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Examining the relationships between emotional well-being, social well-being, self-esteem, and home environment in a sample of children and adolescents with intellectual and developmental disabilities

Hannah Lydiatt[1], Shaghayegh Sheri McVay[2], Dr. Jonathan Santo[3]

ABSTRACT

Emotional well-being (EWB), self-esteem, social well-being, and home environment are closely interconnected concepts in child development literature, yet these relationships remain understudied among children and adolescents with intellectual and developmental disabilities (IDD). The present study examined the extent to which self-esteem, social well-being (friends), and home environment (parents) predicted EWB in a sample of 43 children and adolescents with IDD, ages 5–21. Data were collected at two time points during the early months of the COVID-19 pandemic. The results of multiple regression analyses revealed that at Time 1 and Time 2, both self-esteem and home environment were significant positive predictors of EWB. More importantly, home environment emerged as the strongest predictor of EWB, controlling for self-esteem, friends, age, and gender at Time 2. These findings underscore the crucial role of family functioning in fostering EWB among individuals with IDD. Contrary to theoretical expectations, friends were not predictive of EWB, suggesting that the social experiences of children with IDD may differ from those of their neurotypical peers. The results highlight the importance of strengthening family bonds to support the emotional well-being of individuals with IDD, also underscoring the need for future research in this area.

Keywords: Emotional well-being, self-esteem, family, intellectual and developmental disabilities.

1. Introduction

There are clear associations between emotional well-being (EWB), self-esteem, social well-being, and home environment in child development literature for neurotypical children (Ciarrochi et al., 2007; Park et al., 2023). However, these relationships are largely unexplored in children and adolescents

[1] Developmental Psychology, University of Nebraska at Omaha, United States. Email: hjoyce@unomaha.edu
[2] University of Nebraska at Omaha. United States. Email: smcvay@unomaha.edu
[3] University of Nebraska at Omaha. United States. Email: jsanto@unomaha.edu

with intellectual and developmental disabilities (IDD). This is partly attributable to difficulties in recruiting and assessing children with IDD, along with challenges related to obtaining reliable and valid self-reports of their personal experiences (Kooijmans et al., 2022). In addition, standard measurement tools for many constructs are often designed for neurotypical populations and may not capture the unique challenges individuals with IDD face (Hartley & MacLean, 2006). However, recognizing that one in six children between the ages of 3–17 in the United States has been diagnosed with a developmental disability between 2009 and 2017, examining how these constructs interact and impact socio-emotional development in this population is more relevant than ever (Ciarrochi et al., 2007; Park et al., 2023; Zablotsky et al., 2019), especially when considering overall quality of life and the developmental trajectory of these individuals (Dagnan, 2008; Hong et al., 2022; Krauss & Schellenberg, 2022). In addition, research remains scarce regarding how these factors have been influenced by the COVID-19 pandemic, which disrupted therapeutic services, limited social opportunities, and placed additional burdens on family support systems for children with IDD. Therefore, to address these critical gaps, the current study aimed to elucidate the unique predictors of EWB in children and adolescents with IDD. Grounded in Guralnick's Developmental Systems Model (Guralnick, 2001, 2005), a comprehensive framework that focuses on developmental outcomes of individuals with disabilities and takes into account stressors (e.g., the impact of the COVID-19 pandemic), parent-child transactions, family orchestrated child experiences (e.g., peer network) and health and safety, we examined the roles of friendships, family, and self-esteem among a sample of 43 children and adolescents ages 5-21 at two time points, controlling for age and gender. Two waves of data collected during the pandemic provided an important methodological advantage for this study, as it allowed us to detect incremental differences between the two time points (Woodard, 2017), an advantage over cross-sectional designs, thereby positioning this work to advance the literature benefiting individuals with intellectual and developmental disabilities.

1.1 What is Emotional Well-being (EWB)?

Emotional well-being encompasses happiness, interest in life, and overall life satisfaction (Galderisi et al., 2015; Keyes, 2002; Park et al., 2023). This construct, often operationally defined in ways that overlap with psychological well-being and subjective well-being, is considered a fundamental component of overall well-being and flourishing (Diener & Ryan, 2009; Park et al., 2023; Ryff, 1989; Sim & Diener, 2018). Subjective well-being is considered to comprise three components: positive affect, the absence of negative affect, and satisfaction with life (Diener & Lucas, 1999; Gallagher & Vella-Brodrick, 2008; Lucas et al., 1996). In addition, psychological well-being involves being free from negative emotional states such as depression, anxiety, anger, and fear, while simultaneously having positive emotions, meaning in life, healthy relationships, engagement in life, and self-actualization (Adler et al., 2017). It is then not surprising that there is considerable overlap among the three. Hence, the current study considers these concepts together under the umbrella of EWB, as they ultimately point to the same end-state: happiness.

