THE JOURNAL OF POSITIVE PSYCHOLOGY
2026, VOL. 21, NO. 2, 358–367
https://doi.org/10.1080/17439760.2025.2469515

Routledge
Taylor & Francis Group

The association between childhood parental connection and perceived social integration in adulthood: mediation by adult self-acceptance

Tracy Dearth-Wesley[a,b,c], Allison N. Herman[a,b,c] and Robert C. Whitaker[a,b,c,d]

[a]Columbia-Bassett Program, Vagelos College of Physicians and Surgeons, Columbia University, New York, NY, USA; [b]Columbia-Bassett Program, Bassett Medical Center, Cooperstown, NY, USA; [c]Bassett Research Institute, Bassett Medical Center, Cooperstown, NY, USA; [d]Department of Pediatrics, Vagelos College of Physicians and Surgeons, Columbia University, New York, NY, USA

ABSTRACT

Childhood parental connection is positively associated with adult perceived social integration, but little is known about psychosocial mechanisms explaining this association. Self-acceptance may be one such mechanism. We conducted a mediation analysis using cross-sectional data from 4,149 adults (25–74 y) in the Midlife in the United States study. Measures of recalled childhood parental connection and current self-acceptance and perceived social integration were standardized to the study population. After covariate-adjustment, the total effect of parental connection on social integration was 0.19 (95% CI, 0.15, 0.22). The direct effect of parental connection on social integration was 0.10 (95% CI: 0.06, 0.13), and the indirect effect of parental connection on social integration mediated through self-acceptance was 0.09 (95% CI, 0.07, 0.10). Partial mediation by self-acceptance suggests that safe, stable, and nurturing relationships with parents in childhood could contribute to an acceptance of the adult self, and this self-acceptance could increase perceived social integration.

ARTICLE HISTORY
Received 30 July 2024
Accepted 24 December 2024

KEYWORDS
Human development; parent-child relations; social integration; self-acceptance; well-being

Introduction

The current epidemic of loneliness and social isolation is associated with poorer mental and physical health among adults, such as increased risk of anxiety, depression, dementia, cardiovascular disease, and premature death (Leigh-Hunt et al., 2017; Lyu et al., 2024; Office of the Surgeon General, 2023). Efforts to counter this epidemic involve advancing social connection, which includes the roles, relationships, interactions, and sense of connection experienced by individuals, communities, or society (Office of the Surgeon General, 2023). There are benefits associated with social connection, such as improved health outcomes and increased longevity in those with stronger social relationships and social integration (Berkman et al., 2000; Holt-Lunstad & M, 2021; Holt-Lunstad et al., 2010), and some interventions have been effective at increasing social connection (Masi et al., 2011; Zagic et al., 2022). While there is emerging research indicating the importance of social connection across the life span (Holt-Lunstad, 2022), less is understood about the developmental origins of social connection.

Social connection and perceived social integration

Social connection is an umbrella term used to describe the structure, function, and quality of one's social relationships (Holt-Lunstad, 2022; Office of the Surgeon General, 2023). Based on this conceptualization, social integration is considered a structural component of social connection, representing the number of relationships and roles an individual has with others (Holt-Lunstad, 2022). Furthermore, social integration can have two parts – behavioral (e.g. active involvement in a variety of social relationships) and cognitive (e.g. identification with one's social roles; sense of communality and belonging) (Brissette et al., 2000; Holt-Lunstad & M, 2021). Because the cognitive part is based on the individual's self-reported sense of communality and belonging, assessments of this aspect are called *perceived* social integration (Holt-Lunstad & M, 2021).

The social integration subscale in Keyes' measure of social well-being can be considered a measure of perceived social integration, insofar as it uses self-report to assess an individual's sense of belonging and connection within a community (Keyes & Shapiro, 2004). Keyes' measure is theoretically grounded in concepts including social cohesion, cultural estrangement, and social isolation (Keyes, 1998), and the operational definition for those with high

CONTACT Tracy Dearth-Wesley tracy.dearth-wesley@bassett.org Bassett Research Institute, Bassett Medical Center, 1 Atwell Road, Cooperstown, NY 13326, USA

perceived social integration is that they 'feel part of community; think they belong, feel supported, and share commonalities with community' (Keyes & Shapiro, 2004, p. 358). While there has been some research on correlates of this measure of perceived social integration (e.g. higher in those who are married and older) (Keyes & Shapiro, 2004), there is limited research on factors that may affect the development of perceived social integration.

Developmental origins of perceived social integration

Parental connection during childhood has been identified as a predictor of perceived social integration in adulthood, with connection being measured as recalled parental warmth (e.g. love and affection from mother/father while growing up) (Chen et al., 2019). However, less is understood about the mechanisms that could explain this association. These mechanisms may include aspects of positive psychological functioning that could be affected by parental connection and that could, in turn, affect perceived social integration. Self-acceptance is one potential aspect of positive psychological functioning that might mediate the association between childhood parental connection and perceived social integration in adulthood. Self-acceptance reflects an understanding of the self that includes an awareness and acceptance of one's strengths and weaknesses (Ryff & Singer, 2008). This awareness and acceptance yields a positive attitude toward the self (Ryff & Singer, 2008), which could contribute to one's capacity to connect with others and feel a sense of belonging within a community (i.e. perceived social integration) (Allen et al., 2021; Whitaker et al., 2023). Drawing on available empirical evidence and an established theoretical framework, we outline below how childhood parental connection is expected to affect adult self-acceptance (our proposed mediator) and how adult self-acceptance is expected to affect adult perceived social integration.

