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Diminished Adolescent Social Well-Being During the COVID-19 Pandemic

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Abstract

Managing the COVID-19 pandemic involved implementing public health policies that disrupted students' lives, creating conditions that substantially influenced their mental health and well-being. Subsequently, research focused on the mental health sequelae of increased depression and anxiety, but the possible impacts on adolescents' social well-being have been largely unexamined. Social well-being is essential to youth's overall mental health and can be diminished even without symptoms of depression and anxiety. This report explored heterogeneities in changes in adolescents' social well-being from pre-COVID-19 to post-restrictions using longitudinal data from adolescents attending middle and high schools in California ($N = 1{,}299$; 49.9% female). Data collection involved four observations. Participants completed a school-based mental health wellness survey annually from 2019 to 2022. A latent profile analysis identified five profiles demonstrating distinctive social well-being trajectories. Two ordered profiles included Stable-High (28%) and Stable-Low (26%) patterns. Three groups represented nonordered profiles labeled as Succumbing (20%), Languishing (14%), and Recovering (12%). Pervasive decreases in social well-being were observed, and a significant portion of the adolescents did not recover to their pre-COVID-19 level by 2022. Adolescents in the Stable-High and Recovering profiles showed better psychological well-being, optimism, and school connectedness and less distress than their counterparts in the other three profiles. Mental health professionals should be aware of the pandemic's effects on adolescents' social well-being. Lower levels of social well-being may be a risk factor for adolescents developing generally jaded attitudes about their social networks and diminishing their potential engagement with sources of social support.

Keywords Social well-being · COVID-19 pandemic · Adolescents · Mental health · Homeostasis

During the height of the COVID-19 pandemic, there was widespread concern that social distancing and other pandemic mitigation restrictions were adversely

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impacting multiple facets of adolescents' development, including their mental health (Garagiola et al., 2022). Adolescents had less frequent personal interactions with peers, teachers, and social supports, which could have resulted in social isolation, loneliness, and depression. Ubiquitous, daily public health announcements about the growing number of illnesses and deaths also could have heightened fear and anxiety exacerbated by the ambiguity of the future course of the pandemic. Furthermore, even if adolescents drew upon their resilience and capacity to maintain their academic achievement and did not experience substantial anxiety or depression symptoms, other components of their positive subjective well-being could have been impacted. In the context of adolescents' experiences during the COVID-19 pandemic, the U.S. Surgeon General (Murthy, 2021) issued a report highlighting the pressing need to learn more about the mental health consequences on youths' subjective well-being and specifically identified social well-being (SocWB) as a concern. This report examines changes in adolescents' social well-being (SocWB) from 2019 (pre-restrictions) to 2022 (post-restrictions).

1 Adolescent Mental Health During the COVID-19 Pandemic

Since the first months of the pandemic in 2020, researchers produced waves of research examining the effects of pandemic experiences on adolescents' mental health and well-being, particularly depression and anxiety symptoms (Racine et al., 2021). A recent meta-analysis by Madigan et al. (2023a, 2023b) compiled information from studies published between January 2020 and May 2022. This meta-analysis examined longitudinal cohort studies with participants 19 years old and younger and published in English-language peer-reviewed journals. The literature identified 53 studies involving 40,807 adolescents, providing longitudinal data about depression and anxiety-related symptoms. The mean age of the students involved in these studies was about 13 years. These studies included one pre-COVID-19 and a single post-COVID-19 assessment of depression and anxiety. However, 44 of the post-COVID-19 measurements occurred during 2020 and primarily provided information about the pandemic's short-term effects on students' depression and anxiety. Only four studies assessed students' depression or anxiety during 2021. Hence, this meta-analysis does not provide clear information about the longer-term effects of the pandemic on students' mental health and well-being. Nonetheless, this meta-analysis provided evidence that symptoms of depression and anxiety increased significantly during the early phases of the pandemic.

The importance of building a research base to describe and evaluate the pandemic's longer-term effects on adolescent mental health is emerging. Using data from an ongoing longitudinal study of Norwegian adolescents, Larsen et al. (2023) measured anxiety and depressive symptoms at baseline (December 2019 to March 2020) and at three follow-up occasions (April-June 2020, December 2020-January 2021, May–July 2021). This study found significantly increasing depression and anxiety, which led to a recommendation for continued monitoring of the lingering effects of the pandemic on adolescent mental health. Shoshani (2023) followed with a longitudinal national sample of early Israeli adolescents four times between September

2019 and May 2022. A central finding was that general symptomology and distress increased from baseline and were highest in the last observation more than two years after pandemic restrictions began—students reporting lower social support (peer and family) experienced the highest levels of anxiety and depression.

2 Is There Reason to be Concerned About Students' Social Well-Being?

The pandemic would have had sweeping impacts on countries worldwide, even if there had been universal, positive support for the public health policies and practices employed to control the spread of the COVID-19 virus. However, in many countries, like the United States, the public health response had a pronounced political component. Wearing a face mask became a symbol of political ideology, with libertarian-valuing individuals defining mask-wearing as an attack on personal freedom, leading to confrontations when individuals refused to wear a face mask in public stores or when flying commercial airlines. Similarly, some saw vaccine mandates as an affront to personal freedom. Others questioned the scientific research supporting vaccines' efficacy with wide dissemination of claims that face masks were ineffective in spreading infection and that vaccines were dangerous and caused more deaths than the COVID-19 virus. In the United States, the pandemic occurred along with substantial turmoil associated with protests related to White supremacy, police murders of African Americans, and the January 6, 2021, insurrection at the U.S. Capitol. These broader sociopolitical forces compounded the pandemic's potential social impacts by contributing to a sense of general social turmoil and a diminished sentiment that everyone had shared interests and needs and benefitted from working together during this stressful time. Even after lifting the pandemic social restrictions, many national and regional influencers continued to argue that social restrictions were unnecessary and damaged adolescents' mental health. This social-political bickering contributed to a confusing, toxic societal landscape witnessed by adolescents daily.