1.2 What is self-esteem?

Self-esteem is commonly defined as a subjective evaluation of one's overall worth and sense of value (Rosenberg, 1979). High self-esteem reflects a favorable global self-assessment, whereas low self-esteem indicates a negative self-view (Baumeister et al., 2003). Conceptualized as a developmental construct, self-esteem begins forming in early life, with its foundations shaped by environmental reinforcements and relationships with others, as outlined in the hierarchical model of self-concept (Shavelson et al., 1976; Weiten et al., 2017). This self-perception is particularly important, as it helps explain and predict behavioral patterns. Moreover, self-esteem plays a critical role in overall well-being. High self-esteem is associated with greater initiative, confidence in decision-making, resistance to social pressure, and overall higher happiness (Baumeister & Vohs, 2018). In contrast, low self-esteem is linked to feelings of inferiority, helplessness, and reduced confidence in one's coping abilities (Schultz & Schultz, 2017).

1.3 Relationships between EWB, self-esteem, social well-being, and home environment

Self-esteem has long been recognized as a key factor in achieving EWB (Baumeister et al., 2003; Ciarrochi et al., 2007; Kim & Ahn, 2021; Kong et al., 2022; Orth & Robins, 2022; Rahmawati et al., 2017; Rosenberg et al., 1995). For example, in a sample of more than 600 high school students in Australia, researchers demonstrated that higher self-esteem predicted decreased sadness and increased positive affect among adolescents (Ciarrochi et al., 2007). Self-esteem has also been found to enhance initiative and boost pleasant feelings, leading to greater overall happiness, an important component of EWB (Baumeister et al., 2003).

Similarly, the literature has established a bidirectional relationship between EWB and social well-being, such that individuals who have more friends have a higher EWB, and individuals who have higher EWB at baseline tend to have closer and more supportive relationships (Cooper et al., 1992; Diener & Ryan, 2009). In a sample of undergraduate college students in the United States, Diener and Seligman (2002) found that compared to the unhappiest 10% of students, the happiest 10% were highly social and had stronger friendships and romantic relationships, above and beyond the effects of exercise and religious involvement. Others have demonstrated that those who receive more social support, a component of social well-being, also have higher EWB (Bal et al., 2003; Lu, 1999: Skok et al., 2006). Additionally, EWB may also be affected by familial, and parental characteristics. In this regard, the literature has examined family patterns, socioeconomic status, family configuration, parenting styles, and home environment (Alhuzimi, 2021; Bentenuto et al., 2021; Guralnick, 2005; Hammer et al., 2018). These family contexts have been linked to various trajectories in child development, from intellectual and emotional development to academic achievement (Guralnick, 2005; Hammer et al., 2018). Specifically, Guralnick (2005) identified three family patterns that have been linked to child intellectual development: parent-child transactions, family-orchestrated child experiences, and ensuring the child's health and safety. Collectively, the home environment, together with self-esteem and social well-being, seem to play a critical role in children's socio-emotional development.

1.4 What is IDD?

According to the National Institutes of Health (NIH), IDDs comprise a vast array of conditions and disorders that result in differences in the physical, intellectual or emotional development of a child (2021). Among many others, IDD includes Down syndrome (DS), autism spectrum disorder (ASD), cerebral palsy (CP), learning disabilities (LD), attention deficit/hyperactivity disorder (ADHD), and genetic disorders (NIH, 2021). Individuals with IDD often have significant limitations in both intellectual functioning and activities of daily living (NIH, 2021). These developmental differences often have far-reaching implications for socio-emotional development.

1.5 Socio-emotional development and IDD

Socio-emotional development concerns the intersection between emotional and social growth. It involves the "capacity to understand another's feelings, to experience moral affects like guilt or shame, to anticipate how parents will respond when she expresses anger or distress, or to regulate her own emotional arousal" (Thompson, 1988, p. ix). This definition, which is drawn based on theories from attachment styles to emotional regulation, is particularly important in understanding the development of children with IDD, given the social and emotional impairments in this population. In this regard, the existing literature points to inhibited development of several socio-emotional factors, including reduced peer-related social competence, impaired social relationships, restricted social networks, increased behavioral problems, increased social isolation, and diminished emotional regulation (Guralnick, 2005; Guralnick & Hammond, 1999; Hong et al., 2022; Smogorzewska et al., 2019).