Childhood parental connection and adult self-acceptance

Several studies have shown a positive association between adult self-acceptance and recalled parental connection during childhood (An & Cooney, 2006; Chen et al., 2019; Whitaker et al., 2020, 2021). As described by Feeney and Collins in their theoretical model of *thriving through relationships*, feelings of self-acceptance can develop when parents provide children emotional support that is sensitive and responsive to their needs and makes them feel cared for and validated (Feeney & Collins, 2015a). During times of adversity, this parental support can provide children a safe haven in that it conveys empathy and understanding to children, helping them nurture their strengths and developing abilities while recognizing their limitations (Feeney & Collins, 2015b). During times of opportunity, this support can serve as a secure base for social exploration and relational growth. Across these times of adversity and opportunity, this emotional support contributes to an acceptance and positive regard of one's true or authentic self and allows one to behave in ways that are consistent with that self (Feeney & Collins, 2015a).

Adult self-acceptance and adult perceived social integration

Ongoing self-awareness contributes to a stable identity or consistent sense of self, which allows one to be accountable, accept social roles, and cooperate when working in a group (Cozolino, 2014). It is in these roles and relationships within a group or community where one feels a sense of belonging and connection (i.e. perceived social integration) (Keyes & Shapiro, 2004). This could also be described as having perceived relational value within the community, where relational value 'refers to the degree to which other people regard their relationship with a person as important, valuable, or close' (Leary, 2021, p. 128). As one comes to know and accept oneself and what they both bring to others and need from others, they are better able to enter a group or community in which they feel connection and belonging. With an acceptance and sense of self that has emerged from interpersonal experiences and reflection (Cozolino, 2014), one can increase the likelihood of perceived social integration wherein one recognizes what they value from the group as well as their own value to the group (Leary, 2021). Therefore, adult self-acceptance may be an aspect of positive psychological functioning that can promote perceived social integration in adulthood.

Present study

Using data from a nationally representative sample of US adults, our study objective was to determine whether adult self-acceptance mediates the association between childhood parental connection and adult perceived social integration. More specifically, we aimed to separate the total effect of childhood parental connection on adult perceived social integration into two parts: the direct effect of childhood parental connection on perceived social integration (controlling for self-acceptance) and the indirect effect of childhood parental connection on perceived social

integration that operates through adult self-acceptance. Causality cannot be inferred from cross-sectional survey data, but our analysis aims to provide some initial empirical support for our mediation model and guide future longitudinal research.

Methods

Study population and data

Using survey data from the ongoing Midlife in the United States (MIDUS) study (University of Wisconsin – Madison, Institute on Aging, 2011), we pooled data from two MIDUS cohorts. The cohorts were surveyed in 2004–2006 (MIDUS 2; $N = 2,257$) and 2011–2014 (MIDUS Refresher; $N = 3,577$). Each cohort included a random-digit dialing sampling of non-institutionalized, English-speaking adults, who were living in the contiguous United States and aged 25 to 74 years. Data were collected first by a phone interview followed by a self-administered questionnaire (SAQ), with the same survey items used with both cohorts. Using data from both cohorts ($N = 5,834$), our cross-sectional analysis of this publically-available and de-identified data did not require institutional review board approval. Because we used data from both the phone interview and SAQ, our starting sample included the 4,346 participants who completed both instruments.

Measures

Exposure: childhood parental connection

We created a childhood parental connection score using seven items that were asked separately about each parent – 'the mother/father (or the woman/man who raised you) during the years you were growing up' (Rossi, 2001). Six of these items used a four-point scale (ranging from 'a lot' [1] to 'not at all' [4]) to assess recalled parental affection, communication, and attention. The seventh item ('How would you rate your relationship with your mother/father?') used a five-point scale (ranging from 'excellent' [1] to 'poor' [5]), and this item score was multiplied by 0.75 to align with the other six items that used a four-point scale. Consistent with approaches used by others (Chen et al., 2019; Moran et al., 2018), items were recoded so that higher scores indicated greater connection. Maternal and paternal scores were first determined separately, and an average of the maternal and paternal scores was determined to create the parental connection score. The internal consistency (Cronbach's alpha) of the score in our sample was .93.

Mediator: adult self-acceptance

Adult self-acceptance was assessed using the seven items comprising the self-acceptance subdomain of Ryff's Psychological Well-being Scale (Ryff, 1989), a widely-used scale measuring eudaimonic well-being (Huta & Waterman, 2014; Ryan & Deci, 2001). Participants used a Likert-type scale (ranging from 'strongly agree' [1] to 'strongly disagree' [7]) to rate each item (e.g. 'In general, I feel confident and positive about myself', 'I like most parts of my personality'). Positively-worded items were reverse-coded so that higher scores indicated greater self-acceptance, and a self-acceptance score was determined by summing across the seven items. The internal consistency (Cronbach's alpha) of the score in our sample was .85.

Outcome: adult perceived social integration

Adult perceived social integration was assessed using the three items comprising the social integration dimension of Keyes' Social Well-being Scale (Keyes, 1998). Participants used a Likert-type scale (ranging from 'strongly agree' [1] to 'strongly disagree' [7]) to rate each item: 'I don't feel I belong to anything I'd call a community', 'I feel close to other people in my community', and 'My community is a source of comfort'. Responses on the latter two items were reverse-coded so that higher scores indicated greater perceived social integration, and a perceived social integration score was determined by summing across the three items. The internal consistency (Cronbach's alpha) of the score in our sample was .75.