These broader societal dynamics also aggravated local school pandemic-related policies and operational responses. Early in 2022, for example, there were multiple examples of how pandemic management was associated with conflict at the local school level. In Colorado, students left classes to protest a school mask mandate (Gibbs, 2021). In another school, students walked out to protest the need to institute a mask mandate to create a safe school environment (Alfonseca, 2022). In Virginia, a parent at a school board meeting about establishing a mask mandate said their child would not wear a mask: "And I will bring every single gun loaded and ready" (Boboltz, 2022). At the same time, a newly elected Virginia governor, on his first day in office, issued an executive order giving parents the authority to waive their students' mask mandate and set up a tip line for students and parents to report violations by teachers (Moran, 2022; Vargas, 2022). The politicization of the pandemic management response morphed into other divisive public policies impacting schools and students, such as the widespread banning of books from school libraries and discriminatory laws passed affecting the educators' and students' historical study of

American slavery (Juell, 2023) and discussions of LGBTQ+related topics (Izaguirre & Farrington, 2023).

Considerable turmoil and social unrest were associated with the pandemic and public health practices to control it. Still, these were not the only social dynamics that might have affected adolescents' SocWB. As students cope with the pandemic, they also observed and experienced substantial social divisions in the U.S. They could see statements such as one by a U.S. Senator who stated that it is "not society's responsibility to take care of other people's children" and that "no person should have a child unless they are prepared to never need help" (Delaney, 2022). This statement implies that some children born in the U.S. are "others" and not members of the national collective. Fourteen U.S. states enacted laws restricting schools from using books related to African American history curriculum, like the 1619 project (Hannah-Jones, 2021; Jones, 2022), or focusing on sexual or gender identity (Harris & Alter, 2022). This "othering" endeavor involved 12 states enacting school laws prohibiting female-identifying transgender students from competing as female athletes (O'Connor, 2022).

Given these divisive societal circumstances in the U.S., it is unsurprising that a late 2021 poll found that 72% of all Americans thought the country was going in the wrong direction, and 70% believed that partisan divisions would continue to grow (Saric, 2022). As adults form opinions and attitudes about these broader societal dynamics, so do adolescents. It is reasonable to speculate that adolescents observed what happened in the U.S. at the national, state, and local levels, and their judgments about the viability of their proximal social supports (e.g., family, peers, and school) and distal social influences (e.g., government agencies and society) were affected negatively. As adolescents observed and endeavored to make sense of the pandemic-related social turmoil, the foundations of their SocWB could have frayed.

3 Subjective Well-Being

Subjective well-being is defined as "people's overall evaluations of their lives and their emotional experiences… a broad umbrella term that refers to all different forms of evaluating one's life or emotional experience, such as satisfaction, positive affect, and low negative affect" (Diener et al. 2017, p. 87). Aligning with Diener et al.'s (1999) definition and expanding on the Ryff well-being model (Ryff & Keyes, 1995), Keyes' (2007, 2014), salutogenic flourishing well-being model (Mjøsund, 2021) includes *positive feeling* (happiness, satisfaction, and interest in life) and *positive psychological functioning* (self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery, autonomy) facets. Drawing from a sociological perspective, the Keyes model includes novel information about individuals' perceptions of the quality of their *social well-being* (self-acceptance, integration, growth, contribution, coherence), which is not the central focus of other subjective well-being perspectives (Keyes et al., 2002). For example, the term "social well-being" is not mentioned in the Diener et al. (2017) review article summarizing essential subjective well-being research that psychologists should know.

Social well-being has two primary components within psychological and sociological research traditions (Keyes, 1998). As the *psychological construct*, social well-being (SocWB) involves an individual's cognitive appraisal of the quality of their near-interpersonal relationships (e.g., family, peers, school). As a *sociological construct*, SocWB considers an individual's appraisal of their interconnectedness with wider social communities and broader social networks (community, governmental entities, and "society") as a sociological construct. Persons with high SocWB perceive that their personal needs are complemented by what their proximal social networks provide and that they live in healthy, supportive communities and nations (Albanesi et al., 2007).

4 Study's Conceptual Grounding

The following sections describe relevant conceptual/theoretical perspectives and provide a lens to regard adolescents' SocWB experiences during the COVID-19 pandemic.

4.1 Keyes Social Well-Being Model

From his sociologist perspective, Keyes validated a SocWB scale to complement Ryff's (1989; Ryff & Keyes, 1995) general psychological well-being model. The Mental Health Continuum-Short Form (Keyes, 2006) considers wellness from people's interactions in various social contexts. Keyes proposed that SocWB has five facets (Keyes, 1998, p. 122–123):

1. *Social integration.* People feel they have something in common with others who constitute their social reality and the degree to which they feel they belong to their communities and society.
2. *Social contribution.* People believe they are vital members of society with something of value to give to the world.
3. *Social acceptance.* People trust others, think that others are capable of kindness, and believe that people can be reasonable.
4. *Social coherence.* People care about the kind of world they live in and feel they can understand what is happening around them.
5. *Social actualization.* People are hopeful about the condition and future of society and can recognize society's potential.

The components in the Keyes model focus on proximal (1–3) and distal (4–5) SocWB features. In Keyes' dual-continual model, the foundation of flourishing mental health is the positive balance of all three well-being components: emotional (EmoWB), psychological (PsyWB), and social (SocWB).

4.2 Ecological Transactional Perspectives

Ecological transactional development perspectives (Cicchetti et al., 2000) help to frame the bidirectional forces that could affect students' well-being. SocWB elements are associated with adolescents' proximal intimate microsystem level relationships (e.g., family, peers, school staff), other exosystem level influences (e.g., school systems, mass media, neighbors), and more distal, impersonal macrosystem personal influences (e.g., government agencies and public policies) forces. Concerning proximal interpersonal transactions, during the pandemic, many youths did not have as many opportunities to interact with others (e.g., school staff peers) in ways that reinforced their sense of connectedness to a community and acknowledged their meaningful contributions. And, while in most historical circumstances, one would presume that adolescents might not be primarily attuned to the impact of world governmental organizations or national educational policy on them, local, national, and international events were ubiquitous during the pandemic. As such, adolescents readily could observe and experience public societal hostility. They were required to wear masks at school and witnessed individuals claiming that wearing masks was equivalent to child abuse and that mask policies damaged students' mental health. In these circumstances, adolescents had a heightened personal investment regarding macro-level social influences, such as governmental policies related to restrictions on educational activities. Given these dynamics, the COVID-19 pandemic-related restrictions could have challenged adolescents' perceptions of the quality of their proximal and distal social resources.

