OPTIMAL FUNCTIONING FOR YOUTH WITH INTELLECTUAL DISABILITY: CONCEPTUALIZING AND MEASURING THRIVING AND POSITIVE MENTAL HEALTH

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Abstract

Over recent decades, intellectual disability research has increasingly shifted from deficit-focused models toward positive psychology frameworks that emphasize strengths and positive functioning. However, limited research has examined broader constructs of optimal functioning, such as *thriving* and *positive mental health*. This is especially important to examine for youth with intellectual disability during the transition from childhood to adulthood, a period marked by elevated stressors and mental health problems. This dissertation addressed this gap by examining thriving as well as positive and negative mental health for youth with intellectual disability.

The first study used a photo-elicitation qualitative design to develop a conceptualization of thriving for adolescents with intellectual disability, from the perspectives of youth and their caregivers. Participants completed semi-structured photo interviews using visual methods to enhance accessibility. Reflexive thematic analysis identified five interconnected thriving themes: *Developing*, *Enjoying Life, Having a Positive Sense of Self*, *Connecting*, and *Mattering*, with caregivers additionally emphasizing *Being in a Safe and Supportive Environment.* Thriving was conceptualized as experiencing these developmental processes shaped by youth-context interactions, even in the presence of challenges.

The second study used a quantitative, multi-informant design with adapted youth self-report and caregiver-report measures to evaluate the applicability of the Two Continua Model for youth with intellectual disability. Analyses examined associations between positive mental health (emotional, psychological, and social wellbeing) and mental health problems. Across both youth and caregiver reports, positive mental health and mental health problems showed moderate-to-strong negative correlations, supporting the Two Continua Model premise that these constructs are related yet distinct rather than opposite ends of a single continuum. A substantial

proportion of youth were classified as having flourishing mental health, despite co-occurring mental health disorders. Positive mental health was also uniquely associated with quality, rather than quantity, of relationships and community participation.

Together, findings support the relevance of measuring mental health using a two continua framework and suggest that optimal functioning is best understood as high wellbeing alongside the ability to navigate challenges. This work provides a foundation for future research and clinical practice that integrates support for thriving processes with a dual-factor approach to mental health assessment and intervention.

Keywords: intellectual disability; positive psychology; thriving; flourishing; mental health

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Chapter 1: Introduction

Individuals with intellectual disability can experience significant support needs and barriers to achieving wellbeing (Shogren et al., 2017). Intellectual disability is characterized by limitations in cognitive functioning and deficits in daily living skills across conceptual, social, and practical domains of life, with onset during the developmental period (American Psychiatric Association, 2022; World Health Organization, 2022). Intellectual disability is heterogenous in terms of its presentation, etiology, and level of required support, with between 1% and 3% of the population estimated to have some degree of intellectual disability (Patel et al., 2020). In addition to the functional challenges that this group can experience, people with intellectual disability show markedly elevated rates of psychopathology compared to the general population (Arnold et al., 2025, Einfeld et al., 2006, Totsika et al., 2022). They may also face barriers to accessing mental health services due to insufficient training of clinicians and a lack of specialized mental health services for those with intellectual disability (Whittle et al., 2018). Due to these support needs and mental health risks, research regarding those with intellectual disability has historically used medically based models focused on remediation of negative outcomes (Danforth, 2001; Dykens, 2006).

While support needs and increased risk for mental health problems exist across the lifespan for those with intellectual disability (Hughes-McCormack et al., 2017), the transition from childhood to adulthood presents unique challenges for this group. Adolescence and emerging adulthood (referred to as “youth” throughout this dissertation) is a developmental period with significant cognitive, biological, and social changes (Patton et al., 2016). In the general population, transitioning from the dependence of childhood to adult independence has

been associated with stressors and increased vulnerability to mental health problems (Khetarpal et al., 2022). For youth with intellectual disability and their families, there are additional challenges at this stage, such as transitioning from child to adult services and balancing the development of autonomy with ongoing support (Leonard et al., 2016; Pallisera et al., 2016). In addition to navigating changing service systems, youth with intellectual disability can experience heightened social stressors and exclusion during adolescence (Taheri et al., 2016), as well as difficulty accessing appropriate services for mental health due to diagnostic overshadowing (Totsika et al., 2022). Given the higher rates of mental health problems, added stressors associated with accessing supports, as well as a history of exclusion and institutionalisation for this population, it may not be surprising that the literature has historically focused on addressing the challenges experienced by those with intellectual disability (Albaum et al., 2021; Dykens et al., 2006).

Shifting Towards Strengths-Based & Positive Psychology Approaches

While youth with intellectual disability do experience vulnerabilities, there has been a call over the past several decades to emphasize strengths-based, positive outcome-oriented research for this group (Dykens, 2006; Shogren et al., 2006; Wehmeyer, 2021). In the latter part of the twentieth century, social-ecological frameworks were increasingly applied to those with intellectual disability, emphasizing the fit between a person's individual needs and characteristics, and supports in their environment as determinants of overall functioning (Bronfenbrenner, 1979; Shogren et al., 2013). Disability movements more broadly began emphasizing the importance of self-advocacy and self-determination in overall wellbeing, as well as the potential for functional challenges to coexist alongside strengths and wellbeing (Shogren

et al., 2013; Wehmeyer, 2021). The broader positive psychology movement also emerged toward the end of the twentieth century, emphasizing a shift from a pathology-oriented view of human functioning to one including strengths, positive experiences, and the promotion of optimal functioning (Seligman & Csikszentmihalyi, 2000). In response to these shifts in disability and psychology research, scholars have called for adopting a positive psychology approach to studying optimal functioning for those with intellectual disability (Dykens, 2006; Shogren et al., 2006).

Positive psychology is the scientific study of positive individual traits and experiences, and the factors that contribute to their development (Duckworth et al., 2005). It was initially described as including three domains: the subjective experience of positive emotion, positive individual traits (character and virtues), and belonging to and serving positive communities (Seligman, 2002 as cited in Duckworth et al., 2005). Positive psychology has also incorporated traditional conceptualizations of hedonia (positive affect, life satisfaction) and eudaimonia (meaning, purpose, self-realization) to the study of subjective wellbeing (Ryan & Deci, 2001; Ryff et al., 2021). While positive psychology includes the study of specific elements of wellbeing, such as positive emotion, character strengths and virtues, and optimism (Carver et al., 2010; Fredrickson, 2001; Peterson & Seligman, 2004), it also includes integrative conceptualizations of optimal functioning such as thriving and flourishing (Benson & Scales, 2009; Keyes, 2002). The study of positive psychology has expanded significantly in the general population over the past several decades and is increasingly being applied to studying the wellbeing of historically marginalized populations, such as those with intellectual disability (Albaum et al., 2021, Wehmeyer, 2021).

Research regarding positive psychology for those with intellectual disability has gradually increased over the past several decades. A systematic review of the literature identified 16 studies between 1992 and 2019 that assessed positive psychology constructs for those with intellectual disability (Albaum et al., 2021), with commonly assessed constructs including positive emotional wellbeing, character strengths and virtues, and growth. Regarding the measurement of positive psychology constructs for this group, reviews have noted frequent reliance on single-informant designs (either caregiver-report or self-report), and few validated self-report tools for those with intellectual disability, particularly for youth (Hall et al., 2025; Santoro et al., 2022). While there is a promising trend in the intellectual disability literature toward studying positive psychological constructs, researchers have noted that there is insufficient research investigating constructs of overall optimal functioning, such as thriving or flourishing (Albaum et al., 2021).

Thriving and Positive Youth Development

Thriving is a construct that reflects both a high level of wellbeing, and an upward developmental trajectory (Brown et al., 2017; Carver 1998). Within a Positive Youth Development (PYD) framework (Benson & Scales, 2009; Lerner et al., 2005a; Lerner et al., 2011), thriving has been identified as an underutilized positive psychology construct for youth, emphasizing the importance of fit between a person's individual characteristics and their environment to thrive. Within this framework, thriving has been defined as:

> … the process over time of an individual's pursuing a life path on which individual or functionally-valued behaviors grow (e.g., character, confidence, caring) and move the person toward attainment of an 'idealized personhood' characterized by socially or

> structurally-valued behaviors such as contribution to self, family, community, and civil society. (Benson & Scales, 2009, p. 90)

Thriving is therefore described as an ongoing process of actively growing, overcoming adversity, and making progress towards positive outcomes. Individuals are capable of thriving in a challenging environment, and thriving is therefore closely related to resilience (VanderWeele et al., 2023). Thriving research has primarily focused on the general population (Bowers et al., 2014, Lerner & Lerner, 2013), with relatively few studies examining the construct in the developmental disability literature. Thriving has been evaluated among youth with intellectual disabilities based on caregiver report and grounded in the PYD model conceptualization of the construct (Sellitto et al., 2023; Weiss & Burnham-Riosa, 2015). One study has developed a conceptualization of thriving for adults with Down Syndrome (Thompson et al., 2020); however, no previous studies have operationalized thriving for youth with intellectual disability more broadly.

Positive Mental Health and the Two Continua Model

In the positive psychology literature, constructs of optimal functioning, such as thriving, have been described as worthy of study (Duckworth et al., 2005). These constructs can also be considered more broadly within the context of the real challenges that exist for people, such as mental health problems. The concept of thriving has been likened to that of "flourishing" (Brown et al., 2017), in that thriving is a process that can lead to flourishing mental health states (Kabir et al., 2021; VanderWeele et al., 2023). Flourishing is defined as a high state of positive mental health, characterized by frequent positive emotions and high levels of psychological and social wellbeing (Keyes, 2010).

The relationship between positive and negative mental health has been studied within the *Two Continua Model of Mental Health* (Keyes, 2010). This model expands the concept of mental health beyond the absence of mental health problems, emphasizing that optimal functioning involves the presence of flourishing, which includes high levels of emotional, social, and psychological wellbeing (Keyes, 2010). The model proposes that positive mental health and mental illness are related yet distinct dimensions, and a person's overall functioning can be seen as a measure of where one falls on each of these dimensions. Specifically, this model suggests that individuals can fall in one the following categories: flourishing, moderate, or languishing mental health, each with or without a clinical mental health problem (Keyes, 2010). According to this model, while positive mental health and mental problems are related, it is possible to flourish with "mental illness" (Keyes, 2010). The Two Continua Model has been explored in adolescents and adults (Guo et al., 2015; Keyes, 2006; Keyes, 2010), and the concept has been applied to youth with neurodevelopmental disabilities (Augustine, 2022). However, no study to date has explored the applicability of the model specifically for youth with intellectual disability.

Dissertation Focus

The transition from childhood to adulthood is a unique period of increased stressors, as well as increased opportunity for the development of idealized personhood. For youth with intellectual disability, this period of development can include unique considerations, stressors, and opportunities compared to the general population (Pallisera et al., 2016). It is important to understand what it means to "thrive" with intellectual disability. However, there is currently no conceptualization of thriving that accounts for the unique experiences and perspectives of youth with intellectual disability. In addition to conceptualizing thriving for youth with intellectual

disability, it is important to consider how to support wellbeing within the context of the increased levels of mental health challenges experienced by this group. The Two Continua Model provides a unique framework to explore the distinct yet related nature of wellbeing and mental health problems for youth with intellectual disability.

The aim of the current dissertation is to expand upon the positive psychology literature for youth with intellectual disability by developing a conceptualization of thriving and positive mental health specific to this population, that directly incorporates their perspectives. This dissertation includes two studies: (1) a qualitative study developing a conceptualization of thriving for youth with intellectual disability using photo-elicitation, and: (2) A quantitative study investigating the Two Continua Model of Mental Health (Keyes, 2010) for youth with intellectual disability, using self and caregiver reports. Using an integrated positive psychology approach, this dissertation aims to advance understanding of optimal functioning for youth with intellectual disability, while recognizing the coexistence of wellbeing and mental health difficulties.

Chapter 2: Study 1– Thriving for Adolescents with Intellectual Disability: A Photo-Elicitation Qualitative Study

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Thriving for Adolescents with Intellectual Disability: A Photo-Elicitation Qualitative Study

People with intellectual disability have various support needs and may experience the world in different ways as a result of the lived experience of disability. Historically, research regarding those with intellectual disability has used medically based models focused on challenges and preventing negative outcomes (Danforth, 2001; Dykens, 2006). Over the past several decades however, there has been a shift toward promoting the wellbeing of those with intellectual disability by studying their strengths within a positive psychology framework (Albaum et al., 2021; Schwartz et al., 2023; Shogren et al., 2006). Positive psychology is the study of positive individual traits and experiences, and the factors that contribute to their development (Duckworth et al., 2005). A systematic review recently identified 16 studies between 1992 and 2019 studying positive facets of life for people with intellectual disability using a positive psychology framework (Albaum et al., 2021), with commonly studied constructs including positive emotional wellbeing, character strengths and virtues, and growth. While this is a promising trend in the positive psychology literature, the authors also noted a paucity of studies investigating *thriving* for this group.

Thriving is a positive psychology construct that encompasses a high level of wellbeing and an upward developmental trajectory (Brown et al., 2017; Carver, 1998). Thriving is seen as an expression of Positive Youth Development (PYD; Benson & Scales, 2009; Lerner et al., 2010; Lerner et al., 2011). The PYD model suggests that positive characteristics of thriving develop through mutually beneficial interactions across development, and a strong fit between adolescents' individual strengths and ecological resources (Bowers et al, 2014; Lerner et al., 2010). Characteristics of thriving have been characterized as the "5 C's" of PYD (Bowers et al., 2010; Lerner et al., 2011): *Competence* (i.e., a positive view of one's actions in social, academic,

cognitive, and vocational domains), *Confidence* (i.e., self-efficacy and self-worth), *Character* (i.e., integrity, a sense of right and wrong), *Caring* (i.e., empathy, sympathy for others), and *Connection* (i.e., reciprocal and positive bonds with people and institutions). When present in an adolescent, these characteristics shape the sixth C of PYD, *Contribution* (i.e., helping oneself, family, community, and society; Lerner et al., 2005). Higher levels of these thriving components are associated with fewer negative outcomes for adolecents over time, such as problem behaviour, mental health challenges, and substance use (Geldhof et al., 2014; Milot Travers et al., 2019). Overall, the PYD framework emphasizes shifting the focus of research on adolescents from the "risk" often associated with this developmental period, toward protective factors and the potential for thriving (Shek et al., 2019).

The emphasis on strengths found within the PYD model aligns with the recent shift toward studying positive psychology factors for those with intellectual and developmental disabilties. Pellicano and colleagues (2022) theoretically explored the "capabilities approach" (Nussbaum, 2011) as a framework for thriving in autistic adulthood, which identifies ten core elements of human thriving (i.e., life, bodily health, bodily integrity, senses, imagination and thought, emotions, practical reason, affiliation, other species, play, and control over one's emotions). Additionally, Weiss and Burnham Riosa (2015) examined thriving among Special Olympics athletes with intellectual disability through parent report. This correlational study found that parents of autistic children with intellectual disability reported lower rates of child thriving compared to parents of children with intellectual disability without autism. The authors operationalized thriving as it was originally proposed within the PYD framework (Lerner et al., 2010) and suggested that future research should use a framework of thriving that incorporates the developmental differences experienced by those with intellectual disability. Also using the PYD

conceptualization of thriving, Sellitto et al. (2023) found that caregiver-reported thriving partially mediated the relationship between COVID-19 related stressors and mental health problems for people with intellectual and developmental disabilities. One study has developed a model of thriving specific to the experiences of adults with Down Syndrome, using a qualitative multiple case study approach (Thompson et al., 2020). These authors documented the lives of four adults with Down Syndrome and identified four overarching themes contributing to thriving: 1) a supportive social ecology; 2) high expectations for independence; 3) advocacy; and 4) strengths facilitating happiness. This was the first study to describe thriving in detail among a specific group of adults with intellectual disability, and to directly incorporate the perspectives of these individuals and their support networks.

Research demonstrates the applicability and utility of the construct of thriving for those with intellectual and developmental disabilities. It remains unclear whether there are specific factors that contribute to thriving for those with intellectual disability during adolescence, where the PYD model is often applied to determine how to promote wellbeing. It is particularly important to understand the factors that contribute to thriving for adolescents with intellectual disability, given their experiences transitioning from child to adult services and balancing developing a degree of independence with ongoing support needs (De Paor et al., 2025; Gorter et al., 2014; Pallisera et al., 2016). It is also important to develop a conceptualization of thriving that centers the perspectives of adolescents with intellectual disability, while also considering the perspectives of caregivers (Caldwell, 2014). Photo-elicitation is a qualitative research method where participants use photographs and interviews to convey their experiences (Lapenta et al., 2011) and is increasingly used to capture the perspectives of people with intellectual disability as it poses fewer demands on verbal communication than other practices (Chinn & Balota, 2023;

Sigstad & Garrels, 2021). Inclusive research practices also emphasize the importance of having people with intellectual disability involved as co-researchers, in order to conduct research that is accessible and meaningful to the community (Bigby et al., 2014; Ghaderi et al., 2023). No study to our knowledge has developed a model of thriving that addresses the unique needs and experiences of adolescents with intellectual disabilities and their caregivers. To address this gap, the current study aimed to develop a conceptualization of thriving from the perspective of adolescents with intellectual disability and their caregivers, using an online photo-elicitation qualitative design developed with individuals with intellectual disability as co-researchers.

Methods

Participants

Participants included 12 adolescents and their parents. A combination of convenience and purposeful sampling methods were used, as the aim of this study was to capture the perspectives of youth with intellectual disability with a range developmental disability diagnoses and across the adolescent period. It is common practice to use purposeful sampling in qualitative research when the goal is transferability of study findings rather than generalizability (Herchline, 2024; Lincoln & Guba, 1985). Participants were recruited via distribution of emails and flyers to a network of intellectual disability service provider organizations and on social media platforms (i.e., Twitter and Facebook). Each adolescent-parent dyad received a $50 gift card as compensation. Adolescents were eligible to participate if they had a diagnosis of intellectual disability and lived in Canada. Parents provided demographic information about their child and themselves (see Tables 1 & 2). As shown in Table 1, the adolescent sample varied in terms of diagnoses and age (range: 12 – 19 years old). While there was no inclusion criteria related to communication levels, all adolescents in this study could communicate to some degree using

spoken language. Two participants were siblings. The sample size was not pre-determined. Data collection concluded when there was sufficient information power for the analyses (see *Methodological Rigor*).

Table 1

Adolescent Participant Demographics and Characteristics

	M(*SD*) or *n*(*%*)
Age	
	15.3 (2.5)
Gender	
Girl/woman	5 (42%)
Ethnicity	
White	8 (66%)
Middle Eastern	1 (8%)
Asian	1 (8%)
East Asian/Indian	1 (8%)
Mixed race (Black and White)	1 (8%)
Additional Developmental Disabilities[a]	
Down Syndrome	2 (17%)
Cerebral Palsy	2 (17%)
Autism	4 (33%)
Other/unknown	4 (33%)
Province of Residence	
Ontario	9 (75%)
Alberta	1 (8%)
Manitoba	1 (8%)
British Columbia	1 (8%)

Note. [a] Participants were reported to have the following diagnoses in addition to intellectual disability

Table 2

Parent Participant Demographics and Characteristics

	M(*SD*) or *n*(*%*)
Age	
	46 (4.8)
Gender	
Female	11 (100)
Relationship to adolescent	
Biological mother	8 (73%)
Adoptive mother	3 (27%)
Ethnicity	
White	9 (82%)
Asian	1 (9%)
East Asian/Indian	1 (9%)
Marital status	
Single	1 (9%)
Married	7 (64%)
Divorced/Separated	3 (27%)
Family income (CAD)	
< than $20 000	3 (27%)
$20 000 - $30 000	1 (9%)
$30 000 - $50 000	2 (18%)
$50 000 – $80 000	1 (9%)
>$80 000	2 (18%)
Prefer not to disclose	2 (18%)
Highest level of education	
High school degree	1 (9%)
Some college	2 (18%)
College degree	1 (9%)
University degree	4 (36 %)
Postgraduate or professional degree (e.g., Masters, PhD, MD)	3 (27%)

Study Design and Procedure

This study received ethics approval from the Research Ethics Board at York University. Consent and assent were obtained from parents and adolescents. Community engagement is important to help ensure that research design and study findings are aligned with the needs and

perspectives of those with intellectual disability (Bigby et al., 2014). Two adults with intellectual disability assisted with the development of the study procedures and theme review. These research partners are active in the intellectual disability community and had expressed interest in contributing to research. Specifically, the self-advocate research partners consulted on the consent/assent process, provided feedback on the semi-structured interview questions, reviewed the study themes and labels, and co-created a knowledge translation book for the results.

We used a photo-elicitation qualitative design adapted from photovoice methodology (Booth & Booth, 2003; Wang & Burris, 1997) to address how individuals with intellectual disability and their parents conceptualize thriving. By combining photographs with verbal interviews, this method allows those with intellectual disability with varying communication skills to share their perspectives (Overmars-Marx et al., 2018; Williamson et al., 2020).

The project took place online due to pandemic restrictions. The dyads attended an introduction session with two researchers via Zoom that covered consent and privacy and outlined the purpose of the photos: to capture the meaning of thriving (i.e., "being your best self" or "living your best life") for adolescents with intellectual disability. Following the introduction, dyads had two- to three-weeks to choose photographs taken within the past two years. This time frame was chosen to allow participants to pick photographs from before the pandemic. Adolescents chose 10 photographs of what thriving ("living your best life") means to them, and parents separately chose 10 photographs of what they believe thriving means for their adolescent.

Using a semi-structured interview format adapted from photovoice (Photovoice Hamilton, 2007; Wang & Burris, 1997), participants were interviewed via Zoom about why they picked the photos. Adolescents and parents each participated in their own, separate interviews. Adolescents were interviewed first and had the option to have their parent present to support

their communication needs. This is an accommodation that promotes self-determination in research participation, providing potential comfort and communication assistance when desired (Caldwell, 2014). Ten of the 12 adolescent participants chose to have their parent present during the interview. Two of the 12 participants required more substantial communication support and clarification from their parent during the interview. Following the adolescent interviews, all parents participated in separate interviews focused on the photographs they had selected.

Methodological Rigor

Photographs and transcript data were analyzed using qualitative data analysis software (NVivo 12; QSR International Pty Ltd, 2018). Reflexive thematic analysis was used due to its applicability to diverse theoretical approaches, and its utility for working within a participatory research paradigm (Braun & Clarke, 2006; Braun & Clarke, 2021). Reflexive thematic analysis is a six-phase, recursive approach that emphasizes the subjectivity of qualitative research, and of critically reflecting on how assumptions and design choices influence knowledge production. Reflexivity was operationalized as an ongoing, deliberate practice of self-reflection on researchers' values and assumptions throughout the research process (Braun & Clarke, 2021). Reflexive tools used in this study included reflexive note taking, writing positionality statements, and engaging in team discussions. For a description of the background and notable preconceptions of the research team members, please see Appendix A. We held a critical realist ontological orientation, which assumes that a material reality exists, but that individuals' unique experiences of reality are influenced by language and culture. A critical approach toward the data was taken, as we were interested in understanding the meaning of thriving, rather than providing specific examples of thriving. Collaborative coding was used (Braun & Clarke, 2021). This involved the first author (AM) leading the analysis and working closely with the second author

(TS) to reflexively develop codes through discussion and memoing. The adolescents' photographs and interviews were coded first to center the perspectives of those with intellectual disability. Parent photographs and interviews were then coded in relation to the adolescent reports.

