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ARTICLE

# School belonging and adult outcomes: Exploring the predictive power of SOBAS for flourishing

**Jonathan Eckert · Hannah Kapitaniuk · Albert Cheng · Lynn Swaner**

**Abstract:** A sense of belonging at school (SOBAS), or students' feelings of being accepted, respected, and supported in the school environment, is consistently linked to positive outcomes for students. Individuals flourish within communities (VanderWeele et al., 2023), and belonging is an essential component of flourishing (Carter, 2021). Guided by Bronfenbrenner's Bio-ecological Systems Theory and building on the conceptualization of flourishing from VanderWeele as embedded in the context of community, this paper focuses on SOBAS as the quality of students' relationships and social connections within the school community, examining the long-term impact of perceptions of SOBAS as a high school student on adult flourishing. Four univariate general linear models (GLMs) are used to assess the predictive value of SOBAS for flourishing as measured by life satisfaction, enhanced mental health, civic engagement, and educational attainment. Results revealed that higher levels of SOBAS in youth were significantly associated with greater life satisfaction, stronger mental health, and higher educational attainment in adulthood. However, the relationship between SOBAS and civic engagement was not significant. These findings underscore the value of fostering belonging during formative school years, suggesting that promoting communities of belonging in school yields benefits that extend well into adulthood. The consistent positive associations between SOBAS and key outcomes in adulthood highlight the critical role schools play in supporting flourishing.

**Keywords:** school belonging, flourishing, life satisfaction, mental health, adult outcomes

## 1. Introduction

Adults' perceptions of their experience of high school can be valuable data for better understanding school contribution to flourishing individuals. Flourishing is multi-faceted, contextualized and flourishing communities are composed of flourishing individuals. One aspect of flourishing that seems essential to both communities and individuals is a sense of belonging. In the United States, belonging at school could be foundational. Specifically, how does sense of belonging at school (SOBAS) relate to future wellbeing?

To study adult perceptions of SOBAS and their relative wellbeing, we collected a nationally representative sample of 24-39-year-olds in the United States. We asked them about their sense of belonging in high school and then examined educational attainment, life satisfaction, mental wellbeing, and civic engagement as measures of wellbeing.

### *1.2 Literature review*

Many contemporary educational philosophers have rearticulated the argument, as early as Aristotle, that the purpose of education is to promote human flourishing (Curren et al., 2024).

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While wellbeing in schools is primarily understood as a property of an individual, flourishing is situated in a context and is a collective property of multiple individuals within a community (VanderWeele et al. 2025). VanderWeele et al. (2025) advance the foundational, five-domain concept of flourishing outlined in VanderWeele (2017) to include seven domains of flourishing: physical, emotional, cognitive, volitional, social, material, and spiritual. Flourishing is "the relative attainment of a state in which all aspects of a person's life are good, including the contexts in which that person lives" (VanderWeele et al., 2025, p. 1). Close social relationships are linked to individual wellbeing outcomes as well, including a 50% greater likelihood of survival (i.e., lower mortality rate) compared to those with poor or insufficient social relationship, after accounting for age, sex, initial health status, cause of death, and follow up period (Hold-Lunstad et al., 2010). However, the contribution of close social relationships to flourishing extends the concept of improved wellbeing from solely the state of the individual to that of the community and the interactive systems within which individuals live.

Flourishing, then, is not merely the sum total of individual-level flourishing for members of the community (VanderWeele et al., 2023). It also requires that all aspects of the individuals' environments are good and in harmony with one another (VanderWeele et al., 2025). In other words, at least in the United States, when it comes to schools, students cannot be said to be flourishing even if their peers, teachers, and other members of the school community are not individually flourishing themselves (VanderWeele & Hinton, 2024).

Understood that way, several indicators suggest that today's schoolchildren are not flourishing (VanderWeele et al., 2025). School closures and other COVID-19 pandemic challenges exacerbated long-standing mental health challenges, including increased rates of youth suicide and reported incidences and prevalence of depression and anxiety (Bridge et al., 2023; Xiang et al., 2024; Zhu et al., 2025). A survey of more than 1,000 students between the ages of 12 and 18 found that fewer than half feel motivated to attend school and lacked a sense of purpose (Bay, 2024). Community-level indicators, such as social connectedness within school communities and the flourishing of other individuals within the school community, are not any more encouraging. One survey found that only one in four high school students strongly agreed that the adults at school cared about them (Calderon, 2017), an especially alarming finding given the established connection between feelings of connectedness with someone at school and more positive mental health outcomes (Jones et al, 2022). Teachers and other adults, themselves, are consistently facing burnout, often due to poor school climates and a perception of collective exhaustion (Madigan et al., 2023; Mijakoski et al., 2022).

Building on the conceptualization of flourishing from VanderWeele as embedded in the context of community (VanderWeele, 2017; VanderWeele & Hinton, 2024; VanderWeele & Lomas, 2023; VanderWeele et al., 2023; VanderWeele et al., 2025), this paper focuses on one constitutive aspect of students' flourishing: the quality of their relationships and social connections within the school community. This focus contributes to the existing literature around the positive effects of high-quality relationships on childhood, such as the link between relationships with a child's mother and father and flourishing in adulthood (VanderWeele et al., 2025), by examining the sense of belonging at school (SOBAS). SOBAS is defined by Goodenow and Grady (1993) as the "extent to which [students] feel personally accepted, respected, included, and supported by others—especially teachers and other adults in the school social environment" (p. 60-61). Much of the empirical research of SOBAS examines how it potentially affects student outcomes such as academic achievement, behavior, mental health, and engagement in school, concluding that SOBAS is beneficial for students in terms of those outcomes (Gunnes et al., 2024; National Center for Education Statistics, 2022).

Often, studies preclude researchers from considering whether SOBAS has longer-term effects that persist past high school graduation into adulthood, because they are conducted using data that are cross-sectional or for other reasons (e.g., Gunnes et al., 2024; National Center for Educational Statistics, 2022). Yet there are a few exceptions: some longitudinal studies that consider whether social connectedness in school during adolescence is predictive of various mental health outcomes, sexual activity, and drug-use among individuals in their late twenties to early forties (Allen et al., 2024; Nyberg et al., 2019; Steiner et al., 2019). This study contributes to the limited body of research literature on the long-term effects of SOBAS, while also considering a broader range of outcomes beyond mental health, including civic engagement and educational attainment. Findings suggest that SOBAS during adolescence is linked not only to mental health outcomes but also to other outcomes in young adulthood.

### *1.2.1 Sense of belonging at school*

In his research on students with intellectual and developmental disabilities, Erik Carter contends that students flourish most when they feel they belong in a community. Carter defines belonging as "the assurance of acceptance and value within a particular group. Belonging is often described as having elements of intimacy, connectedness, membership, commitment, solidarity, or reciprocity... We all need to belong—somewhere and to someone" (Carter, 2021, p. 16). This sense of connection to school (or lack thereof) is conceptualized in the literature as a sense of belonging in the school or classroom. The most important indicators of school belonging are a sense of "inclusion," "acceptance," "connection," "respect," and "positive relation to other students" (Sakellariou, 2024). This sense of belonging at school (SOBAS) has two important dimensions: a sense of belonging to the school and a sense of belonging to peer groups (Won et al., 2018).

SOBAS involves five main factors: relationships in school, school climate, pedagogical practices, and programs (Pendergast et al., 2018). Studies suggest that among the five factors, students' relationships with their peers and teachers are the strongest predictor of students' sense of belonging (Chiu et al., 2016; Štremfel et al., 2024). Teacher-student relationship quality (TSRQ) is enhanced through "highly affective, democratic, and supportive" connections between teachers and students (Ibrahim & El Zaatari, 2020, p. 384). In a study of students ages 16-18 in Greece, the same sentiment arose, with "communication, respect and inclusion, support to become involved in the school community, and classroom structure" emerging as the factors that improved student SOBAS (Tate et al., 2024, p. 1179).