5 Subjective Wellbeing Homeostasis Theory

Given the central focus of this report on the impact of pandemic experiences on students' SocWB, it is crucial to consider theoretical perspectives on the stability of subjective well-being. Based on longitudinal studies of Australian adults, Cummins and colleagues found that subjective well-being reports across diverse samples had mean total subjective well-being scores in the narrow 74–77 range on their 100-point summative scale (Capic et al., 2018; Cummins, 2010; Cummins et al., 2014). Furthermore, individuals' responses across periods varied by less than 5% under ordinary life circumstances. Cummins proposed that subjective well-being is maintained by various stabilizing factors and cognitive biases, such as positive self-serving bias, optimism, and perceptions of self-control (Cummins, 2010). These positively oriented factors serve as buffers that modulate a person's subjective well-being in day-to-day, unthreatening circumstances (Cummins, 2010). Concerning adolescents' experiences during the pandemic, Cummins's theory acknowledges that when individuals are confronted with particularly impactful challenging circumstances, this homeostatic bias can be overwhelmed with a resulting drop in their subjective well-being set point (Tomyn & Cummins, 2011). Research using a version of the Personal Well-being Index validated for adolescents (Cummins, 2023) has found that their subjective well-being average of 74 is within the adult normative range and was stable over time (Tomyn & Cummins, 2011). However, given

the significant impacts of the pandemic, homeostasis may have been disrupted in adolescents, significantly impacting their SocWB.

6 Study Aims and Research Questions

This study examines adolescents' SocWB trajectories from pre-COVID-19 to post-restrictions. This opportunistic longitudinal study leveraged a long-term university-school district research partnership related to developing practical student social-emotional wellness check-in survey procedures and follow-up by a school care team. It provides a descriptive analysis of students' annual self-reported SocWB patterns from 2019 (pre-COVID-19) to 2022 (post-restrictions). We specifically examine the effects of the pandemic in the context of broader social/political polarization on student SocWB. To examine this effect, we used a longitudinal survey of middle and high school students. The following are the research questions:

6.1 Research Question 1: How did Adolescents' 2019 Baseline SocWB Compare to their SocWB in 2020, 2021, and 2022 After the Onset of the COVID-19 Pandemic?

Considering the pandemic's pervasive and intrusive impacts, we hypothesized that compared to 2019, adolescents' SocWB mean would decline in 2020 and 2021. We collected surveys through October 2022 to evaluate whether adolescents' SocWB might rebound. Given the magnitude of the pandemic's social disruption, we speculated that adolescents' SocWB would diminish overall. We expected all SocWB items included in this analysis would diminish from pre-COVID-19 levels. When considering the transactional ecological framework, we anticipated the items asking about more proximal contexts (integration, acceptance, contribution) would diminish the least. We anticipated that broader distal elements (coherence and actualization), reflecting the influence of broader turmoil and ambivalence about societal reactions and management of the pandemic, would diminish the most.

6.2 Research Question 2: Were there Any Common SocWB Response Patterns or Profiles Representing Stable, Improving, or Deteriorating Trajectories?

Latent profile analysis examined adolescents' SocWB trajectories in four waves from 2019 to 2022. Previous research indicates that adolescents' SocWB is lower than their EmoWB and PsyWB (Keyes, 2006). Cummins' homeostasis theory predicts that some adolescents would have sufficient buffers to maintain their pre-pandemic well-being set point. Hence, one profile could include adolescents who reported low SocWB in October 2019 before the pandemic and continued to show low, relatively unchanged levels throughout the pandemic. It was reasonable to anticipate a second profile of adolescents with higher levels of SocWB in October 2019 that continued to express reasonably high levels throughout the pandemic phases. A third profile could include adolescents who experience an initial well-being decrease but rebound

to their pre-pandemic set point. Homeostasis theory also predicts a fourth possible profile comprised of adolescents whose pandemic experiences were so intense that their well-being declined and did not recover. Besides these four response profiles, we were particularly interested in identifying other meaningful patterns. We did not have a particular hypothesis about the number of profiles of adolescents who fell between the high and low profiles. However, the resilience literature identifies youth who may experience challenges and respond by succumbing to the pressures they create or, through the challenge, experience some resilient growth (Carver, 1998). As such, we anticipated additional meaningful profiles to emerge.

6.3 Research Question 3. How were the Identified SocWB Trajectories Associated with other Social-Emotional Well-Being Outcome Indicators in 2022?

When considering social well-being's salient associations with other social-emotional functioning indicators (Keyes, 1998), we anticipated adolescents' well-being and distress in 2022 would be differentiated by their SocWB trajectories, with higher overall SocWB across observations showing better psychological functioning than other profile groups. Given the pervasive uncertainty and unpredictability the students experienced during the core of the pandemic, we considered optimism to provide a glimpse into their future anticipations. We anticipated adolescents whose SocWB declined would express less optimistic future expectations in 2022. Moreover, given that social connection is the foundation of SocWB, we expected that declining SocWB would be associated with a lower level of school connectedness in 2022.