Each photo was analyzed for meaning units, separate from verbal reports. Transcripts were then read closely in their entirety, and codes were produced in relation to original data (photos and transcript data). In coding, the orientation toward the data was primarily inductive, however, the researchers reflexively acknowledged their knowledge of existing theories of thriving. The focus of the meaning in the photos and text was both semantic and latent. Themes were developed in a recursive process with the coders and study collaborators. Data collection concluded when the research team felt there was sufficient information power for the analyses and when new themes and insights were saturated (Braun & Clarke, 2021). This was discussed iteratively by the research team during the interview, coding, and theme development stages. Once consensus was reached between the research team, themes were shared with our self-advocate research partners for their feedback and insight regarding knowledge translation. A knowledge translation book was co-created with the self-advocate research partners and shared with the youth and parents who participated in the study and with interested community members.

Results

Reflexive Thematic Analysis

Most codes produced from adolescent and parents overlapped. We structured our codes around five main themes that were apparent in both adolescent and parent reports (Table 3). One theme, *Safe and Supportive Environment,* was produced specifically from parent codes. These

themes impact one another and are described below. This led to a conceptual map linking six themes and 10 subthemes (Figure 1).

Table 3

Overview of Themes from Reflexive Thematic Analysis

Main themes	Subthemes
Enjoying Life	Novel enjoyment Predictable enjoyment
Developing	Growth Positive direction
Having a Positive Sense of Self	Being my own person Self-worth
Connecting	Belonging Relationships
Mattering	Having a role Taking care of others
Parent specific theme	
Safe and Supportive Environment	

Figure 1.

Conceptual Framework of Thriving for Adolescents with Intellectual Disability

Note: The main themes developed from adolescent and parent reports are in the coloured circles. Corresponding subthemes informed from adolescent and parent reports appear in the coloured rectangles. The specific parent theme appears in the diamond.

Theme 1: Enjoying Life

Enjoying Life included experiencing positive emotion, participating in fun activities, and building positive memories. Experiences of enjoyment included new or special experiences (1.1. *Novel Enjoyment*), and routine pleasant ones (1.2 *Predictable Enjoyment*).

1.1 Novel Enjoyment

There were many photos of adolescents engaging in novel fun experiences that were described as unique and memorable. There were several examples of travel (e.g., a family vacation) or special outings closer to home (e.g., going to the zoo or to the mall). Thrilling or adventurous aspects of new experiences were described, such as exploring an unfamiliar place or doing an exciting activity. One adolescent elaborated on a photograph of a family trip to a water park: “I like going on the slide that everybody thinks is scary… I like it because I got an adrenaline rush from that” [Teen_11]. A parent shared a photo of her son riding a Gondola on a family trip: “Just building positive memories and trying new things and building his confidence” [Parent_10].

Photos regularly included examples of pleasant surprises. Some surprises had a momentous quality, such as a surprise birthday party or a surprise activity (e.g., going to the spa). Other pleasant surprises occurred by chance during daily life, in a subtle, serendipitous manner. One adolescent was passionate about photography and took a unique photograph by chance: “Yeah, the experience, it was delightful… I didn't exactly manipulate this photo… it just happened!” [Teen_03].

1.2 Predictable Enjoyment

Photos were also associated with more predictable enjoyment in participants’ lives. Many fun experiences occurred within daily routine (e.g., playing with toys, sport participation, cooking or baking, enjoying the outdoors). Photos commonly depicted adolescents taking part in a scheduled activity, such as a swimming or music class. Many adolescents enjoyed engaging in their specific interests. One adolescent shared a photograph of herself drawing: “I picked it because I'm happy and I like to draw like all the time” [Teen_01]. Participants also described

relaxing activities at home. One adolescent shared that she enjoyed watching television: “Well, it’s easy going and calm” [Teen_11]. Photographs of adolescents celebrating predictable special occasions were also common (e.g., birthdays, holidays). It was important for adolescents to have routine enjoyable events to look forward to, particularly given the challenges or barriers they can experience. One mother articulated the importance of holidays for her two adolescents (both of whom participated in the study): “It's a great day for him to look forward to… sometimes, you know, they don't have a typical life … So, I've always kind of made holidays extra special” [Parent_11].

Theme 2: Developing

Participants described experiences in which adolescents were *Developing*. This included having experienced personal *Growth*, as well as anticipating continued development in a *Positive Direction*.

2.1 Personal Growth through Experience and Perseverance (Growth)

Personal *Growth* was often related to becoming older and achieving milestone events. There were many notable events that indicated an achievement or maturation, such as a graduation, the first day of school, or a notable birthday. One adolescent had a photograph of herself after getting her ears pierced on her thirteenth birthday: “Because earrings, I never weared earrings before…. Felt good and really proud” [Teen_13]. Getting one’s ears pierced was experienced as a developmental milestone, indicating increased maturity. This experience also involved being brave: *“*...it pinched a little*”* [Teen_13]. This example illustrates *Growth* in the sense of experiencing a milestone event, as well as in character traits, such as courage.

Several participants described character development. This included examples of persevering, working hard, getting out their comfort zone, and facing fears (e.g., getting a

needle). One parent showed a photograph of her daughter walking a dog, noting that she used to be "terrified" of dogs: "I chose this one because it's her overcoming her fears" [Parent_02]. Adolescents persisting in learning new skills was also notable. Another parent shared a photograph of her daughter riding a bicycle and explained that learning this skill took several years: "… She is one of the most persistent people I know… even when things are challenging, she like pushes through" [Parent_14].

Participants reflected on adolescents overcoming challenges throughout development. Experiencing difficult situations came with a sense of pride, such as going to doctor's appointments or getting a COVID-19 test. One adolescent spoke about being in the hospital: "Be brave, so I don't get scared a lot. Take deep breaths. It was really hard there" [Teen_06]. Parents spoke to developmental challenges their children experienced and overcame, such as learning daily living skills, persisting in school, or health challenges. Many parents referred to their adolescent exceeding the expectations of others: "He can do a lot more than people give him credit for, if you only give him a chance" [Parent_15].

2.2 Imagining and Planning for a Positive Future (Positive Direction)

An important element was imagining and planning for future positive development. Several adolescents described working toward a future goal (e.g., attaining a higher karate belt, learning cooking skills). Showing a photograph of helping his father build a fence, one adolescent said: "I wanted to help so I could learn how to make things and how to make houses… I learn for when I get older…" [Teen_06]. Several parents also spoke about planning or imagining a positive future for their adolescents, like a photograph of a son sitting in a construction vehicle, smiling: "He likes cars a lot. And I'm not sure if he'll end up being able to

drive or not…But you know, he can kind of picture himself growing up and driving this vehicle" [Parent_10].

Theme 3: Having a Positive Sense of Self

Adolescents having a positive sense of who they are as an individual was a main theme. This included being able to express their individuality (*Being My Own Person)* and feeling good about who they are (*Self-Worth*).

3.1 Being My Own Person

Being their own person included expressing unique personhood through preferences, creativity, and decision making. Several spoke of specific interests, including games (e.g., video games, Lego), hobbies (e.g., photography, building, piano), television shows, and animals. Many had examples of expressing themselves creatively and dressing up in costume, usually in relation to their unique interests. One adolescent shared a photo of herself in an elaborate costume dressed up as her favourite character: "I like wearing the wig… It was pretty and colourful… I feel alive" [Teen_11]. Adolescents also provided photos of expressing themselves through art, photography, or social media (e.g., Instagram). One adolescent shared: "I just love deciding what to draw. It makes me feel fantastic to be able to draw my favourite things" [Teen_01]. A parent described her adolescent son carving a pumpkin: "… him being able to do it the way he wanted to do it, again, having ownership and being creative" [Parent_10].

The importance of adolescents having the opportunity to make choices was also found outside of creative outlets. Examples of choices in daily life included choosing a walking route, picking a nail polish colour, or choosing activities. For adolescents with more communication challenges, parents described using art and photography to communicate. The development of effective communication skills was seen as contributing to autonomy and independence. One

parent spoke about her daughter learning to grocery shop independently: "… If she can speak up and do the things by herself, then the more opportunity she has to be the person she wants to be…" [Parent_14]. Parents also expressed that communication skills allowed their adolescent to self-advocate. Another parent spoke about her son's involvement in disability advocacy: "…Other people speak for him a lot... So, for him to be able to use his own voice…I think is a really powerful thing" [Parent_15].

3.2 Self-Worth

It was important that adolescents had chances to feel confident and proud of their abilities and accomplishments. Some adolescents described a positive association with their identity as a person with a disability. One adolescent proudly expressed that he was "the first Down Syndrome in mom's stomach" [Teen_15]. Another adolescent who used a wheelchair described specifically choosing a doll that looked like her and had a wheelchair [Teen_01]. There were several photos of adolescents feeling good about their appearance. One adolescent shared that after a haircut, she felt "snazzy" [Teen_11]. Her mother separately chose a photo of the haircut: "She was just pleased with the change. She felt pretty. She felt herself" [Parent_11]. Adolescents feeling valued and loved by others was also seen as contributing to a *Positive Sense of Self*. One parent had an example of her son receiving positive feedback from his teachers. She described imagining her son thinking: "Wow, people understand me. People love me. They care about me" [Parent_11].

Theme 4: Connecting

In addition to a positive sense of individuality, participants also described the importance of *Connecting* with others. This included *Belonging* to groups and having *Relationships*.

4.1 Belonging

Group membership was described in various ways, such as affiliation with a youth group, a school, an extra-curricular team, or a political party. One parent discussed the importance of her daughter belonging to groups of same-aged peers: “She likes that.... now that she’s a teenager, to hang out with teenagers and to feel like she’s part of the crowd [Parent_02]. Belonging to groups facilitated connection and allowed several adolescents to feel similar to others. One adolescent enjoyed being on a cheer squad run by cheerleaders: “It makes me feel like… a normal kid! It makes me feel like an actual cheerleader” [Teen_01].

Cultural or religious activities were also an important aspect of *Belonging* for some: “Church is a big part of her life” [Parent_02]. Another mother shared a photo of her son at a religious festival: “I chose this photo because [Teen_04] really likes to go to festival and because there he can meet everyone in the community he knows” [Parent_04]. The value of belonging to a community with others with disabilities was also described. One mother discussed a photograph of her son at an event with peers with the same disability: “He says, ‘These guys understand me’… I think that speaks to a sense of belonging” [Parent_15].

4.2 Relationships

There were diverse relationships for adolescents, ranging from acquaintances, friendships, pets, and the family as a unit. These relationships were a source of connection, and often served as opportunities for personal *Growth* and *Enjoying Life*. Many adolescents described experiences with friends: “I like it. Be with my friends at the trails” [Teen_02], “Feel excited to make brand new friends” [Teen_11]. One parent described the importance of meeting new people for her son: “He's a very social person… If we pass somebody… in the hospital, in the mall, in the store, like anything, he wants to know their name.’” [Parent_07]

Participants also had examples of special relationships. One photograph of a daughter with her older friend was described as a reciprocal friendship:

> "When communication is a challenge… the talent is connecting with other people at all, but especially making meaningful and reciprocal friendships. So I think being able to see this reciprocal relationship where, even though [adolescent's friend] is an adult… they still give to each other." [Parent_15]

Several adolescents had special bonds or relationships with a pet: "He's pretty special to me, and he's a special puppy that means a lot for my heart and my brain" [Teen_06]. One adolescent shared many photographs of him and his girlfriend, sharing that she makes things "more fun" [Teen_07]. Strong relationships were frequent with family members, such as a sibling ("I like seeing my sister" [Teen_04]), or parent ("I love spending time with him [father] a lot" [Teen_06]). Several also reflected the importance of the family unit coming together. One adolescent noted that she enjoyed watching television "…because I got to spend time with my family" [Teen_11]. In addition to having and maintaining relationships with others, adolescents described being "inspired" [Teen_01] by people in their lives.

Theme 5: Mattering

Mattering goes beyond *Positive Sense of Self,* as it involves knowing that one's presence and actions have an impact on others and the world. *Mattering* was demonstrated through adolescents *Having a Role* and *Taking Care of Others*.

5.1 Having a Role

Adolescents were seen as thriving when they had roles or responsibilities. Some participants spoke about the value of adolescents having a work, volunteer, or ambassador role in the community. Adolescents' ability to make genuine contributions was also described by many:

"He really thrives on being part of things and really helping to contribute things to the community and create a positive force within it" [Parent_06]. One adolescent shared a photograph of herself working at a bakery: "Me at work…There's so much to do!" [Teen_02]. A parent selected a photo of her daughter volunteering helping younger children doing gymnastics: "Not only then does she feel like she's contributing, but she actually *is* contributing to society… This picture, to me, really shows that everyone has a purpose" [Parent_02].

There was also considerable content stressing the importance of having roles at home. A parent noted increasing the responsibilities at home for her son when he began high school, including "making his own lunch," and "doing his own laundry" [Parent_11]. Other adolescents saw themselves as having a role as a family member, such as "Big sister" [Parent_02] or "Uncle" [Parent_15]. It is notable that *Having a Role* or responsibility appears closely tied to *Development* and seems to contribute to adolescent *Self-Worth.*

5.2 Taking Care of Others

Taking Care of Others often overlapped with *Having a Role or Purpose*, and at times contributed to *Development*, *Connecting*, and *Enjoying Life.* Many adolescents had photographs about helping others in their lives, such as family. One adolescent stated: "I like how I help the family out... Like mow the lawn or clean the living room" [Teen_06]. Many participants selected photos of having a nurturing role. One mother shared that her daughter has "… always been called the 'mother hen'… so helping kids and working in a daycare gives her a sense of importance" [Parent_02]. Taking care of others also applied to animals. One adolescent had a photograph of holding a baby goat: "I chose it because, I actually love baby animals. And little baby children. I just love being around babies!" [Teen_01]. Several parents spoke about

adolescents thriving when taking care of pets: “She really loves the animals. It’s another way of her having a little bit of independence to help care for them and be responsible for feeding them and making them feel good” [Parent_13].

Participants also provided several examples of generosity. One adolescent shared that he got “puzzles” for his girlfriend on her birthday [Teen_07], and another that he made plant stands “…for everyone in the neighborhood” [Teen_10]. One mother explained a photograph of flowers her daughter picked for her: “It speaks to her unprompted care for others” [Parent_14].

Parent Theme: Safe & Supportive Environment

Parents specifically noted the importance of adolescents having a *Safe and Supportive Environment* to thrive. Some described encouraging their children’s independence, while watching over to ensure safety. One parent described a photo of her daughter making snow angels on the front lawn as she watched from inside: “I think she probably felt carefree. You know, it didn’t happen right away that I would let her hang out on the front lawn… but I had to let the rope go a bit” [Parent_13]. Safety at home was also important: “He’s learning that home is a safe place. And that even when stuff is pretty hard, there’s always gonna be a nice, comfortable place to come home to that he can be himself, express himself” [Parent_16].

There was also content related to adolescents having a support system beyond parents. There were photographs of adolescents with school educational assistants: “It kind of reminds me too that there’s other people that have an interest in him and his development” [Parent_07]. One parent shared a photograph of her son with co-workers he had grown close to: “Which is great because we're always trying to build his community of people, like beyond family. Like the more people that love him and understand him and believe in him, the better” [Parent_15].

Another parent shared a photograph of her daughter balancing on a structure at the park, describing how with community supports she had developed this skill:

> "Like we spend so much time doing like physical therapy and occupational therapy, whatever. And so, for her to like willingly do this kind of thing during playtime is pretty exceptional… And then just like being outside at the park having fun. Like living the life that as a kid you are supposed to live!" [Parent_14]

Discussion

Adolescence has been conceptualized as a stressful period with developmental risk factors (Shek et al., 2019), and adolescents with intellectual disability may experience additional stressors related to balancing support needs with increasing independence (De Paor et al., 2025). More recent approaches within the positive psychology and PYD literature have identified the transition from childhood to adulthood as a period where adolescents can also have experiences and develop characteristics that contribute to *thriving*. While specific definitions vary, thriving is broadly understood as a high level of wellbeing and an upward developmental trajectory (Brown et al., 2017; Carver, 1998). While the construct of thriving has been investigated in the general population (Benson & Scales, 2009; Lerner et al., 2005) and a few studies in the developmental disability literature (Pellicano et al., 2022; Thompson et al., 2020; Weiss & Burnham Riosa, 2015; Sellitto et al., 2023), this is the first study to conceptualize thriving in a way that considers the potentially unique developmental experiences of adolescents with intellectual disability, from the perspectives of adolescents and their family carers.

It is notable that five core themes were identified from both adolescent and parent perspectives. It may be that the use of photo interviews, as well as the mixture of semantic and latent approaches to the thematic analysis, was a more accessible approach to understanding the

perspectives of adolescents with learning challenges. The first core element of thriving in the current model, *Enjoying Life,* was described by both adolescents and their parents, with subthemes including enjoying unique or special experiences (*Novel Enjoyment)* and routine pleasant events (*Predictable Enjoyment*). It is particularly important that Enjoying Life is a central component of thriving for adolescents with intellectual disability, given that many face barriers to predictable fun and pleasant experiences due to society failing to provide adequate supports related to developmental differences (Merrells et al., 2019). While broader discussions of the PYD framework (Benson & Scales, 2009), and adult conceptualisations of thriving (Su et al., 2014) do note *positive emotionality* as contributing to thriving, this does not fully capture the importance of the new and predictable fun experiences described by participants in the current study. Other literature does appear to reflect the subthemes noted in this element. For example, for adults with Down Syndrome (Thompson et al., 2020), *Zest* (excitement and enthusiasm for life) has been described as contributing to thriving, which has some similarities to the surprise and excitement associated with *Novel Enjoyment* in the current study, and *Fun* is one of the "F-words" of childhood disability (Rosenbaum & Gorter, 2011). Notably, this subtheme aligns with research in the broader positive psychology literature suggesting that curiousity and novel experiences can be associated with positive emotions such as joy and excitement (Silvia & Kashdan, 2017).

Participants described continued development and increased independence and autonomy as critical to thriving, with additional considerations for differences in developmental trajectories and appropriate supports. The subtheme *Growth* included adolescents having experienced milestone events (e.g., graduations), as well as growth in character traits (e.g., persistence, bravery), overlapping with the traits *Competence* and *Character* in the 5 C's model of thriving

(Lerner et al., 2011). These also may reflect aspects of Benson's (1997) developmental "positive values" assets, such as integrity and responsibility (Shek et al., 2019). *Developing* in the current study was conceptualized as a continuous process that included planning for a positive future and continuing to develop in a *Positive Direction* (see also, Palisano et al., 2017). This also aligns with the PYD framework, in which thriving is described as the continued development of positive characteristics that move a person toward "idealized personhood" (Benson & Scales, 2009). Notably, planning for a positive future can have unique considerations for those with intellectual disability, due to additional support needs. Adolescents spoke about developing skills for the future, and parents shared considerations for developing increased independence, with appropriate supports in place.

Adolescents having a *Positive Sense of Self*, which included being able to express their individuality (*Being My Own Person*) and feeling good about who they are (*Self-Worth*), also had clear conceptual overlap with the PYD thriving literature. *Having a Positive Sense of Self* for adolescents with intellectual disability may be particularly critical given that this group can experience internalized stigma (Ali et al., 2015; Lee et al., 2023) and barriers to decision making (Bigby et al., 2019). "Positive identity" was one of the developmental assets which informed the PYD framework (Benson, 1997), and "clear and positive identity" was one of Catalano's 15 constructs of PYD (Catalano et al., 2004). In the current study however, a unique component of self-worth for those with intellectual disability included their identity in relation to disability, with some participants describing positive associations with their disability. In addition to feeling good about who they are, participants also described the importance of adolescents expressing their unique personhood through creativity and decision making. *Being My Own Person* in the

current study also highlights the importance of self-determination for the quality of life of people with intellectual disability (Wehmeyer, 2020).

In addition to positive unique personhood, *Connecting* with others was described by participants, which included individual *Relationships* and *Belonging* in groups. This is akin to the thriving construct of *Connection* found in the general PYD literature (Lerner et al., 2011), which includes positive bonds with peoples and institutions. Relationships for adolescents with intellectual disabilities were diverse, including with pets or animals. There is some evidence that relationships with animals can contribute to a social network for those with intellectual disability (Scheffers et al., 2023) and may be an important form of relationship to consider for this group. Others have referred to this characteristic as *Intimacy* in relationships (Thompson et al., 2022). *Belonging* can also be found by connecting with cultural groups, community groups, and specific groups for those with disabilities, similar to the notion of *Affiliation* with people and communities as contributing to thriving for the general population (Nussbaum, 2011), and for autistic individuals (Pellicano et al., 2022). Like autistic people, adolescents with intellectual disability may experience communication differences or barriers to inclusion in community settings, which may impact the opportunity for connection (Abbot & Mcconkey, 2006; Merrells et al., 2019). Our findings highlight that with appropriate supports and opportunities, adolescents with intellectual disability can develop strong reciprocal relationships and affiliations with communities that contribute to thriving.

The final core element of thriving in the current model was having a sense of *Mattering* to others or the world, which included *Having a Role* and *Taking Care of Others.* Given that adolescents with intellectual disability may experience barriers to traditional avenues of contribution to society (e.g., employment; Kocman, 2019), *Mattering* to others and the world

may be a more accessible construct for this group. It is notable that *Having a Role* for many adolescents did in fact include employment or volunteer positions as well as diverse roles, such as having responsibilities at home or roles within a family (e.g., being an uncle). *Taking Care of Others* was also described flexibly by participants in the current study and included helping or nurturing others in ways that aligned with the adolescent's abilities (e.g., helping a younger sibling or taking care of a pet).

One parent specific theme emerged around the importance of adolescents being in a *Safe and Supportive Environment* to facilitate the other five elements of thriving. Thriving is a dynamic process of mutually beneficial interactions between a person's individual attributes and their contexts (Benson & Scales, 2009; Brown et al., 2017; Bundick et al., 2010). Specific examples of contextual strengths can include "family support", "other adult relationship", "caring neighborhood", "safety" and "community values youth", as well as adults providing opportunities, supports, and expectations to keep adolescents progressing on a positive developmental path (Benson & Scales, 2009). Parents described the importance of a safe environment, as well as a community supports beyond the family system. Studies indicate that parents of individuals with intellectual disability often express heightened concerns about safety due to perceived vulnerabilities and potential risks associated with developmental differences (Modula & Sumbane, 2022; Robinson & Graham, 2021). Typical adolescent behaviour, such as experimental risk taking (Steinberg, 2007) may also explain why safety was a prevalent theme for parents in this study, but not a focus for the adolescent participants (Steinberg, 2007). Notably, support related themes were also identified within the model of thriving for adults with Down Syndrome (Thompson et al., 2020), in which multiple levels of support were identified as contributing to thriving, including: *close and caring immediate relatives, pioneering parents,* and

publicly funded supports. A *Safe and Supportive Environment* may be a particularly important factor to consider for the promotion of thriving for adolescents with intellectual disabilities, given the barriers to inclusion and additional support needs that this group can experience (Overmars-Marx et al., 2014).

