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Relationships Between Bioecological Factors and Expectations for Community Living and Participation Outcomes among Individuals with Intellectual Disability and Families: A Scoping Review

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Corresponding Author:	Grace L Francis, Ph.D. George Mason University Fairfax, Virginia UNITED STATES
First Author:	Grace L Francis, Ph.D.
Order of Authors:	Grace L Francis, Ph.D.
	Christina DeCostanza Eagle, M.Ed M. A.
	Sarah H. Espanol
	Kelly H. Conn-Reda, M.Ed.
	Alexandra S. Reed, Ph.D.
	Emil H. Majetich Jr, M.Ed., BCBA, LBA
	Jodi M. Duke, Ed.D.
	Heather L. Walter, Ed.D.
Manuscript Region of Origin:	UNITED STATES
Abstract:	Community living and participation is associated with increased economic self-sufficiency, rates of happiness, and high quality of life among individuals with intellectual disability. The rates of individuals with intellectual disability experiencing community living and participation outcomes, however, is significantly below that of their same-age peers. Although the expectations of individuals with intellectual disability and their family members significantly influence community living and participation outcomes, which bioecological factors have the greatest influence on expectations remains largely unknown. This lack of information weakens the foundations on which efforts and policies designed to enhance community living and participation are developed. The purpose of this scoping review was to map knowledge of relationships between bioecological factors and community living and participation expectations from the perspectives of individuals with intellectual disability and families of individuals with intellectual disability. Recommendations for research, policy, and practices are described.

Abstract

Community living and participation is associated with increased economic self-sufficiency, rates of happiness, and high quality of life among individuals with intellectual disability. The rates of individuals with intellectual disability experiencing community living and participation outcomes, however, is significantly below that of their same-age peers. Although the expectations of individuals with intellectual disability and their family members significantly influence community living and participation outcomes, which bioecological factors have the greatest influence on expectations remains largely unknown. This lack of information weakens the foundations on which efforts and policies designed to enhance community living and participation are developed. The purpose of this scoping review was to map knowledge of relationships between bioecological factors and community living and participation expectations from the perspectives of individuals with intellectual disability and families of individuals with intellectual disability. Recommendations for research, policy, and practices are described.

Keywords: scoping review, expectations, intellectual disability, employment, housing

Relationships Between Bioecological Factors and Expectations for Community Living and Participation Outcomes among Individuals with Intellectual Disability and Families: A Scoping Review

Community living and participation (CLP) involves "a set of complex and ever-evolving dimensions related to both the place of community and the feeling of community" (Nye-Lengerman & Hewitt, 2019, p. 3). Primary CLP outcome domains include employment, ongoing education, community living, health and wellness, meaningful relationships, and supported decision-making (ACL, n.d.; Nye-Lengerman & Hewitt, 2019). Positive CLP outcomes are distinguished by not only having a physical presence within a community (e.g., living in a place of choice), but also by active and self-directed community membership (e.g., engaging in events) and developing a sense of belonging in the community (Turnbull et al., 2022). Further, CLP outcomes are associated with improved rates of happiness, hope, meaningful relationships, and access to community assets (e.g., transportation, employment, post-secondary education, participation in leisure activities) among individuals with intellectual disability (McCarron et al., 2019), or individuals with "a lifelong condition where significant limitations in both intellectual functioning and adaptive behavior emerge prior to adulthood" (The Arc of the U.S., 2019). CLP outcomes, however, are grossly under realized for individuals with intellectual disability (U.S. Department of Labor, 2019).

For example, the employment rate for working-age individuals with intellectual disability (ID) is considerably lower than that of individuals without disabilities (Erickson et al., 2020; U.S. Department of Labor, 2022) and, despite the increasing availability of postsecondary programs designed for individuals with disabilities, individuals with disabilities such as ID experience greater barriers to accessing postsecondary education or training programs than do

students without ID (Lee et al., 2022). In addition, the rate of living outside of the family home for individuals with ID is substantially lower compared to other young adults (Liu et al., 2018). Moreover, individuals with ID who do live outside of their family homes often do not live in a place of their choice or preference (Anderson, 2022; Schaak et al., 2017). Finally, individuals with ID report higher degrees of loneliness and isolation than people without disabilities (MacDonald et al., 2018). These negative outcomes are a result of pervasive bioecological factors that neither policies nor practices have successfully addressed (Medisked & The Arc, 2018; Tichá et al., 2013).

Bioecological Factors

Bioecological factors are demographic (biological) and environmental (ecological) structures that directly or indirectly affect human development. Bronfenbrenner's Process-Person-Context-Time (PPCT) model of human development (Bronfenbrenner, 2005) operationalizes ecological factors, the bidirectional influence the factors have on one another, and, ultimately, on human development. Biological factors include an individual's characteristics such as age, sex, gender identity/expression, ethnicity, disability, language, culture, and beliefs. This model breaks ecological factors that surround an individual into five subsystems, the micro-, meso-, exo-, macro-, and chronosystems.