7 Method

7.1 Study Context

As part of a U.S. Institute of Education Sciences Goal 5 grant to refine the Social Emotional Health Survey (Furlong et al., 2022), we collected longitudinal surveys with a partner school district. October 2019 was the last year of grant data collection. When the pandemic emerged in early 2020, the school district started remote learning in April 2020 and did not return to in-person instruction until April 2021. In the interim, the school district requested to continue a modified survey to monitor their students' social-emotional health. The district administrators wanted to make every effort to ensure that the survey was as efficient and brief as possible to encourage maximum student voluntary participation to assess students' need for follow-up mental health services. In this context, we recognized the need to streamline the student survey to provide information that captures the student's social and emotional experiences with the least burden possible on them and their families. We also recognized that the early COVID-19 studies, understandably, asked about students' anxiety and depression experiences. The survey we had been using with the district already included some items related to students' past-month emotional experiences

and a brief life satisfaction measure. We recognized that the work with our partner district could contribute by tracking other aspects of students' mental well-being. A distinctive focus of the district's annual student wellness survey was items focusing on students' perception of the quality of contexts and relationships and included items on SocWB. During the pandemic, school mental health staff used the information to monitor students' well-being.

7.2 Participants and Procedure

The student wellness surveys were administered in October 2019 before the COVID-19 pandemic, in October 2020 during the pandemic, and in October 2021 and 2022 after the return to in-person instruction. In 2019, 2021, and 2022, students completed the online survey in a regularly schedule class period proctored by a teacher following a standard administration protocol. In October 2020, the students attended classes remotely, with the teacher allotting time to complete the survey. The parental informed consent and survey administration procedures, reviewed multiple times during the previous 10 years, were approved by the Author's University Office of Research Human Subjects Committee, which was guided by the ethical principles for the protection of human subjects in research outlined in the Belmont Report of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. Parents could opt their child out of the survey. Students could decline to take the survey. Students who decided to take the survey could skip any item they did not want to answer.

From 2019 to 2022, all Grades 7 to 12 students had the opportunity to complete the survey. For this report, we identified 1,299 students in Grades 7–9 in 2019 and 10–12 in 2022. These students had the opportunity to complete the survey on all four occasions. Students completed the survey twice ($n = 583$), three times ($n = 375$), or all four times ($n = 341$).

In response to a question asking the students to identify their preferred gender identity, most indicated they identified as women (47.5%) or men (47.3%). A smaller proportion of the participants identified as nonbinary (3.2%), as having a different identity not listed (1.8%), or declined to answer the gender identity question (0.2%). The students responded to the following question, "Some people describe themselves as transgender when their sex at birth does not match how they think or feel about their gender. Are you transgender?" In response to this question, most of the students indicated that they did not identify as transgender (92.3%), 3.1% of the students identified as transgender, 1.4% of the students indicated they were unsure if they were transgender, and 3.2% of the students declined to respond to this question. When asked which sexual orientation best describes them, most of the students identified as straight, not gay (71.1%), bisexual (12.5%), not sure of their sexual orientation yet (4.5%), identifying as some other sexual orientation (4.4%), gay or lesbian (3.5%), or declined to respond to this question (3.8%). Students identified with the following ethnic groups: White, not Hispanic or Latin@ (50.8%), Latin@ or Hispanic (31.9%), two or more groups (9.7%), Asian (4.5%), Black or African

American (1.8%), Native Hawaiian or Pacific Islander (0.7%), American Indian or Alaskan Native (0.5%), and some declined to respond (0.1%).

7.3 Measures

7.3.1 Mental Health Continuum–Short Form

The Mental Health Continuum Short Form (MHC-SF, Keyes, 2006) measures EmoWB (not used in this report), PsyWB, and SocWB, with previous studies supporting a three-factor structure (Lamers et al., 2011). The item stem is*: During the past month, how often did you feel the following ways*: (a) an example item for the PsyWB is that you liked most parts of your personality; (b) an example item for SocWB is that people are basically good. Response options are 1 = *never*, 2 = *once or twice*, 3 = *about once a week*, 4 = *2 or 3 times a week*, 5 = *almost every day*, and 6 = *every day*. Responses of "*every day*" or "*almost every day*" are considered to reflect flourishing mental health, and responses of "*never*" or "*once or twice*" reflect languishing mental health. A Latent Profile Analysis (see Data Analysis Plan) used the global five-item SocWB mean score (range 1–6) for 2019–2022. The six PsyWB mean item-total provided a mental health status indicator in 2022, a post-restriction year. For this study's sample, the alpha coefficients for the SocWB items across the four years were between 0.81 and 0.86. The alpha coefficient for the PsyWB items in 2022 was 0.84. Figure 1 lists the five SocWB items.

7.3.2 Emotional Distress

The Social Emotional Distress Scale-Brief (SEDS-B, Dowdy et al., 2018, 2023) is a 5-item measure assessing students' recent internalizing emotional experiences—past month's internal emotional distress, not clinical symptoms. The SEDS-B uses

Fig. 1 Means for the mental health continuum-short form social well-being items 2019 (Pre-COVID-19) to 2022 (post-Restrictions)

a four-point response scale (1 = *not at all true*, 2 = *a little true*, 3 = *pretty much true*, 4 = *very much true*). A sample item is *I was easily irritated*. CFAs support a unidimensional model (Dowdy et al., 2023). The SEDS-B items provided an index of students' past-month emotional distress in 2022, the post-restriction year. The alpha reliability coefficient in this study's sample in 2022 was 0.83.

7.3.3 Optimism

Optimism is a construct that is concurrently and prospectively positively correlated with adolescent well-being and negatively correlated with psychological problems (Kennes et al., 2021). The pandemic created conditions that lowered personal agency in making in-the-moment choices, rendering it more challenging to develop and work toward future goals. These conditions could have negatively affected students' optimism, which we measured with the three-item Optimism subscale from the Social Emotional Health Survey-Secondary (Furlong et al., 2022). These responses provided an index of students' general attitudinal positivity in 2022, a post-restriction year. The response options for the items were 1 = *not at all true,* 2 = *a little true*, 3 = *pretty much true*, and 4 = *very much true*. The optimism mean-item value provided a status indicator. The alpha reliability coefficient in this study's sample in 2022 was 0.81.