Limitations & Next Steps

This study is not without limitations. This was a Canadian sample of adolescents, and while we were able to reach adolescents from both urban and rural locations, most lived in Ontario. Additionally, while we recruited adolescents with a range of intellectual disability related diagnoses and various levels of communication abilities, all adolescents in this study could communicate to some degree using spoken language. Future studies will benefit from specifically capturing the perspectives of nonverbal adolescents. Information regarding adaptive functioning, IQ, and education status was not available for this study, which might have provided helpful context for understanding participants' experience. All parents were mothers, and future work may wish to capture the perspectives of other caregivers. Participants were well connected in their communities and had parents who actively sought supports and opportunities for their adolescents. Adolescents with intellectual disability who have fewer resources and connections may have unique perspectives on thriving that were not captured. This study was also conducted during the COVID-19 pandemic. While participants were able to choose photos and discuss experiences from before the pandemic, perspectives on thriving may be influenced by pandemic restrictions. Regarding next steps, the current framework can serve as a guiding template for quantitative investigations and the development of a measure of thriving for adolescents with intellectual disability.

Conclusions

This study demonstrated that adolescents and their caregivers can provide rich descriptions of thriving with intellectual disability using photographs and interviews. Five main themes were developed using reflexive thematic analysis from adolescent and parent reports (*Enjoying Life*, *Developing*, *Having a Positive Sense of Self*, *Connecting*, and *Mattering*), and one additional theme (*Safe & Supportive Environment*) was specific to parent reports. This highlights the importance of considering the perspectives of both adolescents with intellectual disability and their caregivers to develop a comprehensive understanding of thriving.

The themes in this model are similar to previous models of thriving and positive youth development (e.g., Catalano et al., 2004; Lerner et al., 2011), with additional considerations described for accessibility, developmental differences, and person-environment interactions. This study demonstrates the valuable insights that can be gained through participatory research methods. Future work in this area will continue to benefit immensely from community-engaged practices.

The current thriving framework serves as an exciting starting point in this line of research, and future studies will be needed to determine the generalizability of these themes for adolescents with intellectual disability more broadly. Due to the paucity of validated self-report wellbeing measures for this group, the themes identified in this study can also inform the development of a quantitative measure of thriving for this population. Finally, this work can help inform organizations, communities and policymakers regarding potential interventions to support thriving for adolescents with intellectual disability.

Chapter 3: Study 2 – Positive Mental Health for Youth with Intellectual Disability: Exploring the Two Continua Model

An understanding of wellbeing for youth with intellectual disability must be situated within the context of the well-documented elevations in mental health problems experienced by this group. Across childhood and adulthood, people with intellectual disability experience rates of psychopathology two to four times greater than the general population (Arnold et al., 2025; Buckley et al., 2020; Einfeld et al., 2006; Hughes-McCormack et al., 2017; Pollack et al., 2025), a pattern seen in high-, middle-, and low-income countries (Totsika et al., 2022). The transition from childhood to adulthood has been identified as a critical period for the development of psychopathology in the general population, with at least half of mental health disorders occurring before late adolescence or early adulthood (McGrath et al., 2023). Like in the general population, an increase in mental health problems during this period is also documented for those with intellectual disability (Marquis et al., 2024). For youth with intellectual disability, additional mental health vulnerabilities during this transition period can include navigating the shift from child to adult services (Ramachandran et al., 2025), the discontinuation of school-based supports without timely replacement, and heightened exposure to social stress and bullying (Augustine et al., 2024). Despite these elevated mental health risks, there is increasing evidence that youth with intellectual disability can experience strong wellbeing (Sellitto et al., 2024; Weiss et al., 2015). However, research evaluating how flourishing and mental health problems may co-exist for this group is limited (Emerson et al., 2023). Importantly, elevated vulnerability to mental health problems can coexist with strong indicators of wellbeing, reflecting the need for frameworks that account for both risk and resilience in the lives of youth with intellectual disability.

The *Two Continua Model of Mental Health* posits that positive mental health (wellbeing) and mental illness (mental health problems) are related yet distinct dimensions of human functioning, rather than opposite ends of one spectrum (Keyes, 2010). Within this framework, overall functioning includes two continua: (1) the extent of *mental health problems* (psychopathology) and (2) the degree of *positive mental health* a person experiences. Positive mental health is conceptualized as having a tripartite structure, including *hedonic emotional wellbeing* (positive affect, life satisfaction; Diener et al., 1999), *eudaimonic psychological wellbeing* (self-acceptance, personal growth, purpose, autonomy, environmental mastery, and positive relations; Ryff & Keyes, 1995), and *eudaimonic social wellbeing* (social contribution, social integration, social actualization, social acceptance, and social coherence; Keyes, 2002). Factor analytic studies using large U.S. datasets have provided support for these three correlated, yet distinct dimensions of positive mental health (Keyes, 2002; 2005). Based on these factors, individuals can be classified as having *flourishing*, *moderate*, or *languishing* positive mental health (Keyes, 2002; 2010). The model has been evaluated among adults and adolescents across multiple countries (Luijten et al., 2019).

Building on this framework, studies in the general population have shown a moderate, negative association between positive mental health and mental health problems in adults (Keyes, 2005) and adolescents (Keyes, 2006). Confirmatory factor analyses have also indicated these are related yet distinct constructs (Guo et al., 2015; Keyes, 2005; Piqueras et al., 2022). In adolescent samples, approximately 40% were flourishing, 55% were moderate, and 5% were languishing in terms of positive mental health (Keyes, 2006; Luijten et al., 2019). Notably, individuals have been observed to flourish while experiencing clinically significant mental health problems. Studies of adolescents and adults have shown a subgroup of approximately 2% of

people with flourishing positive mental health, alongside elevated mental health problems (Keyes, 2007, 2009a). Across age groups, flourishing has been associated with better psychosocial functioning, including better daily functioning, greater-quality relationships, and more involvement in activities (Keyes, 2002, 2005). To operationalize the three domains of positive mental health proposed in the Two Continua Model, Keyes developed the Mental Health Continuum measure (long and short form versions) as a self-report measure of emotional, psychological, and social wellbeing. The measure has demonstrated good structural support for the three-factor model in adults and adolescents (Guo et al., 2015; Lamers et al., 2011; Luijten et al., 2019).

While the Two Continua Model has been extensively evaluated among adolescents and adults in the general population, applications to youth with intellectual disability are more limited. The Mental Health Continuum–Short Form has been used with adolescents with neurodevelopmental disabilities in Sweden (Augustine et al., 2022) and informed the mental health and mental-ill health subscales of a self and parent report wellbeing measure for Swedish youth with intellectual disability (Well-being in Special Education Questionnaire; Bostrom et al., 2016). More recently, a large Swedish study of youth aged 10-18 applied the two-continua framework via latent class analysis, identifying profiles based on positive mental health and mental health problems. It was found that children in the languishing class were more likely to report having a disability (e.g., learning, visual, speech impairment) than those in the moderate or flourishing groups (Homman et al., 2025). While these studies applied theory from the Two Continua Model to youth with disability more broadly, no study has examined the model in youth with intellectual disability specifically, while retaining the tripartite constructs.

Given this gap in the literature, the current study aimed to examine the applicability of the Two Continua Model for youth (adolescents and young adults) with intellectual disability. Communication differences associated with intellectual disability meant that relying solely on youth self-report would provide a limited understanding of wellbeing and mental health (Santoro et al., 2022). Conversely, using only caregiver report would also have limitations, as prior research has shown mixed agreement between caregiver report and youth report for youth with intellectual disability (Santoro et al., 2022). Therefore, this study included both youth self-report and caregiver report to obtain a comprehensive perspective. The following research questions were addressed:

1. Can youth with intellectual disability complete self-report measures of wellbeing and mental health problems with adequate psychometric properties to evaluate the utility of the Two Continua Model for this population?

> ***Hypothesis 1.*** It was predicted that youth self-report measures would demonstrate acceptable internal consistency (Cronbach's $\alpha \geq .70$; Cummins & Lau, 2010; Gray et al., 2021), and moderate associations with caregiver reports (convergent validity), consistent with prior research (Kaiser et al., 2022; Santoro et al., 2022). Items assessing the same construct were predicted to show weak to moderate positive correlations (Gray et al., 2021). It was anticipated that positive response bias would contribute to skewed scores (Hartley & MacLean, 2006).

2 a. What is the relationship between positive mental health and mental health problems for youth with intellectual disability?

Hypothesis 2 a. Positive mental health and mental health problems were predicted to be moderately negatively correlated for both youth and caregiver reports, consistent with Two-Continua Model findings (Guo et al., 2015; Keyes, 2006).

2 b. What is the strength and direction of the relationships between the elements of positive mental health (emotional, psychological, and social wellbeing) and mental health problems?

Hypothesis 2 b. Emotional wellbeing was anticipated to have a somewhat stronger negative association with mental health problems, compared to psychological and social wellbeing (Lamers et al., 2011).

3a. Do the categorical positive mental health classifications (flourishing, moderate, languishing) show similar distributions to those reported in studies of youth without intellectual disability?

Hypothesis 3 a. Based on prior work (Keyes, 2006), it was expected that approximately half of youth would fall in the moderate range, about 40% would be flourishing, and about 5% languishing. It was also anticipated that rates of co-occurring flourishing and mental health problem diagnoses (i.e., at least one diagnosis) would be higher than those reported in the general population (5-8%; Keyes 2007, 2009), given the higher prevalence of mental health problems among youth with intellectual disability (Einfeld et al., 2006).

3 b. Do youth classified as flourishing differ from non-flourishing youth in terms of demographics and mental health characteristics?

Hypothesis 3b. It was predicted that flourishing youth would be younger on average (Keyes, 2006), and that autistic youth would have lower reported rates of flourishing

(Weiss & Burnham Riosa, 2015). No a priori hypotheses were made regarding gender, ethnicity, parental education, or community size due to inconsistent findings in the literature (Joshanaloo et al., 2013; Thomson et al., 2017; Waigel & Lemos, 2023). Regarding mental health characteristics, flourishing youth were expected to show lower rates of mental health problem diagnoses, mental healthcare access, psychotropic medication use, and challenging behaviours (Keyes, 2010; Keyes & Gryzwacz, 2005; Waigel et al., 2023). Additionally, flourishing youth were predicted to have lower average mental health problem symptoms, and higher average positive mental health symptoms across other measures (Keyes, 2006; Luiteijn et al., 2019).

4. Are higher levels of positive mental health uniquely associated with greater psychosocial functioning (i.e., activities of daily living, quality relationships, and community engagement) for youth with intellectual disability?

Hypothesis 4. For both caregiver and youth self-report, it was predicted that higher levels of positive mental health would be associated with greater independence in activities of daily living, better relationship quality, and greater community involvement (Keyes 2005, 2006), after controlling for mental health problems and other relevant covariates.

Method

Participants

Participants included 110 youth with intellectual disability (54.5% boys/men; M_{age} = 16.6 years, *SD* = 2.8, Range: 12 – 20 years) and their caregivers (93.6% women; M_{age} = 49.9, *SD* = 6.8, Range: 33 – 65). Youth were eligible to participate if they resided in Canada or the United States, had a confirmed diagnosis of intellectual disability, were between 12 and 21 years old,

and had a caregiver willing to participate and provide support if needed. Most dyads were from Canada (*n* = 93), with fewer from the United States (*n* = 17). See Appendix B for a detailed breakdown by province and state.

As shown in Table 4, youth represented diverse ethnic backgrounds, with the majority identifying as being of European origin (*n* = 60, 54.5%). Most youth lived with one or both parents (*n* = 101, 91.8%) and were relatively evenly distributed across urban (*n* = 39, 36.4%), suburban (*n* = 41, 38.3%), and rural (*n* = 25, 23.4%) communities. With respect to school and community involvement, 81% (*n* = 87) were attending school and 33% (*n* = 36) had a work or volunteer role. On average, youth were reported to have 2.7 friends (*SD* = 3.7), and 8.9 (*SD* = 6.6) other close relationships (e.g., family, mentors).

Table 4

Youth Participant Demographics and Characteristics (*N = 110*)

Characteristic	*M* (*SD*) or *n* (%)
Age	16.6 (2.7)
Gender	
Girl/woman	44 (40)
Boy/man	60 (54.5)
Gender non-conforming	5 (4.5)
Prefer not to respond	1 (0.9)
Ethnicity	
Indigenous	12 (10.9)
East Asian origins	3 (2.7)
South Asian origins	5 (4.5)
Latin American origins	8 (7.3)
European origins	60 (54.5)
Middle Eastern origins	4 (3.6)
African origins	7 (6.4)
Mixed-race	6 (5.5)
Other/Prefer not to answer	5 (4.5)
Where does the youth live?	
With one or both of their parents	101 (91.8)
With another relative	3 (2.7)

Residential care	2 (1.8)
Other	4 (6.4)
Community Size	
Urban area	39 (36.4)
Suburban area	41 (38.3)
Rural area	25 (23.4)
Remote area	2 (1.9)
Prefer not to respond	3 (2.7)

Youth had a range of co-occurring neurodevelopmental and genetic conditions, in addition to intellectual disability (see Table 5). The most common diagnoses were autism (*n* = 46, 41.8%), attention deficit hyperactivity disorder (ADHD; *n* = 42, 38.1%), and Down syndrome (*n* = 24, 21.8%), followed by conditions such as fetal alcohol spectrum disorder (FASD), cerebral palsy, and other genetic conditions. Based on caregiver reports, 50% (*n* = 55) of youth had a diagnosed mental health condition, 59% (*n* = 65) were taking medication to manage mental health symptoms, and 46% (*n* = 51) had received therapeutic supports for mental health in the past 6 months. The most commonly reported mental health diagnoses were anxiety disorders (43%, *n* = 47). Some youth also experienced challenging behaviours, including self-injury, aggression toward others, and property destruction.

Table 5

Youth Neurodevelopmental, Mental Health, and Behaviour Characteristics (*N = 110*)

Characteristics	*M (SD)* or *n* (%)
Co-occurring Neurodevelopmental and Genetic Conditions	
Down Syndrome	24 (21.8)
Autism	46 (41.8)
Fetal Alcohol Spectrum Disorder	8 (7.3)
Cerebral Palsy	6 (5.5)
Attention Deficit Hyperactivity Disorder	42 (38.1)
Prader Willi Syndrome	2 (1.8)
Other genetic conditions (e.g., Williams Syndrome, Dravet Syndrome)	13 (11.8)

Mental health diagnosis	
Anxiety disorder	47 (42.7)
Depressive disorder	11 (10)
Obsessive Compulsive disorder	8 (7.3)
Bipolar disorder	5 (4.5)
Eating disorder	6 (5.5)
Oppositional behaviour disorder	7 (6.4)
Post-traumatic stress disorder	10 (9.1)
Other	2 (1.8)
Presence of challenging behaviour	
Hits themself in head	10 (9.1)
Hits themself in body	6 (5.5)
Bites themself	8 (7.3)
Pulls out their own hair	8 (7.3)
Hits/kicks others	23 (20.9)
Bites others	5 (4.5)
Purposefully breaks items	13 (11.8)
Runs away in dangerous manner	13 (11.8)
Other	19 (17.3)

Note. Participants were reported to have the above neurodevelopmental and genetic diagnoses in addition to intellectual disability.

As shown in Table 6, most caregiver participants were mothers (91.8%), with the majority identifying as being of European origin (n = 77, 70%). Educational backgrounds and household incomes varied, with approximately half of caregivers (n = 58, 53%) reporting a university or postgraduate degree. Household incomes showed considerable variation across participants. Among Canadian participants (n = 93), the most frequently reported bracket was 50,000–$99,999 CAD; 40.9% reported annual incomes of $100,000 CAD or higher. For U.S. participants (n = 17), nearly half reported incomes between $50,000 and $99,999 USD, while 23.6% earned $100,000 USD or more.

Table 6

Parent Participant Demographics and Characteristics (N = 110)

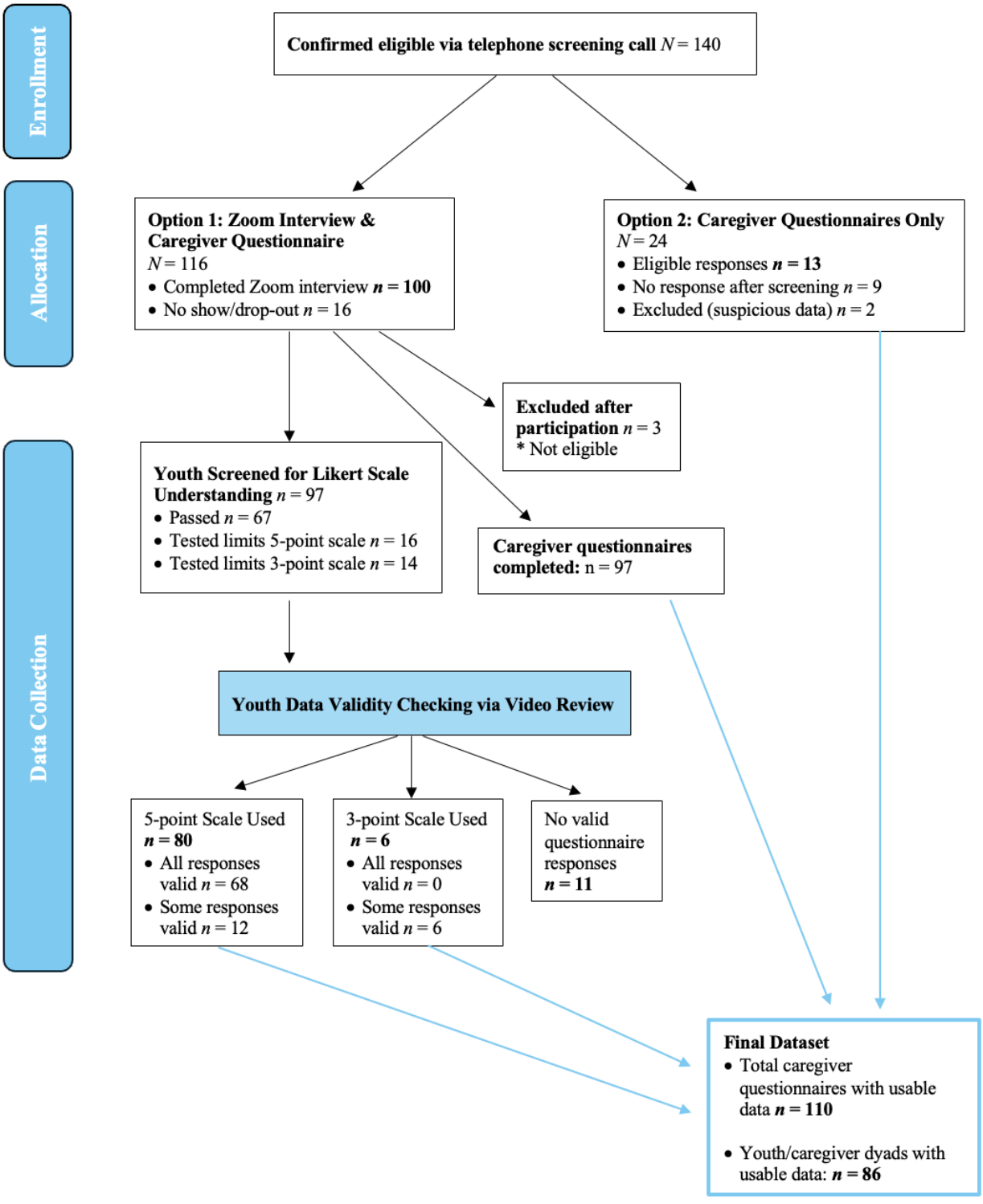
Characteristics	*M (SD) or* n (%)
Age	49.9 (6.8)
Gender	
Woman	103 (93.6)
Man	5 (4.5)
Identity not listed/Prefer not to answer	2 (1.8)
Relation to youth	
Mother	101 (91.8)
Father	3 (2.7)
Stepparent	1 (0.9)
Grandparent	2 (1.8)
Other relationship (e.g., aunt)	3 (2.7)
Ethnicity	
Indigenous	4 (3.6)
East Asian origins	5 (4.5)
South Asian origins	4 (3.6)
Latin American origins	7 (6.4)
European origins	77 (70.0)
Middle Eastern origins	4 (3.6)
African origins	3 (2.7)
Mixed-race	1 (0.9)
Other/Prefer not to answer	5 (4.5)
Highest level of education	
Graduated from high school	14 (12.7)
College degree	29 (26.4)
University degree (bachelor's degree)	32 (29.1)
Postgraduate or professional degree	26 (23.6)
Other/Prefer not to say	9 (8.2)
Canadian participants family income (CAD; *n* = 93)	
< $50,000	24 (25.8)
$50,000 - $99,000	27 (29.0)
$100,000 – $149,999	20 (21.5)
$150,000 - $249,999	14 (15.1)
> $250,000	4 (4.3)
Prefer not to disclose	4 (4.3)
US participants family income (USD; *n* = 17)	
< $50,000	4 (23.5)
$50,000 - $99,000	8 (47.1)
$100,000 – $149,999	2 (11.8)
$150,000 - $249,999	2 (11.8)
Prefer not to disclose	1 (5.9)

Study Procedure

This study included two main components: (1) youth self-report questionnaires administered via Zoom interview, and (2) parent report questionnaires completed via Qualtrics. Ethics approval was received from the Research Ethics Board at York University. Data collection occurred between March 2023 and February 2024. Study recruitment was done via distribution of emails and flyers to a network of intellectual disability organizations and on social media platforms (i.e., Twitter and Facebook). Telephone screening calls were completed to confirm eligibility (i.e., verbally confirm the youth's age and diagnosis of intellectual disability). Figure 2 provides an overview of recruitment, participant retention, and data collection procedures.

Figure 2

Recruitment and Participation Flow Diagram



Participation Options

During screening, eligible families were asked whether the youth was interested in and able to participate in a Zoom interview about wellbeing and mental health. Families were then assigned to either *Option 1* (youth interview plus parent questionnaire) or *Option 2* (parent questionnaire only, without youth self-report). Overall, 100 dyads participated in Option 1, and 13 caregivers participated in Option 2. The latter was typically selected when youth had a profound intellectual disability or other barriers to completing a Zoom interview. Adolescent-caregiver dyads were offered a $50 gift card as compensation for participation in Option 1, and caregivers were provided a $15 gift card for participation in Option 2.