The microsystem involves structures that come into direct and ongoing contact with the individual at the center of the model (e.g. family members, neighborhood, coworkers). The mesosystem involves interactions among microsystem structures (e.g., parent-teacher interactions, parent-sibling interactions). The exosystem involves structures that indirectly influence an individual (e.g., mass media, policies, spouse's workplace). The macrosystem includes dominant social and cultural structures such as discrimination, social norms. Finally, the

chronosystem involves changes over time, including major life events such as births, deaths, marriage, and divorce. Figure 1 demonstrates the bidirectional influence of a person's biological factors on ecological contexts (e.g., how a person's motivation, age, first language influences their pursuits), as well as how ecological factors influence a person with ID (e.g., how social norms, the economy, policies influence the ways in which a person is perceived, the opportunities they are provided, and their self-perceptions).

Research documents numerous bioecological factors that influence CLP outcomes for individuals with ID. Examples of biological factors include severity of support needs such as adaptive behavior, motivation, and communication skills (Thompson et al., 2009; Williams et al., 2021). Examples of ecological factors include: (a) ineffective education and transition planning in high school, (b) limited availability of services to support CLP outcomes, (c) limited government funding and a poor economy, and (d) social norms and beliefs including ableism and discrimination (Magee et al., 2022; Mogensen et al., 2022; Stern, 2020; Technical Assistance Collaborative, 2020; Tyler et al., 2022). Expectations, however, are among the most influential factors impacting CLP outcomes.

The Impact of Expectations

One can turn to models and theories such as expectancy-value theory and social cognitive theory to facilitate an understanding of connections between expectations leading to CLP outcomes, including how expectations influence the behaviors in which individuals engage (e.g., reciprocal interactions, observational learning) to achieve a desired outcome (Aldous, 2006; Bandura, 2001; Feather, 1992; Louw et al., 2019; Kirby et al., 2019).

Family member expectations also have a profound influence on an individual (Bandura, 2001; Bronfenbrenner, 2005; Wigfield & Eccles, 2002; Zhang et al., 2011). This is especially

true among families who have members with ID, as individuals with ID commonly maintain close relationships with their families throughout the lifespan—often looking to their families for ongoing guidance and support (Luitwieler et al., 2021). Unfortunately, families of individuals with ID commonly maintain low expectations for CLP outcomes, including that their family members are unable to: (a) participate in decision-making and make 'good' decisions (Savage & Bowers, 2022); (b) obtain competitive employment (Mann et al., 2016); (c) engage in postsecondary education (Kelley & Prohn, 2019); (d) live outside of the family home (Dalgarn, 2017); and (e) make 'safe' friends, engage in 'responsible' romantic relationships, or attend events without support/supervision by individuals without disabilities (Francis et al., 2020). Figure 2 demonstrates the connections between bioecological factors on individual and family expectations and, in turn, how individual and family expectations influence CLP outcomes.

Although extensive research documents an association between low expectations among individuals with ID, their families, and poor CLP outcomes, there remains a gap in understanding which bioecological factors have the greatest influence on expectations; a gap that prevents an advancement of meaningful and effective policies and strategies in support of positive CLP outcomes among individuals with ID. Further, research exploring the influence of expectations and CLP outcomes often fails to investigate the perceptions and experiences of individuals with ID (Elsen et al., 2018), thereby creating an inability to cohesively understand the most influential factors that influence CLP expectations while simultaneously creating space for ableist narratives to infiltrate policy and practice. Further, given the close, ongoing relationships between individuals with ID and their families, learning from the perspectives and experiences of family members of individuals with ID is crucial to inform efforts to raise

expectations for CLP outcomes. In an effort to provide a foundation for policies, practice, research to enhance CLP expectations, and in doing so, CLP outcomes among individuals with ID, the purpose of this scoping review was to map knowledge of relationships between bioecological factors and CLP expectations from the perspectives of individuals with ID and families of individuals with ID.

Methods

Scoping reviews "provide a comprehensive, unbiased synthesis of relevant studies using rigorous and reproducible scientific method" (Lockwood et al., 2019, pg. 287). Scoping reviews use broad inclusionary criteria to comprehensively explore international research across methodological approaches to map key constructs as they exist in the literature (Lockwood et al., 2019; Munn et al., 2018). The researchers employed the framework developed by the JBI Scoping Review Methodology Group (Peters et al. 2020), which built upon the work done by Arksey and O'Malley (2005) and Levac and colleagues (2010). The JBI framework involves six steps: (1) define research questions, (2) define inclusion and exclusion criteria, (3) locate studies, (4) select studies, (5) assess studies, and (6) present and interpret results (Aromataris & Munn, 2020).

Research Questions

1. What is known about the relationships between bioecological factors and expectations among individuals with ID regarding CLP outcomes?
2. What is known about the relationships between bioecological factors and expectations among families regarding CLP outcomes for their family members with ID?