7.3.4 School Connectedness

A widely used definition of school connectedness is a student's belief that "…adults and peers in the school care about their learning as well as about them as individuals" (Centers for Disease Control & Prevention, 2009, p. 3). A robust body of research has identified higher levels of school connectedness (and similar constructs, e.g., school belonging) as a protective factor against adolescent depression and anxiety (Raniti et al., 2022) and as promoting higher levels of adolescent life satisfaction (Watson & Haktanir, 2017; You et al., 2008). As a covariate variable, the present study used four items from the School Connectedness Scale (Furlong et al., 2011), which asked students about their sense of the overall quality of their school community relationships, a factor closely linked to SocWB. The response scale was: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither disagree nor agree*, 4 = *agree*, and 5 = *strongly agree*. A sample item is *I feel close to people at this school*. Previous studies report good reliability ($\alpha = 0.82$ to 0.87) and a unidimensional factor structure (Furlong et al., 2011). The global mean of the item responses (range 1–5) provided a status indicator in 2022, the post-restriction year. This study's sample had an alpha coefficient of 0.77 for the 2022 responses.

7.3.5 Data Analysis Plan

All analyses were performed on SPSS and Mplus version 8.2 (Muthén & Muthén, 2017). Before the primary analyses, missing data patterns, correlations among variables, and descriptive statistics of the dataset were examined. The percentages of the item level missingness on the demographic and outcome variables

collected in 2022 were acceptable, ranging from 0.2% to 3.3% (Dong & Peng, 2013). Means of SocWB at each time point and respondents' demographic characteristics were compared across missing values' patterns. The results indicated no significant differences in the missing values' patterns regarding ethnicity and overall SocWB at each time point. However, missingness was related to gender identity and study cohorts; these demographic variables were controlled in the analysis. These results supported missing at-random assumptions (Little & Rubin, 2002). Built upon this assumption, we used maximum likelihood estimation with robust standard errors (MLR). When estimating model parameters, MLR conforms to the tenet that data are missing at random, uses all the data in the sample with the full information maximum likelihood (FIML) approach, and allows variables to be associated with missing data patterns (McKnight et al., 2007).

7.3.6 Research Question 1: Descriptive Summary of Students Responses 2019–2022

We provided a descriptive summary of adolescents' responses to each SocWB item for 2019 through 2022.

7.3.7 Research Question 2: Latent Profile Analysis (LPA) to Identify Student SocWB Profile Changes from 2019 to 2022

Latent profile analysis was employed to explore unobserved subgroups of individuals who exhibited different trajectories of SocWB before, during, and post-restrictions. Using the four mean scores from each timepoint of the five SocWB items, 1-to 7-class LPA models were estimated. A series of models were specified by changing the number of classes and model structures that allowed indicator means, variances, and covariances to be specified and vary across classes (Masyn, 2013). There is no single measure for how well a model fits the data when creating a mixture model; instead, a proper class structure was determined by combining various statistical indicators with a theoretical ground of the constructs (Nylund-Gibson & Choi, 2018). We utilized several fit indices to compare models, including the Bayesian Information Criterion (BIC; Schwarz, 1978), the consistent Akaike Information Criterion (AIC), the sample size adjusted Bayesian Information Criterion (saBIC), the Lo-Mendell-Rubin (LMR), and the bootstrap likelihood ratio test (BLRT). Lower AIC, BIC, and saBIC values suggest a better model. Significant *p*-values of LMR and BLRT indicate that the additional class significantly improves the model. In addition to this model fit and classification statistics, we also considered the conditional mean plots for each model. Together, we evaluated the different class structures proposed by each model considering theoretical grounds, fit statistics, and parsimony. Additionally, classification diagnosis of profiles' separation was evaluated with average posterior class probability (AvePP, i.e., >0.70) and odds of correction classification ratio for Class k (OCCk, i.e., >5). These additional indicators assess classification precision and separation (Masyn, 2013; Nagin, 2005).

7.3.8 Research Question 3: LPA Profile Covariates

Lastly, the manual BCH approach examined profile differences, exploring how covariates relate to class membership and the relation between class membership and distal outcomes (Asparouhov & Muthén, 2014; Nylund-Gibso et al., 2019). The manual BCH method helps minimize class shifting with auxiliary variables while simultaneously estimating relations on the demographic covariates and distal outcomes with the profiles (Asparouhov & Muthén, 2014). Wald tests were employed to evaluate whether the estimated means of the distal outcomes differed across profiles, and the demographic covariates were regressed on the latent profiles and each outcome.

8 Results

8.1 Research Question 1: SocWB Descriptive Analyses

Figure 1 shows the SocWB item means for 2019 through 2022. The first observation is that each SocWB item was higher in 2019 than in subsequent years. Second, the three SocWB elements most closely aligned with adolescents' daily interactions (integration, contribution, and acceptance) declined after 2019, with a reported experience of about 2–3 times per week. Third, students reported that their perception of connectedness to a community was the most resistant to change, remaining above a value of 4.0 (2–3 times per week). Fourth, four indicators had their most prominent decrease in 2020, the first year of pandemic restrictions. Still, none returned to pre-pandemic levels in 2022. Fifth, the two SocWB items asking adolescents whether society made sense to them (coherence) and if society was a good place (actualization/growth) diminished the most during the pandemic and remained at lower levels in 2022. Of these two distal SocWB indicators, on average, adolescents reported having experiences reinforcing these aspects of SocWB once a week or less in 2022.

Figure 2 presents the percentage of adolescents who answered "*almost every day*" or "*every day*" to the SocWB items—these two responses represent flourishing well-being. For example, 31% of adolescents reported feeling they contributed to society almost daily or more often in 2022, compared to 45% in 2019. This chart shows that in 2019, about one-half of adolescents gave flourishing-level responses. Subsequently, levels diminished during the pandemic and did not recover by 2022. The SocWB item with the most negligible deterioration over the four observations was the item asking about adolescents' sense of connectedness to a (local) community.