Option 1: Zoom Interview Plus Caregiver Questionnaires. Caregivers were provided consent forms in advance of the Zoom meeting, and an adapted consent form was provided to youth when appropriate. At the start of the Zoom session, youth were provided information about the study using visual communication aids. Informed consent/assent was verbally obtained from youth participants, with caregivers present for support as needed. Following consent, youth participated in Zoom-based questionnaire interviewing independently, while caregivers completed their own online questionnaires in a separate room. On a few occasions, a caregiver remained nearby to assist with navigating technology; however, they were instructed not to respond to questionnaire items. The questionnaires included items related to mental health, and thus youth were asked to participate from a quiet, private space during the Zoom call to maintain privacy. The Zoom sessions were recorded for data collection and review.

The Zoom interview sessions were facilitated by the first author of this dissertation, a doctoral candidate in clinical psychology with clinical experience supporting youth with

intellectual disabilities and their families in the context of mental health concerns. This clinical background enabled the interviewer to appropriately recognize and respond to emotional distress that could arise during the interviews, particularly when discussing potentially sensitive topics such as anxiety or sadness.

Pretesting Protocol. Following the study introduction, a pretesting protocol was administered to evaluate youth participants' capacity to respond to visual Likert-scale questions. This protocol was adapted from the *Personal Wellbeing Index – Intellectual Disability* (PWI-ID; Cummins et al., 2010), a measure developed for people with intellectual disability.

The first step involved testing for acquiescent responding. Youth were asked several yes/no questions (e.g., "Do you make all your own clothes and shoes?") to assess whether they tended to agree with statements that did not align with their actual experiences. Acquiescence and positive response bias are common among individuals with intellectual disability when completing questionnaires, due to difficulty understanding some items and a tendency to provide socially desirable responses (Gilmore et al., 2022). To mitigate this, the researcher emphasized that participants could ask for clarification and that there were no right or wrong answers. If youth responded acquiescently, they were deemed unable to complete the study questionnaires. When participants appeared anxious, additional time was spent establishing rapport and screening questions were repeated.

The next phase of the protocol involved assessing participants' competence with Likert-scale response formats. First, youth were asked whether they could count to 5. If successful, they were shown a scale with five-point visual scale consisting of faces ranging from "Very Sad" to "Very Happy". Youth were asked to identify faces corresponding to emotions on the scale (e.g., "If you

felt very happy, where would you point?). Using the remote-control feature in Zoom, participants moved the cursor to indicate their response or responded verbally if preferred.

If youth were unable to count to five or did not accurately identify the target emotions, their ability to respond to Likert-type responses was evaluated further. This included three tasks: (a) ordering items by magnitude (i.e., pointing to blocks from smallest to largest, (b) using a scale with a concrete reference (i.e., matching block sizes to steps), and (c) discriminating between facial expressions representing different feelings (Cummins et al., 2010). While the pretesting protocol developed by Cummins et al. (2010) also assessed competence with a 10-point scale, only five-point scale competence was assessed in the current study, because all questionnaires employed a five-point Likert scale. See Appendix C for pretesting protocol visuals.

Data collection. Based on competencies demonstrated in the pretesting protocol, youth were assigned either the five-point Likert scale questionnaires, three-point Likert scale questionnaires, or general qualitative interview questions if they were unable to respond using Likert scales. Although the qualitative questions were asked of all youth in the study to capture diverse perspectives, they are not the focus of the current dissertation and will be analyzed in future studies. In some cases, youth who appeared anxious during the pretesting protocol were assigned five- or three-point questionnaires based on clinical judgement, even if they did not fully pass the protocol. As shown in Figure 2, 80 youth were administered the five-point questionnaires, six youth completed the three-point questionnaires, and 11 youth were unable to complete questionnaires.

Following pretesting, youth completed questionnaires on wellbeing and mental health (detailed in the *Measures* section below). All questions were read aloud by the researcher, with

written text of the questions displayed concurrently for all youth to provide additional support for participants who were able to read. Each questionnaire used either a visual emotion Likert scale (adapted from the *PWI-ID*; Cummins et al., 2010) or stepped magnitude visual Likert scale (see Appendix D). Participants responded verbally or by moving their mouse cursor to select options. Consistent with recommendations for adapting questionnaires for youth with intellectual disability (Davison et al., 2022; Gilmore et al., 2022), breaks were provided, and priority was given to core questionnaires when participants showed signs of fatigue. Items were presented slowly, repeated as needed, and simplified vocabulary was used when indicated.

To evaluate response validity, session recordings were reviewed by research assistants with experience supporting individuals with intellectual disability, to identify patterns of acquiescence (i.e., positive response bias) or misunderstanding of items. As detailed in Figure 2, some youth (n = 18) validly completed some questionnaires, while others were not considered valid because the youth did not understand particular items or more abstract concepts (e.g., life satisfaction). These difficulties were noted during data collection and confirmed upon video review, leading to exclusion of these responses from analyses. Most youth (n = 80, 82%) competed five-point questionnaires, while a smaller number (n = 6, 6%) completed three-point versions. Three youth were deemed ineligible after the interview and excluded from the dataset because they did not meet criteria for intellectual disability. In these cases, caregivers had misinterpreted the definition of intellectual disability (e.g., the youth had a learning disorder).

Caregiver Data & Feedback. Throughout the Zoom interview, caregivers completed an online Qualtrics questionnaire that included demographic information about the youth as well as parent report measures of wellbeing and mental health for their youth. Following the interview,

youth and caregivers were offered a "wellbeing map," which highlighted selected positive mental health responses (see Appendix E for an example).

Option 2: Caregiver Questionnaires Only. For families who chose the online questionnaires (n = 24), a Qualtrics link containing the consent form and measures was sent to caregivers following the screening call. Caregivers completed the same demographic and questionnaire measures as those completed in Option 1. Of the 24 questionnaires distributed to eligible caregivers, 13 were deemed eligible. Two sets of responses were excluded due to data quality concerns (e.g., unusually rapid completion times), and nine caregivers did not respond.

Final Sample

After combining data from both participation options, the final sample included 86 usable youth responses (Figure 2) with corresponding caregiver data (youth–caregiver dyads), and a total of 110 eligible caregiver questionnaires, for analyses of caregiver reports alone.

Measures

Youth Self Report Measures

Positive Mental Health. Youth self-report of positive mental health was measured using the *Personal Wellbeing Index– Intellectual Disability* (PWI-ID; Cummins et al., 2010), the *Stirling Children's Well-being Scale* (SCWBS; Liddle & Carter, 2015), and four short-form measures from the *Patient Reported Outcomes Measurement Information System* (*PROMIS* ®) *Pediatric Item Bank*. These measures were selected to capture eudaimonic and hedonic factors described in the Two-Continua Model (Keyes et al., 2010).

Personal Wellbeing Index – Intellectual Disability (PWI-ID). The PWI-ID is an eight-item adaptation of the *Personal Wellbeing Index–Adult* and -*School Children* versions (PWI; Cummins et al., 2002; Tomyn et al., 2013). As described in the *Study Design* section above, the PWI-ID incorporates a pre-testing protocol to determine respondents' capacity to complete self-report questionnaire measures and provides multiple response formats (ten-point, pictorial five-, three-, or two-point scales). For the current study, only the five- and three-point scales were used, to allow for consistency with other measures. Items ask individuals, "How happy do you feel…?" about the following domains: overall life satisfaction ("About your life as a whole?"), standard of living ("The things you have? Like the money you have and the things you own?"), personal health ("How healthy you are?"), life achievement ("The things you make or the things you learn?"), personal relationships ("Getting along with the people you know?"), community connectedness ("Doing things outside your home?"), and future security (How things will be later in your life?"). Scores are converted to a 0–100 scale format and can be examined at the domain or total level. The Life Satisfaction Item is considered separate from the Total Score (Cummins et al., 2002).

Prior research demonstrates good reliability and validity in adults with intellectual disability, with adequate internal consistency (Cronbach's $\alpha = .76$; McGillivary et al., 2009). Blake (2017) trialed an adapted version with adolescents with intellectual disability and found the pretesting protocol allowed for valid self-report for 88% of participants, with the scale demonstrating good reliability and validity. The PWI-ID was selected for this study due to its previous validation for adolescents and adults, as well as its pre-testing protocol.

Stirling Children's Wellbeing Scale (SCWBS). The SCWBS was developed for children and adolescents ages 8-15 years old (Liddle & Carter, 2015). It consists of 15-items across two

sub-domains: *Positive Outlook* (e.g., "I can find lots of fun things to do") and *Positive Emotional State* (e.g., "I've been in a good mood"). A three-item social desirability scale (e.g., "I like everyone I have met") identifies biased responding, with unusually high or low scores warranting caution in score interpretation. Items are rated on a five-point Likert scale ranging from *Never* to *All of the time* and summed to create subscale and total scores, with higher scores reflecting greater subjective wellbeing. In the current study, all items were presented with a visual stepped Likert scale (C2). Validation in a large sample (N = 1849) demonstrated good internal consistency (Cronbach's α = .85), construct validity with established scales (e.g., r = .70 with the WHO-5), and test-retest reliability (r = .75; Liddle & Carter, 2015). Although not developed for youth with intellectual disability, the SCWBS was selected for the current study due to its strong psychometric properties, previous use with children with disabilities (Anggraini & Novitasari, 2022), and its close conceptual alignment with the Two-Continua Model.

PROMIS ® Pediatric Short-Forms – Self Report. The PROMIS Pediatric self-report measures were developed for youth in general population ages 8-17. Youth in the current study completed four PROMIS short forms: *Life Satisfaction* (Forrest et al., 2018a), *Positive Affect* (Forrest et al., 2018b), *Family Relationships* (Bevans et al., 2017), and *Peer Relationships* (Dewalt et al., 2013). Each has a corresponding validated parent report version. All PROMIS items are rated on a 5-point scale, summed to provide raw scores, and converted to T-scores, with higher scores reflecting greater levels of positive mental health. In the current study, PROMIS items were presented to youth with a visual stepped Likert scale (Life Satisfaction, Family Relationships, Peer Relationships) or a visual emotion scale (for Positive Affect). These measures were selected to capture hedonic and eudaimonic domains of positive mental health, and to allow comparison with caregiver-report data.

The *Life Satisfaction–Short Form* (4 items) measures overall life satisfaction over the past four weeks (e.g., I was happy with my life"). The *Positive Affect–Short Form* (4 items) assesses youths' rewarding affective experiences during the past week (e.g., "I felt happy"). The *Family Relationships–Short Form 4a* evaluates perceptions of the quality of their family relationships over the past four-weeks (e.g., "I felt really important to my family"), and the *Peer Relationship Relationships–Short Form* (8 items) measures acceptance and connectedness with peers over the past week (e.g., "I felt accepted by other kids my age"). Across child and caregiver versions, these scales have demonstrated high reliability, strong validity, and good measurement precision (Forrest et al., 2018a; Forrest et al., 2018b; Bevans et al., 2017; DeWalt et al., 2013). The parent report *Peer Relationships* scale has also shown promising validity and precision in neurodevelopmental populations such as autism (Toomey et al., 2016).

The *PROMIS*® Meaning and Purpose-Short Form (4 items; Forrest et al., 2019) was also piloted to capture an additional domain of eudaimonic wellbeing (e.g., "My life is filled with meaning"). However, most adolescents found the content too abstract to interpret consistently, and thus the youth self-report measure was not included in analyses.

Mental Health Problems. Youth were administered the *How I'm Feeling Measure* (HIF, Gray et al., 2021), a self-report measure of depression and anxiety developed specifically for adolescents with intellectual disability ages 12-18 years old. The 81-items (e.g., "I am scared of dogs") are rated on a 3-point visual analogue scale with illustrations to support comprehension (see Appendix D3). Scales include *Anxiety*, *Depression*, and a *Total Score*, with scoring based on summed responses. Development of the measure was guided by the DSM-5, the Diagnostic Manual-Intellectual Disability (DM-ID), and the Diagnostic Criteria for Psychiatric Disorders for

those with Learning Disabilities (DC-LD) criteria, with adaptations from validated measures such as the Developmental Behaviour Checklist (DBC). Initial psychometric evaluation of the measure on a group of 47 adolescents demonstrated good internal consistency (α = .77–87, respectively) and excellent test-retest reliability (ICC = .88 –.92). This measure was selected for the current study due its specific design for youth with intellectual disability, strong initial psychometric properties, and impressive visual and cognitive adaptations.

Caregiver Measures

Positive Mental Health. Caregivers completed measures of positive mental health for their youth, including the A*dolescent Mental Health Continuum Short-Form* (Adolescent MHC-SF; Keyes, 2009), five *PROMIS Pediatric Item Bank* short forms, and the parent-report scale of the *Six C's of Positive Youth Development*, (Lerner & Lerner, 2013).

Adolescent Mental Health Continuum Short-Form (Adolescent MHC-SF). The Adolescent MHC-SF was originally developed as a self-report measure of positive mental health for adolescents ages 12–18 years old (Keyes, 2009). In the current study, the measure was completed by caregivers who reported on their youth's mental health. This approach was used because the abstract nature of the items was not suitable for most youth with intellectual disability. The short form consists of 14-items drawn from the original long-form version of the measure (the 40-item MHC-Long Form) that represent the three domains of wellbeing from the Two Continua Model: emotional, psychological, and social. Caregivers rated the frequency with which their youth experienced each aspect of wellbeing over the past month (e.g., how "happy" or "interested in life" they were) on a 6-point Likert scale ranging from *Never* to *Always*. Responses yield subscale scores and a total wellbeing score, and established criteria were applied

to classify youth as having “flourishing”, “moderate” or “languishing” positive mental health (Keyes, 2009).

The MHC-SF has shown excellent internal consistency ($\alpha > .80$) and discriminant validity in adolescents (ages 12–18) and adults in the United States, the Netherlands, and in South Africa (Keyes, 2009). The test-retest reliability has been acceptable, averaging $r = .68$ across 3-month intervals and $r = .65$ across 9 months (Lamers et al., 2011). A systematic review of 46 studies confirmed the measure’s strong psychometric properties and the three-factor structure of the scale (Iasiello et al., 2022). The MHC-SF has also been used with adolescents with neurodevelopmental disabilities (Augustine et al., 2022). The MHC-SF was selected for this study due to its theoretical alignment with the Two-Continua Model, its brief nature, and its strong psychometric properties.

Six C’s of Positive Youth Development (Six C’s PYD). Positive mental health was also evaluated using the caregiver-report scale of the Six C’s PYD, derived from the 4-H Study, a large longitudinal study in the United States (Lerner et al., 2005). The measure evaluates caregiver perceptions of six domains of positive development for their youth: competence, confidence, character, connection, caring, and contribution. Global statements (e.g., “My child has positive relationships with their parents, siblings, and other family members, and with friends, teachers, coaches, or mentors”) are rated on a 5–point Likert scale from *Strongly Disagree* to *Strongly Agree.* A mean total score is calculated, with higher scores representing greater wellbeing. This measure has been used by caregivers of youth with intellectual disability in two previous studies, demonstrating good internal consistency (Cronbach’s $\alpha = .85–.86$; Weiss & Burnham Riosa, 2015; Sellitto et al, 2023). This measure was selected because its domains

align with both hedonic and eudaimonic elements of the Two-Continua Model, it is concise, and it has been successfully used in this population.

PROMIS ® Pediatric Short-Forms – Proxy Report. PROMIS Pediatric parent report measures were developed for caregivers of youth ages 5-17 in the general population. In the current study, caregivers completed five PROMIS short forms: *Life Satisfaction* (Forrest et al., 2018a), *Positive Affect* (Forrest et al., 2018b)*, Family Relationships* (Bevans et al., 2017), *Peer Relationships* (Dewalt et al., 2013), and *Meaning and Purpose* (Forrest et al., 2019). The Life Satisfaction, Positive Affect, and Family Relationships parent report scales are identical in structure to the youth self-report, apart from caregivers responding on behalf of their youth. Descriptions of scoring and psychometrics are provided in the *Youth Self Report Measures* section. The parent report *Peer Relationships–Short Form 7a* is seven items rather eight, as one item from the self-report version was removed due to psychometric considerations (HealthMeasure, 2023).

The 4-item *Meaning & Purpose – Short Form 4a* was used only for caregivers, due to the abstract nature of the items. This scale assesses youths' sense of purpose in life and optimism about the future (e.g., "My child felt hopeful about his/her future"), with higher scores indicating stronger perceptions of meaning and purpose. The 4-item version has shown excellent reliability and convergent validity with other measures of subjective wellbeing (Forrest et al., 2019). This measure was retained as a caregiver report measure because of its conceptual alignment with the construct of psychological wellbeing in the Two-Continua Model.

Mental Health Problems. Caregivers completed the *Anxiety, Depression & Mood Scale* (ADAMS; Esbensen et al., 2003) as a measure of mental health problems for their youth. The

ADAMS is a caregiver-report measure for individuals with intellectual disability ages 10 and above, consisting of 28 items rated on a 4-point Likert scale from *Not a Problem* to *Severe Problem*. It has five subscales – Depressed Mood, General Anxiety, Social Avoidance, Manic/Hyperactive Behaviour, and Obsessive/Compulsive Behaviour – as well as a Total Score. The ADAMS demonstrates high internal consistency and test-retest reliability for the total scale and subscales, with fair interrater reliability (ICC = .48; Esbensen et al., 2003). Construct validity was established in a psychiatric clinic sample of individuals with intellectual disability, supporting validity for the subscales (Esbensen et al., 2003). Since its development, the ADAMS has been used with adolescents (Glenn et al., 2025) and adults (Hamers et al., 2019), continuing to show good reliability and validity. The ADAMS was selected due to its strong psychometric properties, and its specific design for people with intellectual disability.

Psychosocial Functioning.

To capture the areas of psychosocial functioning from the Two Continua Model (Keyes 2006, 2010), caregivers completed measures assessing community involvement, activities of daily living, and relationships for their youth.

Community Involvement. Caregivers completed the Community section of the *Participation and Environment Measure – Children and Youth* (PEM-CY; Coster et al., 2011) to assess youth's participation in community activities. The PEM-CY is a caregiver-reported tool designed for children and adolescents ages 5- to 17-year-old, with and without developmental disabilities. It measures participation in the home, school, and in the community. In the current study, only the *Average Frequency* and *Average Involvement* summary scores from the *Community Participation* section were used. Frequency of participation in community activities

(e.g., neighbourhood outings, community events) is rated on an 8-point scale from *Never* to *Daily,* while involvement is rated on a 5-point scale from *Minimally involved* to *Very involved*. The PEM-CY Community scales have demonstrated adequate test-retest reliability (r = .79) and internal consistency (Cronbach's α = .70 – .75), with strong reliability across individual items (Cronbach's α = .73–.93; Coster et al., 2011). The PEM-CY has also been used in samples of youth with intellectual disability (Tint et al., 2017; Williams et al., 2021). The PEM-CY was selected for this study because of its specific design for youth with developmental differences.

Activities of Daily Living. Caregivers completed the *Waisman Activities of Daily Living Scale* (W-ADL; Maenner et al., 2013) to assess youths' functional independence in daily living skills. The W-ADL is a 17-item measure developed to assess the daily living skills of adolescents and adults ages 12 to 48 years old with developmental disabilities. It evaluates independence in activities such as making the bed, dressing, and bathing. Items are rated on a 3-point scale ranging from *Does not do at all* to *Independent or does on* own. A total score is calculated, with higher scores representing greater independence. The W-ADL has demonstrated criterion and construct validity, including high correlations with the Vineland Screener Composite and Daily Living subscale scores (r = .78 and r = .82, respectively; Maenner et al., 2013), and high internal consistency across samples with various developmental disabilities, including fragile X syndrome, autism, Down syndrome, and intellectual disability (Cronbach's α = .88–.94; Maenner et al., 2013). It was selected because it offers a brief yet comprehensive evaluation of daily living skills relevant for youth with intellectual disability.

Close Relationships. Finally, caregivers completed two items to assess the number of mutual friendships and other close relationships their youth had. Mutual friendship was defined

as: “a person your child wants to spend time with and who wants to spend time with your child (Solish et al., 2010). This definition was adapted to include other close relationships by asking: “How many other close mutual relationships does your child have (e.g., siblings, parents, teacher, coach, mentor)?” These items were included, because prior work on the Two-Continua Model identified number of close relationships as an indicator of psychosocial functioning in adolescents (Keyes, 2006).

Data Analysis

All analyses were conducted using IBM SPSS Statistics (version 31.0.0.0). Data were screened for out-of-range values and logically inconsistent responses (Osborne, 2013). For caregiver-report questionnaires, missing data were handled using person-mean substitution when Little’s MCAR test indicated data were missing completely at random and fewer than 20% of items were missing (Downey & King, 1998; Newman, 2014). Missing youth self-report data were not substituted, as missingness was not random and reflected responses deemed invalid.

For Research Question 1, internal consistency was assessed using Cronbach’s alpha, item-construct validity using Spearman’s rho correlations, floor and ceiling effects identified at $\geq$ 20% responses at scale extremes (Li et al., 2013), and convergent validity via Pearson correlations with corresponding caregiver reports. Research Question 2 examined associations between positive mental health and mental health problem measures using Pearson correlations. For Research Question 3, Keyes’ (2009) scoring rules were applied to categorize youth as having flourishing, moderate, or languishing positive mental health, then dichotomized (flourishing vs. moderate/languishing) for chi-square and independent-samples t-tests, comparing demographic and mental health variables. Research Question 4 tested unique associations between positive mental health and psychosocial functioning variables using hierarchical multiple linear

regressions, controlling for mental health problems and other relevant covariates (i.e., activities of daily living, age) in Step 1.

All tests were two-tailed, and alpha was set at .05. Statistical assumptions were evaluated prior to each analysis. Non-normally distributed variables were transformed as needed (Pek et al., 2018). For caregiver report, the MHC-SF Hedonic Wellbeing, ADAMS Depressed Mood, number of mutual friendships, and number of close relationships variables were transformed. For youth self-report, the PWI-ID Life Satisfaction variable was transformed. A priori power analyses were conducted to guide sample size, and sensitivity analysis in *GPower* (Faul et al., 2009) indicated that the caregiver samples (n = 108–110, depending on data available per measure) had sufficient power to detect medium effects across the planned tests. The smaller youth samples (n = 71–86) had sufficient power to detect medium-to-large effects (Cohen, 1988). No adjustments were made for multiple comparisons, as all comparisons were specified a priori (Armstrong, 2014).

Results

1. Psychometric Properties of Youth Self-Report Measures

Descriptives Statistics

Descriptive statistics for youth self-report measures are presented in Table 7, along with scale-level floor/ceiling distributions and internal consistency (Cronbach's α). Analyses only included the 5-point questionnaires, due to limited 3-point response (n = 6). However, the PWI-ID 3-point responses were converted to scale scores and combined with 5-point responses, per guidelines (Cummins et al., 2006). Skewness values for self-report measures ranged from -1.4 to 0.4. Most scales were approximately normal, though the PWI-ID Life Satisfaction item (-1.4)

and PROMIS Family Relationships (-1.3) showed stronger negative skew, reflecting higher reports of wellbeing.

Floor and Ceiling Effects

Floor and ceiling effects were evaluated at the scale and subscale level using a 20% cut-off (Li et al., 2013). No scales or subscales showed evidence of floor effects. Ceiling effects were observed for the PWI-ID *Life Satisfaction* item as well as the PROMIS *Life Satisfaction*, *Positive Affect,* and *Family Relationships* scales, consistent with high endorsement of wellbeing and potential positive response bias.

