Social-Ecological Barriers to Student-parents' Academic Success: A Systematic Review

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Abstract

Students who are parents in higher education (HE) in the United States encounter competing demands and challenges while navigating multiple roles as parents, students, and employees. These challenges are multifaceted and can hinder their degree attainment. Using the socio-ecological model, we systematically summarized existing literature published between 2009 - 2020 to understand the experiences and predictors of student-parents academic outcomes in HE. The reviewed articles included students from two-year and four-year institutions (community college, undergraduates, and graduate students). The analysis revealed that the constraints to student-parents academic success are a system-level problem. Most of the barriers and facilitators identified were related to structural policies adopted by HE. This study concludes with recommendations for future research, policymakers, and the school ecosystem.

Keywords: Parents; Higher institutions; Universities; Academic success; Students

1. Introduction

The proportion of students raising children in higher education (HE) has persistently increased in the past decade in the United States (U.S.). As of the 2015 -2016 school year, an estimated 4.3 million or 22 percent of all undergraduate students in (U.S. United States Government Accountability Office, 2019) were raising children. However, mothers account for 70% of the overall student-parent population, with a greater proportion of mothers being single (62%), whereas 61% of fathers are married (Cruse et al., 2019; United States Government Accountability Office, 2019).

Despite the increasing numbers, student-parents experience marked challenges to their educational attainment, which leads to higher dropout rates than their non-student-parent counterparts. The United States Government Accountability Office reports that 52% of student-parent dropped out of school without earning a degree than 32% of students without children. Furthermore, among the student-parent population, 28% of student-parents who are single parents managed to earn a degree within six years of enrollment (Cruse et al., 2018; United States Government Accountability Office, 2019). However, no single reason explains the high dropout rates among student-parents because the barriers they encounter are multifaceted.

High shares of student-parents are from low-socioeconomic backgrounds and cannot afford tuition costs, quality/affordable childcare, affordable housing, and reliable transportation. Furthermore, time poverty stemming from balancing caregiving demands, school responsibilities, and work requirements continue to be persistent barriers reported in the literature. Another well-cited barrier is the lack/insufficient institutional support targeting student-parent's need in HE (Gault et al., 2014; Cruse et al., 2019). Issues include unclear institutional policies, poor support from faculty and staff, and, importantly, limited on-campus

childcare centers that do not meet the growing numbers of student-parents. These challenges are similar across institutions (e.g., community colleges, universities, for-or-not-for profit institutions; Cruse et al., 2019; Gault et al., 2014; Wladis et al., 2018). Also, structural barriers such as limited federal and state policies have been reported. For example, the only federal childcare program (Child Care Access Means Parents in School - CCAMPIS) that supports low-income student-parents does not adequately meet their needs. In the 2016-2017 school year, CCAMPIS provided child care assistance to 4,000 children, but another 4,200 were on a waitlist to receive benefits (United States Government Accountability Office, 2019). These challenges are unique to the student-parent population alone and put them at a high risk of not earning a certificate and poverty. This is a serious concern with intergenerational effects; as such, addressing these barriers cannot be overstated (Ajayi et al., 2021).

Studies show that parental educational status is associated with improved health status, future earnings, labor force participation, economic and financial securities for not just the parents but also their children and society. (US Department of Labor, n.d.; United States Census Bureau, 2018a, 2018b). Considering that education “shapes lives [and] is the key to lifting people [and future generations] out of poverty and reducing socioeconomic and political inequalities” (The Lancet Public Health, 2020, p. e361), it is imperative that HE pay heightened attention to the academic success of their most vulnerable student sub-populations. However, despite the utility of systematic synthesis, to date and to the best of our understanding, no systematic reviews exist that methodologically summarize the existing literature on student-parents educational outcomes.

Therefore, the purpose of this study was to systematically synthesize the existing literature reporting the lived experience and academic outcome of student-parents in HE in the

United States, using the socio-ecological model. Although the previous attempt at synthesizing the literature exists, the review's methodological quality is questionable (Lin, 2016; Osam et al., 2017). In this systematic review, we sought to answer the following research questions: what are the barriers and facilitators to student-parents academic success?

1.2. Theoretical Framework

This study utilizes the socio-ecological model (SEM) for health promotion by McLeroy et al. (1988) to understand the multifaceted and systems aspects of student-parents lived experiences while attending HE. The SEM posits that human development and patterns of behavior are influenced by 1) Intrapersonal or individual factors (e.g., knowledge, attitudes, behavior, or skills), 2) Interpersonal factors (e.g., relationships among formal and informal groups and social support networks), 3) Institutional factors (e.g., factors within organizations and entities), 4) Community factors (e.g., the relationship between organizations and institutions), and 5) Public policy (e.g., local, state, and national policies).

SEM addresses complex issues from a broad and multilevel perspective while recognizing that single-level analyses are insufficient to address complex and dynamic problems adequately. SEM has been used widely by researchers across different settings to understand organizational behavior, school system, and health outcomes (Dammhahn & Kappeler, 2009; Figueiredo & Pereira, 2011; Garney et al., 2021; Lim & Hoot, 2015; Oishi et al., 2007; Townsend & Foster, 2013). Scholars agree on its effectiveness, rigor, and methodological strength to understand and explain broad topics across diverse settings. It is an ideal framework for this study because it allows researchers to understand the multifaceted aspects of a student-parents life and how those factors interrelate with one another. This understanding provides a systems perspective of the problem. A systems perspective acknowledges the multiple elements

of influence, how they impact the problem, and how they interact. This leads to a holistically understanding and allows researchers to identify leverage points for potential intervention and anticipate unintended consequences of change.

Student-parents' abilities to learn about and navigate barriers (individual level), their relationship with faculty and family members (interpersonal level), HE policies such as childcare subsidies (institutional level), and federal programs such as Child Care Access Means Parents in School Program (CCAMPIS; policy level) influence and interact from an ecological perspective on their academic success. This study seeks to identify multifaceted factors using SEM (Figure 1) to understand better common barriers and potential facilitators to Parenting-Students' academic success in colleges and universities.