### *1.2.2 Bronfenbrenner's Bio-ecological Systems Theory*

Bronfenbrenner's Bio-ecological Systems Theory (BST) posits that "multiperson systems of interaction not limited to a single setting" and "aspects of the environment beyond the immediate situation containing the subject" must be taken into consideration when exploring the nature of human development (Bronfenbrenner, 1977, p. 513). In light of the numerous interconnected factors that characterize SOBAS, his conception of the ecology of human development provides a lens through which to view the interactions that result in the development of a sense of belonging and the subsequent, overarching development of a person. A systematic review of SOBAS-related literature suggests that because SOBAS is a multi-factor construct, with these factors existing at different environmental levels, it aligns with Bronfenbrenner's theory, which outlines the existence of microsystems, mesosystems, exosytems, macrosystems, and chronosystems (Trajković et al., 2023). Each student is shaped by the interaction of these systems, all of which are present in schools (Allen et al., 2016).

Bronfenbrenner's theory has evolved over the years, with later forms of BST emphasizing the Process-Person-Context-Time (PPCT) model (Tudge et al., 2009). The PPCT model suggests that proximal processes are the "core of the model" and encompass "particular forms of interactions between organism and environment…that operate over time and are posited as the primary mechanisms producing human development" (Bronfenbrenner & Morris, 2006, p. 795). These interactions, which are central to this theory, mutually impact and are impacted by the person (their biology, personality, and other characteristics), the context (the series of systems), and time (Bronfenbrenner & Morris, 2006).

One helpful way to characterize the interactions within the PPCT model is through the lens of self-determination theory, which identifies three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2017). Relatedness is a sense of connectedness with people, and competence refers to the experience of efficacy and mastery (Deci & Ryan, 2017). Autonomy, in a general sense, refers to the "experience of behavior as volitional and reflectively self-endorsed" (Niemiec & Ryan, 2009, p. 135). Within the PCCT model, when people's interactions meet these three psychological needs, a sense of belonging is more likely to be developed.

### *1.2.3 Sense of belonging at school and student outcomes*

The literature suggests a through line between the PPCT model, sense of belonging, and positive outcomes for students (Allen et al., 2016). The PPCT model, "with all the interactions between people, processes, context, and time, can explain the different factors that can collectively influence a student's sense of belonging to their school," which research demonstrated is connected positive outcomes for students, including academic performance and overall wellbeing (El Zaatari & Maalouf, 2022, p. 14). In fact, a strong sense of belonging has a strong relationship with self-reported meaning in life, which leads to the pursuit of collective goals (Lambert et al., 2013). It is also positively associated with improved mental health outcomes, including mental health in adulthood (Allen et al., 2024; Gopalan & Brady, 2020; Nyberg et al., 2019; Steiner et al., 2019). School belonging is a protective and contributive factor for student wellbeing (Arslan, 2022). It is logical, then, that students who feel more connected in school are also less likely to use substances, experience emotional distress, or behave violently (Blum, 2005). Additionally, a sense of belonging at school has critical implications for addressing inequity in school. In a study of over 70,000 students in 131 schools, findings demonstrated that "the likelihood of Black students being suspended relative to White students [became] statistically nonsignificant in schools in which Black students perceived higher levels of school belonging than their White peers" (Fisher et al., 2020, p. 1495-1496). Moreover, for students who are racial or ethnic minorities and are academically at risk, Song et al. (2024) found that a strong SOBAS seems to be one factor that contributes to the connection between racial/ethnic identity and positive school adjustment and function outcomes.

With regard to academic performance, SOBAS contributes positively in several ways. A sense of belonging is associated with the use of self-regulated learning strategies, including metacognitive strategies and effective academic time management (Nicol & McCallum, 2022). It is also associated with academic help-seeking strategies (Won et al., 2021). Furthermore, SOBAS may make it more likely that students engage in "academic hardiness," or "the ability to incorporate three components—commitment, control, and challenge—to achieve academic excellence" (Abdollahi & Noltemeyer, 2018, p. 345). Students with a greater sense of belonging at school have also been found to exhibit more positive emotions, which contributes to academic success (Fong Lam et al., 2015). Engagement improves as well: the Gallup Student Poll, based on

responses from more than 3,000 schools around the United States, found that having a best friend at school is the best predictor of student engagement (Brooks, 2021). When considering academic hardiness, positive emotions, increased overall engagement, and other positive associations, the connection between SOBAS and self-determination theory becomes apparent, as the satisfaction of students' needs for relatedness, autonomy, and competence contributes to SOBAS (Deci & Ryan, 2017).

Overall, relationship quality has a significant, positive correlation with academic success, and it is students' relationships with their peers that are most closely correlated (Sakellariou, 2024). Students' relationships with their teachers are also significant. A study of over 2,000 students from 18 different high schools found that an increase in the number of positive relationships with teachers significantly predicted greater school engagement (Martin & Collie, 2019). Positive relationships are connected to both engagement and improvement over time, including greater participation in school activities, fewer negative emotions, and subsequently, more opportunities for success in school (Furrer & Skinner, 2003). A study of at-risk students in Texas found this same connection: the quality of teacher-student relationships in the first grade "shapes children's patterns of engagement in learning, which leads both to more supportive relationships with subsequent teachers and to higher levels of achievement" (Hughes et al., 2008, p. 11). When combined, TSRQ and peer relationships create a sense of school belonging that has a positive relationship with academic achievement (Uslu Gülşen, 2024). The reverse is also true: if SOBAS is absent or lacking, the result may be "lowered motivation, less active engagement, and ultimately diminished academic achievement or even school withdrawal" (Goodenow & Grady, 1993, p. 70).

Guided by Bronfenbrenner's Bio-ecological Systems Theory, this paper's overarching hypothesis is that strong SOBAS enhances the likelihood of flourishing in adulthood. Because individuals flourish within communities (VanderWeele et al., 2023) and belonging is an essential component of flourishing (Carter, 2021), students are well in part because they have a sense of belonging. Our theory is that SOBAS not only has short-term effects on students as prior research has demonstrated but in the long-run, increases the likelihood of flourishing in adulthood as measured by educational attainment, life satisfaction, enhanced mental health, and civic engagement. Certainly, there are additional indicators of flourishing, but these four are key outcomes measured by our survey and are likely to contribute to a flourishing life. In fact, our objective is to add to the small existing literature on the longer-run effects of SOBAS by examining those four outcomes, which that literature did not consider (Allen et al., 2024; Nyberg et al., 2019; Steiner et al., 2019).

While there are studies connecting SOBAS to educational attainment (Gillen-O'Neel & Fuligni, 2013; Goodenow, 1993; Hughes et al., 2015) with alphas of .80-.90, there are less studies on life satisfaction (Allen et al., 2024; Tian et al., 2016), mental wellbeing (Raniti et al., 2022), and civic engagement (Flanagan et al., 2007; Guillaume et al., 2015). Although these are strong studies and meta-analyses, they do not typically track data in adulthood and primarily focus on effects on students. We will connect SOBAS to adult outcomes in this study.

### *1.3 Present study*

Our research question is:

> What is the relationship, if any, between sense of belonging in high school and key outcomes in adulthood?

The key outcomes we explore are educational attainment, life satisfaction, mental wellbeing, and civic engagement.

## 2. Methods

### *2.1 Data and sample*

Data for this study was drawn from the 2023 Cardus Education Survey (CES), which was conducted with high school graduates in 2023 from October 10 through October 22 by the polling firm Ipsos Public Affairs using its KnowledgePanel®. The KnowledgePanel® is the largest online panel in the U.S. and uses probability-based sampling techniques to obtain a representative sample of adults in the U.S. For the CES, the target population comprised 2350 U.S. adults aged 24 through 39 who completed their education through high school.