Table 7

Descriptive Statistics, Floor/Ceiling Effects, and Internal Consistency for Youth Self-Report

Measure/Subscale	*n*	Mean	*SD*	Range	% at Floor	% at Ceiling	α
PWI-ID							
Total Score (7 items)	86	83.2	13.2	39.2–100.0	0 .0	15.1	.71
Life Satisfaction (1 item)	86	83.1	23.1	0.0–100.0	1.0	56.0	–
SCWBS							
Total Score (12 items)	73	48.8	7.2	30.0–60.0	0.0	10.0	.84
Positive Emotional State (6 items)	73	24.5	3.8	13.0–30.0	0.0	12.3	.74
Positive Outlook (6 items)	73	24.3	4.0	14.0–30.0	0.0	13.7	.74
Social Desirability (3 items)	73	11.2	2.4	5.0–15.0	1.4	16.4	.45
PROMIS Pediatric							
Life Satisfaction (4 items)	73	49.4	7.9	32.5–60.6	0.0	24.7	.72
Positive Affect (4 items)	75	51.9	9.1	33.6–63.0	0.0	28.0	.88
Family Relationships (4 items)	74	50.0	8.7	23.9–61.1	0.0	29.7	.80

Peer Relationships (8 items)	74	46.3	10.6	17.7–64.4	1.4	10.8	.90
HIF							
Total Score (80 items)	80	52.1	19.6	15.0–102.0	0.0	0.0	.92
Anxiety (40 items)	80	27.7	12.3	7.0–56.0	0.0	0.0	.89
Depression (40 items)	80	24.4	9.4	4.0–51.0	0.0	0.0	.86

Note. Floor = % at minimum score; Ceiling = % at maximum score. α = Cronbach's alpha. PWI-ID = Personal Wellbeing Index – Intellectual Disability (0–100 transformed scores); SCWBS = Stirling Children's Wellbeing Scale (raw scores); PROMIS Pediatric = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Self Report (T scores, M = 50, SD = 10); HIF = How I'm Feeling Measure (raw scores).

At the item-level, different thresholds were applied for floor/ceiling effects based on response format. For 3-point Likert items, a 50% cut-off was used (Ohlsson-Nevo et al., 2021), while a 20% cut-off was retained for 5-point items. All PWI-ID items, and most SCWBS and PROMIS items demonstrated ceiling effects. For the HIF, 21 items (26%) showed floor effects and 8 items (10%) showed ceiling effects, reflecting low endorsement of negative feelings and higher endorsement of positive wellbeing. Based on the SCWBS, 13 youth (18%) scored above cut-off for potential socially desirable responding, indicating that their wellbeing scores should be interpreted with caution (Liddle & Carter, 2015). However, given that all youth completed a pretesting protocol for acquiescent responding, and videos were reviewed for pattens indicative of invalid responding, these data were retained.

Internal Consistency

Internal consistency for youth self-report measures ranged from *acceptable* to *excellent* (α = .71–.92; George & Mallery, 2024), apart from the SCWBS social desirability scale, which fell in the *poor* range (α = .45). This was expected given its design to measure bias rather than one coherent construct. The HIF total score demonstrated the strongest internal consistency (α =

.92), whereas the PWI-ID had the lowest (α =.71), though still within the acceptable range. Although not the focus of this study, descriptive statistics and basic reliability indices for caregiver report measures were assessed, and details can be found in Appendix F. Internal consistency for the caregiver measures ranged from acceptable to excellent (α =.74–94).

Construct Validity

Evidence for construct validity of self-report measures was assessed using Spearman's rho correlations between paired-items (including direct and reverse-coded items) to evaluate response consistency. All available pairs were analyzed, though not all measures contained paired items. Associations between paired items ranged from small-to-large in magnitude (|ρ| = .18–.66), with the majority falling in the large range (Cohen, 1988). For the SCWBS and the PROMIS Life Satisfaction, Positive Affect, and Peer Relationships scales, all paired items showed moderate-to-large associations (ρ = .45–.66). For the HIF, two reverse-coded pairs had moderate/strong negative effects (ρ = -.42; -.58), while one pair ("I have fun" and "I don't have fun") showed a small non-significant effect (ρ = -.18). These results provide evidence of response consistency for most paired items, apart from one weaker HIF item pair.

Table 8

Evidence for Construct Validity: Spearman's Rho Correlations of Paired Items Across Youth-Self-Report Measures

Youth Measure	Paired-Items	*ρ* (rho)	*p*
SCWBS			
	Item 9. I've been feeling calm Item 15. I've been feeling relaxed	. 53	< .001
	Item 10. I've been in a good mood	.45	< .001

	Item 14. I've been cheerful about things		
PROMIS Pediatric			
Life Satisfaction	Item 1. I was satisfied with my life Item 2. I was happy with my life	. 55	< .001
Positive Affect	Item 1. I felt happy Item 2. I felt great	.66	< .001
Peer Relationships	Item 1. Other kids wanted to be my friend Item 2. Other kids wanted to be with me	.62	< .001
HIF			
	Item 10. I don't like going to school Item 72. I like going to school	-.58	< .001
	Item 51. I don't have fun Item 59. I have fun	- .18	.12
	Item 54. I have fun with my friends Item 67. I don't have fun with my friends	- .42	< .001

Note. ρ = *Spearman's rho.* SCWBS = Stirling Children's Wellbeing Scale; PROMIS Pediatric = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Self Report; HIF = How I'm Feeling Measure. Samples sizes per correlation ranged from n = 73–80 depending on available data.

Convergent Validity

Wellbeing Measures. Youth-caregiver correlations for the wellbeing measures (Table 9) ranged from small to moderate-to-large (r = .06–.53; Cohen 1988), with most falling in the moderate range. The SCWBS consistently showed moderate youth-caregiver correlations (r = .24–.53), with the strongest for the *Positive Emotional State* subscale. The PROMIS domains of *Positive Affect, Family Relationships,* and *Peer Relations* demonstrated moderate convergence with their caregiver report counterparts (r =.44–.48, p < .01), whereas PROMIS *Life Satisfaction* was somewhat weaker (r = .30), and showed only small associations with other indices (r = .06–

.22). The PWI-ID Total Score showed weaker associations with caregiver measures (r = .09–.28), with one moderate correlation with PROMIS *Positive Affect* (r =.35). The PWI-ID *Life Satisfaction* item demonstrated somewhat stronger convergence (r = .20–.42). These findings demonstrate that youth-caregiver agreement was generally moderate, with stronger agreement for positive affect and relational domains compared to life satisfaction.

Table 9

Convergent Validity (Pearson's Correlations) of Youth and Caregiver Reports of Wellbeing

Youth Measures	Caregiver Report Measures									
	MHC Total	MHC Emot	MHC Social	MHC Psych	6 C's PYD	PROMIS LS	PROMIS PA	PROMIS FR	PROMIS PR	PROMIS MP
PWI-ID										
Total Score	.22*	.20	.09	.28*	.26*	.28*	.35*	.24*	.20	.26*
Life Satisfaction Item	.30**	.20	.23*	.30**	.23*	.34**	.42**	.33**	.28*	.25*
SCWBS										
Total Score	.42**	.35**	.35**	.37**	.44**	.37**	.45**	.44**	.27*	.42**
Positive Emotional State	.42**	.33**	.34**	.38**	.53**	.42**	.46**	.49**	.25*	.43**
Positive Outlook	.35**	.31**	.31**	.31**	.28*	.27*	.37**	.33**	.24*	.34**
PROMIS Pediatric										
Life Satisfaction (LS)	.18	.20	.06	.22	.21	.30**	.35**	.21	.10	.17
Positive Affect (PA)	.29*	.24*	.19	.33**	.23	.26*	.44**	.33**	.29*	.35**
Family Relationships (FR)	.39**	.41**.	.27*	.39**	.42**	.36**	.48**.	.48**	.30**	.33**
Peer Relationships (PR)	.32**	.34**	.28*	.27*	.31*	.37**	.40**	.29*	.48**	.33**

Note. PWI-ID = Personal Wellbeing Index–Intellectual Disability; SCWBS = Stirling Children's Wellbeing Scale; PROMIS Pediatric = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Self Report. MHC = Adolescent Mental Health Continuum– Short Form (Emot = Emotional Wellbeing; Social = Socia Wellbeing; Psych = Psychological Wellbeing subscales); Six C's of PYD = 6 C's of Positive Youth Development Measure; PROMIS LS -MP = corresponding caregiver report measures. Samples sizes per correlation ranged from n = 63–86 depending on available data. * $p < .05$ level. ** $p < .01$.

Mental Health Problem Measures. Youth-caregiver correlations for mental health problems (Table 10) ranged from moderate to strong (r .33–.52, p <.01), with most falling in the moderate range. The HIF Total Score showed the strongest convergence across scales (r = .40 – 52), with the highest correlation observed with the caregiver-reported ADAMS *General Anxiety* subscale. Both the HIF *Anxiety* and *Depression* subscales also correlated most strongly with the ADAMS *Anxiety* subscale. Associations with caregiver-reported *Depressed Mood* subscale were somewhat weaker, though still significant. Overall, these findings demonstrate moderate youth-caregiver agreement for mental health problems.

Table 10

Convergent Validity (Pearson's Correlations) of Youth and Caregiver Reports of Mental Health Problems

Youth Measures	Caregiver Report Measures		
	ADAMS Total	ADAMS Anxiety	ADAMS Depression
HIF			
Total Score	.42**	.52**	.40**
Anxiety Subscale	.33**	.46**	.34**
Depression Subscale	.44**	.47**	.39**

Note. HIF = How I'm Feeling Measure; ADAMS = Anxiety, Depression and Mood Scale (Anxiety = General Anxiety Subscale; Depression = Depressed Mood Subscale). Sample size n= 80 for all correlations.
* p < .05 level. ** p < .01 (two-tailed).

2a. Relationships Between Overall Positive Mental Health and Mental Health Problems

Pearson's correlations were used to evaluate the relationship between overall positive mental health and mental health problems for both youth self-report (Table 11) and caregiver report (Table 12).

For youth, overall positive mental health was negatively associated with overall mental health problems, with correlations falling in the moderate-to-strong range (r = -.43 to -.57). The SCWBS Total Score showed the strongest negative association with overall mental health problems (r = -.57), compared to the PWI-ID Total Score (r = -.43). Overall positive mental health showed stronger negative associations with depressive symptoms (r = -.46 to -.60) compared to anxiety symptoms (r = -.33 to -.45).

For caregiver report, overall positive mental health was also negatively associated with overall mental health problems, with correlations falling in the strong range (r = -.50 to -.58). The MHC-SF Total Score showed the strongest negative association (r = -.58) compared to the 6 C's of PYD measure (r = -.50). Depressive symptoms (r = -.40 to -.48) and anxiety symptoms (r = -.46 to -.53) both demonstrated moderate negative associations with caregiver reports of overall positive mental health.

Taken together, these results demonstrate consistent moderate-to-strong negative associations between overall positive mental health and mental health problems across youth and caregiver perspectives, consistent with study hypotheses.

Table 11

Pearson's Correlations between Positive Mental Health and Mental Health Problems in Youth Self-Report Measures

Mental Health Problems	Positive Mental Health							
	Overall Wellbeing		Hedonic Wellbeing (Emotional)			Eudaimonic Wellbeing (Psychological)	Eudaimonic Wellbeing (Social)	
	PWI-ID Total	SCWBS Total	SCWBS Positive Emotion	PROMIS Positive Affect	PROMIS Life Satisfaction	SCWBS Positive Outlook	PROMIS Family Relationships	PROMIS Peer Relationships
HIF Total	-.43**	-.57**	-.56**	-.50**	-.48**	-.49**	-.36**	-.33*
HIF Anxiety	-.33**	-.45**	-.46**	-.44**	-.35**	-.38**	-.25*	-.22†
HIF Depression	-.46**	-.60**	-.57**	-. 48**	-.55**	-.53**	-.43**	-.41**

Note. PWI-ID = Personal Wellbeing Index–Intellectual Disability; SCWBS = Stirling Children's Wellbeing Scale (Positive Emotion = Positive Emotional State subscale); PROMIS Pediatric = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Self Report; HIF = How I'm Feeling Measure. Samples sizes per correlation ranged from n= 71–80 depending on available data.
** $p < .01$. *$p < .05$. †$p < .10$.

Table 12

Pearson's Correlations between Positive Mental Health and Mental Health Problems in Caregiver Report Measures

Mental Health Problems	Positive Mental Health									
	Overall Wellbeing		Hedonic Wellbeing (Emotional)			Eudaimonic Wellbeing (Psychological)		Eudaimonic Wellbeing (Social)		
	MHC Total	6 Cs PYD	MHC Emotion	PROMIS Positive Affect	PROMIS Life Satisfaction	MHC Psych	PROMIS Meaning & Purpose	MHC Social	PROMIS Family Relationships	PROMIS Peer Relationships
ADAMS Total	-.58**	-.50**	-.45**	-.37**	-.46**	-.57**	-.47**	-.45**	-.27**	-.38**
ADAMS Anxiety	-.53**	-.46**	-.41**	-.32**	-.44**	-.53**	-.44**	-.42**	-.28**	-.34**
ADAMS Depression	-.48**	-.40**	-.43**	-.37**	-.45**	-.47**	-.42**	-.36**	-.22*	-.28**

Note. MHC = Adolescent Mental Health Continuum – Short Form (Emotional = Emotional Wellbeing; Psych = Psychological Wellbeing; Social = Social Wellbeing subscales); 6 C's of PYD = Six C's of Positive Youth Development Measure; PROMIS = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Proxy Report; ADAMS = Anxiety, Depression, and Mood Scale (Anxiety = General Anxiety; Depression = Depressed Mood subscales). Samples sizes per correlation ranged from n= 89–110 depending on available data.

** $p < .01$. *$p < .05$. $^{\dagger}p < .10$.

2b. Relationships Between Domains of Positive Mental Health and Mental Health Problems

As in 2a, Pearson's correlations were used to evaluate relationships between the different domains of positive mental health from the Two Continua Model (emotional, psychological, and social wellbeing; Keyes, 2010) and mental health problems.

For youth self-report (Table 11), both emotional (r = -.35 to -.57) and psychological (r = -.38 to -.53) wellbeing measures showed moderate-to-strong negative associations with mental health problems. Comparatively, social wellbeing measures showed weaker negative associations with mental health problems, in the small-to-moderate range (r = -.22 to -.43). Across domains, negative associations with depressive symptoms (r = -.41 to -.57) were stronger than those with anxiety symptoms (r = -.22 to -.46).

For caregiver report (Table 12), psychological wellbeing measures showed the strongest negative associations with mental health problems, falling in the moderate-to-strong range (r = -.42 to -.57), while emotional wellbeing measures showed moderate negative associations (r = -.32 to -.46). In comparison, social wellbeing showed the weakest negative associations, falling in the small-to-moderate range (r = -.22 to -.45). There was no clear pattern of difference across the domains of positive mental health for depressive versus anxiety symptoms for caregiver reports.

Taken together, both youth and caregiver reports demonstrated stronger negative associations between mental health problems with emotional and psychological wellbeing domains, compared to social wellbeing.

3a. Positive Mental Health Categorical Classifications

Based on caregiver report (n = 108), 49 youth (45%) were classified as *flourishing*, 56 (52%) as *moderate*, and 3 (3%) as *languishing*. These distributions mirror those reported in prior research on adolescents in the general population (Keyes, 2006). Among youth identified as flourishing, 36.7% (n = 18) had at least one co-occurring mental health problem diagnosis. For youth in the moderate category, 60.7% (n = 34) had a co-occurring mental health diagnosis, and 100% of languishing youth (n = 3) had at least one diagnosis. Table 13 presents the frequencies of positive mental health classifications and mental health problem diagnoses.

Table 13

Frequency of Positive Mental Health Categorical Classifications and Mental Health Problem Diagnoses

Positive Mental Health Categorical Classifications	Overall Sample *n* (%)	Presence of Mental Health Problem Diagnosis *n* (%)	
		No	Yes
Flourishing	49 (45.4)	31 (58.5)	18 (32.7)
Moderate	56 (51.9)	22 (41.5)	34 (61.8)
Languishing	3 (2.8)	0 (0.0)	3 (5.5)
Total	108 (100)	53 (100)	55 (100)

Note. Percentages in the *Overall Sample* column represent proportions of the total sample (N = 108). Percentages in the *No* and *Yes* columns represent proportions within mental health problem diagnosis status (No diagnosis n = 53; Diagnosis n = 55). Positive mental health categorical classifications derived from caregiver report of the Adolescent Mental Health Continuum Short-Form (MHC-SF) using scoring guidelines (Keyes, 2009). Mental Health Problem Diagnosis = caregiver report of whether their youth was formally diagnosed with at least one mental health disorder (e.g., anxiety disorder, depressive disorder).

3b. Flourishing Group Comparisons for Demographic & Mental Health Characteristics

Due to the small number of youth classified as languishing, the moderate and languishing categories were collapsed, yielding two groups for comparison: flourishing (n = 49; 45%) and moderate/languishing (n = 59; 55%).

Demographics

Age did not differ between flourishing (M = 16.5, SD = 2.9) and non-flourishing youth (M = 16.75, SD = 2.7), $t(106) = .40$, $p = .68$, $d =$. 07. There were no significant group differences in terms of gender, $\chi^2(1, N = 102) = 0.77$, $p = .38$ $\varphi = .09$; ethnicity, $\chi^2(1, N = 106) = 2.8$, $p = .09$ $\varphi = .16$; caregiver education-level (post-secondary completion), $\chi^2(1, N = 107) = .83$, $p = .36$ $\varphi = .09$; or community size (urban/suburban vs. rural/remote), $\chi^2(1, N = 105) = 1.71$, $p = .19$ $\varphi = .13$.

Co-occurring Developmental Disability Diagnoses

Two 2 x 2 chi-square tests of independence examined whether flourishing status differed for the most common developmental diagnoses in the sample (autism, Down syndrome). For autism, a significantly lower proportion of autistic youth were classified as flourishing (n = 14, 31.8%) compared to non-autistic youth (n = 35, 54.7%), χ^2 (1, N = 108) = 5.50, p = .02, $\varphi = .23$. For Down syndrome, a nonsignificant trend indicated that more youth with Down syndrome were classified as flourishing (n = 15, 62.5%) compared to youth without Down syndrome (n =34, 40.5%), χ^2 (1, N = 108) = 3.65, p = .06, $\varphi = .18$.

Mental Health Characteristics

A significantly smaller proportion of flourishing youth had at least one mental health diagnosis (n = 18, 36.7%) compared to non-flourishing youth (n = 37, 62.7%), χ^2 (1, N = 108) = 7.23, p = .01, φ= .26. Similarly, a smaller proportion of flourishing youth had accessed mental health therapy in the past six months (n = 17, 34.7%) compared to non-flourishing youth (n = 34, 57.6%), χ^2 (1, N = 108) = 5.65, p = .02, φ= .23. Additionally, significantly fewer flourishing youth were reported to experience at least one challenging behaviour (n = 17, 40.5%) compared to non-flourishing youth (n = 29, 61.7%) χ^2 (1, N = 89) = 4.00, p = .05, φ= .21. In contrast, no significant group difference was found for psychotropic medication use between flourishing (n = 25, 51.0%), and non-flourishing youth (n = 40, 67.8%), χ^2 (1, N = 108) = 3.14, p = .08, φ= .17. Although not statistically significant, psychotropic medication use was descriptively more common among non-flourishing youth.

Independent samples t-tests were conducted to assess differences between flourishing and non-flourishing youth in mental health problems symptoms, based on caregiver-report and youth self-report. As shown in Table 14, caregiver reports indicated that flourishing youth had significantly lower levels of total mental health problems, anxiety, and depression symptoms, with medium-to-large effect sizes. In contrast, youth self-reports demonstrated no significant group differences across symptom scales.

Table 14

Flourishing Group Comparisons of Mental Health Problem Symptoms: Caregiver and Youth Self-Report

Measure	Flourishing *M* (*SD*)	Non-Flourishing *M* (*SD*)	*t* (df)	*p*	*d*
Caregiver Report					
ADAMS Total	22.9 (14.0)	36.9 (17.3)	*t* (106) = 4.56	< .001	.89
ADAMS Anxiety	6.0 (4.2)	10.03 (5.1)	*t* (106) = 4.50	< .001	.86
ADAMS Depression	3.9 (4.2)	7.5 (5.5)	*t* (106) = 3.75	< .001	.72
Youth Report					
HIF Total	49.8 (20.2)	53.8 (19.1)	*t* (78) = 0.92	.362	.21
HIF Anxiety	27.2 (12.5)	28.0 (12.3)	*t* (78) = 0.28	.783	.06
HIF Depression	22.5 (9.5)	25.8 (9.1)	*t* (78) = 1.56	.122	.36

Note. Values reflect independent samples *t*-tests. *d* = Cohen's *d.* Flourishing groups defined using the Adolescent Mental Health Continuum Short-Form (caregiver report). ADAMS = Anxiety, Depression, and Mood Scale; HIF = How I'm Feeling Measure. ADAMS Depression subscale was transformed for analyses.

Independent samples *t*-tests were also conducted to assess differences between flourishing and non-flourishing youth on other positive mental health indices, based on caregiver-report and youth self-report. As shown in Table 15, caregiver reports indicated that flourishing youth had significantly higher levels of positive mental health across domains of wellbeing. Effect sizes were consistently large, apart from PROMIS Peer Relationships, which was moderate. Similarly, youth self-reports showed flourishing youth had significantly higher levels of positive mental health across most domains, with effect sizes in the small-to-moderate range. The PWI-ID Total Score and PROMIS Life Satisfaction were the only measures with non-significant group differences.