Figure 1. McLeroy and Colleague's socio-ecological framework for health promotion showing the multilevel factors within the individual, interpersonal, institutional, and public-level affecting student-parents academic success in the United States.

* Child Care Access Means Parents in School Program

2. Materials and methods

This systematic review was conducted per the Preferred Reporting Items for systematic review (PRISMA) guideline and checklist. We developed and registered the study protocol with PROSPERO - registration number- CRD42020179912.

2.1. Search strategy

A thorough and systematic search was performed of peer-reviewed articles published between 2009 to 2020 from eight major electronic databases: Eric, Education Source, Education Full Text, Education Administration Abstracts, Academic Search Ultimate, APA PsycInfo, Medline, and CINAHL (Ebsco). All search protocols were conducted in tandem with a research reference librarian who is an established expert in health sciences systematic reviews to ensure thoroughness. An initial search was conducted in 2019 and updated in 2020. Additionally, the reference sections of the selected articles were purred to identify articles potentially missed via electronic search. The terms used in the searches included “parents,” “mothers,” “childrearing,” “child raising,” “college students,” “undergraduate students,” “student-parents,” “non-traditional students,” “students,” and “graduate students,” in different combinations using the “AND” and “OR” Boolean combinations.

2.2. Inclusion and exclusion criteria

We included studies utilizing quantitative and qualitative study designs. The study included students from two-year (e.g., community colleges) and/or four-year institutions (e.g., undergraduates, Masters, Ph.D., and professional students). Part-time or full-time students, if reported but not distant learning students, were included. Finally, studies that examined institutional policies in the context of parenting and or pregnant students were selected. It is noteworthy to state that this review's initial goal was to assess mothers' experiences who may be

parents or pregnant in HE because they represent a greater proportion of the student-parent population and experience greater challenges to their college attainment than fathers (Cruse et al., 2019). However, a handful of the retrieved articles included fathers who were also students, but their population size was substantially small. Thus, this current Study had fathers and mothers who are parents in the IHE in the US.

Moreover, it was impossible to extract the father's reported academic outcomes separately from the mothers. Given these concerns, we included studies reporting fathers and mothers with children in HE. We excluded articles reporting information about the parents of college students – Figure 2.

Figure 2. Flow diagram showing the studies included for analysis.

2.3. Data extraction and synthesis

Guided by the socio-ecological model, we extracted studies using the matrix method (Garrard, 2020). Barriers and facilitators associated with student-parents academic outcomes were extracted from each article. Studies retrieved were screened by title and abstract independently by two team members and were subsequently triaged for full-text screening. The team members discussed diverging opinions to establish inter-rater reliability; discordant scores were resolved by consensus. Data points extracted included study design, type of institution, theoretical framework, factors in the SEM levels, and other essential information significant to this reviews' research question and objective. One team member pre-and-pilot-tested the initial form by selecting the first five studies from each study domain (qualitative and quantitative articles). Using a qualitative interpretive framework, the team conducted three iterations of coding, which comprised an initial coding of the articles to label the data, reexamining the initials codes to develop categories, and finally performing a thematic analysis of the data. The codebook was reviewed by a team member who was not involved in the initial screening process to establish validity and reliability. The qualitative analysis enables researchers to inductively and deductively analyze data that is "sensitive to the people and places understudy" while establishing "patterns or themes" (Creswell & Poth, 2016, p.42).

2.4. Methodological quality assessment

We assessed the articles' methodological quality using the Joanna Briggs Institute (JBI) Critical appraisal tool for qualitative and cross-sectional studies, respectively. Two team members independently used the JBI cross-sectional and qualitative assessment tool to rate the quantitative and qualitative articles' methodological quality. Subsequently, the team members

met to discuss and resolve discrepancies. All articles received a score of a high, low, or unclear rating (high-1, low/unclear-0).

3. Results

3.1. Study characteristics

A total of 41 articles were included in this review, as seen in Table 1. The majority ($n = 22$; 53.6%) utilized a qualitative research methodology, fifteen (36.5%) were quantitative studies, and four (9.7%) used a mixed methodology study design. Thirty-two articles (78%) included university students (undergraduates, master-level, or doctoral students) or community colleges. Two studies (4.8%) individually assessed medical students and veterinarians. A small number of articles ($n=11$; 26.8%) included fathers, and four articles (9.7%) evaluated existing institutional pregnant and parenting students' policies and programs, program directors, administrators, faculty, or staff. Two studies (4.8%) comprise international students. Of the 41 articles included, only ten (24.3%) reported evidence of an existing program or policies targeted at pregnant or parents' students. Overall, twenty-three (56%) articles used at least one theoretical framework. Extensive details about the study characteristics and methodological quality are reported in the ensuing paragraphs.

In the ensuing paragraphs, we summarize the barriers (Table 2) and facilitators (Table 3) based on their individual, interpersonal, institutional, and policy-level factors. Because an article may report more than one theme or sub-theme, aggregate themes may exceed the total number of articles reviewed ($n=41$).