In addition, children with mild developmental delays exhibit substantially higher levels of solitary play, which, coupled with difficulties with peer interaction and communication difficulties, conflict resolution, and emotional regulation, lead to exacerbated problems in establishing social relationships with peers (Guralnick & Hammond, 1999). Low levels of social initiation may be partly explained by a lack of relational communication skills, rejection from peers, and impaired perspective-taking (Hong et al., 2022; Smogorzewska et al., 2019). Moreover, family patterns that are associated with child intellectual development are typically disrupted in families with children with disabilities,

further interrupting the intellectual and socio-emotional development of these children (Guralnick, 1998; Guralnick, 2005; McCollum & Chen, 2003; Smogorzewska et al., 2019). In a qualitative interview-based study, McCollum and Chen (2003) found that parents of babies with Down Syndrome differed from parents of typically developing babies in their parent-child interactions as well as in the ways in which they described their babies.

1.6 The impact of the COVID-19 pandemic on children with IDD

The COVID-19 pandemic presented unique challenges to parents and caregivers of all children in various ways and intensities. The impact of such challenges was particularly pronounced for families who had children with disabilities. To explain, the frequency and usefulness of social support, including therapy and rehabilitative services, decreased significantly in many countries during the pandemic. As a result, parents not only had reduced access to these services but also found them less effective than before the pandemic (Alhuzimi, 2021; Bentenuto et al., 2021). This is important because for many individuals with IDD, disruption to everyday routines can be a source of distress. These changes led to higher externalizing behaviors in this population, higher parental stress, and lower parental emotional well-being (Alhuzimi, 2021; Bentenuto et al., 2021). Furthermore, quarantine led to a slew of psychological impacts in the general population, including anger, frustration, boredom, difficulty concentrating, irritability, restlessness, and nervousness (Brooks et al., 2020; Orgiles et al., 2020). It is therefore likely that the COVID-19 pandemic has had far-reaching implications on child development and overall well-being, both in the general population as well as in children with IDD, that have yet to be explored.

1.7 Current study

Although previous research demonstrates that emotional and social well-being, self-esteem, and home environment are interconnected, the relationship between these variables is not clearly understood in children with IDD. Given the recent higher numbers of children diagnosed with IDD, the current study drew on Guralnick's (2001) developmental systems model and sought to investigate the relationships between these variables, controlling for age and gender. Due to the challenges associated with decreased access to services and increased time spent at home during the COVID-19 quarantine, the authors anticipated that family contexts would result in a greater impact on emotional well-being than the other measures. Congruent with previous research conducted with neurotypical children, the following hypotheses were examined:

H1: Higher self-esteem will be associated with higher emotional well-being among children and adolescents diagnosed with IDD (above and beyond age and gender effects).

H2: A more positive parent-child relationship will be associated with higher emotional well-being among children and adolescents diagnosed with IDD (above and beyond age and gender effects).

H3: Positive relationships with peers/friends will be associated with higher emotional well-being among children and adolescents diagnosed with IDD (above and beyond age and gender effects).
Refer to Figure 1 for a conceptual model depicting the hypotheses.

2. Method

2.1 Participants

The data for this study were collected as part of a larger project during the summer of 2020. Participants were 43 children and adolescents with IDD ages 5-21 (M = 13.11, SD = 4.18). They were sampled from a community recreation program specializing in IDD. Although this range encompasses multiple developmental periods, inclusion of the full age spectrum was necessary to maintain adequate sample size and to preserve the ecological validity of the community program setting, which was designed to support individuals with IDD across childhood, adolescence, and the transition to adulthood.

Of the participants, 72.1% were male (n = 31), 25.6% were female (n = 11), and 2.3% did not respond to the item for gender (n = 1). This ratio is representative of the general population, as boys are more likely to be diagnosed with a developmental disability than girls (Zablotsky et al., 2019). Furthermore, participants varied in their primary diagnosis, with 41.9% diagnosed with Down Syndrome (n = 18), 32.6% diagnosed with Autism Spectrum Disorder (n = 14), 11.6% diagnosed with a genetic disorder (n = 5), 7% diagnosed with cerebral palsy (n = 3), and 5% who did not respond to the item (n =

3). The attrition from Time 1 (early July 2020) to Time 2 (mid-August 2020) was approximately 30% (n = 14).