Table 15

Flourishing Group Comparisons of Positive Mental Health Measures: Caregiver and Youth Self-Report

Measure	Flourishing *M* (*SD*)	Non-Flourishing *M* (*SD*)	*t* (df)	*p*	*d*
Caregiver Report – Overall					
6 C's PYD	24.7 (3.0)	19.5 (4.5)	*t* (80.9) = 6.52	< .001	1.37
Caregiver Report – Emotional					
PROMIS Positive Affect	48.6 (6.6)	39.8 (8.3)	*t* (105.8) = 6.12	< .001	1.17
PROMIS Life Satisfaction	47.3 (6.9)	39.0 (6.2)	*t* (106) = 6.55	< .001	1.26
Caregiver Report – Psychological					
PROMIS Meaning & Purpose	40.0 (6.9)	31.2 (6.1)	*t* (106) = 6.96	< .001	1.34
Caregiver Report – Social					
PROMIS Family Relationships	50.1 (7.6)	43.0 (9.6)	*t* (106) = 4.18	< .001	0.81
PROMIS Peer Relationships	36.0 (7.6)	32.1 (7.8)	*t* (106) = 2.58	.011	.50
Youth Report – Overall					
PWI-ID Total	85.8 (11.3)	81.1 (14.4)	*t* (84) = 1.65	.10	.36
SCWBS Total	51.4 (6.3)	46.7 (7.3)	*t* (71) = 2.90	.005	.69
Youth Report – Emotional					
SCWBS Positive Emotion	25.9 (3.1)	23.3 (4.0)	*t* (71) = 3.01	.004	.72
PROMIS Positive Affect	54.9 (8.7)	49.5 (8.7)	*t* (73) = 2.67	.009	.62
PROMIS Life Satisfaction	51.3 (7.8)	47.8 (7.8)	*t* (71) = 1.86	.067	.44
Youth Report – Psychological					
SCWBS Positive Outlook	25.5 (3.7)	23.4 (4.0)	*t* (71) = 2.31	.024	.54
Youth Report – Social					
PROMIS Family Relationships	53.8 (7.5)	48.6 (9.0)	*t* (72) = 2.79	.009	.64
PROMIS Peer Relationships	50.3 (9.5)	43.0 (10.3)	*t* (72) = 3.16	.002	.74

Note. Values reflect independent-samples *t*-tests. Welch's *t*-tests reported where variances are unequal. *d* = Cohen's d. Flourishing groups defined using the Adolescent Mental Health Continuum Short-Form (caregiver report). 6 C's of PYD = Six C's of Positive Youth Development Measure; PROMIS = Patient-Reported Outcomes Measurement Information System – Measures for Pediatric Proxy and Self Report; PWI-ID = Personal Wellbeing Index–Intellectual Disability; SCWBS = Stirling Children's Wellbeing Scale.

4. Positive Mental Health and Psychosocial Functioning

Hierarchical multiple linear regressions were used to evaluate whether overall positive mental health showed unique associations with psychosocial functioning outcomes (activities of daily living, community participation, and relationship quality), after controlling for mental health problems, and, where applicable, age and activities of daily living.

Caregiver Report

After controlling for covariates in Step 1, positive mental health was not uniquely associated with activities of daily living (Table 16). For community participation, positive mental health was marginally associated with frequency of participation in activities (*partial r* = .19, ΔR^2 = .03, p = .056) and significantly associated with average level of involvement in community activities (partial r = .25, ΔR^2 = .05, p = .009). Associations with the number of mutual friendships and close relationships were not significant. Positive mental health was positively associated with caregiver reports of PROMIS Peer Relationships (*partial r* = .19, ΔR^2 = .03, p = .049) and PROMIS Family Relationships (*partial r* = .45, ΔR^2 = .18, p < .001).

Table 16

Unique Association of Caregiver Report of Positive Mental Health with Psychosocial Functioning Variables

Psychosocial Outcome	Step-1 covariates	partial *r* (PMH)	ΔR^2	*p*	*n*
Waisman ADL	MHP, Age	.12	.01	.242	108
PEM-CY Frequency	MHP, ADL	.19	.03	.056	108
PEM-CY Involvement	MHP, ADL	.25	.05	.009	107
† No. Mutual Friendships	MHP	.12	.01	.216	108
† No. Close Relationships	MHP	.17	.03	.073	108
PROMIS Peer Relationships	MHP	.19	.03	.049	107
PROMIS Family Relationships	MHP	.45	.18	< .001	108

Note. PMH = caregiver-report of overall positive mental health (Adolescent Mental Health Continuum – Short Form total); MHP = mental health problems (ADAMS total); ADL = Waisman Activities of Daily Living; PEM-CY = Participation and Environment Measure Children & Youth Community - Community Participation. PROMIS = Patient-Reported Outcomes Measurement Information System (caregiver report; T-Scores). Values come from hierarchical multiple regressions with PMH entered in Step 2, after the listed Step 1 covariates. partial *r* = partial correlation for PMH, ΔR^2 = change in the proportion of variability in the outcome accounted for by the model from Step 1 to Step 2. † = log transformed measure.

Youth Self-Report

Using caregiver-reported activities of daily living and community participation (youth versions unavailable), youth self-reported positive mental health was not uniquely associated with activities of daily living, frequency of community participation, or average involvement in community activities, after controlling for covariates (Table 17). Positive mental health was strongly positively associated with youth report of PROMIS Peer Relationships (*partial r* = .60, $\Delta R^2 = .32$, $p < .001$) and PROMIS Family Relationships (*partial r* = .71, $\Delta R^2 = .44$, $p < .001$).

Table 17

Unique Association of Youth Self-Report of Positive Mental Health with Psychosocial Functioning Variables

Psychosocial Outcome	Step-1 covariates	partial *r* (PMH)	ΔR^2	*p*	*n*
Waisman ADL	MHP, Age	.09	.01	.472	72
PEM-CY Frequency	MHP, ADL	.05	.00	.693	72
PEM-CY Involvement	MHP, ADL	.22	.04	.071	72
PROMIS Peer Relationships	MHP	.60	.32	< .001	70
PROMIS Family Relationships	MHP	.71	.44	< .001	70

Note. PMH = youth self-report positive mental health (Stirling Children's Well-being Scale total); MHP = mental health problems (How I'm Feeling Measure total); ADL = Waisman Activities of Daily Living; PEM-CY = Participation and Environment Measure Children & Youth (Community Participation). PROMIS = Patient-Reported Outcomes Measurement Information System (youth self-report; T-Scores). Values come from hierarchical regressions with PMH entered in Step 2, after the listed Step 1 covariates. partial *r* = partial correlation for PMH, ΔR^2 = change in the proportion of variability in the outcome accounted for by the model from Step 1 to Step 2.

Supplementary Analyses for Psychosocial Variables

The data in this study were cross-sectional, and causal direction between positive mental health and psychosocial factors was not assumed. Accordingly, follow-up hierarchical regressions evaluated whether psychosocial factors jointly and uniquely explained overall positive mental health, after controlling for age and mental health problems (Step 1). Step 2 included four conceptually distinct psychosocial factors: daily living skills (W-ADL), community engagement (PEM-CY community average involvement), and two relationship indices (PROMIS Family and Peer Relationships T-scores). The same predictors were used in caregiver-report and youth self-report models for comparability. For the youth model, activities of daily living and community participation were drawn from caregiver-report.

Caregiver report model. In Step 1, age and ADAMS total score produced an R^2 of .35, indicating that the model reduced unexplained variability in overall positive mental health (MHC-SF total score) by approximately 35% relative to a model with no predictors. Adding activities of daily living, community involvement, family relationship quality, and peer relationship quality reduced unexplained variability by an additional 19% ($\Delta R^2 = .19$; F change [4,100] = 10.06, $p < .001$; total $R^2 = .53$, $N = 107$). In the final model, community involvement ($\beta = .20$, $p = .014$) and quality of family relationships ($\beta = .37$, $p < .001$) showed unique associations, whereas activities of daily living ($\beta = .09$, $p = .291$) and peer relationships ($\beta = .09$, $p = .271$) did not. Mental health problems remained a strong negative correlate ($\beta = -.34$, $p < .001$), and age became a modest negative correlate once psychosocial factors were entered ($\beta = -.17$, $p < .019$).

Youth self-report model. In Step 1, age and HIF total score produced an R^2 of .34, indicating that the model reduced unexplained variability in overall positive mental health (SCWBS total score) by approximately 34% relative to a model with no predictors. Adding the four psychosocial predictors reduced unexplained variability by an additional 39% ($\Delta R^2 = .39$; F change [4,63] = 23.16, $p < .001$; total $R^2 = .73$, $N = 70$). In the final model, peer relationships ($\beta = .30$, $p < .001$) and family relationships ($\beta = .48$, $p < .001$) showed unique associations, whereas activities of daily living ($\beta = .05$, $p = .55$) and community involvement ($\beta = .01$, $p = .987$) did not. Mental health problems remained a negative correlate ($\beta = -.31$, $p < .001$), whereas age was not a unique correlate ($\beta = -.03$, $p = .673$). Given the smaller youth self-report sample, the model had limited statistical power and was primarily sensitive to large effects. Therefore, nonsignificant Step-2 coefficients should be interpreted cautiously. However, model diagnostics indicated that regression assumptions were adequately met.

In summary, across caregiver and self-report, relationship quality was the most reliable correlate of positive mental health: family relationships showed a strong unique association in both models, and peer relationships did so only in the youth model. Community involvement also contributed a modest unique effect in the caregiver model, but not the youth model. Activities of daily living showed no unique association in either model.

Discussion

The *Two Continua Model* of mental health (Keyes, 2002, 2005) describes positive mental health (wellbeing) and mental health problems (mental illness) as related yet distinct dimensions of functioning, with positive mental health including emotional, psychological, and social factors (Keyes, 2002). While this model has been extensively evaluated among adults and adolescents in the general population, there is limited work applying the framework to adolescents and young adults with intellectual disability, a group with elevated rates of mental health problems (Marquis et al., 2023; Totsika et al., 2022). Additionally, mental health research in this population has historically relied on caregiver-report due to communication differences, offering a limited perspective (Santoro et al., 2022).

The current study evaluated the applicability of the Two Continua Model for youth with intellectual disability, using both self-report and caregiver-report data. The youth self-report data demonstrated adequate psychometric properties to evaluate the model. Across youth and caregiver reports, positive mental health and mental health problems were moderately negatively correlated, consistent with the model. Most notably, 45% of youth were classified as flourishing, with a subgroup flourishing with a co-occurring mental health problem. Positive mental health was associated with psychosocial functioning variables after controlling for mental health

problems, with family relationship quality being the most consistent correlate. Taken together, these results provide strong support for the utility of the Two Continua Model for youth with intellectual disability.

Interpretation of Findings

Psychometric Evaluation of Youth Self-Report Measures

The Two Continua Model was developed based on subjective experience. As such, incorporating youth self-report was essential to evaluate the applicability of the model for this group. Youth with intellectual disability often face barriers to completing questionnaires (e.g., comprehension demands, recency bias, acquiescence). Adaptations for accessibility (simplified wording, visual prompts, items read aloud) have been shown to improve validity (Davison et al., 2022; Gilmore et al., 2022). In the current study, two measures specifically designed for intellectual disability were used (PWI-ID, HIF), and five child-report measures from the general population were adapted (SCWBS, PROMIS measures).

Of the 97 youth who were interviewed, 86 contributed valid questionnaire data after pre-testing and video-review validity checks. Across self-report measures, internal consistency ranged from acceptable to excellent and paired-item correlations supported construct validity. Youth-caregiver convergence was typically moderate, consistent with previous work showing small-to-moderate agreement in this population (Santoro et al., 2022). As hypothesized, several measures showed ceiling effects, reflecting a tendency to report positive wellbeing. However, these ceiling effects may also suggest that the measures used do not fully capture all relevant dimensions of positive wellbeing for youth with intellectual disabilities. Positive response

patterns are often attributed to acquiescence for this population (Hartley & McLean, 2006), and the SCWBS did indicate the potential for socially desirable responding in 18% of youth in the current sample. However, the use of an acquiescence screener in this study suggests scores may reflect genuinely high evaluations of wellbeing. This aligns with "disability-paradox" findings, demonstrating that people with disabilities can endorse high life satisfaction while experiencing challenges (Shogren et al., 2021).

The PWI-ID showed somewhat weaker psychometrics compared to the adapted SCWBS and PROMIS measures. This is likely because the PWI-ID indexes domains of wellbeing using single items, whereas the latter use multiple items per domain, leading to higher reliability. These findings indicate that thoughtfully adapted general-population measures can capture meaningful self-reports of wellbeing from youth with intellectual disability (Kooijmans et al., 2024). Selection effects should be noted, however. Although IQ data were not collected, it is very likely that most youth who successfully completed self-report measures had mild or moderate levels of intellectual disability (Cummins et al., 2010). As a result, self-report findings may not be generalizable to youth with severe or profound intellectual disabilities. Overall, these findings add to existing evidence that many people with intellectual disability can complete adapted questionnaires about their own wellbeing and mental health that meet psychometrically valid standards (Davison et al., 2022; Scior et al., 2023). This provides further evidence-based rationale for centering the perspectives of those with intellectual disability in research: both from an ethical perspective, and to reduce caregiver-report bias.

Relationship Between Positive Mental Health and Mental Health Problems

Consistent with expectations derived from the Two Continua Model, moderate-to-strong negative correlations between overall positive mental health and mental health problems were observed in both youth and caregiver reports, supporting Hypothesis 2a. The magnitude and direction of these associations are consistent with adolescent and adult studies in the general population, where correlations typically range from r = -.40 to -.60 (Clarke et al., 2011; Guo et al., 2015; Keyes, 2006; Yousefi Afrashteh & Janjani, 2023). These findings provide support for the Two Continua model premise that positive mental health and mental health problems are related yet distinct constructs, rather than opposite ends of one dimension. The replication of this pattern across youth and caregiver reports further strengthens the evidence for this, though the latent construct could not be evaluated due to sample size constraints. These findings underscore that wellbeing and mental health problems offer complementary information, that warrant individual assessment when evaluating the overall functioning of youth with intellectual disability.

Consistent with the expectation that emotional wellbeing would be more strongly negatively associated with mental health problems than other dimensions of positive mental health (Hypothesis 2b), the tripartite domains of positive mental health (emotional, psychological, and social wellbeing) demonstrated distinct associations with mental health problems. Overall, findings were generally consistent with this expectation, though the strength of associations varied slightly between youth and caregiver reports. Across youth and caregiver reports, emotional and psychological wellbeing were moderately to strongly negatively associated with mental health problems, while social wellbeing showed smaller, typically modest negative associations. For youth report, emotional wellbeing showed the strongest negative associations with mental health symptoms, whereas psychological wellbeing showed the

strongest negative associations for caregiver report. This pattern may reflect different strengths of self-report versus caregiver report for those with intellectual disability. Self-report may better capture internal emotional states (Davison et al., 2022), whereas caregivers may more effectively report abstract concepts and observable experiences, such as a sense of purpose and autonomy (Webb et al., 2024).

The relatively weaker associations between social wellbeing and mental health problems align with Hypothesis 2b, and are consistent with previous findings on the tripartite domains (Lamers et al., 2011; Luijten et al., 2019; Yeo & Suarez, 2022). It may be that emotional and psychological wellbeing have a stronger inverse relationship in terms of content with mental health problems, whereas social functioning is more contextually and environmentally determined (Keyes, 2005). For youth with intellectual disability, social functioning can be particularly shaped by contextual factors such as inclusion and peer acceptance (Taheri et al., 2016), providing further rationale for it being a separate construct from mental health problems for this group. Overall, findings suggest that youth with intellectual disability show similar patterns to the general population with respect to the tripartite domains, and that using both self- and caregiver reports provides helpful nuance.

Categorical Classifications

Consistent with expectations regarding the distribution of positive mental health categories and the co-occurrence of flourishing and mental health problems (Hypothesis 3a), this study provides strong evidence that youth with intellectual disability can experience flourishing positive mental health. Based on the model's categorical classifications (Keyes, 2009), 45% of youth were flourishing, 52% had moderate positive mental health, and 3% were languishing.

These distributions support Hypothesis 3a and closely mirror those found previously in the adolescent general population (Keyes, 2006). Notably, the co-occurrence of flourishing and mental health problem diagnoses (16.7%) was more common in this sample of youth with intellectual disability compared to those found in the general population (5–8%; Keyes 2007, 2009). This may be due, in part, to the high rates of mental health problem diagnoses reported in the current sample (50.9%; Totsika et al., 2022).

Hypothesis 3b examined whether youth classified as flourishing differed from non-flourishing youth in demographic and mental health characteristics. Based on prior work, it was anticipated that flourishing youth would show fewer mental health difficulties and would be less likely to be autistic, whereas no consistent differences were anticipated across most demographic variables. Group comparisons indicated that flourishing youth were diverse. No group differences were found in terms of age, gender, ethnicity, parental education, or community size. This pattern aligns with prior studies on the Two Continua model, which indicate that flourishing is primarily driven by psychosocial contexts such as family support and social integration, as opposed to demographic factors (Keyes, 2006; Magalhães, 2024; Reinhardt et al., 2020). However, flourishing status did differ depending on co-occurring developmental disability diagnoses. Autistic youth were less likely to be classified as flourishing than non-autistic youth, consistent with Hypothesis 3b. This aligns with prior work demonstrating lower levels of thriving among autistic youth, explained by differences in social communication and reduced participation at home and school (Weiss & Burnham-Riosa, 2015). The current study also observed a trend of youth with Down syndrome being more likely to flourish. This aligns with evidence of comparatively higher positive affect and sociability in those with Down syndrome, though with substantial individual variability (Fidler et al., 2009; Reddy et al., 2001). Together,

these findings highlight the heterogeneity in strengths and challenges among those with intellectual disability and underscore the need for larger samples to further examine how flourishing manifests across various developmental disability diagnoses.

With respect to mental health characteristics, flourishing youth were less likely to have a diagnosed mental health problem, to have accessed therapy in the past six months, and to exhibit challenging behaviours (e.g., aggression), supporting Hypothesis 3b. This is consistent with previous Two Continua Model findings showing that flourishing youth have lower mental health symptom burden (Keyes, 2006; Magalhães, 2024). However, flourishing and mental health difficulties were not mutually exclusive. Many flourishing youth did have a mental health problem diagnosis (36.7%), had accessed mental health therapy recently (34.7%), and exhibited at least one challenging behaviour (40.5%), reinforcing that flourishing is related yet distinct from mental health problems. Contrary to Hypothesis 3b, medication use for behaviour or mental health challenges did not differ significantly based on flourishing status. Given the high prevalence of ADHD (38.1%), medication use may primarily reflect ADHD treatment, rather than medication for anxiety or mood symptoms. Overall, flourishing youth showed fewer difficulties on average yet still engaged in mental health supports and experienced challenges, providing further support for the applicability of the model.

Psychosocial Functioning and Positive Mental Health

Hypothesis 4 predicted that higher levels of positive mental health would be uniquely associated with better psychosocial functioning, specifically greater independence in activities of daily living, higher quality relationships, and greater community engagement, even after accounting for mental health problems and other relevant covariates. This prediction was

grounded in the Two Continua Model, which posits that positive mental health (flourishing) benefits a person's daily functioning beyond the mere absence of mental health problems (Keyes, 2007). Previous studies demonstrate that higher positive mental health is associated with better relationship quality and school integration in adolescents (Antaramian et al., 2010; Keyes, 2006), and fewer limitations in activities of daily living and role functioning in adults (Keyes, 2007). Building on these findings, the current study examined unique associations between positive mental health and functioning domains relevant to youth with intellectual disability (daily living skills, community involvement, and relationships), after accounting for mental health problems and other relevant covariates.

Across both caregiver and youth reports, family relationship quality showed the strongest unique association with positive mental health. From the caregiver perspective, depth of community involvement was significantly associated with positive mental health, whereas frequency of community activities was not. From the youth perspective, peer relationship quality was also uniquely associated. Contrary to Hypothesis 4b, activities of daily living and counts of friendships/close relationships were not uniquely associated with positive mental health. It is possible that the limited representation of youth with more severe intellectual disability in the current sample reduced variability in activities of daily living, and reduced the strength of potential associations with positive mental health. Overall, these findings support the premise that higher positive mental health is associated with some elements of functioning for youth with intellectual disability, emphasizing quality over quantity in relational and community domains.

Regarding community participation, our findings are consistent with existing participation frameworks (Imms et al., 2016; King et al., 2013), which distinguish attendance

from quality of participation, and suggest that the experience of participation relates more directly to wellbeing than frequency. Youth with intellectual disability often face social and environmental barriers to meaningful community participation, even if activities are frequently attended (Imms et al., 2017; Tint et al., 2016), and our findings suggest that supporting meaningful involvement promotes wellbeing for this group. Similarly, our findings demonstrate that quality of relationships with others, particularly family members, was more strongly associated with positive mental health than the number of close relationships a youth had. This finding is consistent with studies emphasizing the important role of family in supporting the wellbeing of youth with intellectual disability (Dubé et al., 2022; Dubois et al., 2020), particularly given the barriers to meaningful peer relationships this group can experience (DaWalt et al., 2017; Tipton et al., 2013). It is notable that activities of daily living were not associated with positive mental health in this study, providing evidence that youth with intellectual disability can flourish with varying levels of independence, when appropriate supports are in place. Interestingly, after controlling for psychosocial factors, age was modestly negatively associated with positive mental health, providing support for Hypothesis 3b. This is consistent with prior reports of lower flourishing in older adolescents (Keyes, 2006) and suggests that psychosocial functioning may offset this trend. Overall, these results indicate that the quality and depth of connection and engagement matter more for wellbeing than the quantity of engagement.

Limitations and Future Directions

Study results should be interpreted within the context of several limitations. First, the smaller sample size limited power, and thus confirmatory factor analyses were not conducted to

evaluate (a) the premise that positive mental health and mental health problems are related yet distinct constructs (Lamers et al., 2011; Westerhof & Keyes, 2009), and (b) the tripartite structure of positive mental health (Keyes, 2002, 2008; Piqueras et al., 2022; Soderqvist & Larm, 2023). Second, the cross-sectional design of the current study precluded examining causal relationships between constructs. As a result, this study did not examine previous longitudinal findings showing that changes in positive mental health status predict later mental health disorders (Burns et al., 2022; Keyes et al., 2010; Schotanus-Dijkstra et al., 2016). Future studies examining the Two Continua Model for youth with intellectual disability should use larger samples to evaluate the factor structure, as well as longitudinal designs to evaluate potential temporal relationships between positive mental health and mental health disorders.

Additionally, data on the level of intellectual disability for participants was not collected. Youth who completed self-report measures were likely in the mild–moderate range, and this sample likely does not capture the full spectrum of intellectual and adaptive functioning differences experienced by this group. It is also possible that the mental health diagnoses variable reflected lifetime diagnoses (e.g., depression, anxiety), rather than current diagnoses. Future studies should use a standardized indicator of intellectual functioning (e.g., IQ or clinical classification) and use current mental health problem measures with structured screening tools or clinical cut-points, to capture a clearer picture of clinical diagnoses. For youth with severe or profound intellectual disabilities, alternative accessible self-report measures (e.g., photovoice or verbal interviews; Krisson et al., 2022), and validated caregiver or observational methods are recommended. Finally, youth did not complete self-report measures of community involvement or activities of daily living, and incorporating youth perspectives for these domains is an important next step. The current findings motivate the development and validation of an adapted

MHC-SF for youth with intellectual disability, along with a caregiver-report version, to support further evaluation of this framework.

Theoretical and Practical Implications

Although design limitations should be considered, this study has notable strengths, including the use of both self and caregiver report, and measures adapted specifically for youth with intellectual disability. These features allowed for evaluation of the Two Continua Model within this population and provided evidence for its utility. The Two Continua Model may be particularly appropriate for youth with intellectual disability, who experience higher rates of mental health problems (Totsika et al., 2022), because it distinguishes between positive mental and mental health problems. Moreover, the positive experiences and strengths of those with intellectual disability are often overlooked alongside psychopathology (Dykens, 2006), and the Two Continua Model clearly includes both wellbeing and psychopathology in overall functioning. The model also aligns with ecological and participation frameworks in the intellectual disability literature, emphasizing that wellbeing is situated within person–environment contexts that include family relationships and inclusive opportunities for meaningful participation (e.g., Coster et al., 2011; Imms et al., 2016; King et al., 2013).