Inclusion and Exclusion Criteria

Population inclusion criteria included families or individuals with a disability label of ID alone or in combination with disabilities (e.g., ID and cerebral palsy). We also included syndromes commonly associated with ID such as Down syndrome, Fragile X, Prader-Willi Syndrome, Angelman syndrome, Rett syndrome, and fetal alcohol syndrome (Lee et al., 2023). Further, we included studies with individuals or families of individuals with the label of "learning disability" in journals published in the United Kingdom (the phrase often used in this country for ID), as well as the phrase “mental retardation” (a term used in the U.S. prior to the DSM 4 in 2010). Studies must have examined the constructions of expectations, beliefs, assumptions, hope, confidence, perspectives, or attitudes among participants. Studies had to specify a bioecological factor (e.g., personal characteristics, family, school, community, laws, cultures, social values) related to expectations for CLP outcomes. We excluded studies that (a) did not state a disability label of ID/“mental retardation,” an associated syndrome, or learning disability in the correct context, (b) relied on proxy reports on behalf of individuals with ID, (c) were written in a language other than English, (d) were not an empirical study, or (e) did not have a full-text accessible.

Search Strategy

In collaboration with a social sciences research librarian at George Mason University, the team conducted searches in PsycINFO, Education Research Complete, CINAHL Plus with Full Text, Education Database, Pubmed, ScienceDirect, and Web of Science to capture studies across professional disciplines (e.g., education, psychology, medicine). The following Boolean phrases were used in each search: (expectation* OR belief* OR assumption* OR hope OR confidence OR perspective* OR attitude* OR resilienc*) AND “intellectual disabilit*” OR “mental retardation” OR “learning disability” OR “fetal alcohol syndrome” OR “Down syndrome” OR

"Fragile X syndrome" "Prader-Willi Syndrome," "fetal alcohol syndrome," "Angelman," "Rett Syndrome") AND (outcome* OR transition OR school OR employment OR community participation OR living OR residential OR recreation OR leisure OR relationship OR belong* OR connect*) AND ("self-advocate*" OR individual* OR student* OR person OR learner*) AND (famil* OR parent* OR guardian* OR caregiver* OR sibling*). The team selected these terms and phrases from commonly used language in disability literature and synonyms of "expectation" found in the six databases. We also conducted a hand search in seven relevant international journals: *Research and Practice for Persons with Severe Disabilities, Journal of Intellectual Disability Research, Disability & Society, Intellectual and Developmental Disabilities, Journal of Applied Research in Intellectual Disabilities, Journal of Intellectual Disabilities,* and the *American Journal on Individuals with Intellectual and Developmental Disabilities*.

Screening, Selection, and Data Extraction

The researchers imported search findings into Covidence (2023), a web-based collaboration software platform that streamlines the production of systematic literature reviews to screen titles and abstracts and reach consensus on study inclusion and exclusion. Study titles and abstracts were reviewed by two members of the research team and disagreements between researchers were addressed by a third member of the team. The researchers then conducted full text screening and data extraction. Data extraction included: (a) sample and methods, (b) CLP outcomes, and (c) bioecological factors.

Results

The database and hand search yielded 25,998 studies, after duplicates were removed. A review of titles and abstracts against the inclusion criteria resulted in 155 studies for full text

review. During full text review, 19 studies met inclusion criteria. Figure 3 displays a PRISMA flow diagram summarizing the screening process.

Study Samples and Methodological Approaches

As seen in Table 1, studies reported findings from 13 countries located around the world. There was nearly an equal representation between studies that included individuals with ID (*n*=6), family members (*n*=6), and both individuals with ID and family members of individuals with ID (*n*=7) as participants. Six (*n*=6) studies employed quantitative methods (e.g., structural equation modeling, cross-sectional correlation), 12 studies used qualitative methods (nearly exclusively interview research), and one (*n*=1) study employed a multi-method approach to research.

CLP Outcomes Investigated

As seen on Table 2, "employment" was the most frequently studied CLP outcome across studies (*n*=10), followed by "education" (*n*=7), "community living and participation" (*n*=7), and "meaningful relationships" (*n*=5). "Supported decision-making" (*n*=3) and "health and wellness" were the least frequently studied (*n*=2). Eight (*n*=8) studies focused on more than one CLP outcome.

Bioecological Factors Investigated

Table 3 provides an overview of influencing bioecological factors within each study, organized by the PPCT model of human development.