### *2.2 Measures*

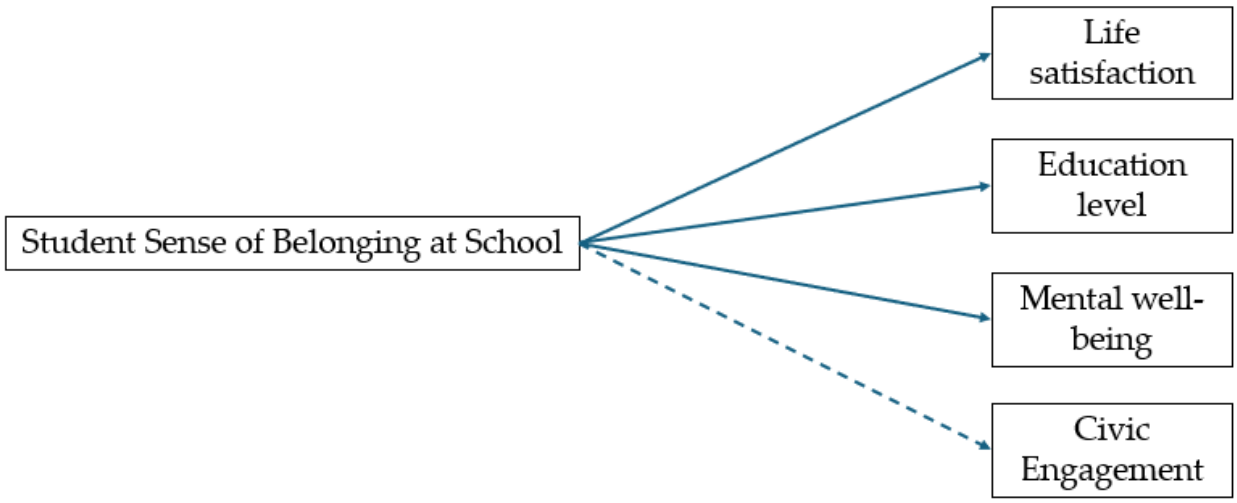
#### *2.2.1 Survey*

The CES consists of 80 items that identify outcomes for adults from various types of school backgrounds. The KnowledgePanel® stores demographic data on respondents and allows for nationally representative sampling of high school graduates. The survey is organized around perceptions of high school, mental health outcomes, life satisfaction, labor market outcomes including educational attainment, personal values, spirituality, family status, and civic engagement.

#### *2.2.2 Outcomes*

We explored four outcomes that we hypothesized might be related to belonging in high school, as shown in the theoretical framework (Figure 1): educational attainment, life satisfaction, mental wellbeing, and civic engagement, as measured by the rate of volunteerism. Educational attainment was measured via a single question on the survey, "What is the highest level of school you have completed?" Participants selected high school graduate, some college, no degree, Associate's degree, Bachelor's degree, Master's degree, professional or doctoral degree, and some high school or less.

**Figure 1.** Theoretical Framework: Belonging as a component of flourishing



Civic engagement was also measured via a single question on the survey, "Within the last 12 months, how often have you done any unpaid volunteer work?" Participants selected the frequency, ranging from only once to a few times a week, with assigned values from one to six, respectively.

Life satisfaction and mental wellbeing were both variables computed from a construct. The life satisfaction variable was measured with Diener et al.'s "Satisfaction With Life Scale (SWLS), which consists of five questions that asked participants to rate their degree of agreement on a Likert scale, ranging from one (strongly disagree) to five (strongly agree), with higher scores indicating greater life satisfaction (Diener et al. 1985). The five survey questions are:

1. In most ways, my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far, I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Based on a confirmatory factor analysis, internal consistency for the life satisfaction scale was high (Cronbach's $\alpha$ = .92).

The mental wellbeing variable consisted of eight questions that asked participants to either rate their degree of agreement on a Likert scale, ranging from one (strongly disagree) to five (strongly agree), with higher scores indicating lower mental wellbeing. The survey items are below:

1. Over the last seven days, how often have you been bothered by:
2. Having little interest or pleasure in doing things?
3. Feeling down, depressed, or hopeless?
4. Feeling nervous, anxious, or on edge?
5. Not being able to stop or control worrying?

How much do you agree or disagree with the following statements:

1. I often feel helpless in dealing with the problems of life.
2. My life often seems to lack any clear goals or sense of direction.
3. I have so much in life to be thankful for.
4. When I think about the future, I am positive.

For items seven and eight, the scale was inverted so that they could be appropriately reported at the construct level. Based on a confirmatory factor analysis, internal consistency for the mental wellbeing scale was high (Cronbach's $\alpha$ = .89).

### *2.2.3 Covariates*

For the purposes of our study, we examined the sense of belonging in high school as a moderator of our four outcomes. The sense of belonging variable comprised six questions that asked participants to rate their degree of agreement on a Likert scale, ranging from one (strongly disagree) to five (strongly agree), with higher scores indicating a greater sense of belonging. The survey items are below:

How much do you agree or disagree with the following statements about your high school? If you attended more than one high school, please consider the high school that you attended longest.

1. My school was a close-knit community.
2. The teachers really cared about the students.
3. I enjoyed being a student at my school.
4. I felt like I belonged at my school.

We'd like to hear about how you felt about your high school experience. How favorably or unfavorably did you feel about the following features of your high school? If you attended more than one high school, please consider the high school that you attended longest.

1. Your relationship with your teachers
2. Your relationship with other students at the school

Based on a confirmatory factor analysis, internal consistency for the sense of belonging was high (Cronbach's $\alpha$ = .88)

In addition, our analysis considered demographic, socioeconomic, and psychosocial variables as covariates: gender, age, race/ethnicity, marital status, household income, housing type, ownership status of living quarters, region, state, employment status, number of children in the household, and number of adults in the household.

*2.3 Data analysis*

We conducted four univariate general linear models (GLMs) to examine the association between a set of demographic and psychosocial predictors and each of the four continuous outcome variables: educational attainment, mental wellbeing, life satisfaction, and civic engagement. The categorical predictors, listed as fixed factors in the models, included age category, race/ethnicity, gender, household size, housing type, income category, marital status, region, state, rental status, employment status, number of adults in the household, and number of children in the household. Sense of belonging, a continuous predictor, was listed as a covariate in each model. Each model was estimated separately to assess the unique contribution of each predictor to each outcome, with particular interest in the role of sense of belonging.

Analyses were conducted using R (Version 2024.09.1+394) with the *car* and *effectsize* packages. The total eta-squared for the overall model was estimated, and partial eta-squared ($\eta^2_P$) was used to evaluate effect sizes. Residual plots were visually inspected to assess the tenability of model assumptions, including linearity, normality, and homoscedasticity. To address issues of multicollinearity and aliased coefficients, unused factor levels were dropped prior to model estimation using the *droplevels()* function.

## 3. Results

Descriptive statistics for the four outcome variables are presented in Table 1. Educational attainment (measured on a scale from 1 to 5 with 1 representing less than high school and 5 representing a terminal degree) had a mean of 11.33 (SD = 1.50). Life satisfaction had a mean of 4.03 (SD = 1.26), and mental wellbeing had a mean of 2.30 (SD = 1.01), with higher values indicating poorer mental health. Civic engagement, measured as frequency of unpaid volunteer activity within the last 12 months, had a mean of 2.99 (SD = 1.47). The key predictor of interest, sense of belonging in high school, had a mean of 3.74 (SD = 0.90).

**Table 1.** *Descriptive statistics*

| Variable | N | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|---|
| Educational Attainment | 2350 | 1.0 | 5.0 | 3.33 | 1.50 |
| Life Satisfaction | 2327 | 1.0 | 6.0 | 4.03 | 1.26 |
| Mental Wellbeing | 2332 | 1.0 | 5.5 | 2.30 | 1.01 |
| Civic Engagement | 735 | 1.0 | 6.0 | 2.99 | 1.47 |
| Sense of Belonging | 2339 | 1.0 | 6.0 | 3.74 | 0.90 |

*3.1 Educational attainment*

The overall model was significant, $F(15, 1563) = 31.50$, $p < .001$, with a total eta-squared of 0.43, indicating a large effect size (Cohen, 1988). This suggests that, collectively, the predictors explain a substantial proportion of the variance in educational attainment. Sense of belonging was a strong predictor of educational attainment, $F(1, 2284) = 22.08$, $p < .001$, with a partial eta-squared of 0.014, indicating a small effect size (see Table 2 below) (Cohen, 1988). The 95% one-sided confidence interval around this effect size yielded a lower bound of 0.03, suggesting the effect is reliably greater than zero, though modest in magnitude (see Appendix A). After accounting for demographic characteristics, individuals who reported higher levels of belonging in high school also tended to report higher educational attainment.

Standardized estimates indicated that a one standard deviation increase in sense of belonging was associated with a $\beta = 0.10$ increase in educational attainment (95% CI [0.06, 0.14]). Full regression coefficients are provided in Appendix A, and the corresponding marginal-effects plot illustrating the shape of the association is included in Appendix B. As shown in the marginal-effect plot in Appendix B, predicted educational attainment increases steadily across the observed range of belonging, with no evidence of nonlinearity or threshold effects.