Table 1: *Study Characteristics of Included Articles*

ID	Authors	Study design	Sample characteristics, size	Study method, analysis	Institution type and level of Study	Theoretical framework	Outcome of interest
1	(Yakaboski , 2010)	Qualitative	Single mothers; (n=21)	Focus groups; Needs assessment survey; thematic analysis.	University; Undergraduates	Feminist epistemological framework	College experiences and retention
2	(Wilson & Cox, 2011)	Qualitative	Married and single mothers; (n=13)	Re-analysis of interview data, case study, and interpretive phenomenological analysis	Community college students	Feminist critical policy analysis theory	Lived experiences of single mothers
3	(Wilsey, 2013)	Quantitative,	Married and single mothers; (n =95).	Survey, content analysis; Descriptive statistics	University; Undergraduates	Not specified	Reasons for college enrollment; How college enrollment of mothers affects children.
4	(Deutsch & Schmertz, 2011)	Mixed method	Female students, (Study did not state the marital status). 85% of the sample has a prior postsecondary education. 77% have children; (n=13)	Focus groups	University; Undergraduates	Feminist epistemological theory, Levin's conceptualization framework.	The experiences of adult women returning to school for their bachelor's degree.
5	(Springer et al., 2009)	Quantitative,	Graduate Program Directors; n=40	Survey; Descriptive statistics	University; Doctoral students	Not specified	To describe society's view of idealized mothering and academia's

							views of an ideal graduate student.
6	(Shenoy et al., 2016)	Quantitative;	Single mothers, n=309. Non-parent female students, n=6,523	Survey; Descriptive and bivariate analysis.	Community college students	Not specified	Difficulties facing single parents; Association between single parenting and mental health outcomes (depression, self-injury, suicide attempt).
7	(Sealey-Ruiz, 2013)	Qualitative	Female parent students, n= 5. (Study did not specify the marital status).	Interview; Case study; Narrative analysis/ constant comparative method.	Re-entry college students. (Study did not state the student's degree level).	Black feminist and critical race theory	College re-entry experiences; Motherhood; Effects of re-entry on their children's educational choices.
8	(Sallee & Cox, 2019)	Qualitative	Married, single mothers, and fathers, (n=17); School administrators, (n=19).	Interviews and document analysis; case studies	Community college students	Network analytic framework	Student parents' college lived experiences.
9	(Roy et al., 2018)	Qualitative	Married, single mothers, and pregnant students, (n=11)	Focus groups and one-on-one interviews; phenomenological analyses	University; Undergraduates	Not specified	Experiences of the transition to motherhood among college students

10	(Ricco et al., 2009)	Quantitative;	Married and single mothers, (n=89)	Survey; Descriptive, bivariate, and hierarchical analysis.	Four-year university students. (Study did not state the student's degree level).	Ecological systems theory	college mothers' student-role attitudes to their parenting attitudes and to their children's attitudes toward school.
11	(Radey & Cheatham, 2013)	Quantitative; Longitudinal	Married and single mothers, (n= 27,269). *	Survey: bivariate and binomial logistics regression	University; Graduate and undergraduate	Intersectionality theory	How student characteristics influence FAFSA application rates among low-income, aid-eligible women.
12	(Radey, 2017)	Quantitative; Longitudinal	Married single mothers, (n=2,330)	Survey; Descriptive statistics and multilevel logistic regression	Community colleges and four-year university.	Rational action theory	Maternal college enrollment rates.
13	(Prikhidko & Haynes, 2018)	Qualitative	Married and single mothers, (n=8)	Semi-structured Interview; thematic analysis	University; Doctoral and Master's students	Dissonance theory; Constructivist theoretical perspective	Graduate student mothers' experiences balancing schooling and parenting.
14	(Peterson, 2016)	Qualitative	Married, single mothers, and fathers, (n=15)	Interview; Interpretive phenomenological analysis	University; Community college students.	Not specified	The lived experiences and retention of nontraditional community

							college students with children.
15	(Onwuegbuzie et al., 2014)	Mixed methods	Married and single mothers, (n=8)	Interview; phenomenological analysis; content analysis; sequential mixed analysis	University; Doctoral students	Academic resiliency theory	Lived experiences
16	(Myers-Walls et al., 2011)	Qualitative	Married, single mothers (n=20), and fathers, (n=11) ** Asian international student	Semi-structured interviews, phenomenological analysis	University; Graduate students. (Study did not state the student's degree level).	Hill's ABCX model of stress management	Lived experiences and acculturative stressors of Asian international graduate-student families
17	(Molter et al., 2019)	Quantitative; cross-sectional	Websites, documents (n=26); School administrators from 30 veterinary medicine association, (n= 20).	Surveys; document analysis; descriptive analysis; thematic analysis.	Veterinary internship or residency program; house officers (post-graduate trainees)	Not specified	Policies and support services for Veterinary pregnant and parenting students
18	(Sallee, 2015)	Qualitative	Female and male student parents, (n=18, Study did not specify marital status).	Interviewing; Concept-driven analysis.	University; Master level students	Role conflict theory	How graduate student parents navigate their academic, familial, and professional responsibilities.

19	(Mahaffey & Gregg, 2015)	Quantitative	Married and single mothers, (n=237)	Survey; counts	University students (Study did not state the student's degree level)	Not specified	Mothers' campus service needs and retention barriers
20	(Madden, 2018)	Qualitative	Married, single mothers, and pregnant student, (n=17)	Interview; thematic analysis	Community college students	Acker's theory of gendered organization	Low-income pregnant and parenting student mothers' experiences in community colleges.
21	(Shepherd & Nelson, 2012)	Qualitative	Mothers, (n=3)	Interviews; Phenomenological approach	University; Masters and Doctorate	Cross barriers to adult learning	To understand how adults successfully complete their graduate studies despite the barriers they encounter
22	(E. Lovell & Munn, 2017)	Quantitative; Quasi-experimental	Student parents, (n=70, Study did not specify gender and marital status). Non-parenting students, (n=105).	Survey; Bivariate analysis and linear regression models	Community college students	Piaget's theory of cognitive development	Learning preferences; Life meaning for parenting students vs. non parenting students.
23	(E. D. N. Lovell, 2014)	Quantitative; Quasi-experimental	Married, single mothers, and fathers, (n=78)	Survey; Bivariate analysis and linear regression models	Undergraduates from two-year and four-year campuses.	Not specified	Retention needs of student parents with children below and