Covariates

Informed by previous studies (Chen et al., 2019; Moran et al., 2018; Whitaker et al., 2021), we controlled for eight variables that were potential confounders of one or more of the following associations: exposure-mediator, mediator-outcome, and exposure-outcome. Participants reported their age, gender, marital status, race, and ethnicity. Using responses from the race and ethnicity question, we created a single variable for race and ethnicity: Black, non-Hispanic; Hispanic, any race; White, non-Hispanic; other race, non-Hispanic. The other race, non-Hispanic group included American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, and other racial backgrounds specified by the participant. Details on the creation of the remaining covariates are described elsewhere and summarized here (Whitaker et al., 2021). An adverse childhood experiences (ACE) score (range 0 to 5) was determined by counting the

number of categories of exposure before 18 years of age to abuse (emotional, physical, and sexual) and household challenges (parental divorce or separation and household substance use). A childhood socioeconomic disadvantage (SED) score (range 0 to 6) was based on welfare receipt and duration, financial status, and parental education. A current SED score (range 0 to 8) was based on four variables related to current financial situation and educational attainment. For both childhood and current SED scores, higher scores reflected greater SED. A current chronic disease score (range 0 to 9) was created with one point assigned for having a disease within a given category (e.g. cardiovascular, cancer).

Statistical analysis

Among those who completed both the MIDUS phone interview and SAQ ($N = 4,346$), we excluded 197 participants who were missing items needed to create the main study variables (childhood parental connection, adult self-acceptance, and adult perceived social integration), which resulted in 4,149 (95.5%) participants for analysis. We converted scores for parental connection, self-acceptance, and perceived social integration to *z* scores by standardizing each raw score to the study sample. A significance threshold of $p < .05$ from 2-sided testing was used. Analyses were conducted using STATA/MP (version 15.1).

Bivariate associations between levels of the covariates and adult perceived social integration were examined using *t*-tests and one-way analysis of variance. A traditional mediational analysis (product method) using linear regression was employed to examine whether adult self-acceptance mediated the association between childhood parental connection and adult perceived social integration (Baron & Kenny, 1986; Cashin et al., 2023; Preacher & Hayes, 2008). There was no evidence for exposure-mediator interaction or for non-linear associations between the exposure and outcome, the exposure and mediator, or the mediator and outcome (Cashin et al., 2023). A graphical representation of the mediation analysis is shown in Figure 1. Two regression models were used to determine the direct and indirect effects, including bootstrapping with 5000 replications to obtain the indirect effect coefficient and 95% confidence interval (CI) (Preacher & Hayes, 2008). Statistical assumptions were verified based on checking for normality (e.g. kernel density plots) and homoscedasticity (e.g. rvf plots) of the residuals (Cashin et al., 2023). Of the 4,149 participants in our analytic sample, 63 (<2%) were missing data on one or more covariates, so listwise deletion was used. The AGReMA (A Guideline for Reporting Mediation Analyses of randomized trials and observational studies) checklist and guidelines were followed when reporting on the mediation analysis (Lee et al., 2021).

Results

Among the 4,149 MIDUS participants included in our analysis, the mean *(SD)* age was 53.8 (13.8) years and 53.7% were female (Table 1). The mean *(SD)* childhood parental connection, adult self-acceptance, and adult perceived social integration scores were 3.0 (0.6), 37.5

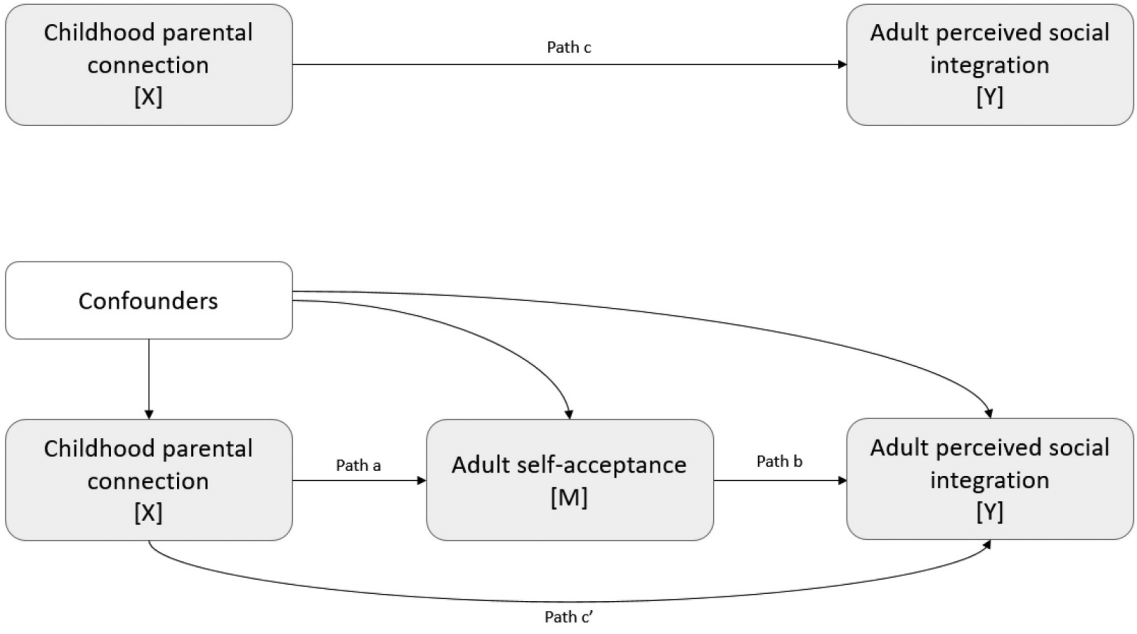

Figure 1. Graphical representation of mediation analysis.