**Table 2.** *GLM results for educational attainment*

| Predictor | F | df | p | Partial $\eta^2$ |
|---|---|---|---|---|
| Age | 0.93 | 15, 2284 | 0.531 | 0.007 |
| Race/Ethnicity | 2.68 | 4, 2284 | 0.031 | 0.010 |
| Gender | 0.78 | 1, 2284 | 0.379 | 0.001 |
| Household Size | 17.29 | 1, 2284 | < .001 | 0.011 |
| Housing Type | 3.13 | 3, 2284 | 0.025 | 0.007 |
| Income | 25.17 | 6, 2284 | < .001 | 0.074 |
| Marital Status | 4.98 | 4, 2284 | < .001 | 0.013 |
| Region | 2.39 | 3, 2284 | 0.067 | 0.005 |
| Rental Status | 1.22 | 2, 2284 | 0.297 | 0.002 |
| Employment Status | 15.55 | 2, 2284 | < .001 | 0.020 |
| Adults in Household | 0.30 | 9, 2284 | 0.974 | 0.001 |
| Childhood Religious Identity | 3.63 | 1, 2284 | 0.057 | 0.002 |
| Childhood Financial Status | 1.14 | 4, 2284 | 0.337 | 0.003 |
| Childhood Parental Status | 8.09 | 1, 2284 | 0.005 | 0.005 |
| Mother's Education Status | 55.93 | 4, 2284 | < .001 | 0.128 |
| Current Religious Identity | 0.23 | 1, 2284 | 0.629 | 0.000 |
| Sense of Belonging | 22.08 | 1, 2284 | < .001 | 0.014 |

*3.2 Life satisfaction*

The overall model was significant, $F(15, 1560) = 13.86$, $p < .001$, with a total eta-squared of 0.23, indicating a medium effect size (Cohen, 1988). Sense of belonging was a strong predictor of life satisfaction, $F(1, 2284) = 179.25$, $p < .001$, with a partial eta-squared of .11, indicating a large effect size (see Table 3 below) (Cohen, 1988). The 95% one-sided confidence interval around this effect size estimate yielded a lower bound of 0.03, suggesting the effect is reliably greater than zero; however, the interval also reflects some uncertainty about the precise magnitude (see Appendix A). These findings indicate that individuals who reported a greater sense of belonging tended to report higher life satisfaction, even after accounting for demographic characteristics.

Standardized estimates indicated that a one standard deviation increase in sense of belonging was associated with a $\beta = 0.31$ increase in life satisfaction (95% CI [0.26, 0.35]). Full regression coefficients are provided in Appendix A, and the corresponding marginal-effects plot illustrating the shape of the association is included in Appendix B**.** As shown in the marginal-effect plot in Appendix B, predicted life satisfaction rises consistently across the full observed range of belonging, and there is no indication of curvature or diminishing returns.

**Table 3.** *GLM results for life satisfaction*

| **Predictor** | **F** | **df** | **p** | **Partial $\eta^2$** |
|---|---|---|---|---|
| Age | 2.48 | 15, 2284 | 0.001 | 0.024 |
| Race/Ethnicity | 3.13 | 4, 2284 | 0.014 | 0.008 |
| Gender | 0.19 | 1, 2284 | 0.666 | 0.000 |
| Household Size | 6.39 | 1, 2284 | 0.012 | 0.004 |
| Housing Type | 1.74 | 3, 2284 | 0.156 | 0.003 |
| Income | 4.43 | 6, 2284 | < .001 | 0.017 |
| Marital Status | 11.65 | 4, 2284 | < .001 | 0.030 |
| Region | 0.52 | 3, 2284 | 0.671 | 0.001 |
| Rental Status | 1.23 | 2, 2284 | 0.293 | 0.002 |
| Employment Status | 6.59 | 2, 2284 | 0.001 | 0.008 |
| Adults in Household | 3.87 | 9, 2284 | < .001 | 0.022 |
| Childhood Religious Identity | 0.48 | 1, 2284 | 0.489 | 0.000 |
| Childhood Financial Status | 2.43 | 4, 2284 | 0.046 | 0.006 |
| Childhood Parental Status | 1.55 | 1, 2284 | 0.213 | 0.001 |
| Mother's Education Status | 1.12 | 4, 2284 | 0.347 | 0.003 |
| Current Religious Identity | 2.65 | 1, 2284 | 0.104 | 0.002 |
| Sense of Belonging | 179.25 | 1, 2284 | <.001 | 0.105 |

*3.3 Mental wellbeing*

The overall model was significant, $F(15, 1560) = 8.73$, $p < .001$, with a total eta-squared of 0.19, indicating a medium effect size (Cohen, 1988). Sense of belonging was a strong predictor of mental wellbeing, $F(1, 2284) = 114.642$, $p < .001$, with a partial eta-squared of .07, indicating a moderate effect size (see Table 4 below) (Cohen, 1988). The 95% one-sided confidence interval around this effect size estimate yielded a lower bound of 0.03, suggesting that the effect is reliably greater than zero, although the estimate is associated with moderate precision**.** These results indicate that individuals who reported a greater sense of belonging tended to report higher levels of mental wellbeing, even after controlling for demographic characteristics.

Standardized estimates indicated that a one standard deviation increase in sense of belonging was associated with a $\beta = 0.26$ increase in mental wellbeing (95% CI [0.22, 0.31]), indicating better psychological wellbeing at higher levels of belonging. Full regression coefficients are provided in Appendix A, and the corresponding marginal-effects plot illustrating the shape of the association is included in Appendix B**.** As shown in the marginal-effect plot in Appendix B, predicted mental wellbeing increases steadily across the observed range of belonging, with no evidence of nonlinearities or threshold effects.

**Table 4.** *GLM results for mental wellbeing*

| **Predictor** | **F** | **df** | **p** | **Partial $\eta^2$** |
|---|---|---|---|---|
| Age | 0.582 | 15, 2284 | 0.891 | 0.006 |
| Race/Ethnicity | 7.029 | 4, 2284 | < .001 | 0.018 |
| Gender | 8.815 | 1, 2284 | 0.003 | 0.006 |
| Household Size | 0.550 | 1, 2284 | 0.458 | 0.000 |
| Housing Type | 1.502 | 3, 2284 | 0.212 | 0.004 |
| Income | 4.537 | 6, 2284 | < .001 | 0.021 |
| Marital Status | 5.186 | 4, 2284 | < .001 | 0.013 |
| Region | 0.484 | 3, 2284 | 0.694 | 0.001 |
| Rental Status | 2.106 | 2, 2284 | 0.122 | 0.003 |
| Employment Status | 4.466 | 2, 2284 | 0.012 | 0.006 |
| Adults in Household | 1.456 | 9, 2284 | 0.159 | 0.009 |
| Childhood Religious Identity | 3.061 | 1, 2284 | 0.080 | 0.002 |
| Childhood Financial Status | 1.991 | 4, 2284 | 0.094 | 0.005 |
| Childhood Parental Status | 2.376 | 1, 2284 | 0.123 | 0.002 |
| Mother's Education Status | 0.629 | 4, 2284 | 0.642 | 0.002 |
| Current Religious Identity | 3.448 | 1, 2284 | 0.064 | 0.002 |
| Sense of Belonging | 114.642 | 1, 2284 | < .001 | 0.069 |

*3.4 Civic engagement*

The overall model was significant, $F(15, 479) = 3.55$, $p < .001$, with a total eta-squared of 0.11, indicating a medium effect size (Cohen, 1988). Sense of belonging was not a strong predictor of civic engagement, $F(1, 677) = 0.422$, $p = .516$, with a partial eta-squared of .0009, indicating a negligible effect size**.** The 95% one-sided confidence interval around this estimate yielded a lower bound of .08, suggesting that the effect is estimated with low precision. These results suggest that, after accounting for demographic characteristics, individuals who reported a greater sense of belonging did not tend to report higher levels of civic engagement.

Standardized estimates indicated that a one standard deviation increase in sense of belonging was associated with a $\beta = 0.02$ increase in civic engagement (95% CI [−0.07, 0.12]). Full regression coefficients are provided in Appendix A, and the corresponding marginal-effects plot illustrating the shape of the association is included in Appendix B**.** The marginal-effects plot Appendix B shows a nearly flat association, with wide confidence intervals reflecting the small effect.