Biological Factors: IWID

Fifteen (*n*=15) studies reported biological factors associated with individuals with ID (see Table 4). For example, Taylor and colleagues (2010, #17) indicated that parents with ID reported that their IQ, occupation, and level of expectation education influenced their educational

expectations for their children. In addition, participants with ID in Li (1996, #9) reported that low confidence and poor health negatively influenced their employment expectations, whereas their motivation to live in the community, develop skills, and gain experiences led to higher employment expectations. Likewise, family members of individuals with ID indicated that the nature of their child's disability (e.g., aggressive behaviors, limited communication, cognition, and adaptive behavior skills) diminished expectations for CLP outcomes (#2, # 4, #5, #7, #8, #10, #11, #14, #15, #16). On the other hand, positive perceptions of individual dispositions, such as having a sense of humor, having a caring nature, social skills, confidence, motivation to learn new skills, and the ability to cooperate with others influenced high CLP expectations among individuals with ID and families alike (#1, #8, #9, #18). Finally, one study (#17) found that gender had an influence on expectations (i.e., parents with ID reported higher educational expectations for sons compared to daughters and another (#13) reported that individuals with a legal guardian held lower their CLP who were not their own guardians held lowered expectations for living with a romantic partner.

Ecological Factors: Microsystem

Fourteen (*n*=14) studies documented microsystem factors as influencing expectations for CLP outcomes, the majority of which centered on family and school systems (see Table 5). For instance, individuals with ID reported that low family expectations (#9) lowered their CLP expectations for employment. In addition, family cultural and spiritual beliefs such as those associated with deference to parental authority and sexuality/romantic relationships outside of marriage also influenced CLP expectations (e.g., #6, #7 #14, #15, #16). Moreover, #4 and #5 reported associations between family demographic factors (minoritized race, lower household income, and lower level of parent education) and diminished expectations for education,

employment, and community living expectations for their children with ID. Finally, positive family role models (i.e., siblings) positively influenced individual with ID CLP expectations (#3).

Regarding school systems factors, three (*n*= 3) studies reported that inclusive education experiences, including those tailored to students' unique interests, influenced higher expectations for meaningful employment (#3, #10) and higher education (#11). On the other hand, #8 and #10 reported that family members who maintained poor perceptions of educator commitment to inclusive education, advancing student skills, or providing meaningful work experience negatively influenced CLP expectations. In addition, Bouck (2020; #1) documented that individuals with ID who attended rural schools in the U.S. and their families held higher expectations for postsecondary education and independent living, whereas families of individuals with ID who attended urban schools were more likely to expect their children to become financially self-sufficient compared to those living in rural or suburban geographic areas.

Ecological Factors: Mesosystem

One study reported a mesosystem factor. Ward and colleagues (2003, #19) reported the positive influence that a family caregiver observing their older children without ID achieve positive CLP outcomes increased expectations for their child with ID to achieve the same outcomes.

Ecological Factors: Exosystem

Seven (*n*=7) studies documented exosystem factors impacting expectations for CLP outcomes. For example, studies described how community factors, such as a: (a) lack of community transportation (#8), (b) negative employer interactions (#8), (c) harassment and assault (#18), and (d) overcrowded/limited adult disability services and government support (#8,

#16) influenced low expectations for CLP outcomes (e.g., employment, participation in community events and organizations, marriage). Conversely, some families manifested higher CLP expectations in the face of, or to overcome barriers. For example, a participant from Malouf and Dymond's (2023, #10) research indicated that their dissatisfaction with sheltered workshops and day programs available to their family members with ID increased their expectations for entrepreneurship. Further, limited government resources resulted in a participant from Taghizadeh et al. (2020, #16) to develop high expectations for her daughter with ID to marry so that another family could adequately support her into adulthood. Finally, other exosystem factors found to lead to high expectations for CLP outcomes included professionals who families perceived as supportive to their young adults with ID (#18) and family member participation in training programs (#3, #12) and "education organizations" (#17).

Ecological Factors: Macrosystem

Two (*n*=2) studies documented the macrosystem factors of ableism (including society considering individuals with ID as vulnerable) as negatively impacting expectations for CLP outcomes (#13, #14).

Ecological Factors: Chronosystem

Two (*n*= 2) studies documented chronosystem factors impacting expectations for CLP outcomes. A participant from Martinez et al. (2012, #11) reported that the length of time that their child with ID was educated in inclusive settings positively influenced expectations for college and Taylor et al. (2010, #17) reported that the age at which individuals with ID gave birth influenced their expectations for their child's education (parents who were older had higher expectations). Finally, Taylor and colleagues (2010, #17) also indicated that parents with ID held higher educational outcomes for first versus later-born children.

Discussion

The purpose of this study was to determine what is known about relationships between bioecological factors and expectations for CLP outcomes among individuals with ID and families of individuals with ID. Disentangling research on the bioecological factors that influence CLP expectations among individuals with ID has the potential to enhance CLP outcomes by highlighting the factors that should be maximized to raise expectations or addressed to minimize low expectations. The research questions that guided this work were: (1) What is known about bioecological factors influencing expectations among individuals with ID regarding their CLP outcomes? and (2) What is known about bioecological factors influencing expectations among families regarding CLP outcomes for their family members with ID?