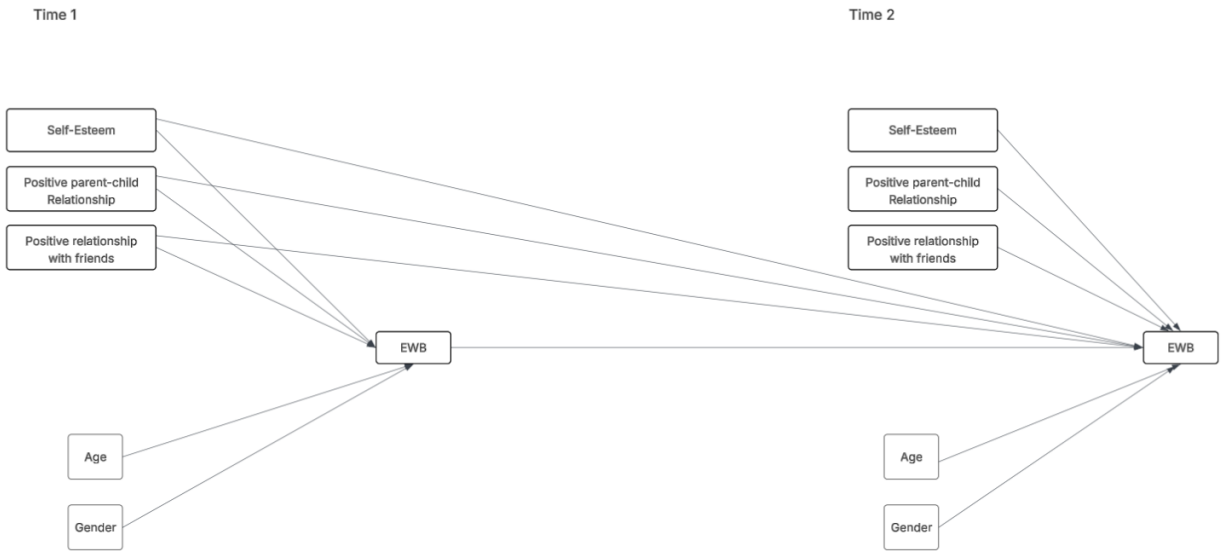
2.2 Procedure

IRB approval was obtained prior to data collection. In early July 2020, an email was sent to the parents/legal guardians of all participants currently or previously registered at a community recreation program specializing in IDD. The email contained a brief description of the study, the informed consent document, an invitation to participate, and a link to the first survey. After 6 weeks, an email was sent to the parents/guardians of subjects who participated in the first survey. Participants' email addresses were recorded in order to link pre-test and post-test scores. For privacy reasons, subject identifiers were coded, and the data were anonymized.

Data collection was conducted as part of a larger study in 2020. A subset of the sample participated in a community recreation day program in the intervening 6 weeks between data collection time points. Analyses comparing disability subgroups based on participation were outside the scope of this study.

2.3 Measures

The survey consisted of several demographic questions, including parent's email address, participant's gender, and disability. The measure on disability was a free-response item which allowed respondents to indicate the child's primary diagnosis. After these demographic questions, the parents/guardians completed the parent-report version of the KINDL-R measure. The parent proxy-



report version was selected for use with this sample due to the wide range of communication limitations of the children and adolescents reported on. Although self-report is preferrable, psychometrically sound and suitable measures for individuals with IDD are scarce and those that do exist are often not cognitively accessible (Kooijmans et al., 2022; Shogren et al., 2021). Nonetheless, opting for parent-report over self-report is less desirable, as it may introduce bias, and there are inherent challenges in attempting to report on another individual's subjective internal experiences (Shogren et al., 2021). We attempted to mitigate these methodological limitations by selecting a measure that incorporated some items that were more objective (e.g., "we quarreled at home"), thereby reducing the number of internal state assumptions the parents would need to make.

KINDL-R

The KINDL-R is a reliable and valid instrument for assessing Health-Related Quality of Life (HRQL) in children and adolescents aged 3 years and older (Ravens-Sieberer & Bullinger, 2000). The original questionnaire was developed by Monika Bullinger in 1994 and subsequently revised by Ulrike Ravens-Sieberer and Monika Bullinger in 1998 to create the KINDL-R (Ravens-Sieberer & Bullinger,

2000). This abbreviated measure comprises 24 items and is appropriate for different age groups and developmental stages between 3 and 17 years old. The measure was selected for its appropriateness across a wide age range, as it focuses on broad indicators of well-being, rather than age-specific developmental milestones or processes. Three different versions of the KINDL-R are available, each of which can be completed by either the child or their parent (Ravens-Sieberer & Bullinger, 2000). The KINDL-R parent proxy-report version, which includes six subscales, namely physical well-being (α = .70), emotional well-being (α = .76), self-esteem (α = .77), family (α = .81), friends (α = .74), and school (α = .62), was used in this study (Ravens-Sieberer & Bullinger, 2000). The internal consistency for the scale was α = .89.