Practically, the current findings support the development of programs for youth with intellectual disability that support and strengthen family relationships and facilitate meaningful community involvement. More broadly, findings support a two-pronged approach to mental health care for youth with intellectual disability: actively promoting and assessing positive mental health, while addressing mental health problems.

Conclusion

This study supports the applicability of the Two Continua Model for youth with intellectual disability. Findings demonstrate that youth with intellectual disability can and do experience flourishing wellbeing, sometimes alongside mental health challenges. Most results paralleled those found previously in the general population, with nuances reflecting daily functioning differences for those with intellectual disability, and unique perspectives from youth self-report and caregiver-report. Future research should evaluate the model's factor structure in larger samples and develop adapted versions of the MHC-SF tools for youth with intellectual disabilities and their caregivers.

Chapter 4: General Discussion

This dissertation expanded on the positive psychology literature for youth with intellectual disability using a mixed-methods approach to investigate two key constructs of optimal functioning: *thriving* and *positive mental health (flourishing*). Although thriving has been extensively studied for youth in the general population within the Positive Youth Development (PYD) framework, and positive mental health has been extensively evaluated within the Two Continua Model of Mental Health, minimal research has evaluated how these constructs apply specifically for youth intellectual disability. In response to this gap, this dissertation addressed two overarching questions: (1) How is the construct of *thriving* conceptualized from the perspectives of youth with intellectual disability and their caregivers, and (2) Does the Two Continua Model of Positive Mental Health apply to youth with intellectual disability as it does for youth in the general population?

Study 1 used a photo-elicitation qualitative design to develop a conceptualization of thriving grounded in the perspectives of those with intellectual disability and their caregivers. Study 2 used a quantitative design to examine of the applicability of the Two Continua Model for this population, including both positive mental health and mental health problems. Both studies included youth self-report and caregiver-report, recruited participants with a range of co-occurring developmental disabilities, and were conducted virtually using visual adaptations to increase accessibility. This chapter provides a summary of findings from Study 1 (Chapter 2) and Study 2 (Chapter 3), followed by an integrative synthesis of findings across the dissertation. Research and practical implications are discussed, limitations of this dissertation are acknowledged, and directions for future research are proposed.

Summary of Findings

Study 1

Prior to this study, emerging research had begun to examine thriving among youth with intellectual disability (Sellitto et al., 2023; Weiss & Burnham-Riosa, 2015). However, these studies relied on caregiver report and were grounded in the Positive Youth Development (PYD) framework, which was developed for youth in the general population and did not account for the potentially unique developmental experiences of youth with intellectual disability. As such, there remained a need for an empirically grounded model of thriving for youth with intellectual disability that centered their perspectives using accessible methods. Study 1 addressed this gap using a photo-elicitation qualitative design to integrate the views of both adolescents with intellectual disability and caregivers.

Twelve adolescents with intellectual disability and their caregivers from across Canada participated. Youth and caregivers separately selected photos representing what thriving, or "living my best life," meant for the adolescent, followed by discussion of the photos in semi-structured interviews. Reflexive thematic analysis was used to develop themes across photographs and interviews (Braun & Clarke, 2021), with youth perspectives intentionally prioritized and analyzed first. The design was accessible in that it supported varied communication needs and aligned with inclusive research principles, including accommodations to promote self-determination while respecting youth–caregiver interdependence (Caldwell, 2014), and the involvement of self-advocate research partners who consulted on study procedures and knowledge translation.

Based on data from both youth and caregivers, five interconnected themes were developed to capture thriving for adolescents with intellectual disability: *Developing*, *Enjoying Life*, *Having a Positive Sense of Self*, *Connecting*, and *Mattering*. A single caregiver-specific theme, *Being in* a *Safe and Supportive Environment*, was apparent in caregiver data only, highlighting parents' focus on supportive contexts to facilitate thriving. Although differences between adolescent and caregiver themes were anticipated (Santoro et al., 2022), this study found substantial thematic convergence between youth and their caregivers. The resulting conceptualization reflected thriving as a dynamic process shaped by the interconnection among personal growth, meaningful roles, relationships, enjoyable experiences, environmental supports, and positive sense of self. Notably, thriving was described as including positive experiences as well as successfully navigating challenges (e.g., overcoming fears, managing difficult life events), suggesting thriving does not require the absence of difficulties and is associated with the concept of resilience. While this framework overlaps with PYD themes (e.g., connection, contribution, confidence), it also introduces considerations specific to adolescents with intellectual disability, including the importance of predictability, accessibility, and supportive environments.

This study provides the first youth-informed conceptualization of thriving for adolescents with intellectual disability. The framework demonstrates that thriving involves both individual developmental processes as well as contextual and environmental supports. Importantly, this study highlights the value of using accessible, inclusive qualitative research methods when conducting research with youth with intellectual disability. Practically, these findings point toward the importance of communities and programs that support belonging, enjoyment, and growth. This framework provides a strong foundation for developing a thriving measure tailored

to youth with intellectual and their caregivers and offers direction for future quantitative and longitudinal research on thriving for this population.

Study 2

Similarly, the construct of positive mental health (flourishing) has been understudied among adolescents with intellectual disability. The Two Continua Model has been extensively supported among adolescents and adults in the general population (Keyes, 2002; Keyes, 2005; Keyes, 2006), however far less research has examined whether positive mental health and mental health problems function as distinct but related constructs for youth with intellectual disability. Prior studies involving individuals with developmental disabilities have used components of the Two Continua Model but did not retain the tripartite structure of positive mental health (emotional, psychological, and social wellbeing; Augustine et al., 2022; Boström et al., 2016). Given the elevated mental health problems experienced by youth with intellectual disability, it was important to understand whether this model offers a helpful framework for supporting optimal functioning and wellbeing for this population. Study 2 addressed this gap by evaluating whether adapted youth self-report and caregiver-report methods could be used to examine the conceptual applicability of the Two Continua Model for youth with intellectual disability.

Study 2 used a quantitative, multi-informant design to examine positive mental health (emotional, psychological, and social wellbeing) and mental health problems among youth (adolescents and emerging adults) with intellectual disability. Participants included 110 caregiver–youth dyads, including 97 youth who completed the adapted self-report measures. Youth completed adapted self-report measures of wellbeing and mental health difficulties with visual aids, designed to support accessibility and comprehension. Caregivers provided reports for

youths' positive mental health, mental health problems, and psychosocial functioning. Analyses evaluated whether youth self-report data were psychometrically valid, and examined associations between positive mental health and mental health problems to assess whether these constructs were distinct but related, as suggested by the Two Continua Model. Caregiver-reported flourishing categories were also used to compare flourishing and non-flourishing youth on demographic, developmental, and mental health characteristics. Finally, analyses examined whether positive mental health contributed uniquely to youths' psychosocial functioning beyond the effects of mental health problems.

Results from Study 2 demonstrated that adapted youth self-report measures produced reliable and meaningful data for most participants, providing support that this is a feasible and acceptable method for assessing wellbeing among youth with intellectual disability. Positive mental health and mental health problems were moderately negatively correlated, consistent with previous Two Continua Model findings showing that these are related but distinct constructs. Although associations differed slightly between youth- and caregiver-report, overall patterns were largely consistent across informants. This consistency supports the validity of youth self-report for those with intellectual disability, while also highlighting the value of incorporating multiple informants. Some differences between the wellbeing domains were observed: emotional and psychological wellbeing demonstrated stronger negative associations with mental health problems than social wellbeing, reflecting variation across the tripartite factors. Caregiver-reported flourishing classifications indicated that a substantial proportion of youth were flourishing. The flourishing group was diverse, and although flourishing youth showed somewhat lower behavioural and mental health problems overall, a meaningful subgroup of youth were classified as flourishing despite having one or more mental health problems,

supporting the dual-factor premise of the Two Continua Model. Positive mental health made a unique contribution to youths' social functioning and community participation, after accounting for mental health problems, although it did not predict adaptive functioning skills.

Conceptually, Study 2 findings support the utility of the Two Continua Model for youth with intellectual disability, a population in which flourishing has been understudied. Findings support that flourishing is a distinct and meaningful construct to consider alongside mental health problems for this group. The results highlight the value of dual-factor assessment in both research and clinical settings, acknowledging difficulties while identifying factors that contribute to positive mental health. Findings further indicate that positive mental health is uniquely associated with meaningful relational and community engagement, rather than the quantity of relationships or activities. This study underscores the need for continued refinement of accessible measures of positive mental health and mental health problems for youth with intellectual disability, as well as longitudinal and factor-analytic research to further evaluate the Two Continue model for this population.

Synthesis of Findings

While *thriving* and *flourishing* are both positive psychology constructs used to describe optimal functioning and are often discussed interchangeably, they arise from distinct theoretical traditions and differ subtly yet meaningfully in their definitions (Benson & Scales, 2009; Keyes, 2002, 2005). Within the PYD framework, thriving is conceptualized as a developmental, growth-oriented *process* that emerges through interactions between youth and their contexts, supported by character strengths, opportunities, relationships, and contextual supports (Benson & Scales, 2009; Lerner et al., 2005a). Whereas flourishing, within the Two Continua Model, reflects an

optimal mental health *state*, characterized by high levels of current emotional, psychological, and social wellbeing (Keyes, 2002). In this dissertation, Study 1 similarly conceptualized thriving for youth with intellectual disability as a developmental process supported by opportunities for growth and connection within safe and supportive contexts, whereas Study 2 evaluated flourishing as a mental health state defined by high wellbeing, distinct from psychopathology. Considered together, these studies suggest that it may be conceptually useful to view thriving as a developmental process that supports the emergence of flourishing mental health states (Kabir et al., 2021; VanderWeele et al., 2023).

The Two Continua Model is rooted in hedonic and eudaimonic wellbeing traditions (Keyes 2002, 2005; Ryan & Deci, 2001), and although Study 1 was not framed within these traditions, several thriving themes nonetheless reflected elements of Keyes' tripartite model of emotional (hedonic), psychological (eudaimonic), and social (eudaimonic) wellbeing. The thriving theme *Enjoying Life* aligned with Keyes' emotional hedonic wellbeing; however, it added process-oriented nuance by highlighting how predictable and novel pleasurable activities serve as sources of positive emotion for youth with intellectual disability. Additionally, the thriving themes *Developing*, *Having a Positive Sense of Self*, and *Mattering* overlapped with Keyes' psychological eudaimonic wellbeing domain, which captures autonomy, self-acceptance, personal growth, and purpose in life (Keyes, 2010). The thriving themes *Connecting, Mattering,* and *Safe and Supportive Environments* also mapped onto Keyes' social eudaimonic wellbeing domain, which includes social acceptance and contribution. However, thriving extended this domain by emphasizing safety, accessibility, and contextual supports, elements especially salient for youth with intellectual disability. While Keyes conceptualized emotional, psychological and social wellbeing as distinct indicators of one latent flourishing construct, the thriving themes in

Study 1 were described as dynamically interconnected developmental processes shaped by supportive environments. Taken together, these studies demonstrate conceptual overlap between thriving and flourishing frameworks, while highlighting that thriving incorporates contextual and developmental elements that extend beyond the subjective state wellbeing emphasized in the Two Continua Model.

While thriving and flourishing frameworks emphasize positive functioning, results from Study 1 and Study 2 both demonstrate that optimal functioning does not require the absence of difficulties or mental health challenges. In Study 1, youth and caregivers described thriving as involving not only positive experiences and emotions, but the ability to successfully navigate challenges and manage difficult emotions. Likewise, Study 2 demonstrated that youth can be classified as flourishing, even when they have previously or currently meet criteria for a mental health disorder, supporting the dual-factor premise of the Two Continua Model. Across both studies, optimal functioning is best understood as the coexistence of wellbeing and challenges, rather than the absence of adversity. This may be particularly important to consider for youth with intellectual disability, who have elevated rates of mental health difficulties and contextual stressors (Pallisera et al., 2016; Totsika et al., 2022). Together, these studies underscore the importance of assessing positive functioning alongside mental health difficulties to support optimal functioning for youth with intellectual disability.

Both studies incorporated youth self-report and caregiver-report, offering a multi-informant perspective that strengthened the depth and validity of findings across qualitative and quantitative methods. Across Study 1 and Study 2, youth and caregiver reports showed substantial convergence, including many of the same thriving themes in Study 1 and similar

associations between positive mental health domains and mental health problems in Study 2. This level of convergence contrasts somewhat with prior literature showing only modest youth-caregiver agreement in developmental disability research, underscoring the potential value this dissertation offered in using adapted research methods to support youth self-expression. Despite overall convergence, small but meaningful differences existed between youth and caregiver reports in both studies. In Study 1, caregivers uniquely emphasized safe and supportive environments as contributing to thriving. In Study 2, youth showed the strongest negative association between emotional wellbeing and mental health problems, whereas caregiver report showed the strongest negative association for psychological wellbeing. These subtle differences highlight that youth with intellectual disability and caregivers offer complementary insights, reinforcing the value of considering both viewpoints when assessing wellbeing in this population.

While both studies support the applicability of thriving and flourishing frameworks for youth with intellectual disability, findings also highlight several intellectual-disability specific considerations for optimal functioning. Across both studies, the importance of person-environment fit was emphasized, consistent with social-ecological models (Bronfenbrenner, 1979; Buntinx & Schalock, 2010). In Study 1, safe and supportive environments were described as foundational to thriving, and predictability, accessibility, and contextual support were emphasized. In Study 2, quality of family relationships was the strongest unique predictor of positive mental health, whereas adaptive functioning was not uniquely associated with positive mental health. Together, these findings emphasize that thriving and flourishing are not determined by specific abilities or skill levels, but rather the fit between individual characteristics and environmental supports. These results also reinforce the unique role of caregiver–youth

relationships in supporting wellbeing for youth with intellectual disability, moving beyond individual-focused models of wellbeing (Caldwell, 2014, Dean et al., 2021).

Beyond contextual supports, both studies further highlight that it is quality, rather than quantity, of relationships and participation opportunities that support optimal functioning for youth with intellectual disability. In Study 1, thriving was characterized by belonging, mattering, and meaningful roles, emphasizing relationship depth and feeling valued in participation rather than number of relationships or activities. In Study 2, positive mental health was uniquely associated with the quality of relationships and quality of community participation, and not the number of friendships or frequency of community activities. These findings align with broader disability research emphasizing meaningful participation over the number of opportunities (Imms et al., 2016; King et al., 2013). Together, studies support that optimal functioning for youth with intellectual disability requires prioritizing meaningful connection, valued roles, and supported participation.

Implications

Research Implications

This dissertation has important implications for positive psychology research for youth with intellectual disability. Foremost, these studies demonstrate that *thriving* and *positive mental health* can be meaningfully and empirically examined among youth with intellectual disability. Study 1 offers a youth and caregiver informed conceptualization of thriving with intellectual disability, emphasizing processes and contextual supports not fully captured in existing PYD models (Benson & Scales, 2009; Lerner et al., 2010). Study 2 provides quantitative support that positive mental health and mental health problems are distinct but related constructs, consistent

with the Two Continua Model (Keyes, 2005), providing support for the utility of this model for youth with intellectual disability. Together, these studies support the continued study of thriving and positive mental frameworks alongside mental health challenges to advance understanding optimal functioning in this population.

Regarding methodology, this dissertation demonstrates that adapted qualitative and quantitative approaches can successfully engage youth with intellectual disability in research on wellbeing. Across both studies, online data collection methods paired with visual supports and communication accommodations effectively supported youth participation. Study 1 provides further evidence for the value of participatory and visually supported qualitative methods, such as photo-elicitation, in centering the perspectives of youth with intellectual disability in research (Sigstad & Garrels, 2021). Study 2 provides further quantitative evidence that adapted self-report questionnaires, when paired with careful validity checks and visual communication aids, can produce reliable and valid data on positive mental health and mental health problems for youth with intellectual disability (Kooijmans et al., 2022). Together, these studies support the use of integrated multi-informant approaches that prioritize youth perspectives while recognizing the complementary insights provided by caregivers, demonstrating an alternative to past research which has largely relied on caregiver-report only (Santoro et al., 2022).

This dissertation provides a foundation for more rigorous evaluation of thriving and Two Continua Model theories for youth with intellectual disability. Future research can build on these findings to refine and validate measures of thriving and flourishing tailored to youth with intellectual disability, including the use of factor analytic approaches to evaluate both thriving themes and the tripartite structure of positive mental health. Longitudinal research is also needed

to examine how these constructs evolve over time, and to test whether thriving processes (e.g. *mattering, connecting, having a positive sense of self, etc.*) predict later positive mental health and mental health problem states. Overall, this work supports future research programs that move beyond deficits-focused perspectives towards balanced frameworks that consider how developmental and contextual processes support optimal functioning.

Clinical & Practical Implications

Two Continua Model and PYD (thriving) frameworks are already being applied in practice through community and mental health programming, primarily for those in the general population. Canada's 4-H program provides community-based youth programming within the PYD framework, with an emphasis on leadership, connection, and skill development (4-H Canada, n.d.). Elements of the Two Continua Model are also increasingly used in Canadian mental health initiatives, and Keyes' Mental Health Continuum-Short Form (MHC-SF) has been validated and incorporated into national health surveys to monitor positive mental health at the population level (Orpana et al., 2017). Moving beyond the general population, many supports for those with intellectual disability implicitly reflect thriving and positive mental health principles, such as Self-Determined Learning interventions (Lindsay & Varahra, 2022), and inclusive education policies emphasizing belonging and participation. Findings from this dissertation suggest there is opportunity to more explicitly include thriving and positive mental health frameworks in mental health and community supports for youth with intellectual disability.

This dissertation supports the use of dual-factor assessment approaches for youth with intellectual disability, in which positive mental health is assessed alongside mental health problems to more fully capture functioning. Such an approach reflects the reality that wellbeing

for youth with intellectual disability is not adequately understood solely by the presence or absence of a mental health diagnosis, but also by levels of social, emotional, and psychological wellbeing. Assessment can also attend to thriving processes that support positive mental health, including whether a youth has opportunities for belonging, enjoyable experiences, meaningful roles, and supportive environments. Results from both studies also underscore the value of multi-informant mental health assessment, demonstrating that youth self-report is feasible and informative for understanding emotional experiences and meaning when appropriate adaptations are used. Together, these findings support moving away from caregiver-report focused assessment models, toward integrated youth and caregiver perspectives in clinical practice, using adapted measures and interview styles (Kooijmans et al., 2022).

Results also have important implications for mental health intervention and service design for youth with intellectual disability. Findings suggest that effective intervention should target the reduction of mental health problem symptoms (e.g., anxiety, depression) and the promotion of positive mental health and thriving processes. Across both studies, results highlight the importance of environment-focused intervention through the promotion of safe, predictable, accessible environments, and the facilitation of opportunities for predictable and novel enjoyment. Consistent with this, the notion of quality over quantity should guide programming, with an emphasis on supporting meaningful participation and connections, rather than simply increasing the number of activities or social contexts available to youth. Family relationships also emerged as a particularly salient factor across studies, suggesting that interventions should actively support caregiver and sibling relationships, and acknowledge the role of interdependence in the lives of many youth with intellectual disability. Overall, services should

be designed to strengthen contextual supports and developmental processes that promote positive mental health, alongside the treatment of mental health problems when present.

General Limitations

Findings from this dissertation should be considered within the context of design limitations across studies. Although both studies included participants from a diverse range of socioeconomic, ethnic, and cultural backgrounds, convenience sampling was used, which may bias results towards families who are highly engaged and motivated to participate in mental research or health programming. Across studies, developmental disability and mental health diagnoses were collected via caregiver report, and information was not collected regarding level of intellectual disability (i.e., mild, moderate, severe, profound). This limits precision in understanding how findings may vary across levels of intellectual and adaptive functioning. Future research will benefit from the use of standardized measures of intellectual functioning, adaptive skills, and mental health problem measures with clinical cut-points to more precisely evaluate these constructs. Despite efforts to use adapted research methods for various levels of communication skills and intellectual abilities, non-verbal youth and youth with severe or profound intellectual disability were underrepresented. It will be critically important that future studies on thriving and positive mental health for youth with intellectual disability continue to develop and implement methods to better capture the perspectives of these youth and their caregivers. Further, smaller sample sizes, particularly in Study 1, limit generalizability and the ability to examine subgroup differences.

Additional methodological limitations should be noted. Both studies were cross-sectional, limiting the ability to examine developmental change or causal relationships between thriving

processes, positive mental health, and mental health problem symptoms. The use of virtual (Zoom-based) data collection enabled national recruitment and inclusion of youth living in more rural areas; however, this may have limited engagement for youth with higher support needs or attention concerns. The qualitative design of Study 1 allowed for a rich, youth-centered conceptualization of thriving, but limits the generalizability of this framework. The quantitative design of Study 2 enabled comparisons with prior research Two Continua Model in the general population, however, relied on adapted measures that are still undergoing validation for youth with intellectual disability. Finally, Study 1 focused exclusively on adolescents, whereas Study 2 included both adolescents and emerging adults. Future research will benefit from examining thriving processes across this broader developmental transition period.

Future Research Directions

Findings from this dissertation lead to several key next research directions for examining thriving and positive mental health for youth with intellectual disability. First, there is a need to develop and validate a quantitative measure of thriving processes grounded in the youth and caregiver informed framework developed in this dissertation. This thriving measure should include both youth self-report and caregiver caregiver-report versions, incorporate visual supports and simplified language, and involve self-advocate research partners to ensure accessibility and content validity. Once this thriving measure is established, it will be important to evaluate how thriving processes relate to positive mental health within the Two Continua Model. Specifically, future research should examine whether thriving themes map onto the tripartite wellbeing constructs of emotional, psychological, and social wellbeing, and whether thriving and positive mental health are overlapping or distinct constructs. This can be examined

using exploratory factor analysis to assess underlying dimensions of thriving, followed by confirmatory factor analysis in an independent sample to evaluate model fit, followed by structural equation modeling to test overlap between thriving and positive mental health constructs via latent correlations and discriminant validity.

Further research is also needed to strengthen measurement of positive mental health and mental health problems for youth with intellectual disability within the Two Continua Model framework. This includes adaptation and psychometric evaluation of the Mental Health Continuum-Short Form (MHC-SF) measure for both youth self-report and caregiver-report, as well the validation of a mental health problem measure that includes youth and caregiver report as well as clinical cut-points. It will be particularly important to examine whether these measures function equivalently across levels of intellectual and adaptive functioning.

Bringing together the conceptualization of thriving as a developmental *process* and positive mental health as a *state*, a critical next step is longitudinal research examining how thriving processes unfold throughout development and potentially impact later flourishing and mental health problems. Future research programs could use a multi-wave design across adolescence and emerging adulthood, using cross-lagged panel models and latent growth curve modeling to examine whether thriving processes (e.g., mattering, connecting, enjoying life) predict later positive mental health and mental health problem trajectories. Based on findings from this dissertation, environmental supports and family relationship quality can be examined as potential moderators of these developmental pathways.