Studies with participant samples consisting of individuals with ID, family members of individuals with ID, and family units (individuals and their family members) were nearly evenly distributed. This finding is encouraging, as the inclusion of individuals with ID is too often neglected in research (Elsen et al., 2018). Further, 13 countries across five continents over a 30-year span (i.e., 1993-2023) were represented in this scoping review, indicating that expectations for CLP outcomes have remained a persistent global concern. Moreover, although each of the six CLP outcomes were studied in at least two countries, employment (followed closely by education and community living) were the most frequently studied outcomes. This leads one to question the discrepancy of outcomes studied, including the value placed on employment, education, and community living over the fundamental concepts of humanity that lead to self-actualization (health and wellness, meaningful relationships; Maslow, 1962) and serve as the foundation of civil rights (supported decision-making; Maggio et al., 2020).

The majority of studies reported biological factors (e.g., severity of disability-related needs) and microsystem factors (e.g., family culture) as negatively impacting CLP expectations. This finding is unsurprising as research commonly reports these constructs as barriers to post-school outcomes (Magee et al., 2022; Mogensen et al., 2022). On the other hand, albeit a small number, studies also reported biological and microsystem factors that enhanced CLP expectations (e.g., adaptive skills, "charisma," activating positive role models, inclusive education) on which disability professionals (e.g., educators, case managers) may focus to mitigate low expectations. Only one study conducted in England reported a mesosystem structure (the positive influence of a family caregiver observing their older children without ID achieving CLP outcomes). This finding is surprising, as research commonly documents poor relationships and limited collaboration as negatively impacting CLP outcomes (Francis et al., 2018), as well as the positive influence of reciprocal relationships within the mesosystem (e.g., parent-to-parent support, parent-professional collaboration) on CLP outcomes (Strickland-Cohen et al., 2021). Further, with the exception of limited government resources, studies in this review seldom reported the influence of overarching exo- and macrosystem factors such as laws, mass media, and systemic ableism found to impact CLP outcomes (Annamma et al., 2016; Dalgarn, 2017). Finally, study participants reported limited chronosystem structures as impacting CLP expectations, yet another surprising finding given the robust literature documenting structures such as transitioning from secondary school to adulthood and caregiver aging on individual/family stress and anxiety regarding CLP outcomes (Duke et al., 2022).

Future Research

This scoping review underscored the lack of research investigating the relationships between bioecological factors on CLP expectations from the perspectives of the most important

reporters-individuals with ID and families of individuals with ID. Most studies employed interview qualitative methodologies. Although interviewing is a commonplace way to investigate information and behaviors within context of the environment in which they occur, future researchers should consider the merits of other forms of qualitative data collection, including ways in which to highlight the voices of individuals with significant cognitive or communication needs (e.g., photovoice). Further, additional international research is necessary to more thoroughly understand the varied and malleable factors that contribute to and/or predict both low and high expectations for CLP outcomes, as well as intervention research on raising expectations among individuals with ID and their families. Further, additional research is needed to understand the process by which CLP expectations impact CLP outcomes, including how expectations influence behaviors such as individual and family decision-making that lead to CLP outcomes (see Figure 4).

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Note. References included in the scoping review findings are noted by an *

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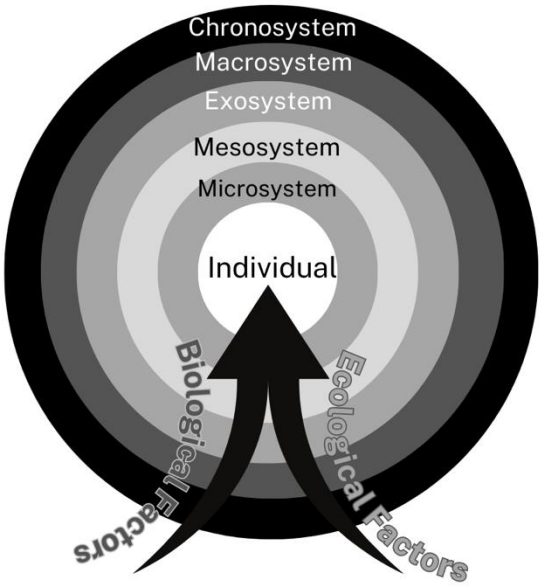
Figure 1

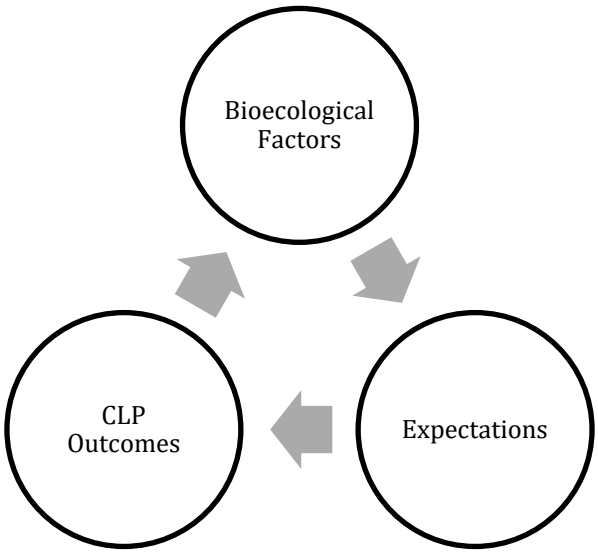
Demonstration of Bidirectional Influence of Bioecological Factors on Human Development



Note. Figure uses Bronfenbrenner's (2005) conceptualization of bidirectionality among bioecological factors on human development.