The included measure consisted of a total of 20 items, with each of the five retained subscales (i.e., physical well-being, emotional well-being, self-esteem, family, and friends) containing 4 items that assessed each area, specifically as behaviors occurred over the previous 2 weeks. The school subscale was omitted, as none of the subjects had attended school over the preceding 2 weeks, due to either summer break or COVID-19 precautions. Items included, "My child felt strong and full of energy" (physical well-being), "My child didn't feel much like doing anything" (emotional well-being), "My child felt pleased with himself/herself" (self-esteem), "My child felt that I was bossing him/her around" (family), and "My child did things together with friends" (friends). Parents/guardians reported the extent to which they agreed on each item using a Likert scale ranging from 1 (*never*) to 5 (*all the time*). A high score indicated higher well-being on each subscale. As the School subscale was omitted, the total scores were calculated by dividing the sum of the scores by 20 instead of by 24. A higher score indicated higher overall well-being.

2.4 Statistical analyses

Data were analyzed using SPSS and were inspected for outliers, measurement errors, range restriction, and normality. Correlations were conducted to assess associations between variables prior to regression analyses. Paired samples t-tests were also conducted to test for change over time in the study variables. Next, SPSS was commanded to perform a multiple regression analysis of emotional well-being on friends, family, and self-esteem (with gender and age as covariates). All analyses were conducted on Time 1 data as well as Time 2 data (after controlling for Time 1 values).

3. Results

3.1 Time 1 results

Data analyses were conducted in SPSS and descriptive statistics were obtained for age, gender, disability, and the KINDL-R measure. For further information, see Table 1. In addition, correlations between the variables of interest are presented in Table 2.

Table 1.

Descriptive statistics for KINDL-R subscales across the two time points.

Note. *M* = mean. SD = standard deviation. S^2 = variance.

Variable	n	M	SD	s2	Min.	Max.
Time 1						
Physical Well-Being	43.00	4.29	0.58	0.34	3.00	5.00
Emotional Well-Being	43.00	3.53	0.73	0.54	1.75	4.75
Self-Esteem	43.00	3.21	0.53	0.28	1.75	4.25
Family	43.00	3.85	0.62	0.38	2.50	5.00
Friends	43.00	2.95	0.67	0.45	1.50	4.50
Time 2						
Physical Well-Being	29.00	4.55	0.44	0.19	3.75	5.00
Emotional Well-Being	29.00	4.55	0.46	0.21	3.25	5.00
Self-Esteem	29.00	4.15	0.54	0.29	3.00	5.00
Family	29.00	4.30	0.57	0.33	2.75	5.00
Friends	29.00	3.64	0.75	0.57	1.25	5.00

Table 2. *Time 1 correlations among KINDL-R subscales.*

Variable	1	2	3	4	5
1. Physical Well-Being	-				
2. Emotional Well-Being	.50***	-			
3. Self-Esteem	.22	.53***	-		
4. Family	.33*	.36*	.01	-	
5. Friends	.002	.22	.27	.21	-

Note. $N = 43$. *$p < .05$. **$p < .01$. *** $p < .001$.

A multiple regression of emotional well-being on friends, family, and self-esteem was conducted, controlling for age and gender. The multiple regression of emotional well-being on friends, family, and self-esteem was significant, $F(5, 31) = 7.55$, $p < .001$, $R^2 = .48$, indicating that together, friends, family, and self-esteem were significant predictors of emotional well-being. However, friends was not a significant predictor of emotional well-being controlling for family and self-esteem ($b = -0.17$, $\beta = -.15$, $t(39) = 1.19$, $p = .279$, 95% CI [-.47, .14]), indicating that participants with a higher score on friends did not have significantly higher emotional well-being above and beyond score on self-esteem and family. However, family was a significant predictor of emotional well-being controlling for friends and self-esteem ($b = 0.64$, $\beta = .53$, $t(39) = 3.40$, $p = .002$, 95% CI [0.26, 1.03]), indicating that participants who had higher family support scored significantly higher on the measure of emotional well-being, above and beyond the effects of friends and self-esteem. Moreover, self-esteem was a significant predictor of emotional well-being controlling for friends and family ($b = 0.84$, $\beta = .62$, $t(39) = 4.73$, $p < .001$, 95% CI [0.48, 1.21]), demonstrating that participants who had higher self-esteem scored significantly higher on the measure of emotional well-being, above and beyond scores on friends and family. Together, these variables accounted for 47.60% of the variability in emotional well-being. For further information, refer to Table 3.