**Table 5.** *GLM results for civic engagement*

| Predictor | F | df | p | Partial $\eta^2$ |
|---|---|---|---|---|
| Age | 1.686 | 15, 2284 | 0.050 | 0.053 |
| Race/Ethnicity | 1.903 | 4, 2284 | 0.109 | 0.016 |
| Gender | 1.174 | 1, 2284 | 0.279 | 0.002 |
| Household Size | 6.432 | 1, 2284 | 0.012 | 0.014 |
| Housing Type | 0.524 | 3, 2284 | 0.666 | 0.005 |
| Income | 1.614 | 6, 2284 | 0.141 | 0.020 |
| Marital Status | 0.609 | 3, 2284 | 0.610 | 0.005 |
| Region | 1.257 | 3, 2284 | 0.289 | 0.010 |
| Rental Status | 1.219 | 2, 2284 | 0.297 | 0.005 |
| Employment Status | 0.064 | 2, 2284 | 0.938 | 0.000 |
| Adults in Household | 0.781 | 8, 2284 | 0.619 | 0.013 |
| Childhood Religious Identity | 0.030 | 1, 2284 | 0.862 | 0.000 |
| Childhood Financial Status | 1.047 | 4, 2284 | 0.383 | 0.009 |
| Childhood Parental Status | 0.910 | 1, 2284 | 0.341 | 0.002 |
| Mother's Education Status | 1.267 | 4, 2284 | 0.282 | 0.011 |
| Current Religious Identity | 3.575 | 1, 2284 | 0.059 | 0.008 |

## 4. Discussion

Our findings corroborate the connection between SOBAS and positive outcomes for adults and school-aged children alike (Arslan, 2002; Blum, 2005; Gopalan & Brady, 2020; Lambert et al., 2013) for adults. Controlling for demographic variables enabled comparisons that identified school effects on outcomes, providing findings that cut across racial and ethnic, as well as socioeconomic, factors (Fisher et al., 2020; Song et al., 2024). The benefits include enhanced mental health, increased life satisfaction, and improved educational attainment, but do not seem to extend to civic engagement. This finding is consistent with previous studies, which have shown that higher SOBAS scores are associated with lower negative mental health symptoms in young adulthood (*cf.* Allen et al., 2024; Nyberg et al., 2019; Steiner et al., 2019). Likewise, it is in alignment with the finding that neighborhood social cohesion, or the degree of connection and trust among neighbors, is positively associated with numerous mental health outcomes, psychological wellbeing outcomes, and social outcomes (Kim et al., 2024).

In the context of BST, belonging is essential for creating systems that produce individuals who are more likely to become thriving adults within various systems (Bronfenbrenner, 1977; Trajković et al., 2023). When adults reflect on their high school experiences and report that they felt like they belonged, they are in fact considering their positionality as a person and their context within a particular time (Bronfenbrenner & Morris, 2006; Tudge et al., 2009). Ideally, we would have captured the high school students' experiences of PPCT while they were in school and then followed them in a longitudinal study; however, the data we have allows adults to reflect at the same time they are reporting their own outcomes which also provides helpful perspective on belonging framed by BST and self-determination theory (Deci & Ryan, 2017). This is helpful because adult perception of belonging in high school as it relates to their relative wellbeing as adults. As all of these measures are based on perceptions, collecting data at the same point in

time can help provide clarity about the experience of adults rather than attempting to predict outcomes from current students' perspectives.

Enhanced educational attainment should not be surprising either, as previous research has also drawn clear connections between SOBAS and academic performance (Abdollahi & Noltemeyer, 2018; Fong Lam et al., 2015; Furrer & Skinner, 2003; Goodenow & Grady, 1993; Hughes et al., 2008; Martin & Collie, 2019; Sakellariou, 2024; Uslu Gülşen, 2024; Won et al., 2021). The benefits of improved academic success may extend to enhanced mental health and life satisfaction, forming a virtuous cycle related to markers of flourishing (VanderWeele et al., 2023; VanderWeele et al., 2025), which in turn would also enhance a sense of belonging (Carter, 2021).

The way we measure SOBAS includes sense of community, teacher-student relationship, school enjoyment, and perceived sense of school belonging. Sense of community is typically influenced by peers and affects school enjoyment and SOBAS (Fong Lam et al., 2015; Furrer & Skinner, 2003; Ma, 2003). Our findings extend these benefits to adulthood with improved mental health and life satisfaction, which flow from an enhanced school experience and sense of belonging. Multiple studies have demonstrated that the teacher-student relationship is a crucial factor in determining SOBAS (Chiu et al., 2016; Ibrahim & El Zaatari, 2020; Štremfel et al., 2024). While these are just two of four components of our SOBAS construct, the connection to adult outcomes was anticipated. However, we did not observe this enhanced teacher-student relationship in relation to adult civic engagement, specifically in the form of volunteerism.

Our study had several limitations. Although the CES is a nationally representative sample, the data are not longitudinal. The CES asks adults to reflect on their high school experience while considering their present circumstances, which are six to 21 years removed from graduation. This delayed recollection is inherently flawed, as the consistency and accuracy of memories declines over time (Talarico & Rubin, 2003). Ideally, we would capture students' sense of belonging in high school and then track their progress post-graduation as a part of a longitudinal study. Additionally, the survey items are primarily Likert-type items without open responses or any type of qualitative follow-up to respondents' self-perception. Future mixed-methods research that addresses this limitation could add significantly to our findings by situating quantitative analysis within important contextual and environmental factors such as looking at race/ethnicity (Bronfenbrenner, 1977).

## 5. Conclusion

Because flourishing is situated in community, perhaps it is not surprising that belonging is an essential element. Research on flourishing demonstrates that it requires others and is an attribute of community (VanderWeele et al., 2025). While the flourishing of young people is not solely the responsibility of the school, given the "considerable proportion of their waking hours" students spend in school settings, "teachers, schools, and educational systems" do influence their wellbeing and subsequent flourishing (VanderWeele & Hinton, 2024, p. 10). This study provides evidence that perceptions of SOBAS in high school, which is an additional lens in which to view and assess the degree of quality of a young person's relationships, are related to aspects of flourishing that appear to extend well into adulthood.

Therefore, while difficult to measure beyond self-perception, SOBAS is an important school measure because it is essential for flourishing. We know that this matters for students while they are in school on multiple levels, as our findings confirm that perception of SOBAS is related to mental health, life satisfaction, and educational attainment that extend into adulthood. Further research is needed to better understand these associations, including how they may or may not differ by race/ethnicity. Still, these findings emphasize the benefits of SOBAS as a predictor of

adult outcomes and a positive factor for adult flourishing, a connection all the more important given the wellbeing crisis facing the largest generation of 10 to 24-year-olds in human history (Patton et al., 2016; VanderWeele et al., 2025).

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**Author contribution statement**

Jon Eckert: Jon collected the initial data in partnership with Albert and Lynn. He framed and oversaw the writing and methodology in partnership with Hannah, his PhD student. Hannah Kapitaniuk: Hannah provided the analysis, much of the literature review, and drafted initial sections. Albert Cheng: Albert provided feedback particularly on the methodology. Lynn Swaner: Lynn provided feedback on framing and findings.

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**AI statement**

During the preparation of this work, the authors wrote initial drafts of all materials. They used OpenAI's ChatGPT to assist with clarity-based editing and language refinement. After using this tool, the authors reviewed, verified, and extensively edited all AI-assisted revisions to ensure accuracy, comprehensiveness, and alignment with their own scholarly analysis and interpretations. The authors take full responsibility for the content of this published article.

**Data availability statement**

The primary data source used in this work was collected by IPSOS, which is proprietary. As such, we cannot share this data publicly.