24	(Lobnibe, 2013)	Qualitative	Married and single mothers, (n=23). African international student	Oral and life history interviews; Focus groups; content analysis	University; Graduate students (Study did not state the student's degree level).	Not specified	above 6 years old. Structural and socio-cultural environments of African graduate student mothers
25	(Lindsay & Gillum, 2018)	Qualitative	Single mothers, (n=10).	Semi-structured interviews.	University; Undergraduates	Bioecological model of human development.	Single mother perceptions and experiences with campus related services.
26	(Lashley & Ollivierre, 2014)	Qualitative	Single mothers, (n=20)	Semi-structured interviews; conventional content analysis	University; Undergraduates	Not specified	Lived experiences of Black undergraduate college mothers.
27	(Plageman & Sabina, 2010)	Quantitative	Female students (n=54; Study did not state the marital status) 59.26% have a spouse or partner; 46.3% have a child[ren]	Survey; Descriptive; correlation	Universities; Undergraduates	Not specified	Family support on college attendance, GPA, and persistence.
28	(Kulp, 2020)	Quantitative; Longitudinal	Married and single mothers (n= 214), fathers, (n= 248). Total sample	Survey; Descriptive statistics; Sequential logistic regression	University; Doctoral	Enders' framework integrated with Kennelly and Spalter-	tenure-track job outcomes of graduate student mothers after graduation

			includes non-parent students. (N=2,994).			Roth's framework	
29	(Kensinger & Minnick, 2018)	Qualitative	Married and single mothers, (n=27).	Semi-structured interview; thematic analysis	University; Undergraduates	Gender-role theory and social capital theory	Support and barriers of mothers pursuing higher education.
30	(Johnson & Nussbaum, 2012)	Quantitative;	Female and males, (n=84; 60% have been married & 30% are parenting). Non-parent students, n=94	Survey; Descriptive, MANOVA, and correlation analysis	University; Undergraduates	Achievement goal theory	Achievement goals and coping strategies between traditional and nontraditional students.
31	(Hotez et al., 2020)	Qualitative	Married female students, n=5	Focus groups	University; Four-year institutions. (Study did not state the student's degree level).	Not specified	Perspectives, experiences, and priorities of student-parents that may impede or bolster their success in higher education.
32	(Markle, 2015)	Mixed methods	Married and single mothers (n=320), fathers (n=174)	Survey; Descriptive and bivariate analysis; Grounded theory, Logistic regression	University; Undergraduates	Role theory	Factors influencing persistence among nontraditional men women undergraduate students.
33	(Eisenbach, 2013)	Qualitative	Married female student, n =1	Autoethnography	University; Doctoral	Not specified	The causes of tension and stress

							while completing a doctoral program. Behavioral, normative, and control beliefs regarding pumping breast milk on campus between students, staff, and faculty.
34	(Dinour et al., 2015)	Qualitative	Married and single mothers, (n=11), Staff (n=8), and Faculty (n=13)	Semi-structured interview; content analysis	University; Undergraduate and graduates.	Theory of planned behavior	Behavioral, normative, and control beliefs regarding pumping breast milk on campus between students, staff, and faculty.
35	(Crispin & Nikolaou, 2019)	Quantitative	Male and female parent and non-parent students, (n=7,161). ***	Survey; Descriptive, 24-hour time diary, bivariate, linear regression models.	Community college students, University (undergraduates, masters, and higher).	Not specified	Time-allocation decisions of student-parents.
36	(Bye et al., 2017)	Quantitative	Male and female parent and non-parent students n=194. ***	Survey; Descriptive statistics	Medical students	Not specified	Effects of pregnancy and parenthood on medical students.
37	(Brown & Nichols, 2013)	Qualitative	Married, single mothers, pregnant, and fathers (n=24)	Case study; Interviews	University; Undergraduates and graduates	Bourdieu's theory of social reproduction	The policies and programmatic needs of pregnant and parenting students.
38	(Bloom, 2009)	Qualitative	Married and single mothers, (n=5)	Interviews; ethnography	University: undergraduates, graduates, and recent graduates	Not specified	Contributions of personal and educational

39	(Auguste et al., 2018)	Qualitative	Student parents and veterans, (n =42) ****	Interviews; phenomenological perspective	University; Undergraduates and recent college graduates	Social identity theory	success of student mothers. Advising experiences related to their intersectional identities.
40	(Askelson et al., 2020)	Mixed method	Male and female parent and non-parent students, and staff n= 1,077. ***	Multi-component evaluation using quantitative and qualitative methods; Descriptive and thematic analysis	Community college students	Not specified	Evaluation of a program serving expecting and parenting students at three community colleges.
41	(Lovell, 2014)	Qualitative	Married and single mothers, (n=8)	hermeneutic phenomenological perspectives	Community college students	Not specified	Lived experiences and motivation of student mothers by the ages of their children.

* Females were mothers, veteran (other independent) and other females as a whole (dependent)

** Spouses of students of Asian international students were included

**** Study defined sample as nontraditional students (mothers, veterans, aged 24 or older)

***Study did not report the sample breakdown between parent and non-parents

3.2. Primary Theme: Barriers to Student-parents' Academic Outcomes

3.2.1. Individual-level factors

The individual-level factors are associated with an individual's experience, knowledge, skills, attitudes, and behavior. In this systematic review, the most cited individual level barrier was conflicting life choices ($n = 38$). Some examples include student-parents experiences

balancing multiple roles as parents, students and employees, time demands, career compromise, and academic vulnerability. In addition, financial barriers ($n=30$) also impede student-parent's ability to afford childcare services, school tuitions, and quality housing. Another barrier reported was student-parent's self-perceptions about self-doubt, cognitive dissonance, negative perception about welfare programs, sexism, and perfectionism ($n=17$). Next, poor mental health ($n=16$), including postpartum depression, stress, feelings of isolation, and marginalization, was reported. Further, poor knowledge about available campus resources and programs were also cited as barriers ($n=9$). Finally, international students found it challenging to blend into a new society because of language barriers and cultural variations ($n=3$).