Table 3.
Multiple regression predicting EWB from friends, family, and self-esteem at time 1 (controlling for age and gender)

Model	*b*	*SE*	*t*	β	*F*	R^2	95% CI
Intercept	-1.07	0.80	-1.31		7.55***	.48	[-2.73, 0.60]
Age	-.04	0.03	-1.51	-.24			[-0.10, 0.02]
Gender	0.31	0.23	1.38	.19			[-0.15, 0.77]
Friends	-0.17	0.15	-1.10	-.15			[-0.47, 0.14]
Family	0.64	0.19	3.40**	.53			[0.26, 1.03]
Self-Esteem	0.84	0.18	4.73***	.62			[0.48, 1.21]

Note. $N = 43$. CI = confidence interval. *$p < .05$. **$p < .01$. *** $p < .001$.

3.2 Time 2 results

Correlations between the variables of interest at Time 2 are presented in Table 4. Paired samples t-tests were conducted to test for change over time in all of the study variables. There was a significant increase in emotional wellbeing (diff = 1.09, t(2-tailed, 28) = 6.82, $p < .001$), self-esteem (diff = 0.91, t(2-tailed, 28) = 5.73, $p < .001$), family (diff = 0.43, t(2-tailed, 28) = 3.91, $p < .001$) and friends (diff = 0.66, t(2-tailed, 28) = 4.90, $p < .001$). The effect sizes for these differences were moderate (Cohen's d's .59-.86). To explain, for each of the variables of interest, scores were higher during the second wave.

Table 4
Time 2 correlations among KINDL-R subscales.

Variable	1	2	3	4	5
1. Physical Well-Being	-				
2. Emotional Well-Being	.25	-			
3. Self-Esteem	.35	.45*	-		
4. Family	.25	.44*	.09	-	
5. Friends	-.10	.25	.36	.08	-

Note. $N = 29$. *$p < .05$.

Multiple regression of the Time 2 data again used age and gender as covariates but also controlled for Time 1 emotional well-being scores as well. The result of multiple regression of emotional well-being on friends, family, and self-esteem was significant, $F(6, 27) = 4.03$, $p = .008$, $R^2 = .40$, indicating that together, friends, family, and self-esteem were significant predictors of emotional well-being. Here again, friends was not a significant predictor of emotional well-being controlling for family and self-esteem ($b = 0.10$, $\beta = .132$, $t(24) = 0.75$, $p = .459$, 95% CI [-0.18, 0.38]), indicating that participants with a higher score on friends did not have significantly higher emotional well-being above and beyond scores on self-esteem and family. Family however similar to Time 1, remained a significant predictor of emotional well-being controlling for friends and self-esteem ($b = 0.46$, $\beta = .57$, $t(24) = 3.14$, $p = .005$, 95% CI [0.16, 0.76]), indicating that participants who had higher family scored significantly higher on the measure of emotional well-being, above and beyond the effects of friends and self-esteem. Self-esteem at Time 2 was again a significant predictor of emotional well-being controlling for friends and family ($b = 0.30$, $\beta = .36$, $t(24) = 2.12$, $p = .046$, 95% CI [0.01, 0.60], indicating that participants who had higher self-esteem scored significantly higher on the measure of emotional well-being above and beyond scores on friends and family. Together, these variables accounted for 40.20% of the variability in emotional well-being. For further information, refer to Table 5.

Table 5.
multiple regression predicting ewb from friends, family, and self-esteem at time 2 (controlling for age and gender and T1 EWB)

Model	*b*	*SE*	*t*	β	*F*	R^2	95% CI
Intercept	1.31	0.89	1.47		4.03*	.40	[-0.54, 3.14]
Time 1 EWB	0.02	0.09	0.19	.03			[-0.17, 0.21]
Age	-0.05	0.02	-2.05	-.41			[-0.09, < 0.01]
Gender	0.12	0.21	-0.59	.12			[-0.31, 0.55]
Friends	0.10	0.13	0.75	.13			[-0.18, 0.38]
Family	0.46	0.15	3.14*	.57			[0.16, 0.76]
Self-Esteem	0.30	0.14	2.12*	.36			[0.01, 0.60]

Note. $N = 29$. CI = confidence interval. *$p < .05$.