The descriptive data in Fig. 3 shows the total number (0–1, 2–3, 4–5) of the five SocWB items that had flourishing levels of responses of "*almost every day*" or "*every day*." Even in 2019, before the pandemic's onset, the largest group (42%) was students giving 0–1 languishing level responses, and the percentage increased to above 60% for the remaining three observations. The ratio of languishing 0–1 to flourishing 4–5 responses was 4.7 in 2020 and 5.3 in 2021, with an improvement in 2022 to 2.9.

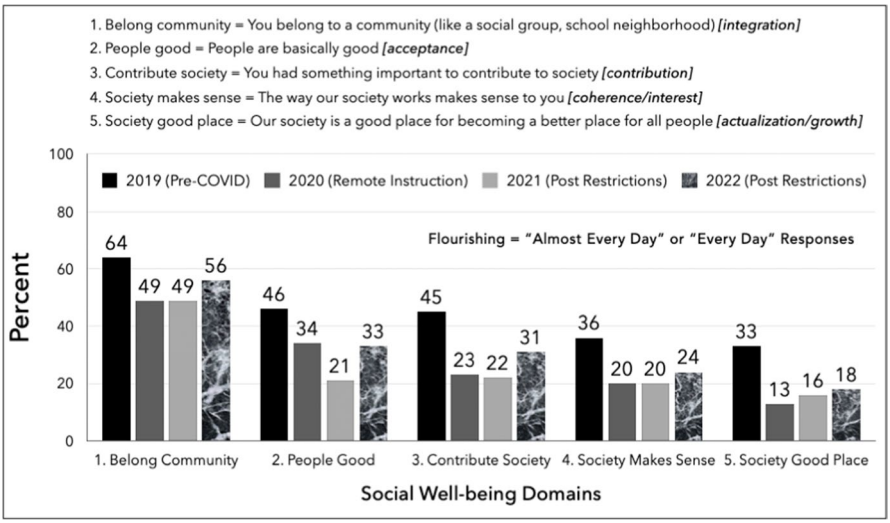

Fig. 2 Percentage of adolescents answering "Almost Every Day" or "Every Day" responses to the mental health continuum-short form social well-being items 2019 (Pre-COVID-19) to 2022 (post-restrictions)

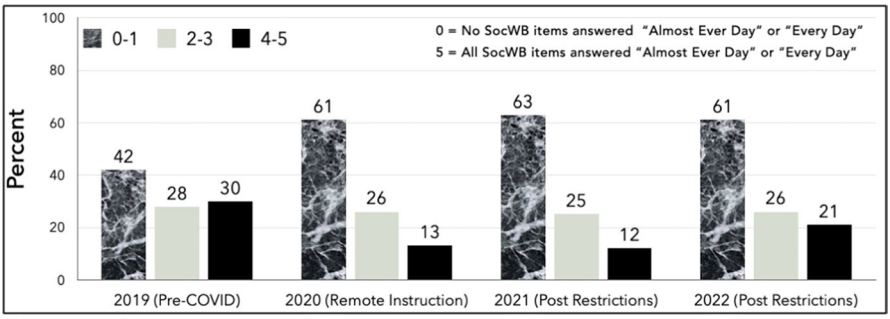

Fig. 3 Percentage of adolescents answering 0–1, 2–3, and 4–5 of social well-being "Almost Every Day" or "Every day by observation year

8.2 Research Question 2: Latent Profile Analyses

Tables 1 and 2 show descriptive information of the variables in the analysis. Across the four observations, the SocWB mean scores correlated positively. The SocWB mean item values correlated moderately with optimism, school connectedness, and PsyWB. Psychological distress had small and negative correlations with the SocWB mean item values across the observations. The outcome variables were moderately correlated.

Table 1 Descriptive statistics of indicators and covariates ($N = 1{,}299$)

Indicators	*M*	*SD*
Latent Profile Analysis Indicators		
2019 Social well-being	3.97	1.25
2020 Social well-being	3.24	1.19
2021 Social well-being	3.31	1.16
2022 Social well-being	3.50	1.21
Distal Outcomes		
Optimism	2.65	0.74
School connectedness	4.42	0.99
MHC-SF psychological well-being	4.08	1.11
SEDS-B psychological distress	1.95	0.70
Demographic Variables	Percentage	
Female	49.9%	
Male	50.1%	
Other gender identification	26.0%	
Other ethnic identification	17.3%	
Latin@	31.9%	
White, not Hispanic or Latin@	50.8%	
Cohort: Grade 7–10	34.9%	
Cohort: Grade 8–11	37.0%	
Cohort: Grade 9–12	28.2%	

Table 2 Correlations among study variables

Variables	1	2	3	4	5	6	7	8
1. 2019 Social well-being	—							
2. 2020 Social well-being	.54**	—						
3. 2021 Social well-being	.48**	.60**	—					
4. 2022 Social well-being	.45**	.54**	.52**	—				
5. Optimism	.33**	.38**	.37**	.62**	—			
6. School connectedness	.32**	.34**	.33**	.52**	.44**	—		
7. Psychological well-being	.41**	.45**	.46**	.79**	.68**	.51**	—	
8. Psychological distress	-.22**	-.26**	-.28**	-.44**	-.49**	-.36**	-.50**	—

** $p < .001$

8.2.1 Model Selection

Table 3 displays the fit information of each model estimated. Model 1 was the default model structure with variance fixed across profiles and unspecified covariances. Conceptually, the SocWB means of adjacent observations were expected to be correlated (Muthén & Curran, 1997). Thus, we estimated the covariances of adjacent time points in the remaining model structures, which generally showed better fit statistics than Model 1. Model 2 specified covariances of adjacent time points, but