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# Appendices

## Appendix A: Regression coefficients for all models

**Table A1.** *Educational attainment*

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Intercept | 9.25 | 0.37 | 24.94 | 0.0*** |
| Age [Continuous] | 0.02 | 0.01 | 2.65 | 0.01* |
| Race/Ethnicity [White, Non-Hispanic] | | | | |
| Black, Non-Hispanic | -0.11 | 0.10 | -1.09 | 0.28 |
| Other, Non-Hispanic | 0.33 | 0.12 | 2.66 | 0.01* |
| Hispanic | -0.13 | 0.10 | -1.35 | 0.18 |
| 2+ Races, Non-Hispanic | 0.03 | 0.14 | 0.18 | 0.86 |
| Gender [Male] | | | | |
| Female | 0.05 | 0.06 | 0.90 | 0.37 |
| Household Size [Continuous] | -0.12 | 0.03 | -4.22 | 0.0*** |
| Housing Type [One-family House] | | | | |
| One-family Condo or Townhouse | 0.03 | 0.10 | 0.25 | 0.80 |
| Building with 2+ Apartments | 0.16 | 0.10 | 1.61 | 0.11 |
| Other | -0.45 | 0.18 | -2.57 | 0.01* |
| Income [< $10,000] | | | | |
| $10,000 - $24,999 | 0.33 | 0.19 | 1.74 | 0.08 |
| $25,000 - $49, 999 | 0.44 | 0.17 | 2.52 | 0.01* |
| $50,000 - $74,999 | 0.77 | 0.17 | 4.43 | 0.0*** |
| $75,000 - $99,999 | 0.86 | 0.18 | 4.77 | 0.0*** |
| $100,000 - $149,999 | 1.33 | 0.18 | 7.41 | 0.0*** |
| $150,000+ | 1.5 | 0.18 | 8.20 | 0.0*** |
| Marital Status [Now Married] | | | | |
| Widowed | -0.93 | 0.83 | -1.12 | 0.26 |
| Divorced | -0.02 | 0.16 | -0.15 | 0.88 |
| Separated | -0.73 | 0.26 | -2.85 | 0.0*** |
| Never Married | -0.31 | 0.07 | -4.26 | 0.0*** |
| Region [Northeast] | | | | |
| Midwest | -0.24 | 0.10 | -2.38 | 0.02* |
| South | -0.21 | 0.09 | -2.30 | 0.02* |
| West | -0.15 | 0.10 | -1.51 | 0.13 |
| Rental Status [Owned] | | | | |
| Rented | 0.14 | 0.08 | 1.68 | 0.09 |
| Occupied without Payment | 0.06 | 0.24 | 0.23 | 0.82 |
| Employment Status [Working Full-time] | | | | |
| Working Part-time | -0.28 | 0.10 | -2.92 | 0.0*** |
| Not Working | -0.47 | 0.08 | -5.64 | 0.0*** |
| Adults in Household [Continuous] | 0.02 | 0.04 | 0.54 | 0.59 |
| Childhood Religious Identity [None] | | | | |
| Religious | 0.15 | 0.08 | 1.82 | 0.07 |
| Childhood Financial Status [Not Enough for Necessities] | | | | |
| Enough for Some Necessities | -0.06 | 0.14 | -0.43 | 0.66 |

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Enough for Most Necessities | -0.22 | 0.13 | -1.64 | 0.10 |
| Enough for All Necessities | -0.05 | 0.12 | -0.43 | 0.67 |
| Plenty for All Necessities with Extra | -0.13 | 0.13 | -1.00 | 0.32 |
| Childhood Parental Status [Both Parents Together] | | | | |
| Parents Not Together | -0.19 | 0.07 | -2.83 | 0.0*** |
| Mother's Education Status [No High School Diploma or GED] | | | | |
| High School Graduate | 0.01 | 0.12 | 0.10 | 0.92 |
| Some College or Associate's Degree | 0.53 | 0.12 | 4.30 | 0.0*** |
| Bachelor's Degree | 0.99 | 0.13 | 7.64 | 0.0*** |
| Master's Degree or Higher | 1.33 | 0.14 | 9.51 | 0.0*** |
| Current Religious Identity [None] | | | | |
| Religious | -0.04 | 0.07 | -0.55 | 0.58 |
| Sense of Belonging [Continuous] | 0.16 | 0.03 | 4.77 | 0.0*** |

**Table A2.** *Life satisfaction*

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Intercept | 3.51 | 0.35 | 10.08 | 0.0*** |
| Age [Continuous] | -0.03 | 0.01 | -3.82 | 0.0*** |
| Race/Ethnicity [White, Non-Hispanic] | | | | |
| Black, Non-Hispanic | -0.11 | 0.09 | -1.13 | 0.26 |
| Other, Non-Hispanic | -0.19 | 0.12 | -1.63 | 0.10 |
| Hispanic | 0.23 | 0.09 | 2.51 | 0.01* |
| 2+ Races, Non-Hispanic | -0.17 | 0.13 | -1.31 | 0.19 |
| Gender [Male] | | | | |
| Female | 0.04 | 0.06 | 0.68 | 0.50 |
| Household Size [Continuous] | 0.07 | 0.03 | 2.65 | 0.01* |
| Housing Type [One-family House] | | | | |
| One-family Condo or Townhouse | 0.14 | 0.10 | 1.43 | 0.15 |
| Building with 2+ Apartments | 0.01 | 0.09 | 0.16 | 0.87 |
| Other | -0.28 | 0.16 | -1.68 | 0.09 |
| Income [< $10,000] | | | | |
| $10,000 - $24,999 | -0.05 | 0.18 | -0.29 | 0.77 |
| $25,000 - $49, 999 | -0.24 | 0.16 | -1.50 | 0.13 |
| $50,000 - $74,999 | -0.09 | 0.16 | -0.53 | 0.59 |
| $75,000 - $99,999 | -0.05 | 0.17 | -0.27 | 0.78 |
| $100,000 - $149,999 | 0.14 | 0.17 | 0.82 | 0.41 |
| $150,000+ | 0.25 | 0.17 | 1.42 | 0.15 |
| Marital Status [Now Married] | | | | |
| Widowed | -0.68 | 0.78 | -0.87 | 0.38 |
| Divorced | -0.33 | 0.15 | -2.23 | 0.03* |
| Separated | -1.06 | 0.24 | -4.41 | 0.0*** |
| Never Married | -0.51 | 0.07 | -7.51 | 0.0*** |
| Region [Northeast] | | | | |
| Midwest | -0.11 | 0.09 | -1.22 | 0.22 |
| South | -0.04 | 0.09 | -0.48 | 0.63 |
| West | -0.05 | 0.09 | -0.59 | 0.56 |
| Rental Status [Owned] | | | | |

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Rented | -0.08 | 0.08 | -1.06 | 0.29 |
| Occupied without Payment | -0.3 | 0.23 | -1.34 | 0.18 |
| Employment Status [Working Full-time] | | | | |
| Working Part-time | -0.16 | 0.09 | -1.80 | 0.07 |
| Not Working | -0.26 | 0.08 | -3.28 | 0.0*** |
| Adults in Household [Continuous] | -0.15 | 0.04 | -3.90 | 0.0*** |
| Childhood Religious Identity [None] | | | | |
| Religious | -0.07 | 0.08 | -0.84 | 0.40 |
| Childhood Financial Status [Not Enough for Necessities] | | | | |
| Enough for Some Necessities | 0.29 | 0.13 | 2.19 | 0.03* |
| Enough for Most Necessities | 0.2 | 0.13 | 1.63 | 0.10 |
| Enough for All Necessities | 0.19 | 0.12 | 1.61 | 0.11 |
| Plenty for All Necessities with Extra | 0.35 | 0.12 | 2.97 | 0.0*** |
| Childhood Parental Status [Both Parents Together] | | | | |
| Parents Not Together | 0.29 | 0.13 | 2.19 | 0.03* |
| Mother's Education Status [No High School Diploma or GED] | | | | |
| High School Graduate | 0.06 | 0.11 | 0.50 | 0.62 |
| Some College or Associate's Degree | 0.04 | 0.12 | 0.32 | 0.75 |
| Bachelor's Degree | 0.18 | 0.12 | 1.51 | 0.13 |
| Master's Degree or Higher | 0.02 | 0.13 | 0.15 | 0.88 |
| Current Religious Identity [None] | | | | |
| Religious | 0.12 | 0.07 | 1.85 | 0.06 |
| Sense of Belonging [Continuous] | 0.41 | 0.03 | 13.36 | 0.0*** |