4. Discussion

The present study examined the extent to which self-esteem, parent–child relationships, and peer relationships predicted emotional well-being among children and adolescents with intellectual and developmental disabilities, controlling for age and gender. Consistent with Hypothesis 1, higher self-esteem was associated with higher EWB at both Time 1 and Time 2. In line with Hypothesis 2, more positive parent–child relationships were a consistent predictor of EWB across both time points. This finding highlights the critical role of family dynamics in shaping emotional outcomes, particularly during the early months of the COVID-19 pandemic when children with IDD were spending more time at home. In contrast, Hypothesis 3 was not supported, as positive peer relationships were not significant predictors of EWB at either time point. These findings diverge from patterns observed in neurotypical populations, suggesting that the mechanisms linking social well-being and EWB may function differently for children with IDD.

Regarding the findings, the strength and stability of the relationship between home environment and EWB is of particular interest. Based on the results, it was evident that having positive relationships with parents is crucial to the EWB of individuals with IDD, above and beyond the effects of self-esteem and friends. Because data were collected during the early stages of the COVID-19 pandemic, important conclusions can be drawn regarding the effects of parent-child relationships on EWB in this population. The relationship between home environment and EWB can be understood through Guralnick's Developmental Systems Model, which posits that stressors stemming from child characteristics are filtered through patterns of family functioning to create child development outcomes (2001, 2005). Family patterns include the quality of parent-child transactions, family orchestrated child experiences, and health and safety provided by the family (Guralnick, 2001, 2005). This first pattern of functioning was tapped into by the KINDL-R family subscale, which questioned family functioning and parent-child relationships (Ravens-Sieberer & Bullinger, 2000). The child's response during the first year of the COVID-19 pandemic may have been an additional stressor to the family system and to the quality of the parent-child relationship. Furthermore, children with IDD, who already spend more time at home than their typically developing peers (Mulderji, 1996), spent even more time at home with their parents during the first several months of the COVID-19 pandemic, adding another stressor (or opportunity) to their family system. These stressors may in turn have exacerbated the positive and negative effects of the parent-child relationship on the child's emotional development and well-being. These results, coupled with the knowledge that families of children with IDD have limited resources, point to the need for interventions targeted at improving family functioning and support (Guralnick, 1998; Guralnick, 2005; McCollum & Chen, 2003; Smogorzewska et al., 2019).

Notably, the friends subscale was not a predictor of EWB at Time 1 nor Time 2. Although theory suggests that friends, and ultimately social well-being, are associated with EWB, the findings in this study did not support this claim. There are several competing explanations for this observation. First, parent proxy-report is inherently biased, as parents are not inside their children's minds and therefore may not be the best reporters of their children's friendships. It is plausible that parents are not accurate reporters of their children's internal states relating to social contact (e.g., "my child felt different from other children"). However, if we assume that parents of children with IDD are reasonably accurate reporters of their children's social lives, especially given more objective questions (e.g., "my child did things together with friends"), then context must be considered. During the first several months of the COVID-19 pandemic, families and individuals worldwide quarantined at home and limited their social contacts. Many children engaged in remote learning for several months and did not go back to school until late 2020 or early 2021. Families with children with IDD, who were often immunocompromised or at an increased risk for developing serious complications from COVID-19, were even more likely to self-isolate for longer. It is therefore possible, given that the KINDL-R asks parents to think about their child's behavior and feelings over the preceding 2 weeks, that some or many of the children in the sample did not have any contact with friends during that timeframe.

Another plausible explanation for the lack of a significant relationship between social contacts and EWB concerns the individual characteristics that are common in IDD. For example, it is established that children with IDD have poorer social and communication skills compared to their neurotypical peers (Guralnick & Hammond, 1999; Hong et al., 2022; Smogorzewska et al., 2019). It is then reasonable to conclude that the relationship between social well-being and EWB in children with IDD is unlike that of neurotypical children. The effect may even be moderated by the specific type of disability that a participant has (e.g., physical, intellectual, or developmental) rather than the presence or non-presence of a disability overall. For instance, there are significant differences in social motivation between children with DS and children with ASD: individuals with ASD consistently display decreased social motivation (Clements et al., 2018), whereas individuals with DS typically display increased social motivation, compared to typically developing peers (Wilde et al., 2016). These differences in social motivation may help explain why interaction with friends may (or may not) be predictive of EWB across multiple IDD subtypes. Alternatively, the small sample size in the current study may have been insufficient to detect a relationship. Ultimately, further research is needed to elucidate the mechanisms underlying the relationship between these constructs in this population.