Table 1. Participant characteristics and their association with adult perceived social integration.

		Perceived Social Integration z Score[b]	
Characteristic	No. (%) in Category[a]	Mean (95% CI)	*P* value
All	4149 (100.0)	0.00 (–)	–
Age, years[c]			
<30	125 (3.0)	−0.27 (−0.44, −0.09)	<.001
30–39	621 (15.0)	−0.12 (−0.20, −0.04)	
40–49	848 (20.4)	−0.09 (−0.16, −0.03)	
50–59	969 (23.4)	−0.06 (−0.12, 0.01)	
60–69	968 (23.3)	0.14 (0.08, 0.20)	
≥70	618 (14.9)	0.18 (0.10, 0.25)	
Gender			
Female	2228 (53.7)	0.04 (0.00, 0.08)	.007
Male	1921 (46.3)	−0.04 (−0.09, 0.00)	
Race and ethnicity[d]			
Black, non-Hispanic	226 (5.5)	0.02 (−0.11, 0.15)	.760
Hispanic, any race	160 (3.9)	−0.03 (−0.18, 0.13)	
White, non-Hispanic	3503 (85.1)	0.00 (−0.03, 0.04)	
Other race, non-Hispanic	229 (5.6)	−0.06 (−0.19, 0.07)	
Marital status			
Married	2759 (66.6)	0.07 (0.03, 0.10)	<.001
Divorced or separated	644 (15.6)	−0.21 (−0.28, −0.13)	
Never married	455 (11.0)	−0.18 (−0.27, −0.09)	
Widowed	282 (6.8)	0.11 (0.00, 0.23)	
Current chronic disease score[e]			
0	1316 (31.7)	0.05 (0.00, 0.10)	.017
1	1150 (27.7)	0.02 (−0.04, 0.08)	
2	802 (19.3)	0.00 (−0.07, 0.07)	
3	513 (12.4)	−0.06 (−0.15, 0.02)	
4–9	368 (8.9)	−0.13 (−0.23, −0.03)	
Current socioeconomic disadvantage score[f]			
0–1	783 (19.0)	0.28 (0.21, 0.34)	<.001
2–3	1215 (29.4)	0.10 (0.04, 0.15)	
4–5	1234 (29.9)	−0.02 (−0.08, 0.03)	
6–8	893 (21.6)	−0.33 (−0.40, −0.27)	
Adverse childhood experiences score[g]			
0	1870 (45.1)	0.12 (0.08, 0.17)	<.001
1	1085 (26.2)	0.00 (−0.06, 0.06)	
2	736 (17.7)	−0.11 (−0.19, −0.04)	
3–5	458 (11.0)	−0.32 (−0.41, −0.23)	
Childhood socioeconomic disadvantage score[h]			
0	812 (19.6)	0.12 (0.05, 0.18)	<.001
1	964 (23.2)	0.04 (−0.03, 0.10)	
2	1106 (26.7)	−0.06 (−0.12, 0.00)	
3	800 (19.3)	−0.01 (−0.08, 0.06)	
4–6	467 (11.3)	−0.11 (−0.20, −0.02)	

[a]No. (%) = Percentages may not add to 100.0 across categories of a characteristic due to rounding. Participants were missing data on the following: race and ethnicity (31 cases), marital status (9 cases), and current socioeconomic disadvantage score (24 cases).
[b]*P* value is for *t*-test or one-way analysis of variance assessing the association of participant characteristics with perceived social integration z score.
[c]The combined sample mean (SD) = 53.8 (13.8) years.
[d]Among those who reported on their race, 160 (3.9%) identified as having Hispanic ethnicity. Within each race group, the number of participants who identified as having Hispanic ethnicity was 4 (1.7%) for Black, 73 (2.0%) for White, and 82 (26.4%) for Other.
[e]Score based on having a disease in 0 to 9 categories of chronic disease (cardiovascular, cancer, diabetes, obesity, neurologic, pulmonary, rheumatologic, autoimmune/acquired immune, gastrointestinal).
[f]Score based on four variables (highest level of education, perceived financial situation, enough money to meet needs, and difficulty paying monthly bills). Higher score (possible range 0–8) is more disadvantage.
[g]Score based on exposure to five categories of adverse childhood experiences (emotional abuse, physical abuse, sexual abuse, parental separation or divorce, and household substance abuse).
[h]Score based on three variables (welfare receipt and duration, financial status relative to others, and parental education). Higher score (possible range 0–6) is more disadvantage. For the MIDUS 2 cohort, we used responses collected for these items in MIDUS 1 (1995–1996) because these items were not asked in MIDUS 2 (2004–2006).

(8.4), and 14.4 (4.0), respectively. Zero-order correlations between these three variables were as follows: childhood parental connection and adult self-acceptance ($r = 0.25$, $p < .001$), childhood parental connection and adult perceived social integration ($r = 0.20$, $p < .001$), and adult self-acceptance and adult perceived social integration ($r = 0.43$, $p < .001$). Higher scores for adult perceived social integration were found among those who were older, female, married or widowed, had lower chronic disease burden, had lower current or childhood SED, and had a lower ACE score (Table 1).

