routledge _eprint: https://doi.org/10.1080/08952833.2017.1382650.

[44] Taylor, J.; Macnamara, M.; Groskin, A.; Petras, L. Medical student-mothers. *Rhode Island Medical Journal (2013)* **2013**, *96*, 42–45.

[45] Hess, C.; Del Rosario, A. Dreams deferred: A survey on the impact of intimate partner violence on survivors' education, careers, and economic security. **2018**,

[46] Voth Schrag, R. J.; Edmond, T.; Nordberg, A. Understanding School Sabotage Among Survivors of Intimate Partner Violence From Diverse Populations. *Violence Against Women* **2020**, *26*, 1286–1304.