3.2.2. Interpersonal-level factors

Interpersonal-level factors comprise interactions with formal and informal social networks and social support systems. This study investigated the relationship between student-parents and faculty/staff, family members, and peers. Student-parent's relationship with faculty and staff was the greatest barrier reported in this study ($n=13$). These barriers were related to misaligned relationships, poor communication, and lack of understanding of student-parents ordeals. Faculty/staff's unwillingness to allow student-parents to bring their children to class and the denial of employment opportunities because of their parental status were barriers reported.

Additionally, student-parents said poor social relationships with peers (i.e., non-student-parents) posed challenges to their educational attainment ($n=10$). These include uncooperative peers during group tasks and unwelcoming attitudes from the student population about breastfeeding on campus. Lastly, poor relationships with family members also posed challenges to student-parents educational pursuit ($n=9$). These challenges include unsupportive partners'

reluctance to watch over their children while their partners studied, the death of family members, and family problems such as broken relationships.

3.2.3. Institutional-level factors

Institutional or organizational level factors include policies, programs, and regulations for operation. In this study, we investigated factors within HE. Of the barriers identified, institutional policies ($n=41$) were the most reported challenges to student-parents' academic outcomes. Within this category, lack of family-friendly events, university-age policies on children, unaffordable/lack of on-campus childcare services, lack of campus-based resources, and insufficient financial aid. Scheduling conflicts ($n=10$) relating to class scheduling conflicts with on-campus childcare policies, hindering students' ability to attend classes. This made students miss class or adjust their class schedules to mirror their children's school schedule. Finally, the lack of a comprehensive student-parent database ($n=2$) was noted.

3.2.4. Policy-level factors

Policy-level factors include local, state, and national policies and laws. In this study, two key themes emerged. First, international students on F1 or J1 visas reported that immigration policies ($n=1$) restricting their spouses from earning an income reduced their earning power and made it challenging for them to manage their home dynamics. Students also reported that the Free Application for Federal Student Aid (FAFSA) documentation process made it difficult to complete their application ($n=1$).

Table 2: *Barriers of Student Parents' Academic Success in IHE in the US Reported Using the Socioecological Model*

Socio-ecological levels	n	Study ID numbers
Individual-level factors		
Financial issues	30	
Childcare		1,8,9,16,19,26,29,37
Housing		1,16,26,29,37

<i>School fees</i>	1,16,19,26,29,32,37
<i>Low income</i>	1,2,5,6,10,12,22,26,28,38
Conflicting life choices	38
<i>Balancing school, work, family</i>	2,4,8,9,10,13,14,15,16,18,19,20,21,23,25,26,29,31,32,33,38,41
<i>Time demands</i>	3,4,19,25,31,32,34,35
<i>Career compromise</i>	4,5,28,32
<i>Academic vulnerability</i>	2,6,11,19
Self-perception	17
<i>Self-doubt</i>	7,21,32,38
<i>Cognitive dissonance/Identity</i>	13,24,39
<i>Perfectionism</i>	13
<i>Racism, sexism, classism</i>	7,24,37,38
<i>Negative perception about welfare programs</i>	1,2,7,12,38
Mental Health	16
<i>Feelings of isolation</i>	16,20,24,38
<i>Stress, depression</i>	9,6,21,26,33,36,31
<i>Marginalization</i>	7,20, 29,32,39
Acculturation	3
<i>Adjustment to living in two cultures</i>	16,24
<i>Language difficulty</i>	16
Campus resources	9
<i>Unaware of campus resources</i>	3,5,8,9,34,36,37,40
<i>Underutilization of campus resources</i>	3
Transportation challenges	4 19,26,37,40
Interpersonal-level factors	
Faculty and staff	13
<i>Attitudes and support</i>	1,3,5,9,14,19,20,24,31,32,34,37,39
Family	9
<i>Abusive and unstable relationships with partners</i>	2,4,6,9,16,20,21
<i>Death of family member/friend</i>	5,6
Peer support	10
<i>Poor social support</i>	4,9,13,14,16,20,22,24,31,34
Institutional-level factors	

University policies	41	
<i>Lack of family friendly events</i>		1,8,9,19,16,20,25,31,34
<i>University age limit policies on children</i>		1,8,25
<i>Unaffordable/lack of Childcare services</i>		1,3,8,9,16,17,19,23,25,26,28,29,37
<i>Lack of campus-based resources</i>		1,5,8,9,16,17,21, 23,28,31,34,37
<i>Financial aid</i>		8,19,37,40
Scheduling	10	
<i>K-12 and university scheduling conflicts</i>		1,19,21,25,26,31,32,34,37,40
Parenting student database	2	1,40
Public policy-level factors	2	
Restrictive immigration policies	1	24
Low levels of FAFSA completion	1	11

Note: Study ID Numbers corresponds with articles in all Tables.

3.3. Secondary Theme: Facilitators to Student-parents' Academic Outcomes

Table 3 shows that facilitators to student-parents academic outcomes. The most facilitators to student-parents academic success were within the individual level ($n=51$). These included student-parents personal experiences, personal goals, self-awareness, self-efficacy, and spirituality that enabled them to navigate the school environment and the barriers they encounter. Interpersonal level factors ($n=34$) such as supportive advising from faculty and staff, strong bond with family members, flexible work schedule, and strong social support from peers facilitated student-parents academic success. University policies ($n=32$) such as affordable on-campus childcare centers, campus-based support programs, family-oriented campus environment, and flexible class deadlines emerged as themes that helped student-parents navigate the challenges they encounter. Lastly, public policy ($n=7$) related to welfare programs such as federal income programs and financial aid were reported as facilitators to student-parents academic pursuits.