After adjustment for all eight covariates, childhood parental connection was positively associated with adult

self-acceptance (path a, β = 0.24 [95% CI, 0.20, 0.27]), and adult self-acceptance was positively associated with adult self-integration (path b, β = 0.37 [95% CI, 0.34, 0.40]) (Figure 2; Table 2). There was a significant indirect effect (path a*b, β = 0.09 [95% CI, 0.07, 0.10]), indicating that adult self-acceptance mediates the association between childhood parental connection and adult perceived social integration. The direct effect of childhood parental connection on adult perceived social integration (path c′) was also significant (β = 0.10 [95% CI, 0.06, 0.13]). The total effect of childhood parental connection on adult self-integration (path c, β = 0.19 [95% CI, 0.15, 0.22]), represents the change (in SD units) in perceived social integration for each 1 SD change in childhood parental connection. The proportion of the total effect of childhood parental connection on adult perceived self-integration mediated by adult self-acceptance is 0.47 (a*b/c or 0.09/0.19). Therefore, around 47% of the effect of childhood parental connection on adult perceived social integration is mediated by adult self-acceptance.

Discussion

In this cross-sectional analysis of survey data obtained from a national sample of approximately 4,100 US adults, we found that adult self-acceptance significantly mediated the association between childhood parental

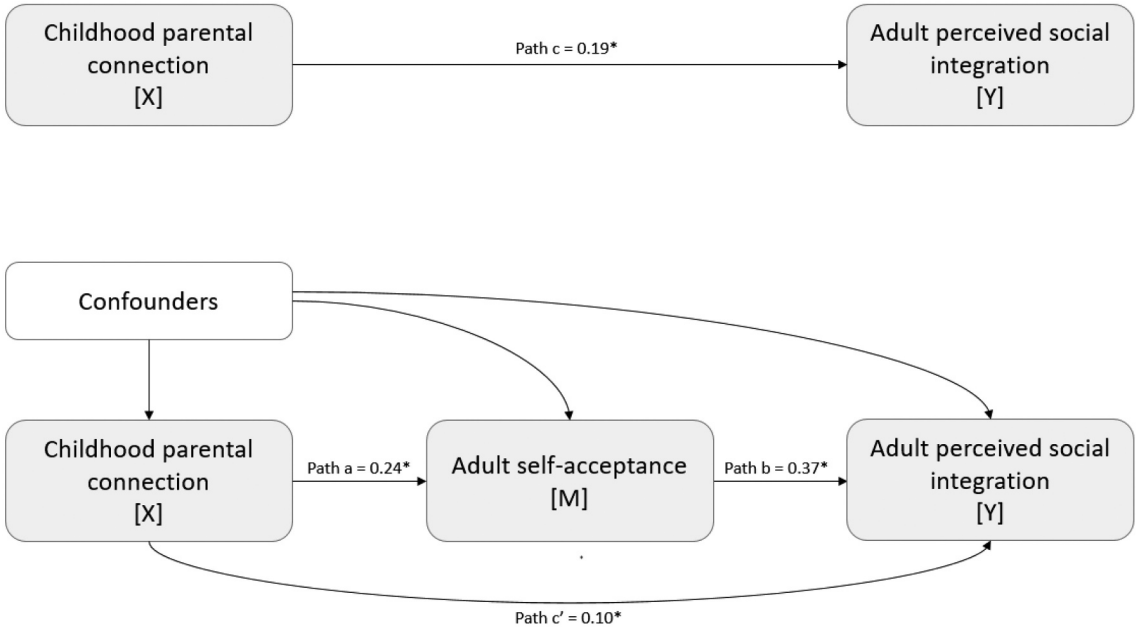

Figure 2. Regression coefficients from mediation analysis. Standardized regression coefficients from mediation analysis, adjusted for age (continuous), gender, race and ethnicity, marital status, current chronic disease score (continuous), current socioeconomic disadvantage score (continuous), adverse childhood experiences score (continuous), and childhood socioeconomic disadvantage score (continuous) [*$p < .001$].

Table 2. Regression coefficients for the mediation effects of adult self-acceptance (M) on the association between childhood parental connection (X) and adult perceived social integration (Y).

		Adult self-acceptance (M)		Adult perceived social integration (Y)	
Effect	Path	Unadjusted model, β (95% CI)	Adjusted model, β (95% CI)[a]	Unadjusted model, β (95% CI)	Adjusted model, β (95% CI)[a]
Effect of X on M	a	0.25 (0.22, 0.28)	0.24 (0.20, 0.27)		
Effect of M on Y	b			0.40 (0.37, 0.43)	0.37 (0.34, 0.40)
Indirect effect of X on Y	a*b			0.10 (0.09, 0.12)	0.09 (0.07, 0.10)
Direct effect of X on Y	c′			0.10 (0.07, 0.12)	0.10 (0.06, 0.13)
Total effect of X on Y	c [a*b + c′]			0.20 (0.17, 0.23)	0.19 (0.15, 0.22)
Indirect effect/total effect	(a*b)/c)*100			50%	47%

[a]$N = 4{,}086$. There was listwise deletion of 63 cases that were missing data on race and ethnicity, marital status, and/or current socioeconomic disadvantage score, which were covariates included in each regression model. Each model adjusted for the following variables: age (continuous), gender, race and ethnicity, marital status, current chronic disease score (continuous), current socioeconomic disadvantage score (continuous), adverse childhood experiences score (continuous), and childhood socioeconomic disadvantage score (continuous). Approximately 21% of the variance in adult perceived self-integration was accounted for by the predictors ($R^2 = .21$).

connection and perceived social integration in adulthood. These findings suggest that adult self-acceptance may be an aspect of positive psychological functioning, which is fostered by close relationships with parents during childhood, and, in turn, promotes perceived social integration in adulthood.