Table 3 Fit Statistics for LPA class enumeration ($N = 1{,}299$)

	k	LL	AIC	BIC	saBIC	BLRT *p*	VLMR-LRT *p*
Model 1	1	-5494.43	11004.85	11045.93	11020.52	—	—
	2	-5116.29	10258.57	10325.32	10284.03	< .001	< .001
	3	-5057.08	10150.16	10242.59	10185.41	< .001	< .001
	4	-5044.45	10134.90	10253.01	10179.95	< .001	.003
	5	-5032.07	10120.14	10263.92	10174.97	.013	.504
	6	-5017.58	10101.16	10270.62	10165.79	< .001	.435
	7	-5004.89	10085.78	10280.91	10160.20	.013	.702
Model 2	1	-5208.52	10439.04	10495.52	10460.58	—	—
	2	-5066.33	10164.66	10246.82	10195.99	< .001	< .001
	3	-5047.33	10136.65	10244.49	10177.78	< .001	.486
	4	-5023.08	10098.17	10231.67	10149.09	< .001	.022
	5	**-5013.04**	**10088.08**	**10247.26**	**10148.79**	**.012**	**.276**
	6	-5002.98	10077.96	10262.81	10148.46	.013	.430
	7	-4994.48	10070.95	10281.48	10151.25	.050	.140
Model 3	1	-5208.52	10439.04	10495.52	10460.58	—	—
	2	-5063.68	10165.36	10262.92	10202.57	< .001	< .001
	3	-5030.57	10115.14	10253.78	10168.02	< .001	.326
	4	-5004.84	10079.67	10259.39	10148.22	.013	.111
	5	-4982.73	10051.46	10272.26	10135.67	.020	.485
Model 4	1	-5208.52	10439.04	10495.52	10460.58	—	—
	2	-5049.46	10144.92	10263.02	10189.96	< .001	< .001
	3	-4997.98	10065.95	10245.67	10134.49	< .001	.076

K number of classes, *LL* model log-likelihood, *AIC* consistent Akaike information criterion, *BIC* Bayesian information criterion, *saBIC* sample size adjusted BIC, *BLRT* bootstrapped likelihood ratio test, *VLMR-LRT* Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test, $p = p$-value; Bold = the selected model. Model 1 indicates fixed variance across classes and no specified covariances. Model 2 indicates adjacent covariances are specified for the overall model; Model 3 indicates class-specific adjacent covariances across classes. Model 4 indicates class-specific adjacent covariances and variances across classes

they were estimated to be the same across profiles. Model 3 estimated class-specific covariances of SocWB at adjacent time points. Model 4 estimated class-specific variances of the four profile indicators and covariances of indicators at adjacent time points. Because of the compounded parameters estimated, Model 4 did not converge after a 3-profile solution, and Model 3 did not converge after a 5-class solution. The decrease in BIC, AIC, and saBIC was also slight when comparing Model 4 with Model 2. Model 2 showed slightly better or similar values on BIC, saBIC, and AIC than Model 3. Considering the principle of parsimony, profiles estimated in Model 2 were favored over Models 3 and 4; thus, its solutions were closely examined.

In Model 2, AIC decreased with added profiles. BIC showed the lowest value at a 4-profile solution, whereas saBIC was the lowest at a 6-profile solution. BLRTs were statistically significant with a *p*-value less than 0.05 from the 2- to 6- profile solutions. LRT was significant at the 2- or 4-profile solution. Because of the conflicting

information based on the fit statistics and their minimal differences across solutions, we examined the profiles' configurations and sizes from the 4- to 6-profile solutions.

The 4-profile solution showed two ordered profiles (a consistently high or low level of SocWB across time points) and two profiles characterized by recovering and fluctuating trajectories. The 5-profile solution featured an additional profile with adolescents' SocWB not recovering as high as the pre-COVID-19 period. This other group also comprised one-fifth of the participants. The 6-profile solution had a similar configuration with an added group showing a consistently moderate level of SocWB across time points. There was also a small profile (< 3%) in the 6-profile solution. All solutions had low entropy values, ranging from 0.40 to 0.60. Considering the added meaningful and substantial group in the 5-profile solution and similar fit statistics between these three solutions, a 5-profile solution in Model 2 was selected.

Figure 4 shows the five profile solution patterns and sizes. The profiles are named (1) Stable-Low, (2) Languishing, (3) Succumbing, (4) Recovering, and (5) Stable-High based on the patterns of the four profile indicators. Whereas the Stable-High and Stable-Low profiles seemed to represent adolescents with a somewhat stable SocWB orientation, we used the gerund (ing) form to describe the other three latent profiles to indicate our perspective that these latent profiles do not necessarily represent stable end-states but could describe an evolving, unstable SocWB experience. Regarding the profile classification, the entropy of the five-profile solution was low (0.56). An examination of the AvePPs of each profile found that only the Succumbing and Languishing profiles had values lower than 0.7, whereas all profiles had OCC values above 0.5. According to these classification diagnostic indicators, individuals across the Stable-Low, Recovering, and Stable-High profiles were highly differentiated, and individuals within these three profiles also had considerably

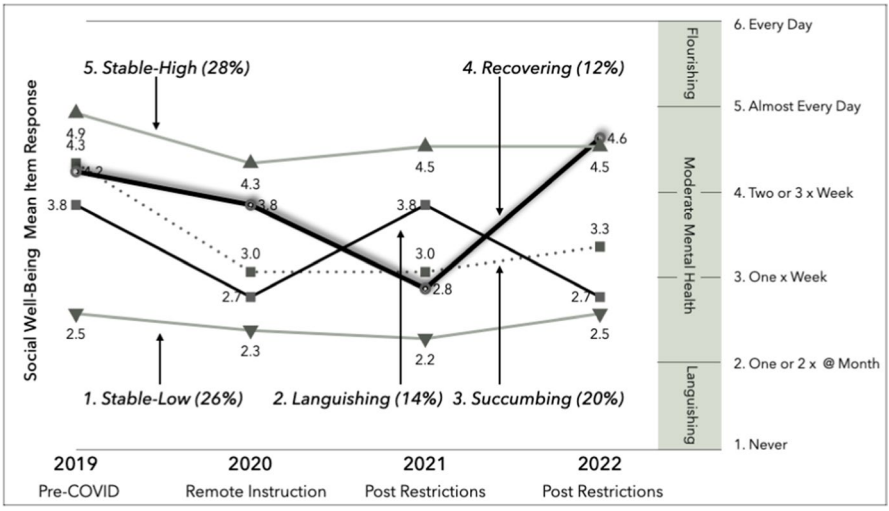

Fig. 4 Annual (2019–2022) MHC-SF social well-being mean item responses for the five latent analysis profiles

similar response patterns (Masyn, 2013; Nagin, 2005). However, individuals in the Languishing and Succumbing profiles showed low separation and classification precision.