Figure 2

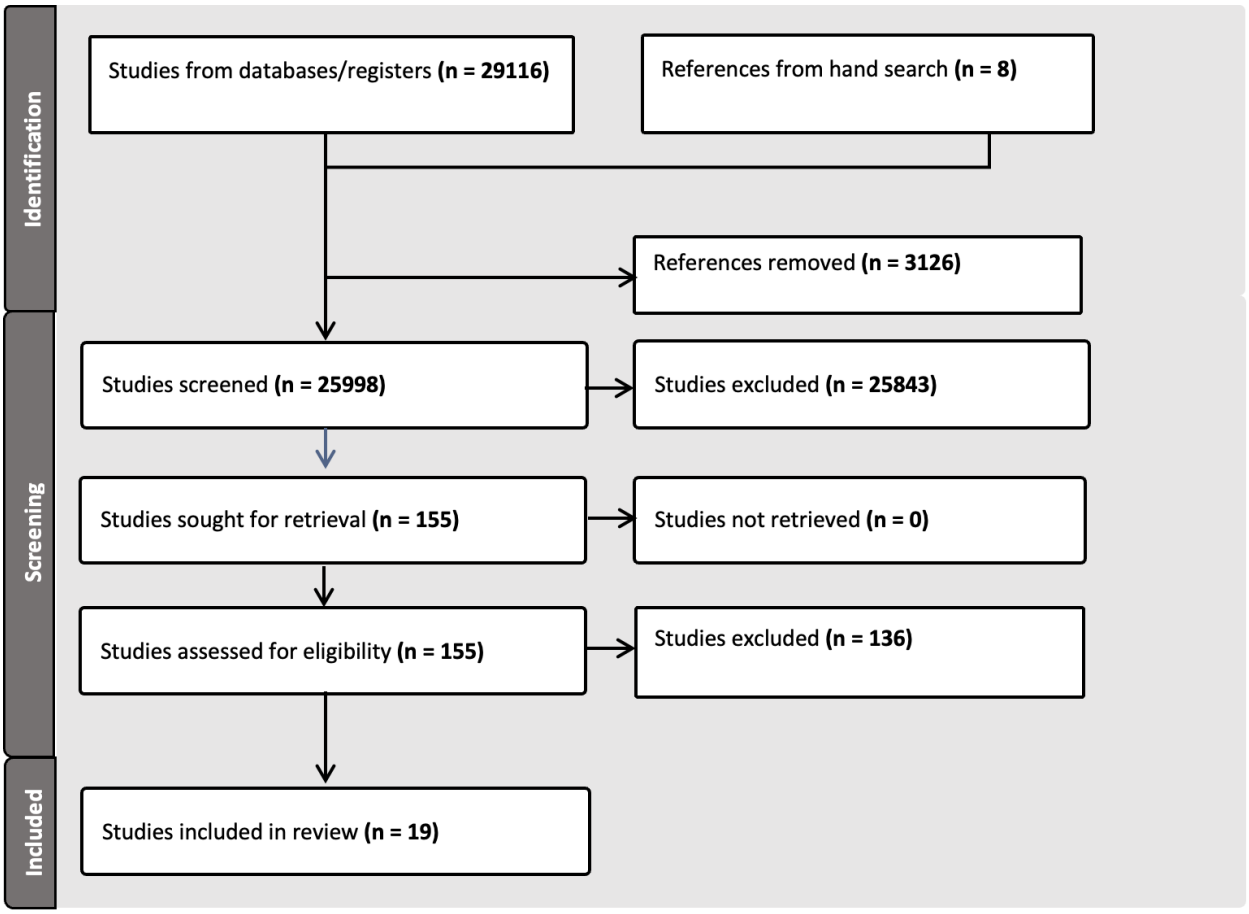
Connections Between Bioecological Factors, CLP Expectations, and CLP Outcomes for Individuals with Disabilities



Note. Adapted from Francis, G. L., Gershwin, T., Turnbull, H. R., Raines, A. (2020). Social role valorization of caregivers in school systems: The influence of terminology in federal education legislation. Special Educator e-Journal. https://www.naset.org/index.php?id=5733#c43555