Finally, clinical and applied research can focus on translating thriving and Two Continua model frameworks into intervention programs for youth with intellectual disability. This can

include designing and piloting programs that specifically target thriving processes, such as facilitating experiences of mattering, connecting, enjoying life, and supportive environments, while also addressing mental health problem symptoms. Interventions should involve youth and their caregivers and be evaluated through pilot studies and randomized controlled trials to examine intervention efficacy, as reflected in changes in positive mental health and mental health problem symptoms among youth with intellectual disability.

Conclusion

This dissertation expanded on the positive psychology literature for youth with intellectual disability by examining two constructs of optimal functioning: thriving and positive mental health. Thriving was qualitatively conceptualized as a developmental process encompassing developing, enjoying life, having a positive sense of self, connecting, mattering, and being in a safe and supportive contexts. Positive mental health was evaluated quantitatively within the Two Continua Model framework, and findings suggest that this dual-factor framework has meaningful utility for understanding optimal functioning among youth with intellectual disability.

Both studies demonstrate that youth with intellectual disability can experience thriving processes and flourishing mental health states alongside challenges, including mental health problem symptoms. Across studies, the importance of person-environment fit, as well as quality rather than the quantity of relationships and participation opportunities, emerged as consistent factors supporting optimal functioning. These studies support the applicability of thriving and Two Continua Model frameworks for youth with intellectual disability, while also highlighting the need to account for unique developmental experiences, interdependence, and accessibility

needs experienced by this population. Overall, this work underscores the importance of moving beyond deficit-focused research toward balanced frameworks that recognize challenges alongside the potential for thriving and flourishing positive mental health across the transition from childhood to adulthood.

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Appendix A

Study 1 Researchers' Background

Authors Annie Mills and Teresa Sellitto (the primary coders) are doctoral students in clinical psychology whose research focuses on wellbeing for youth with developmental disabilities. This was Annie Mills' first experience conducting qualitative research. She led the thematic analysis for this study as part of her doctoral dissertation and received in depth training in qualitative research methods through graduate coursework. Teresa Sellitto had some previous experience with qualitative research. Annie Mills and Teresa both had substantial clinical, research, and work experience with children and young adults with developmental and intellectual disabilities. Their orientation to the analysis was guided by the belief that people with intellectual disability can flourish when their unique strengths and abilities are recognized and supported at home and in their communities.

Authors Lauren Bishop, Jan Willem Gorter, and Jonathan Weiss are academic researchers with extensive experience conducting qualitative and quantitative research for individuals with developmental disabilities. Authors Dallas Sorken and Katie Saunders are self-advocate research partners with intellectual disability with extensive experience consulting on research projects.

Appendix B

Study 2 Supplemental Participant Demographics

Table B1

Geographic Distribution of Participant Dyads by Province and State (*N* = 110)

Country	Province/State	*n* (%)
Canada	Alberta	10 (9.1)
	British Columbia	7 (6.4)
	Manitoba	6 (5.5)
	New Brunswick	4 (3.6)
	Newfoundland and Labrador	1 (0.9)
	Nova Scotia	3 (2.7)
	Ontario	57 (52)
	Quebec	3 (2.7)
	Saskatchewan	2 (1.8)
United States	Colorado	2 (1.8)
	Pennsylvania	2 (1.8)
	Michigan	3 (2.7)
	Washington	1 (0.9)
	New York	2 (1.8)
	Idaho	1 (0.9)
	Wisconsin	1 (0.9)
	Virginia	1 (0.9)
	Illinois	1 (0.9)
	Kentucky	1 (0.9)
	Oregon	1 (0.9)
	North Carolina	1 (0.9)

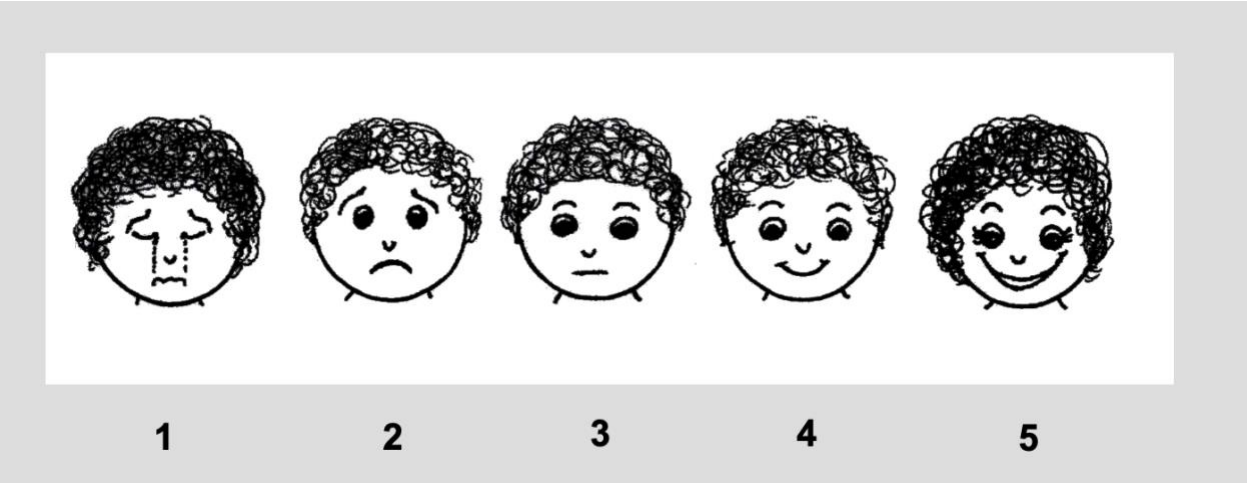
Note. Percentages are based on the total sample of participant dyads.

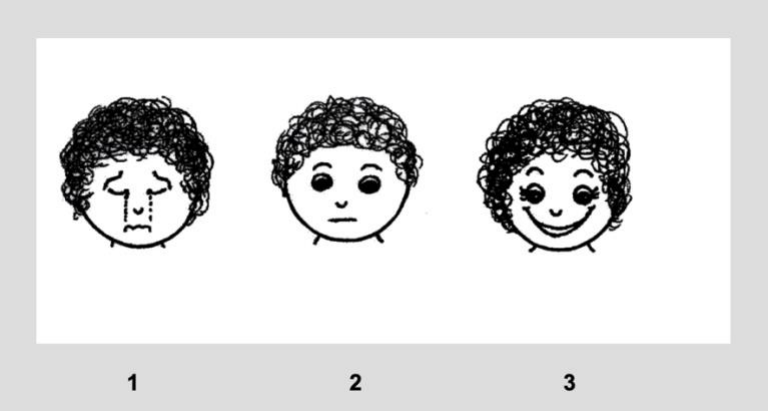
Appendix C

Study 2 Pretesting Protocol Visuals

Figure C1

Pretesting Protocol Visuals for Emotion Likert Scale





Note. Visuals adapted from the Personal Wellbeing Index – Intellectual Disability (PWI-ID; Cummin et al., 2010).

Figure C2

Pretesting Protocol Visual for Order of Magnitude Test

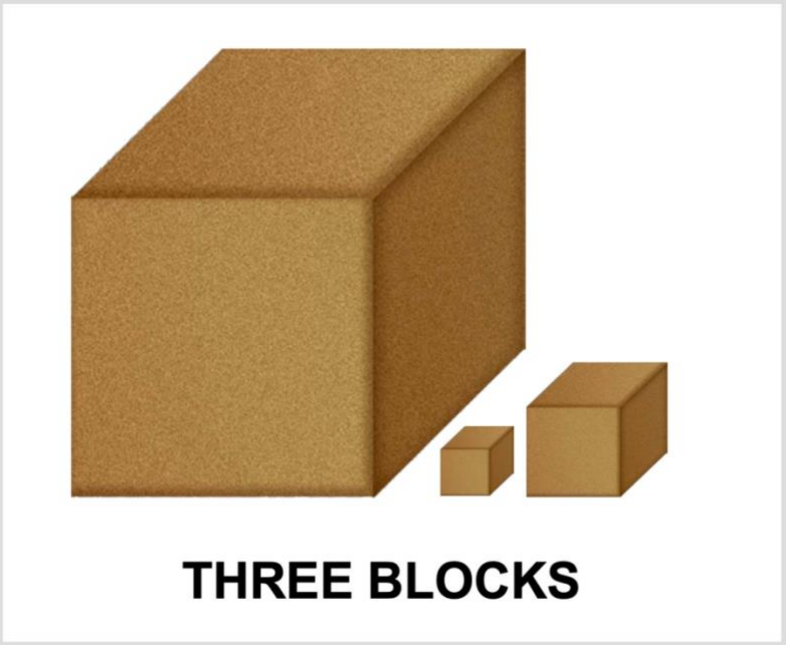
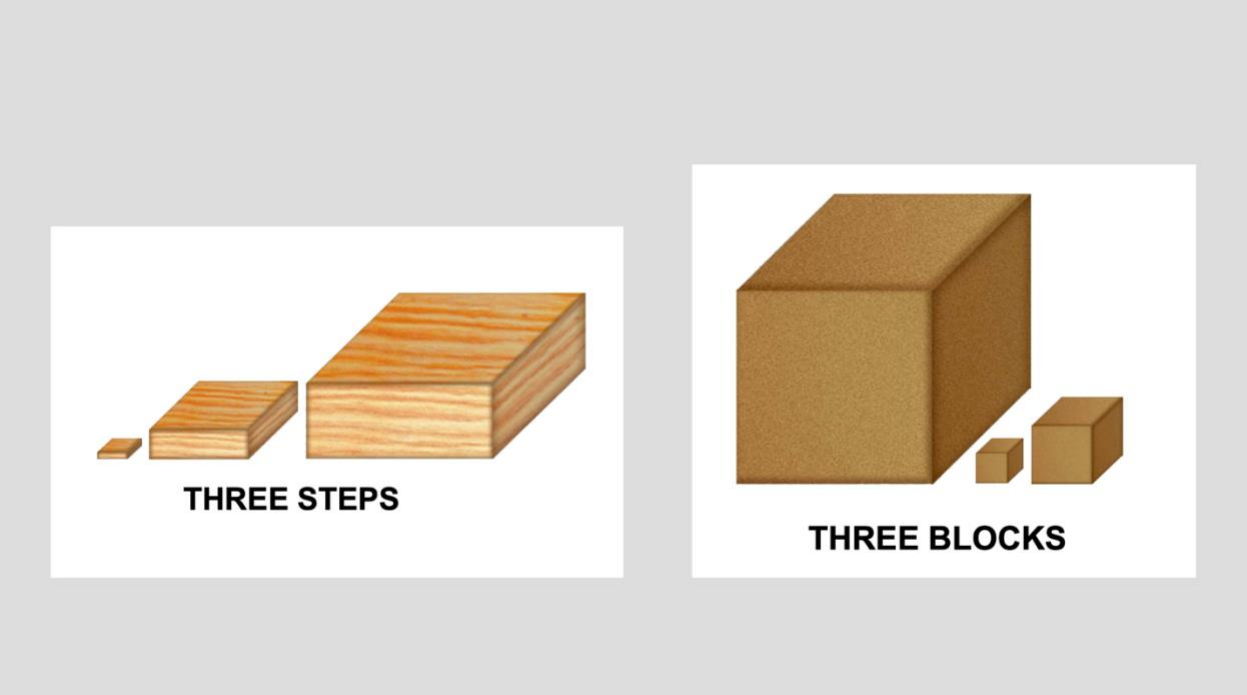


Figure C3

Pretesting Protocol Visual for Matching to a Concrete Reference Test

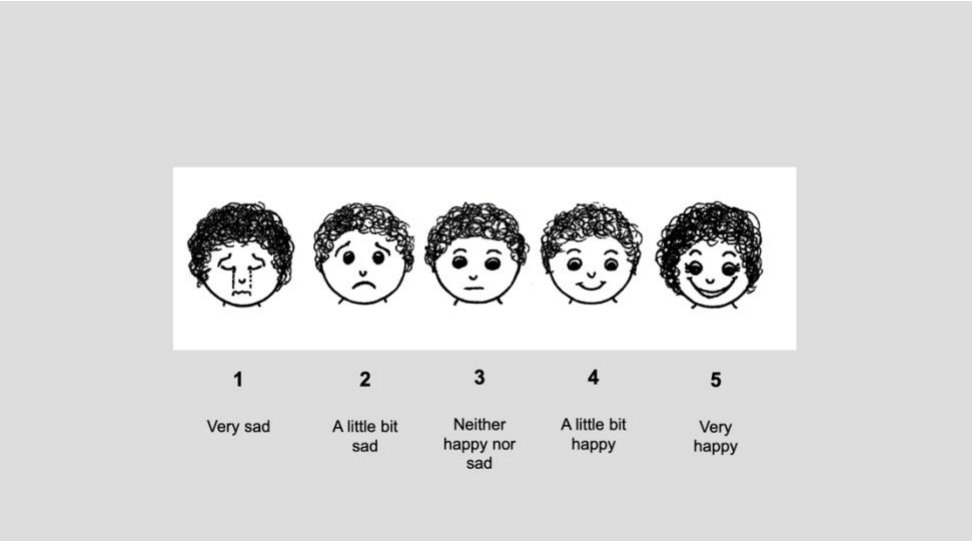


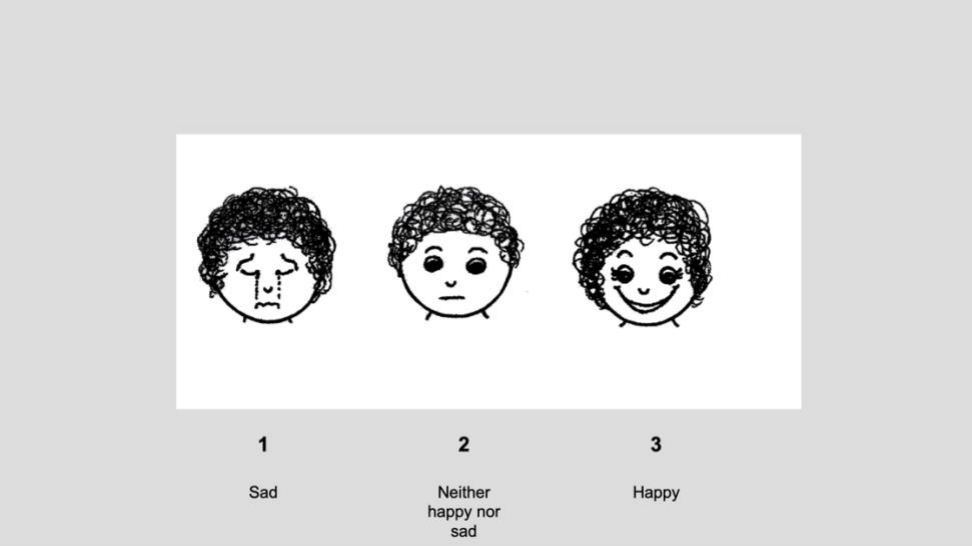
Appendix D

Study 2 Visual Likert Scales for Data Collection

Figure D1

Visual Emotion Likert Scales for Three-Point and Five-Point Questionnaires





Note. Visuals adapted from the Personal Wellbeing Index – Intellectual Disability (PWI-ID; Cummin et al., 2010).

Figure D2

Stepped Magnitude Visual Likert Scale for Five-Point Questionnaires

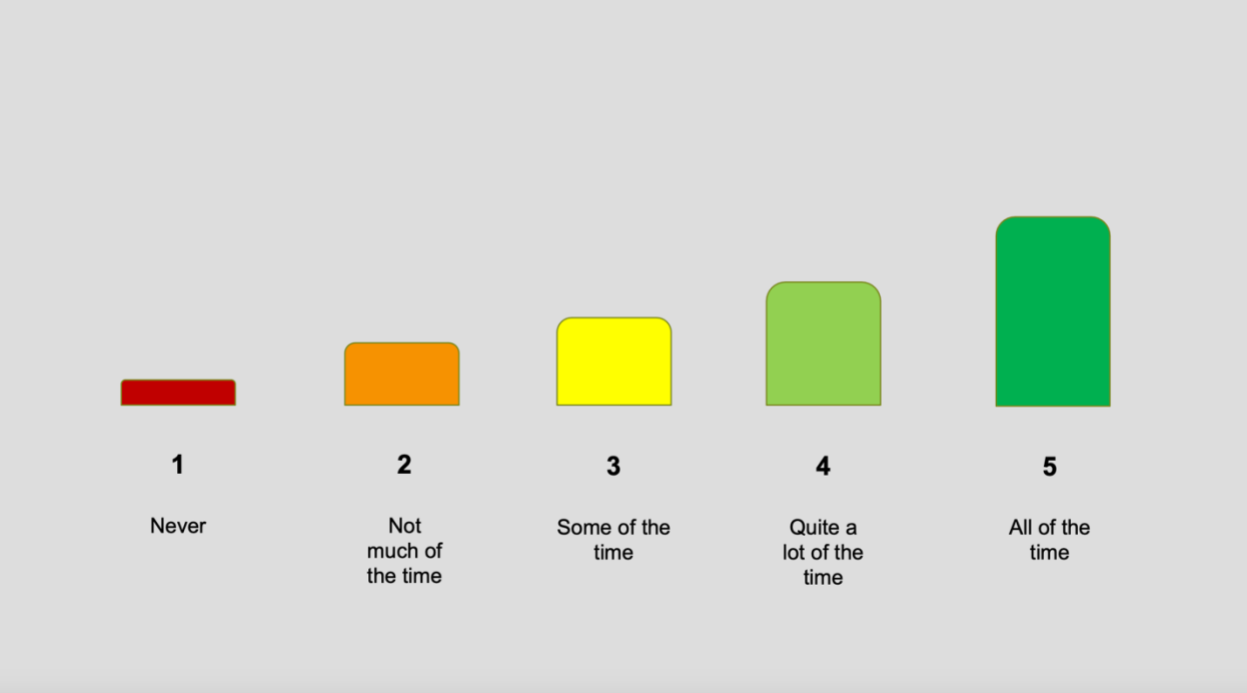
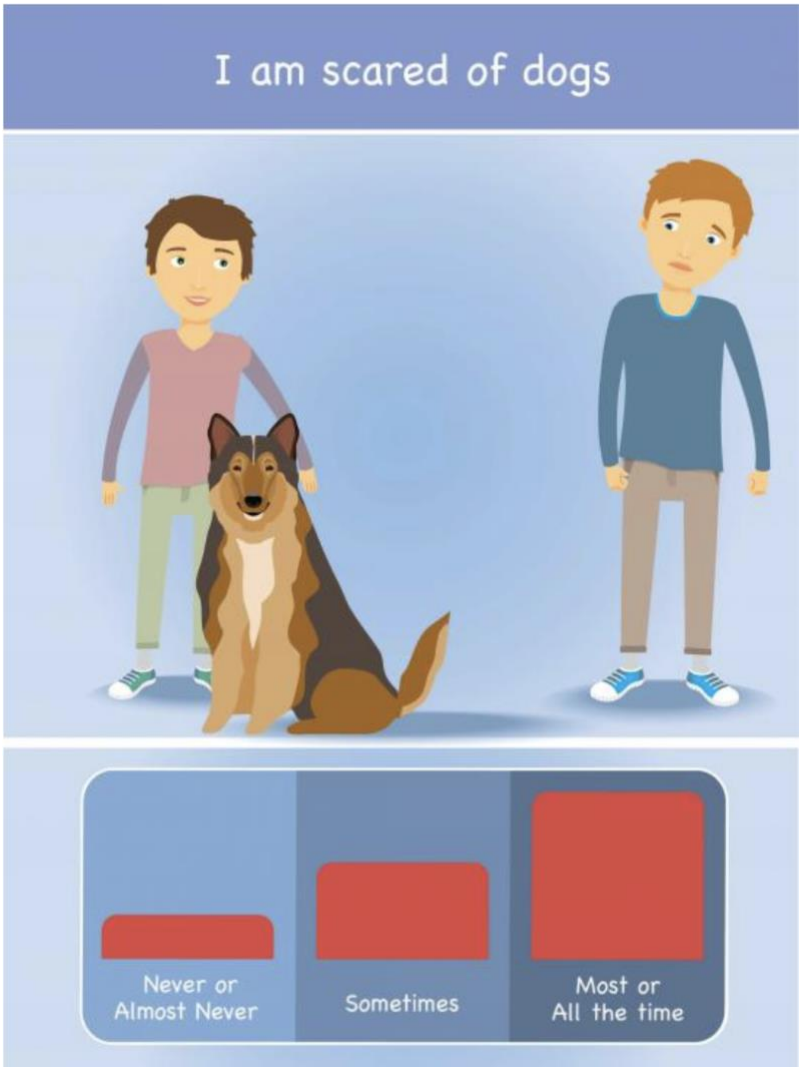


Figure D3

Stepped Magnitude Visual Likert Scale for the How I'm Feeling (HIF) Measure



Note. The HIF measure was developed by Gray et al., 2021.

Appendix E

Study 2 Sample Wellbeing Map

Note. This is a mock example of a document provided to families after completing the study highlighting selected positive mental health responses.

Appendix F

Study 2 Caregiver Report Measures Descriptives

Table F1

Descriptive Statistics and Internal Consistency for Caregiver-Report

Measure/Subscale	*n*	Mean	*SD*	Range	α
MHC-SF					
Total Score (14 items)	108	44.7	13.4	6.0–69.0	.92
Emotional (3 items)	109	11.5	2.8	2.0–15.0	.86
Psychological (6 items)	108	19.0	6.4	0.0–29.0	.85
Social (5 items)	109	14.2	5.9	0.0–25.0	.85
6Cs of PYD (6 items)	89	21.9	4.7	8.0–29.0	.82
PROMIS					
Life Satisfaction (4 items)	110	42.8	7.7	20.2–59.2	.88
Positive Affect (4 items)	110	43.7	8.8	24.5–63.8	.94
Family Relationships (4 items)	110	46.2	9.4	20.9–60.2	.88
Peer Relationships (7 items)	108	33.7	8.1	15.0–62.0	.92
Meaning and Purpose (4 items)	109	35.1	7.9	18.4–58.30	.84
ADAMS					
Total Score (28 items)	110	30.6	17.2	0.0–80.00	.94
General Anxiety (7 items)	110	8.1	5.1	0.0-21.0	.88
Depressed Mood (7 items)	110	5.8	5.2	0.0–21.0	.88
W-ADL (17 items)	110	19.6	5.8	0.0–34.0	.89
PEM-CY – Community					
Average Frequency (0-7 scale)	110	2.7	1.2	0–5.9	.74
Average Involvement (1– 5scale)	109	2.7	0.9	1.0–5.0	.82

Note. α = Cronbach's alpha. MHC-SF = Adolescent Mental Health Continuum Short Form; 6 C's of PYD = 6 C's of Positive Youth Development Measure; PROMIS Proxy = Patient-Reported Outcomes Measurement Information System Pediatric Proxy Report Measures (T scores reported; $M = 50$, $SD = 10$); ADAMS = Anxiety, Depression & Mood Scale; W-ADL = Waisman Activities of Daily Living Scale; PEM-CY = Participation and Environment Measure – Children and Youth – Community Participation.