Findings in context

Our study extends the existing literature showing that childhood parental connection is associated with adult measures of both self-acceptance and perceived social integration (An & Cooney, 2006; Chen et al., 2019; Whitaker et al., 2020). Parental connection describes safe, stable, and nurturing relationships (SSNRs) in which the parent or primary caregiver makes the child feel safe, seen, and valued (Garner & Yogman, 2021). Our findings support a mediation mechanism whereby childhood parental connection affects self-acceptance which, in turn, affects perceived social integration. Furthermore, in a study of over 5,600 adult respondents across four countries, among 14 well-being variables, the most central psychological and social well-being variables were self-acceptance and social integration, respectively (Joshanloo, 2021), indicating they may be key dimensions to evaluate in the life course development of well-being.

Limitations

Using a cross-sectional design, we cannot infer causal relationships between childhood parental connection, adult-self acceptance, and adult perceived social integration. Between any two of these variables in our mediation analysis, reverse causality or bidirectional associations cannot be excluded. However, our assumed causal model guiding the mediation analysis was informed by empirical evidence and a theoretical framework supporting the temporal precedence of our model. Additionally, while our adjustment for potential confounders was informed by previous studies, our findings could be influenced by insufficient adjustment for confounding. Our findings are also limited by a potential positivity bias or other forms of common rater bias (Podsakoff et al., 2003). Those who reported greater self-acceptance or greater perceived social integration may have been more likely to recall childhood circumstances more positively or have been more hesitant to share negative experiences; however, recall of positive parental relations is likely to be accurate (Brewin et al., 1993). Lastly, bias may have occurred because participants in each cohort were excluded if they had not completed both the MIDUS phone survey and SAQ.

Implications

Our mediation model is consistent with the idea that social connection in adulthood, of which perceived social integration is one component, arises from a life course developmental process. That process may begin with adult connection during childhood that promotes aspects of positive psychological functioning, such as self-acceptance. Children who experience SSNRs with caring adults can develop healthy, adaptive skills to navigate relational experiences of adversity and opportunity (Feeney & Collins, 2015b; Garner & Yogman, 2021). Relational health has been used as a term to describe the ability of adults to develop SSNRs with children (Garner & Yogman, 2021). These are relationships grounded in love, attunement, and secure attachment. We have proposed that adults with relational health manifest and model for children certain relational capacities, such as awareness of self, acceptance of self, awareness of others, and acceptance of others, which allow children to flourish as individuals and in community (Dearth-Wesley et al., 2023; Whitaker et al., 2023). These relational capacities enable adults to be more fully present with children, characterized by listening with openness and sensitivity, regulating one's own emotions, and affirming the experiences of children (Herman & Whitaker, 2020). When adults can bring this engaged presence and curiosity to the process of children's discovery of themselves, it helps children develop, know, and accept their authentic selves (Cozolino, 2014). Adults who create SSNRs with children through relational health create an emotional climate of psychological safety and belonging. Parents can do this at home and teachers can do this at school, and in doing so, allow early opportunities for perceived social integration in the community of family and school, respectively.

Parenting programs can support parents or caregivers in strengthening their relational capacities (Willis et al., 2024). Programs, such as Circle of Security, have been shown to help parents or caregivers have less self-judgement, more self-compassion, and a greater responsiveness to their child's emotional cues and needs (Helle et al., 2023; Yaholkoski et al., 2016). In addition to such parenting programs, there are specific evidence-based relational strategies, such as those in the Developmental Relationships Framework (Scales et al., 2022) to support not only parents, but teachers and other adults who work with children, in nurturing SSNRs. Some of these strategies include expressing care (e.g. 'show me you enjoy being with me'), providing support (e.g. 'guide me through hard situations and systems'), and challenging growth (e.g. 'expect me to live up to my potential')

(Li & Julian, 2012; Scales et al., 2022). These strategies contribute to a child being seen and valued by adults in full view of the child's life experience and developing identity. Over time, children learn to recognize their unique abilities, how their lives are shaped by these abilities, and how these abilities may contribute to community.

Little is known about if or how intervening with specific parenting programs or relational strategies impact self-acceptance in the developing child. Improved understanding regarding the development of self-acceptance could be obtained through child assessments in quantitative or qualitative evaluations of these interventions. Future research on the life course development of self-acceptance could also examine how adults outside the home, such as teachers, might influence self-acceptance and how this in turn could impact the communities in which children belong, such as schools. The mediation model we assessed could also be examined earlier in the life course. For example, future research could examine the emergence and development of self-acceptance and social integration within the context of the family or school community, along with the role that parent-child or teacher-child connection plays in in this developmental process. Research on the determinants of social connection across the life course might examine how intervening to enhance aspects of positive psychological functioning, such as self-acceptance, might foster greater social integration within communities. While there is evidence that self-acceptance is modifiable (van Dierendonck & Lam, 2023), future research may also need to address some hypothesized barriers to developing or increasing self-acceptance, which include low self-compassion, low reflective capacity, or an uncertain identity, some of which may stem from parental neglect (Fonagy & Target, 1997; Gilbert, 2014).