Figure 3

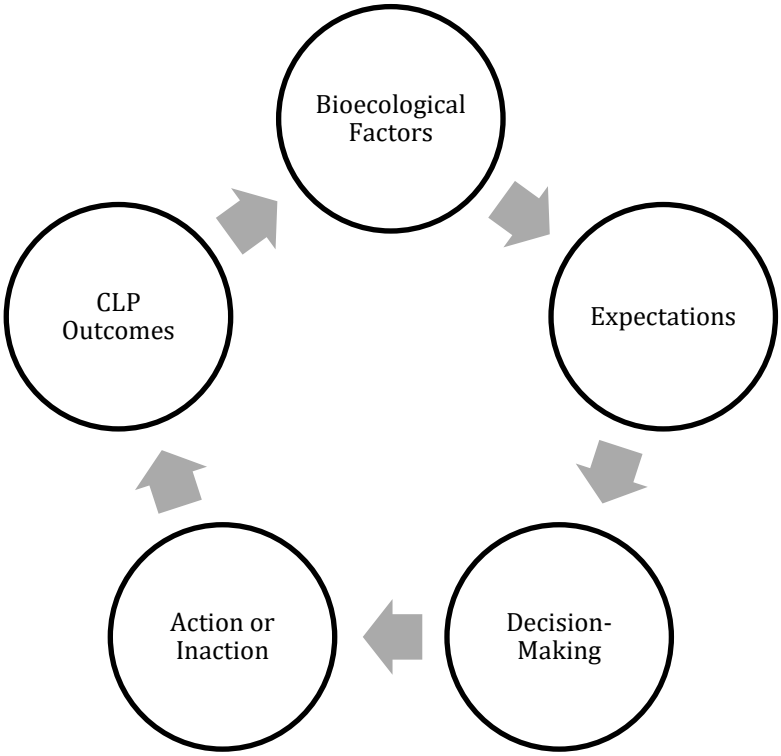
PRISMA Flow Diagram



Note. PRISMA flow diagram. Diagram exported from Covidence systematic review software.

Figure 4

Expanded Process of How Bioecological Factors Influence CLP Outcomes



Note. Figure represents the circular influence that bioecological factors have on expectations, decision-making, a person's behaviors, and CLP outcomes for individuals with ID.

Table 1

Study Participants and Methodologies

Study Reference	Location	Participants	Methodological Approach
1. Bouck (2020)	U.S.	IW/ID Family Members	Quantitative: Secondary Analysis
2. Cooney et al. (2006)	Scotland	IW/ID	Quantitative: Survey
3. Davies & Morgan (2010)	England	IW/ID Family Members	Qualitative: Interviews
4. Dell'Armo & Tasśe (2019)	U.S.	IW/ID	Quantitative: Secondary Analysis
5. Doren et al. (2012)	U.S.	IW/ID	Quantitative: Secondary Analysis
6. Healy et al. (2009)	Ireland	IW/ID	Qualitative: Focus Groups
7. Kahonde et al. (2020)	South Africa	Family Members	Qualitative: Interviews
8. Lehmann & Roberto (1996)	U.S.	Family Members	Qualitative: Interviews
9. Li (1998)	Hong Kong	IW/ID	Qualitative: Interviews
10. Malouf & Dymond (2023)	U.S.	Family Members	Qualitative: Interviews
11. Martinez et al. (2012)	U.S.	Family Members	Quantitative: Survey
12. Narayan et al. (1993)	India	Family Members	Quantitative: Interviews
13. Rojas et al. (2016)	Spain	IW/ID	Qualitative: Interviews
14. Saaltink et al. (2012)	Canada	IW/ID Family Members	Quantitative: Survey Qualitative: Interviews
15. Strnadova & Evans (2013)	Australia & Czech Republic	IW/ID Family Members	Qualitative: Interviews
16. Taghizadeh et al. (2020)	Tehran	Family Members	Qualitative: Interviews
17. Taylor et al. (2010)	U.S.	IW/ID	Quantitative: Secondary Analysis
18. Tsai & Fung (2009)	China	IW/ID Family Members	Qualitative: Interviews
19. Ward et al. (2003)	England	IW/ID Family Members	Qualitative: Interviews

Note. "IW/ID" refers to "individuals with ID." Study #17 included parents with ID. Study #11 included an analysis of open-ended survey questions. Study #14 involved a cross-sectional correlation of interview data.

Table 2

CLP Outcomes Investigated

Study Reference	Emp	Edu	CL	H&W	Rel	SD-M
1. Bouck (2020)	X	X	X			
2. Cooney et al. (2006)	X		X			
3. Davies & Morgan (2010)	X		X			
4. Dell'Armo & Tasśe (2019)	X	X	X			
5. Doren et al. (2012)	X	X				
6. Healy et al. (2009)					X	
7. Kahonde et al. (2020)					X	X
8. Lehmann & Roberto (1996)	X					
9. Li (1998)	X					
10. Malouf & Dymond (2023)	X					
11. Martinez et al. (2012)		X				
12. Narayan et al. (1993)	X	X	X	X	X	
13. Rojas et al. (2016)					X	
14. Saaltink et al. (2012)						X
15. Strnadova & Evans (2013)						X
16. Taghizadeh et al. (2020)					X	
17. Taylor et al. (2010)		X				
18. Tsai & Fung (2009)			X			
19. Ward et al. (2003)	X	X	X	X		
n=	10	7	7	2	5	3

Note. Study #17 included parents with ID. “Emp” refers to “employment.” “Edu” refers to “education.” “CL” refers to **“c**ommunity living.” “H&W” refers to “health and wellness.” “Rel” refers to “meaningful relationships.” “SD-M” refers to “supported decision-making.”