**Table A3.** *Mental wellbeing*

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Intercept | 3.29 | 0.29 | 11.23 | 0.0*** |
| Age [Continuous] | 0.00 | 0.01 | 0.69 | 0.49 |
| Race/Ethnicity [White, Non-Hispanic] | | | | |
| Black, Non-Hispanic | -0.35 | 0.08 | -4.54 | 0.0*** |
| Other, Non-Hispanic | 0.12 | 0.10 | 1.19 | 0.23 |
| Hispanic | -0.18 | 0.08 | -2.30 | 0.02* |
| 2+ Races, Non-Hispanic | 0.07 | 0.11 | 0.59 | 0.55 |
| Gender [Male] | | | | |
| Female | 0.13 | 0.05 | 2.71 | 0.01* |
| Household Size [Continuous] | -0.01 | 0.02 | -0.67 | 0.50 |
| Housing Type [One-family House] | | | | |
| One-family Condo or Townhouse | -0.04 | 0.08 | -0.52 | 0.60 |
| Building with 2+ Apartments | -0.08 | 0.08 | -1.10 | 0.27 |
| Other | 0.28 | 0.14 | 2.04 | 0.04* |
| Income [< $10,000] | | | | |
| $10,000 - $24,999 | -0.25 | 0.15 | -1.67 | 0.10 |
| $25,000 - $49, 999 | -0.25 | 0.14 | -1.86 | 0.06 |
| $50,000 - $74,999 | -0.28 | 0.14 | -2.01 | 0.04* |
| $75,000 - $99,999 | -0.35 | 0.14 | -2.48 | 0.01* |

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| $100,000 - $149,999 | -0.56 | 0.14 | -3.95 | 0.0*** |
| $150,000+ | -0.5 | 0.14 | -3.43 | 0.0*** |
| Marital Status [Now Married] | | | | |
| Widowed | -0.01 | 0.65 | -0.01 | 0.99 |
| Divorced | 0.23 | 0.12 | 1.84 | 0.07 |
| Separated | 0.49 | 0.20 | 2.41 | 0.02* |
| Never Married | 0.28 | 0.06 | 4.95 | 0.0*** |
| Region [Northeast] | | | | |
| Midwest | 0.04 | 0.08 | 0.56 | 0.57 |
| South | 0.01 | 0.07 | 0.19 | 0.85 |
| West | 0.08 | 0.08 | 1.06 | 0.29 |
| Rental Status [Owned] | | | | |
| Rented | 0.12 | 0.07 | 1.87 | 0.06 |
| Occupied without Payment | 0.16 | 0.19 | 0.81 | 0.42 |
| Employment Status [Working Full-time] | | | | |
| Working Part-time | 0.14 | 0.08 | 1.88 | 0.06 |
| Not Working | 0.19 | 0.07 | 2.96 | 0.0*** |
| Adults in Household [Continuous] | 0.05 | 0.03 | 1.67 | 0.10 |
| Childhood Religious Identity [None] | | | | |
| Religious | 0.12 | 0.07 | 1.85 | 0.06 |
| Childhood Financial Status [Not Enough for Necessities] | | | | |
| Enough for Some Necessities | -0.08 | 0.11 | -0.66 | 0.51 |
| Enough for Most Necessities | 0.01 | 0.11 | 0.08 | 0.94 |
| Enough for All Necessities | -0.13 | 0.10 | -1.32 | 0.19 |
| Plenty for All Necessities with Extra | -0.19 | 0.10 | -1.95 | 0.05 |
| Childhood Parental Status [Both Parents Together] | | | | |
| Parents Not Together | 0.08 | 0.05 | 1.55 | 0.12 |
| Mother's Education Status [No High School Diploma or GED] | | | | |
| High School Graduate | 0.06 | 0.10 | 0.63 | 0.53 |
| Some College or Associate's Degree | 0.01 | 0.10 | 0.14 | 0.89 |
| Bachelor's Degree | -0.04 | 0.10 | -0.37 | 0.71 |
| Master's Degree or Higher | 0.04 | 0.11 | 0.38 | 0.70 |
| Current Religious Identity [None] | | | | |
| Religious | -0.11 | 0.06 | -2.05 | 0.04* |
| Sense of Belonging [Continuous] | -0.28 | 0.03 | -10.94 | 0.0*** |

**Table A4.** *Civic engagement*

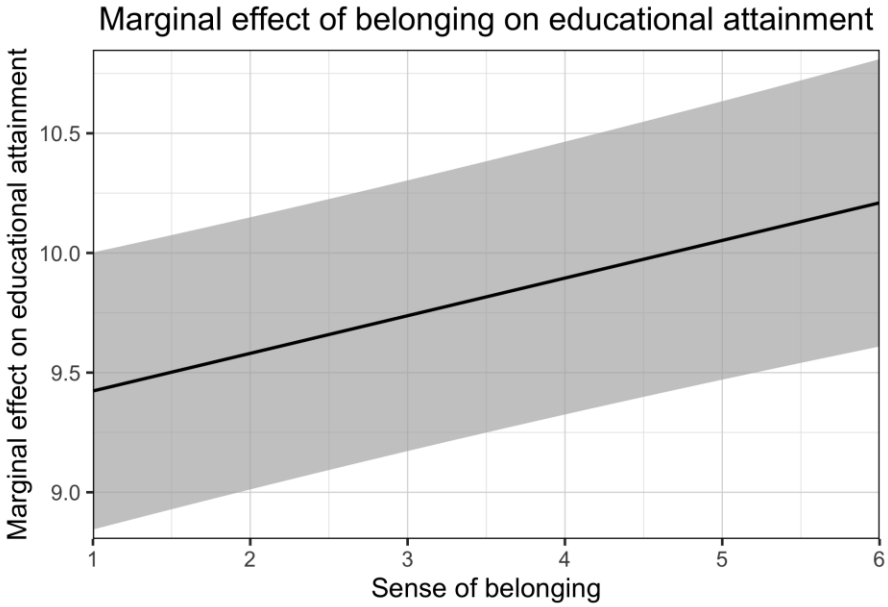
| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Intercept | 1.91 | 0.89 | 2.15 | 0.03* |
| Age [Continuous] | 0.03 | 0.02 | 1.80 | 0.07 |
| Race/Ethnicity [White, Non-Hispanic] | | | | |
| Black, Non-Hispanic | -0.48 | 0.25 | -1.90 | 0.06 |
| Other, Non-Hispanic | -0.65 | 0.32 | -2.01 | 0.05 |
| Hispanic | 0.09 | 0.22 | 0.39 | 0.70 |
| 2+ Races, Non-Hispanic | -0.08 | 0.29 | -0.26 | 0.79 |

| Predictor | B | SE | t | p |
|---|---|---|---|---|
| Gender [Male] | | | | |
| Female | 0.11 | 0.14 | 0.78 | 0.44 |
| Household Size [Continuous] | 0.16 | 0.06 | 2.80 | 0.01* |
| Housing Type [One-family House] | | | | |
| One-family Condo or Townhouse | -0.05 | 0.23 | -0.22 | 0.83 |
| Building with 2+ Apartments | -0.06 | 0.23 | -0.25 | 0.80 |
| Other | 0.41 | 0.51 | 0.80 | 0.42 |
| Income [< $10,000] | | | | |
| $10,000 - $24,999 | 0.42 | 0.48 | 0.88 | 0.38 |
| $25,000 - $49, 999 | 1.04 | 0.41 | 2.52 | 0.01* |
| $50,000 - $74,999 | 0.56 | 0.41 | 1.37 | 0.17 |
| $75,000 - $99,999 | 0.62 | 0.42 | 1.48 | 0.14 |
| $100,000 - $149,999 | 0.59 | 0.41 | 1.45 | 0.15 |
| $150,000+ | 0.41 | 0.42 | 0.98 | 0.33 |
| Marital Status [Now Married] | | | | |
| Divorced | 0.04 | 0.35 | 0.10 | 0.92 |
| Separated | 1.52 | 1.07 | 1.41 | 0.16 |
| Never Married | -0.02 | 0.17 | -0.10 | 0.92 |
| Region [Northeast] | | | | |
| Midwest | -0.11 | 0.22 | -0.52 | 0.61 |
| South | -0.35 | 0.21 | -1.67 | 0.10 |
| West | -0.19 | 0.22 | -0.84 | 0.40 |
| Rental Status [Owned] | | | | |
| Rented | 0.08 | 0.20 | 0.40 | 0.69 |
| Occupied without Payment | 0.95 | 0.64 | 1.48 | 0.14 |
| Employment Status [Working Full-time] | | | | |
| Working Part-time | 0.08 | 0.20 | 0.40 | 0.69 |
| Not Working | 0.10 | 0.20 | 0.48 | 0.63 |
| Adults in Household [Continuous] | -0.13 | 0.09 | -1.47 | 0.14 |
| Childhood Religious Identity [None] | | | | |
| Religious | -0.03 | 0.23 | -0.15 | 0.88 |
| Childhood Financial Status [Not Enough for Necessities] | | | | |
| Enough for Some Necessities | -0.57 | 0.39 | -1.48 | 0.14 |
| Enough for Most Necessities | -0.70 | 0.37 | -1.92 | 0.06 |
| Enough for All Necessities | -0.58 | 0.35 | -1.66 | 0.10 |
| Plenty for All Necessities with Extra | -0.44 | 0.36 | -1.24 | 0.22 |
| Childhood Parental Status [Both Parents Together] | | | | |
| Parents Not Together | -0.12 | 0.16 | -0.72 | 0.47 |
| Mother's Education Status [No High School Diploma or GED] | | | | |
| High School Graduate | -0.24 | 0.31 | -0.78 | 0.43 |
| Some College or Associate's Degree | -0.37 | 0.31 | -1.18 | 0.24 |
| Bachelor's Degree | -0.42 | 0.32 | -1.31 | 0.19 |
| Master's Degree or Higher | -0.04 | 0.33 | -0.12 | 0.90 |
| Current Religious Identity [None] | | | | |
| Religious | 0.34 | 0.17 | 2.03 | 0.04* |
| Sense of Belonging [Continuous] | 0.03 | 0.08 | 0.43 | 0.67 |