Table 3: *Facilitators of Student Parents' Academic Success in IHE in the US Reported Using the Socioecological Model*

Socio-ecological levels	n	Study ID numbers
Individual		
Personal goals	19	
<i>Future financial autonomy</i>		3,12,4,25,4,21,32,41
<i>Motivation as role models for children/to attend college</i>		2,3,4,9,10,12,25,26,29,31,32,41
Experience	13	
<i>Prior knowledge, discipline and experience</i>		18,31,14,21,32,41
<i>Help-seeking skills</i>		8,9,25,26,31
<i>Safety nets (emergency cash, place to live, childcare)</i>		4,12
Self-awareness	7	
<i>Self-confidence/awareness/identity</i>		4,14,26,32,39
<i>Positive mindset</i>		14,26
Self-efficacy	12	
<i>Compartmentalize issues with cognitive dissonance</i>		13
<i>Goal setting</i>		14,26
<i>Time management/scheduling</i>		10,14,18,25,26
<i>Intrinsic/Extrinsic motivational orientation</i>		10,14,29,31
Spirituality	1	26
Interpersonal		
Faculty	13	
<i>Faculty support</i>		4,5,8,14,18,26,29,30,32,37,39
<i>Culturally responsive advising</i>		8,30
Family	12	
<i>Family support</i>		3,4,9,12,14,18,26,27,29,31,33,34
Employer	1	
<i>Flexible work schedule</i>		18
Peer support	8	
<i>Social support</i>		8,12,14,21,31,30,34,38
Institutional		
Policies	21	
<i>Campus-based support agents/counselling service</i>		3,8,23,25,29,35
<i>Access to childcare</i>		8,9,5,23,29,32

<i>Paid parental leave</i>	5	
<i>Health insurance for dependents</i>	5	
<i>Financial support/scholarship</i>	14,23,26,32,37,38,40	
Family oriented campus environment	7	
<i>Family housing facilitates</i>	1,	
<i>Enhancing family-friendly university culture</i>	4,5,17	
<i>Mentoring, faculty training</i>	5,8,32	
Scheduling	3	
<i>Extension of deadlines and part-time options</i>	5,17,32	
Project-based learning environments	1	22
Public policy	7	
Welfare programs		
Federal income programs (Food stamp)	2,8,11,38	
Financial aid	14,11,26	

Note: Study ID Numbers correspond with articles in all Tables.

3.4. Evidence of programs and policies for student-parents

Of the 41 studies included, only 10 reported institutional efforts to enhance the student-parent's academic experience. These efforts ranged from on-campus childcare centers, student-parents social community programs, and designated lactation rooms for breastfeeding student-mothers. In unison, these studies noted that these programs were necessary to ease student-parents burden and promote a more inclusive atmosphere within the university setting –Table 4.

The most cited recommendation from these articles for facilitating student parents' study was providing on-campus childcare and designated breastfeeding areas. Additional recommendations include support groups that involve other student parents and faculty and staff, clear university policies tailored to student parents, and public policy supports that enhance the student parents' access to programs that are focused on limiting barriers to higher education for this population. A combination of these recommendations could prove useful for addressing the educational needs of parenting students.

Table 4: *Studies Reporting Evidence Existing of Programs or Policies for Pregnant and Parenting Students*

ID	Author/year	Services provided
1	(Yakaboski, 2010)	The institution offered family housing facilities as a part of the residence life departments
8	(Sallee & Cox, 2019)	On-campus childcare center and a unit with the student service division serves students with children
9	(Roy et al., 2018)	Participants were recruited from an on-campus childcare center
16	(Myers-Walls et al., 2011)	Participants were recruited from on-campus housing for married graduate students
17	(Molter et al., 2019)	Evidence of pregnancy and lactation guidelines
29	(Kensinger & Minnick, 2018)	Nontraditional student organization, on-campus child and family center, and a Head Start Program located on campus.
31	(Hotez et al., 2020)	A student-parent task force
34	(Dinour et al., 2015)	One lactation room on this campus, available Monday through Friday from 8:30 am to 4:30 pm upon appointment.
39	(Auguste et al., 2018)	Nontraditional student community
40	(Askelson et al., 2020)	A one-year on-campus federal Pregnancy Assistance Funded (PAF) program implemented for pregnant and parenting students

Note: Study ID Numbers correspond with articles in all Tables.

3.5. Methodological quality

3.5.1. Theoretical framework

Most qualitative studies reported at least one theoretical framework ($n = 16$) than the quantitative studies ($n = 5$). The theories utilized in this Study predominantly varied. The critical feminist theory ($n = 4$) was the most utilized framework, followed by the ecological model ($n = 2$).

3.5.2. Risk of bias

Concerning the risk of bias, all studies met at least five quality evaluation tools for quantitative and qualitative assessment. We could not precisely rank the studies on some of the tool's quality attributes among the reviews. However, the overall quality of the studies was high. The qualitative studies' sources of bias were 1) evidence of ethical approval by an appropriate

body or 2) the researcher's influence and vice-versa (reflexivity). In terms of the quantitative studies, sources of bias were predominantly related to the statistical analysis used. Detailed information is seen in Tables 5 and 6.