Conclusion

Using data from a cross-sectional study of US adults, we have shown that adult self-acceptance significantly mediates the association between childhood parental connection and adult perceived social integration. This finding suggests that one aspect of positive psychological functioning, self-acceptance, may help to explain an underlying mechanism behind this association. This yields new understanding and support for efforts to strengthen social connection and consequently a potential antidote to the public health epidemic of loneliness.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. Publically available data from the MIDUS study were used for this research. Since 1995, the MIDUS study has been funded by the following: John D. and Catherine T. MacArthur Foundation Research Network, National Institute on Aging [P01-AG020166] and National Institute on Aging [U19-AG051426].

Data availability statement

The data that support the findings of this study are openly available at the Inter-University Consortium for Political and Social Research: MIDUS II at https://doi.org/10.3886/ICPSR04652.v7; and MIDUS Refresher at https://doi.org/10.3886/ICPSR36532.v3.

References

Allen, K. A., Kern, M. L., Rozek, C. S., McInereney, D., & Slavich, G. M. (2021). Belonging: A review of conceptual issues, an integrative framework, and directions for future research. *Australian Journal of Psychology*, *73*(1), 87–102. https://doi.org/10.1080/00049530.2021.1883409

An, J. S., & Cooney, T. M. (2006). Psychological well-being in mid to late life: The role of generativity development and parent-child relationships across the lifespan. *International Journal of Behavioral Development*, *30*(5), 410–421. https://doi.org/10.1177/0165025406071489

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality & Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, *51*(6), 843–857. https://doi.org/10.1016/s0277-9536(00)00065-4

Brewin, C. R., Andrews, B., & Gotlib, I. H. (1993). Psychopathology and early experience: A reappraisal of retrospective reports. *Psychological Bulletin*, *113*(1), 82–98. https://doi.org/10.1037/0033-2909.113.1.82

Brissette, I., Cohen, S., & Seeman, T. E. (2000). Measuring social integration and social networks. In S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social scientists*. Oxford University Press. https://doi.org/10.1093/med:psych/9780195126709.003.0003

Cashin, A., McAuley, J. H., VanderWeele, T. J., & Lee, H. (2023). Understanding how health interventions or exposures produce their effects using mediation analysis. *The British Medical Journal*, *382*, e071757. https://doi.org/10.1136/bmj-2022-071757

Chen, Y., Kubzansky, L. D., & VanderWeele, T. J. (2019). Parental warmth and flourishing in mid-life. *Social Science & Medicine*, *220*, 65–72. https://doi.org/10.1016/j.socscimed.2018.10.026

Cozolino, L. J. (2014). *The neuroscience of human relationships: Attachment and the developing social brain* (2nd ed. ed.). W. W. Norton & Company.

Dearth-Wesley, T., Herman, A. N., & Whitaker, R. C. (2023). Teacher connection and student perspective-taking and their association with school belonging among adolescents in 62 countries. *International Journal of Adolescence and Youth*, *28*(1), 2254136. https://doi.org/10.1080/02673843.2023.2254136

Feeney, B. C., & Collins, N. L. (2015a). A new look at social support: A theoretical perspective on thriving through relationships. *Personality and Social Psychology Review*, *19*(2), 113–147. https://doi.org/10.1177/1088868314544222

Feeney, B. C., & Collins, N. L. (2015b). Thriving through relationships. *Current Opinion in Psychology*, *1*, 22–28. https://doi.org/10.1016/j.copsyc.2014.11.001

Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development & Psychopathology*, *9*(4), 679–700. https://doi.org/10.1017/s0954579497001399

Garner, A., & Yogman, M. (2021). Preventing childhood toxic stress: Partnering with families and communities to promote relational health. *Pediatrics*, *148*(2), e2021052582. https://doi.org/10.1542/peds.2021-052582

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology*, *53*(1), 6–41. https://doi.org/10.1111/bjc.12043

Helle, J., Vøllestad, J., Schanche, E., & Hjelen Stige, S. (2023). From seeing difficult behaviour to recognizing legitimate needs - a qualitative study of mothers' experiences of participating in a Circle of Security Parenting program in a public mental health setting. *Psychotherapy Research*, *33*(4), 482–493. https://doi.org/10.1080/10503307.2022.2132888

Herman, A. N., & Whitaker, R. C. (2020). Reconciling mixed messages from mixed methods: A randomized trial of a professional development course to increase trauma-informed care. *Child Abuse and Neglect*, *101*, 104349. https://doi.org/10.1016/j.chiabu.2019.104349

Holt-Lunstad, J. (2022). Social Connection as a public health issue: The evidence and a systemic framework for prioritizing the "social" in social determinants of health. *Annual Review of Public Health*, *43*, 193–213. https://doi.org/10.1146/annurev-publhealth-052020-110732

Holt-Lunstad, J., & M, L. (2021). Social integration. In D. M. G. D (Ed.), *Encyclopedia of gerontology and population aging*. Springer Cham. https://doi.org/10.1007/978-3-030-22009-9

Holt-Lunstad, J., Smith, T. B., Layton, J. B., & Brayne, C. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine*, *7*(7), e1000316. https://doi.org/10.1371/journal.pmed.1000316

Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, *15*(6), 1425–1456. https://doi.org/10.1007/s10902-013-9485-0

Joshanloo, M. (2021). Centrality and dimensionality of 14 indicators of mental well-being in four countries: Developing an integrative framework to guide theorizing and measurement. *Social Indicators Research*, *158*(2), 727–750. https://doi.org/10.1007/s11205-021-02723-6

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, *61*(2), 121–140. https://doi.org/10.2307/2787065

Keyes, C. L. M., & Shapiro, A. D. (2004). Social well-being in the United States: A descriptive epidemiology. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we?: A national study of well-being at midlife* (pp. 350–372). The University of Chicago Press.