Table 3

Bioecological Factors Investigated

Study Reference	Bio	Micro	Meso	Exo	Macro	Chrono
1. Bouck (2020)	X	X				
2. Cooney et al. (2006)	X					
3. Davies & Morgan (2010)		X		X		
4. Dell'Armo & Tasśe (2019)	X	X				
5. Doren et al. (2012)	X	X				
6. Healy et al. (2009)		X				
7. Kahonde et al. (2020)	X	X				
8. Lehmann & Roberto (1996)	X	X		X		
9. Li (1998)	X	X				
10. Malouf & Dymond (2023)	X	X		X		
11. Martinez et al. (2012)	X	X				X
12. Narayan et al. (1993)				X		
13. Rojas et al. (2016)	X				X	
14. Saaltink et al. (2012)	X	X			X	
15. Strnadova & Evans (2013)	X	X				
16. Taghizadeh et al. (2020)	X	X		X		
17. Taylor et al. (2010)	X			X		X
18. Tsai & Fung (2009)	X			X		
19. Ward et al. (2003)		X	X			
n=	15	14	1	7	2	2

Note. Study #17 included parents with ID. “Bio” refers to “biological.” “Micro” refers to the microsystem. “Meso” refers to the mesosystem. “Exo" refers to the exosystem. “Macro” refers to the macrosystem. “Chrono” refers to the chronosystem.

Table 4

Biological Factors Investigated

Study Reference	Needs & Skills	Guardianship	Disposition	Gender	Education	Occupation
1. Bouck (2020)			X			
2. Cooney et al. (2006)	X					
3. Davies & Morgan (2010)						
4. Dell'Armo & Tasśe (2019)	X					
5. Doren et al. (2012)	X					
6. Healy et al. (2009)						
7. Kahonde et al. (2020)	X					
8. Lehmann & Roberto (1996)	X		X			
9. Li (1998)	X		X			
10. Malouf & Dymond (2023)	X					
11. Martinez et al. (2012)	X					
12. Narayan et al. (1993)						
13. Rojas et al. (2016)		X				
14. Saaltink et al. (2012)	X					
15. Strnadova & Evans (2013)	X					
16. Taghizadeh et al. (2020)	X					
17. Taylor et al. (2010)	X				X	X
18. Tsai & Fung (2009)			X	X		
19. Ward et al. (2003)						
n=	14	1	4	1	1	1

Note. Study #17 included parents with ID.

Table 5

Microsystem Factors Investigated

Study Reference	Expectations	Family Culture	Ethnicity	HH Income	Parent Education	Sibling Role Models	Inclusion	Professionals	School Location
1. Bouck (2020)									X
2. Cooney et al. (2006)									
3. Davies & Morgan (2010)						X	X		
4. Dell'Armo & Tasśe (2019)			X	X	X				
5. Doren et al. (2012)			X	X					
6. Healy et al. (2009)		X							
7. Kahonde et al. (2020)		X							
8. Lehmann & Roberto (1996)								X	
9. Li (1998)	X								
10. Malouf & Dymond (2023)							X	X	
11. Martinez et al. (2012)							X		
12. Narayan et al. (1993)									
13. Rojas et al. (2016)									
14. Saaltink et al. (2012)		X							
15. Strnadova & Evans (2013)		X							
16. Taghizadeh et al. (2020)		X							
17. Taylor et al. (2010)									
18. Tsai & Fung (2009)									
19. Ward et al. (2003)									
n=	1	5	2	2	1	1	3	2	1

Note. Study #17 included parents with ID. “HH” refers to “household.”

Table 6

Exosystem Factors Investigated

Study Reference	Transportation	Negative Attitudes	Disability Programs	Parent Training
1 Bouck (2020)				
2 Cooney et al. (2006)				
3 Davies & Morgan (2010)				X
4 Dell'Armo & Tasśe (2019)				
5 Doren et al. (2012)				
6 Healy et al. (2009)				
7 Kahonde et al. (2020)				
8 Lehmann & Roberto (1996)	X	X	X	
9 Li (1998)				
10 Malouf & Dymond (2023)			X	
11 Martinez et al. (2012)				
12 Narayan et al. (1993)				X
13 Rojas et al. (2016)				
14 Saaltink et al. (2012)				
15 Strnadova & Evans (2013)				
16 Taghizadeh et al. (2020)			X	
17 Taylor et al. (2010)				X
18 Tsai & Fung (2009)		X	X	
19 Ward et al. (2003)				
n=	1	2	4	3

Note. Study #17 included parents with ID.