Table 5: *Methodological Quality of the Qualitative Articles Using the Joanna Briggs Critical Appraisal Checklist for Qualitative Research*

ID	Author Year	JBI Critical Appraisal Attributes*									
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	(Yakaboski, 2010)	+	+	+	+	+	+	-	+	+	+
2	(Wilson & Cox, 2011)	+	+	+	+	+	+	-	+	-	+
4	(Deutsch & Schmertz, 2011)	+	+	+	+	+	+	+	+	-	+
7	(Sealey-Ruiz, 2013)	+	+	+	+	+	+	+	+	-	+
8	(Sallee & Cox, 2019)	+	+	+	+	+	+	-	+	-	+
9	(Roy et al., 2018)	-	+	+	+	+	-	-	+	-	+
13	(Prihidko & Haynes, 2018)	+	+	+	+	+	+	+	+	+	+
14	(Peterson, 2016)	+	+	+	+	+	+	+	+	+	+
15	(Onwuegbuzie et al., 2014)	+	+	+	+	+	+	+	+	-	+
16	(Myers-Walls et al., 2011)	+	+	+	+	+	+	+	+	-	+
18	(Sallee, 2015)	+	+	+	+	+	+	-	+	-	+
20	(Madden, 2018)	+	+	+	+	+	+	+	+	-	+
21	(Shepherd & Nelson, 2012)	+	+	+	+	+	-	-	+	+	+
24	(Lobnibe, 2013)	+	+	+	+	+	+	-	+	-	+
25	(Lindsay & Gillum, 2018)	+	+	+	+	+	+	-	+	-	+
26	(Lashley & Ollivierre, 2014)	+	+	+	+	+	-	-	+	+	+
29	(Kensinger & Minnick, 2018)	+	+	+	+	+	+	+	+	+	+
31	(Hotez et al., 2020)	-	+	+	+	+	-	-	+	-	+
32	(Markle, 2015)	+	+	+	+	+	+	-	+	+	+
33	(Eisenbach, 2013)	-	+	+	+	+	-	-	+	-	+
34	(Dinour et al., 2015)	+	+	+	+	+	+	-	+	-	+
37	(Brown & Nichols, 2013)	+	+	+	+	+	+	+	+	-	+
38	(Bloom, 2009)	-	+	+	+	+	-	+	+	-	+
39	(Auguste et al., 2018)	+	+	+	+	+	-	-	+	-	+
40	(Askelson et al., 2020)	-	+	+	+	+	-	-	+	+	+
41	(E. D. n. Lovell, 2014)	-	+	+	+	+	-	-	-	-	+

Note: Study ID Numbers corresponds with articles in all Tables

JBI Critical Appraisal Attributes *

Q1	Is there congruity between the stated philosophical perspective and the research methodology?
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Q2	Is there congruity between the research methodology and the research question or objectives?
Q3	Is there congruity between the research methodology and the methods used to collect data?
Q4	Is there congruity between the research methodology and the representation and analysis of data?
Q5	Is there congruity between the research methodology and the interpretation of results?
Q6	Is there a statement locating the researcher culturally or theoretically?
Q7	Is the influence of the researcher on the research, and vice- versa, addressed?
Q8	Are participants, and their voices, adequately represented?
Q9	Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?
Q10	Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Table 6: *Methodological Quality of The Quantitative Articles Using the Joanna Briggs Critical Appraisal Checklist for Cross-sectional Studies*

ID	Author Year	JBI Critical Appraisal Attributes *							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
3	(Wilsey, 2013)	+	+	-	+	+	+	+	-
5	(Springer et al., 2009)	+	+	+	+	-	-	+	-
6	(Shenoy et al., 2016)	+	+	+	+	-	+	+	+
10	(Ricco et al., 2009)	+	+	+	+	+	+	+	+
11	(Radey & Cheatham, 2013)	+	+	+	+	+	+	+	+
12	(Radey, 2017)	+	+	+	+	+	+	+	+
17	(Molter et al., 2019)	+	+	+	+	+	+	+	+
19	(Mahaffey & Gregg, 2015)	+	+	+	+	+	-	+	-
22	(E. Lovell & Munn, 2017)	+	+	+	+	+	+	+	+
23	(E. D. N. Lovell, 2014)	+	+	+	+	+	+	+	+
27	(Plageman & Sabina, 2010)	+	+	+	+	+	+	+	-
28	(Kulp, 2020)	+	+	+	+	+	+	+	+
30	(Johnson & Nussbaum, 2012)	+	+	+	+	+	+	+	+
35	(Crispin & Nikolaou, 2019)	+	+	-	-	+	+	+	+
36	(Bye et al., 2017)	+	+	-	-	+	+	+	-

Note: Study ID Numbers corresponds with articles in all Tables

JBI Critical Appraisal Attributes *

Q1	Were the criteria for inclusion in the sample clearly defined?
Q2	Were the study subjects and the setting described in detail?

Q3	Was the exposure measured in a valid and reliable way?
Q4	Were objective, standard criteria used for measurement of the condition?
Q5	Were confounding factors identified?
Q6	Were strategies to deal with confounding factors stated?
Q7	Were the outcomes measured in a valid and reliable way?
Q8	Was appropriate statistical analysis used?

JBI Critical Appraisal Key	
Low risk of bias	+
High and unclear risk of bias	-

4. Discussions

This study is the first to summarize student-parents experiences in HE in the United States systematically. In this study, we used the SEM to delineate the predictors of academic success among student-parents. Our study showed that the barriers to student-parents educational success are a systems problem that necessitates multilevel intervention and strategies across several settings (Lin, 2016; Osam et al., 2017; Quaye et al., 2019). Importantly, this review revealed that a single-level approach (e.g., access to on-campus childcare centers only) to meeting student-parents diverse needs is not feasible. Results from this study have direct implications for policy, school administrators, educational researchers, and students.

Our result showed that HE is a significant leverage point to address the barriers and improve student-parents academic outcomes as institutional policies were major predictors of student-parents academic success. This result is not surprising because HE is a complex system with several elements (e.g., administrators, faculty, and staff) that interact to predict academic outcomes (Quaye et al., 2019). For example, institutional policies (e.g., family-friendly policies, on-campus childcare centers, campus-based resources, financial aid) were significant barriers reported. Yet, relationships with faculty and staff were also cited as barriers to student-parents

academic outcomes predicated in part by institutional policies. As such, HE should prioritize creating an inclusive campus environment that attends to the needs of student-parents.