In addition, in this study, self-esteem was found to be a predictor of EWB. This finding supports the link between higher self-esteem and higher EWB (Baumeister et al., 2003; Ciarrochi et al., 2007; Kim

& Ahn, 2021; Kong et al., 2022; Orth & Robins, 2022; Rahmawati et al., 2017; Rosenberg et al., 1995). Although self-esteem reflects a subjective evaluation rather than an objective assessment of the self, it remains an important contributor to emotional well-being. Individuals with higher self-esteem tend to experience greater confidence in their abilities and a stronger sense of autonomy in decision-making, which in turn is associated with greater happiness (Baumeister et al., 2003; Baumeister & Vohs, 2018). For children with IDD, high self-esteem may be particularly important, as feelings of competence and self-worth may buffer against repeated experiences of failure, stigma, or social marginalization, thereby supporting EWB despite functional limitations. Taken together, these findings indicate that self-esteem may be a vital component of EWB in children with IDD.

Furthermore, it is important to note that although physical well-being was highly correlated with EWB at Time 1, it was not included as a predictor in the regression models. There is no theoretical basis to indicate that physical well-being predicts or influences emotional well-being. Conversely, many models place mental or emotional well-being as a predictor for physical health and well-being (Hernandez et al., 2018).

4.1 Strengths and implications

The present study makes several important contributions to the literature on emotional well-being in children and adolescents with intellectual and developmental disabilities. First, grounded in Guralnick's developmental systems approach, it provides new evidence that parent–child relationships are a consistent predictor of EWB, even during periods of heightened stress and social disruption such as the COVID-19 pandemic. These findings also highlight that, for children with IDD, the home environment may be more central to socioemotional development than peer relationships, diverging from patterns observed in neurotypical populations where friendships typically play a stronger role in well-being, especially during the adolescence period. Second, the current study demonstrates that self-esteem contributes to EWB in children with IDD. In addition, this study is among the very few to longitudinally examine the experiences of children and adolescents with intellectual and developmental disabilities during the COVID-19 pandemic, controlling for age and gender, providing insight regarding emotional well-being in this population. Finally, from a practical perspective, post-pandemic services and interventions should emphasize activities that can be naturally embedded within family routines and the home environment. Utilizing everyday contexts such as playtime, mealtimes, and shared caregiving activities can create frequent and meaningful opportunities for children with IDD to engage, develop social and emotional skills, and generalize learning across settings. In addition, interventions grounded in existing family structures may further improve feasibility, reduce caregiver burden, and support the sustainability of gains beyond formal service hours.

4.2 Limitations and future direction

This study has also several limitations that should be acknowledged. First, the sample was predominantly White, middle- to upper-class, and male, which may restrict the generalizability of the findings to the broader population of children and youth with IDD. Second, the sample size was relatively small, which reduced statistical power and increased the risk of Type II error. Third, attrition from Time 1 to Time 2 was substantial and may have influenced the stability and interpretation of the results. Another important limitation concerns the wide age range of participants (5–21 years). Although, we controlled for age in our analyses, this age range encompasses both childhood and emerging adulthood, which makes it challenging to tease apart developmental differences. For example, younger children may rely more heavily on parental and family support, whereas older adolescents and young adults may place greater emphasis on autonomy. Future studies should examine these constructs within narrower age groups to more accurately capture developmental nuances. Finally, future research should prioritize larger, more diverse samples and employ multiple informants (e.g., teachers, clinicians) and methods (e.g., observational, physiological) to strengthen validity and reduce single-source bias.

4.3 Conclusion

Ultimately, the present study contributes to the limited body of research and the crucial need to examine emotional well-being among children and adolescents with intellectual and developmental disabilities. The findings highlight the central role of family in predicting emotional well-being. These results also underscore the importance of supporting family functioning and resources as a primary means of enhancing emotional well-being in this population. Moreover, the results suggest that self-esteem is an important factor in enhancing emotional well-being and that the role of friendships may operate differently for children with IDD compared to their neurotypical peers.

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Submission declaration and verification

The authors declare that this paper has not been previously published and is not being considered for publication elsewhere.

Conflict of interest disclosure

The authors declare that this research was conducted without any commercial or financial relationships that could potentially create a conflict of interest.

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