*Note.* Widowed (n = 4) not shown due to lack of responses on the outcome variable. $p < .05$ = *. $p < .01$ = **. $p < .001$ = ***

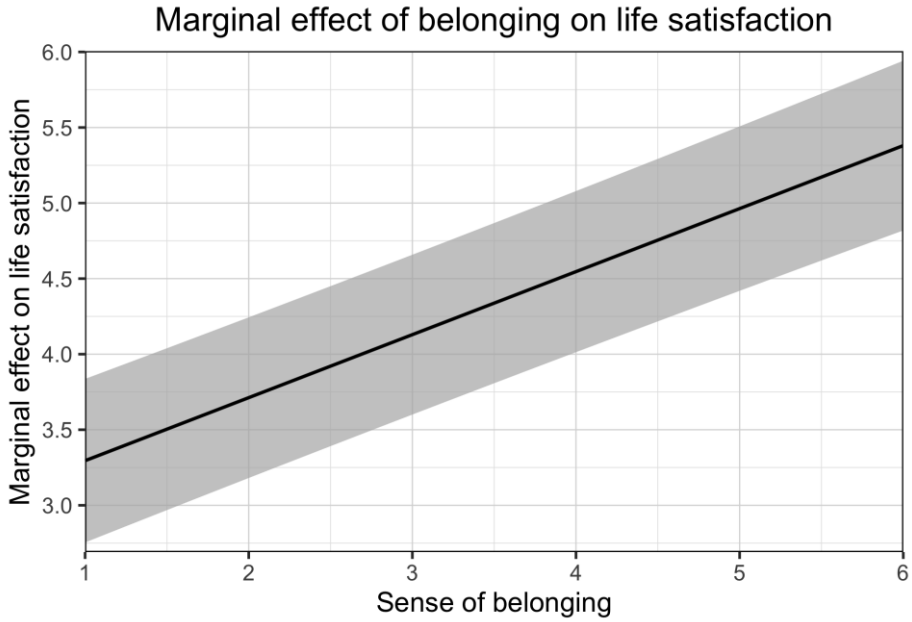
## Appendix B: Marginal Effects of Sense of Belonging Across All Outcomes

**Figure A1.** *Educational attainment: Marginal effect of sense of belonging on educational attainment by sense of belonging (scale units)*



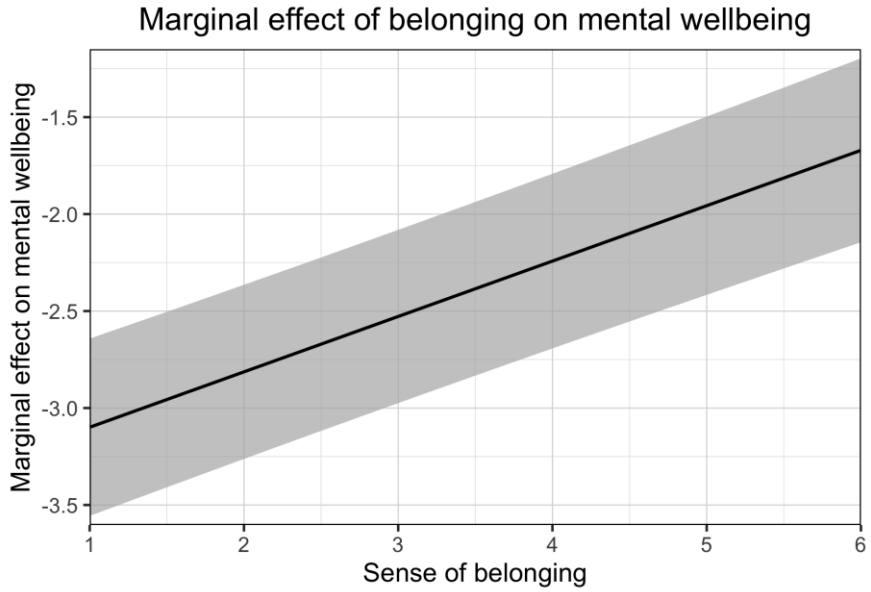

*Note.* Figure based on the regression model reported in Table 2 (educational attainment); 95% confidence interval shown in grey.

**Figure A2.** *Life satisfaction: Marginal effect of sense of belonging on life satisfaction by sense of belonging (scale units)*



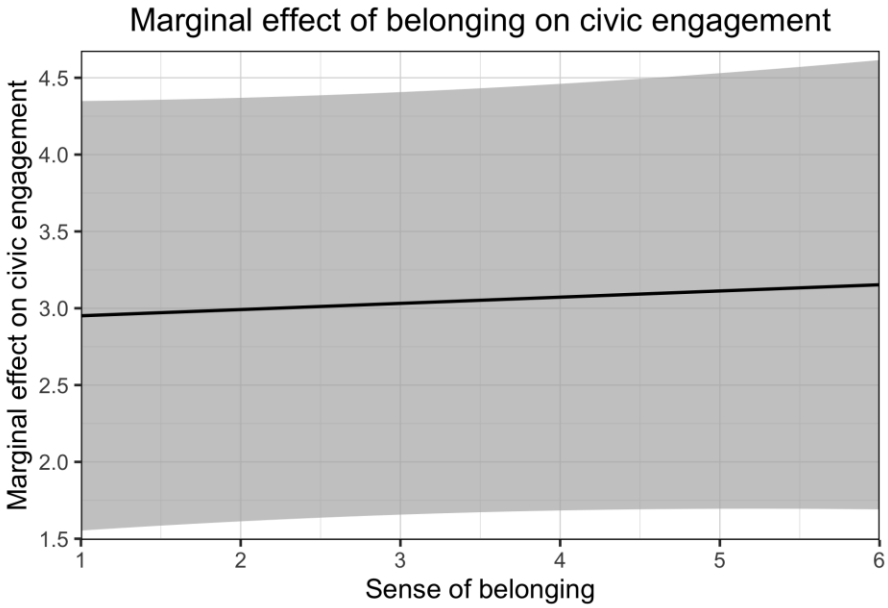

*Note.* Figure based on the regression model reported in Table 3 (life satisfaction); 95% confidence interval shown in grey.

**Figure A3.** *Mental wellbeing: Marginal effect of sense of belonging on mental wellbeing by sense of belonging (scale units)*




*Note.* Figure based on the regression model reported in Table 4 (mental wellbeing). Predicted values are plotted so that higher scores indicate better mental wellbeing; 95% confidence interval shown in grey.

**Figure A4.** *Civic engagement: Marginal effect of sense of belonging on civic engagement by sense of belonging (scale units).*




*Note.* Figure based on the regression model reported in Table 5 (civic engagement); 95% confidence interval shown in grey.