This review highlights the importance of expanding access to diverse funding opportunities for student-parents. Addressing financial problems requires intervention specifically at the macro-level (i.e., HE). One such approach is for HE to guide students through the complexities and documentation of the financial aid (e.g., filing FAFSA and Pell Grant) applications process. HE can leverage other opportunities such as revising the cost of attendance and including the number and ages of dependent children on the FAFSA (Wladis et al., 2018). Additionally, collaborating with community partners should be encouraged. Programs such as Aspen Ascend Two-Generation through their Aspen Postsecondary Success for Parent Initiative (The Aspen Institute, 2020) are a potential resource HE can leverage. In 2020, the initiative instituted a student-led fund supporting organizations and institutions that support student-parents postsecondary success.

Another approach is to tap into existing federal benefit programs that provide childcare access to low-income families, such as CCAMPIS, Child Care and Development Funds (CCDF), Temporary Assistance for Needy Families (TANF), and Head Start (United States Government Accountability Office, 2019). We applaud efforts made by the institution reported in (Askelson et al., 2020) in their use of the Pregnancy Assistance Funded (PAF) to create an inclusive campus climate for student-parents. Importantly, HE needs to develop internal pathways to support their student-parent population. The City University of New York (CUNY), Accelerated Study in Associate Programs (ASAP), is a success story that can be replicated and modified through a student-parent lens (Levin et al., 2018).

In this review, most studies focused on the individual-level factors that affect student-parents educational outcomes. In contrast, those reporting other factors within the interpersonal, institutional, and policy factors were limited. Since factors that predict student-parents outcomes are diverse, more research is needed to access and evaluate policy-level factors such as federal aid programs and their effectiveness in meeting student-parents needs.

Furthermore, although most of the articles reported that students encountered significant challenges balancing their multiple roles and conflicting time demands, recommendations on managing these challenges were not reported save for only two articles that encouraged students to self-advocate. It is important that researchers examine coping strategies that may help student-parents navigate their intersecting roles to achieve academic success. Coping can determine whether a stressful event leads to adaptive or maladaptive outcomes (Dardas & Ahmad, 2015). This review indicates that by identifying coping strategies, student-parents can take full responsibility for their situations, enabling them to find more meaning in their educational journey. To this end, providing student-parents with the needed skills and support services to allow them to cope with their responsibilities to improve their academic outcomes is imperative. Other noteworthy individual-level factors for future research include motivations, persistence, and self-efficacy.

This review showed that challenges within the individual (e.g., perfectionism), intrapersonal (e.g., poor relationships with family members), institutional (e.g., lack of family-friendly programs), and policy (e.g., immigration policies) interplay to adversely affect mental health. Importantly, this study revealed that research into the intersection of student-parents and mental health is scant. Research shows that depression and anxiety are prevalent among college students so as in parents (Hefner & Eisenberg, 2009; McLeish & Redshaw, 2017; National

Alliance on Mental Illness, 2012). Among mothers in an Early Head Start program, those with depression did not increase their participation in educational activities, employment, or job training (Schmit & Walker, 2016). Therefore, future studies should examine the factors such as social support and mental health services within the school system.

Furthermore, future research should investigate the role of mediating and moderating factors (e.g., international student status) on student-parent outcomes. Only two articles reported the experiences of international students who are parents in HE. A systematic review of international students' psychological adjustment to life in the United States showed that these students undergo divergent barriers that adversely affect their psychological wellbeing (Zhang & Goodson, 2011). As such, international students who are parents may be doubly impacted by their diverse intersections.

Lastly, regarding methodological quality, most of the reviewed studies met the Joanna Briggs Institute (JBI) Critical appraisal criteria, but there is more room for improvement. Very few qualitative studies reported ethical approval. Researchers should strengthen their studies by ensuring they report how research subjects are protected. Second, quantitative researchers should utilize robust statistical analysis to provide precise estimates of their findings to ensure replicability and generalizability.

4.1. Implications for practice

The findings in this review go beyond closing educational gaps but transcend into equity issues and social justice. Considering that most students who are parents are historically from disadvantaged backgrounds, as stated earlier in this manuscript, attending to their needs is beneficial to the student themselves, future generations, and society. This review shows no single solution to addressing student-parents educational needs; rather, understanding the multilevel

components that interplay with each other to predict student-parents' academic success is important. This review's findings can inform relevant stakeholders into creating an inclusive campus environment for student-parents in HE. To improve student-parents academic success, stakeholders need to address multilevel barriers and intervene at a specific SEM level summarized in this review. Similarly, this review can inform student-parents of the multiple factors that may influence their academic success. Specifically, students may focus on relevant SEM factors and make adjustments to facilitate academic success.

4.2. Limitations

Although this review adds to the literature, this systematic review had several limitations. First, we only reviewed studies conducted in the United States, so the results are not generalizable beyond the US. Also, most of the studies employed qualitative methodology, which may limit their generalizability. However, this concern is negligible because results from the longitudinal and cross-sectional studies in this review corroborate with the results from the qualitative analysis. Moreover, some of the articles analyzed comparison groups that provided a robust understanding of the differential impact of parenting status on academic outcomes. Thirdly, we excluded a considerable number of dissertations, which may contain additional information not captured in the articles reviewed. But it is unlikely that we would have found new themes. We conducted a robust search, and the articles reviewed have undergone the peer-review process, which strengthens the studies' methodological qualities.

4.3. Conclusion

The current study explored the lived experiences of students who are parents – most of whom were mothers – in HE in the United States. The link between parents' education status, their children's educational and future aspirations, economic stability, and overall health is well

documented, as is the impact on society. This review shows that improving student-parents academic outcomes transcend beyond just academic success for the parent and into equity issues. As such, closing gaps in educational outcomes should be a top priority for institutions and policymakers.

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Author Contribution

K.V.A: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization. G.O: Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization. S.P: Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. O.A: Methodology, Formal analysis, Investigation, Data curation. W.G: Methodology, Data curation, Writing – review & editing. L.J.M: Methodology, Formal analysis, Investigation, Writing – review & editing

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