Leary, M. R. (2021). The need to belong, the sociometer, and the pursuit of relational value: Unfinished business. *Self and Identity*, *20*(1), 126–143. https://doi.org/10.1080/15298868.2020.1779120

Lee, H., Cashin, A. G., Lamb, S. E., Hopewell, S., Vansteelandt, S., VanderWeele, T. J., MacKinnon, D. P., Mansell, G., Collins, G. S., Golub, R. M., McAuley, J. H., Localio, A., van Amelsvoort, L., Guallar, E., Rijnhart, J., Goldsmith, K., Fairchild, A. J., Lewis, C. C. … Williams, C. M. (2021). A guideline for reporting mediation analyses of randomized trials and observational studies: The AGReMA statement. *JAMA*, *326*(11), 1045–1056. https://doi.org/10.1001/jama.2021.14075

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*, *152*, 157–171. https://doi.org/10.1016/j.puhe.2017.07.035

Li, J., & Julian, M. M. (2012). Developmental relationships as the active ingredient: A unifying working hypothesis of "what works" across intervention settings. *The American Journal of Orthopsychiatry*, *82*(2), 157. https://doi.org/10.1111/j.1939-0025.2012.01151.x

Lyu, C., Siu, K., Xu, I., Osman, I., & Zhong, J. (2024). Social isolation changes and long-term outcomes among older adults. *JAMA Network Open*, *7*(7), e2424519–e2424519. https://doi.org/10.1001/jamanetworkopen.2024.24519

Masi, C. M., Chen, H. Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, *15*(3), 219–266. https://doi.org/10.1177/1088868310377394

Moran, K. M., Turiano, N. A., & Gentzler, A. L. (2018). Parental warmth during childhood predicts coping and well-being in adulthood. *Journal of Family Psychology*, *32*(5), 610–621. https://doi.org/10.1037/fam0000401

Office of the Surgeon General. (2023). *Our epidemic of loneliness and isolation: The U.S. Surgeon general's advisory on the healing effects of social connection and community*. US Department of Health and Human Services. Retrieved June 17, 2024, from https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Rossi, A. (2001). *Caring and doing for others: Social responsibility in the domains of family, work, and community*. The University of Chicago Press.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*(1), 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality & Social Psychology*, *57*(6), 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, *9*(1), 13–39. https://doi.org/10.1007/s10902-006-9019-0

Scales, P. C., Roehlkepartain, E. C., & Houltberg, B. J. (2022). *The elements of developmental relationships: A review of selected research underlying the framework*. Retrieved June 17, 2024, from https://www.search-institute.org/wp-content/uploads/2022/09/ElementsofDevelopmentalRelationships-FINAL.pdf

University of Wisconsin - Madison, Institute on Aging. (2011). *History & overview of MIDUS*. Retrieved June 17, 2024, from http://midus.wisc.edu/scopeofstudy.php#History

van Dierendonck, D., & Lam, H. (2023). Interventions to enhance eudaemonic psychological well-being: A meta-analytic review with Ryff's scales of psychological well-being. *Applied Psychology Health and Well-Being*, *15*(2), 594–610. https://doi.org/10.1111/aphw.12398

Whitaker, R. C., Dearth-Wesley, T., & Herman, A. N. (2021). Childhood family connection and adult flourishing: Associations across levels of childhood adversity. *Academic Pediatrics*, *21*(8), 1380–1387. https://doi.org/10.1016/j.acap.2021.03.002

Whitaker, R. C., Dearth-Wesley, T., Herman, A. N., Nagel, K. E., Smith, H. G., & Weil, H. F. C. (2020). Association of childhood family connection with flourishing in young adulthood among those with type 1 diabetes. *JAMA Network Open*, *3*(3), e200427–e200427. https://doi.org/10.1001/jamanetworkopen.2020.0427

Whitaker, R. C., Herman, A. N., & Dearth-Wesley, T. (2023). Relational health as a pathway from trauma to flourishing in school communities. *The Journal of School Health*, *93*(7), 628–637. https://doi.org/10.1111/josh.13282

Willis, D. W., Johnson, K., & Paradis, N. (2024). The paradigm shift to early relational health: From disease prevention to promotion of optimal development. In J. D. Osofsky, H. E. Fitzgerald, M. Keren, & K. Puura (Eds.), *WAIMH Handbook of infant and early childhood mental health: Cultural context, prevention, intervention, and treatment, volume two* (pp. 373–391). Springer International Publishing. https://doi.org/10.1007/978-3-031-48631-9_24

Yaholkoski, A., Hurl, K., & Theule, J. (2016). Efficacy of the circle of security intervention: A meta-analysis. *Journal of Infant Child, & Adolescent Psychotherapy*, *15*(2), 95–103. https://doi.org/10.1080/15289168.2016.1163161

Zagic, D., Wuthrich, V. M., Rapee, R. M., & Wolters, N. (2022). Interventions to improve social connections: A systematic review and meta-analysis. *Social Psychiatry & Psychiatric Epidemiology*, *57*(5), 885–906. https://doi.org/10.1007/s00127-021-02191-w