Generally, about 60% of the adolescents in 2019 in the Recovering, Succumbing, and Stable-High profiles reported at least moderately positive SocWB experiences in the previous month. In comparison, in 2022, in this study, only 40% of the adolescents in the Recovering and Stable-High profiles reported experiencing positive SocWB more than two to three times per week. No matter the differences in adolescents' SocWB trajectories across the four years, all profiles showed decreased SocWB during the pandemic. There was also a substantial increase in adolescents experiencing less favorable SocWB after the pandemic.

1. **Stable-Low Profile**
   This group of adolescents reported substantially lower SocWB experiences before, during, and after the pandemic restrictions. Adolescents in this profile consistently reported having positive SocWB experiences less than once a week during the previous month. This profile was the second largest, with 26% of respondents.
2. **Languishing Profile**
   Fourteen percent of adolescents belonged to this profile. They reported fluctuating levels of SocWB across the years. They started with a moderate level of positive SocWB in 2019, followed by a significant drop in their perceived SocWB amid the pandemic. Although their reported SocWB rose again in 2021, they experienced another decline in 2022.
3. **Succumbing Profile**
   This profile comprised adolescents experiencing a considerable and persistent decrease in their perceived SocWB during and after the pandemic. Before the pandemic, they reported experiencing positive SocWB more than two to three times per week. However, it substantially dropped to once a week during the pandemic, with minimal improvement after the pandemic. In 2022, adolescents reported experiencing positive SocWB nearly equivalent to those in the Stable-Low profile. This profile comprised 20% of the participants.
4. **Recovering Profile**
   Adolescents from the Recovering profile also initially reported experiencing positive SocWB more than two to three times per week before the pandemic. Their SocWB initially declined during the pandemic, like the Succumbing profile. Nevertheless, adolescents in the Recovering profile returned to their higher pre-pandemic level. It was the smallest profile (12%).
5. **Stable-High Profile**
   The profile of Stable-High (28% of participants) was the largest. Adolescents in this profile reported more favorable SocWB than adolescents in other profiles. They experienced positive SocWB almost every day before the pandemic. Although adolescents in this profile also reported lower SocWB during the pandemic, the drop in their SocWB was smaller relative to other profiles, and the level of SocWB persisted in the range between "*almost every day*" and "*two to three times per week*" across the four years.

Table 4 2022 Mean and standard errors of outcome indicators for latent profile trajectories

Social well-being trajectories profiles	Psychological well-being	School connectedness	Optimism	Psychological distress
1. Stable-Low	2.99 (.09)[a]	3.75 (.09)[a]	2.10 (.06)[a]	2.26 (.06)[a]
2. Languishing	3.15 (.12)[a]	3.97 (.13)[ab]	2.23 (.08)[a]	2.20 (.08)[a]
3. Succumbing	4.10 (.16)[b]	4.24 (.19)[b]	2.55 (.11)[b]	2.09 (.12)[a]
4. Recovering	5.05 (.09)[c]	4.92 (.11)[c]	3.30 (.08)[c]	1.64 (.08)[c]
5. Stable-High	5.11 (.06)[c]	5.13 (.07)[c]	3.16 (.05)[c]	1.54 (.05)[c]
Value Range	1–6	1–6	1–4	1–4

Mean values not sharing superscripts differ at $p < .05$ on pairwise—Wald equality tests for distal outcomes across profiles

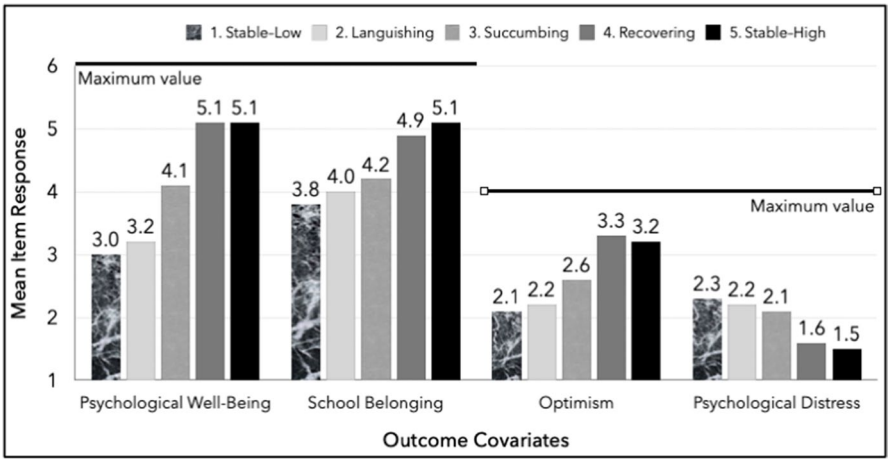

Fig. 5 2022 Outcome indicator means for each latent profile trajectory group (as shown in Table 4)

8.3 Profiles' Associations with Outcomes

Table 4 shows the means and standard deviations of the outcomes in each trajectory profile and their statistical differences between profiles. Figure 5 is a graphical presentation of outcomes in each profile. Adolescents in the Recovering and Stable-High profiles reported the most favorable PsyWB, optimism, and school connectedness, as well as the lowest level of psychological distress in 2022 compared with other profiles. In contrast, adolescents in the Stable-Low and Languishing profiles perceived a higher level of distress and a lower level of PsyWB, optimism, and school connectedness post-restrictions. Adolescents in the Succumbing profile reported better PsyWB, optimism, and school connectedness than those in the Stable-Low profile. Still, the level of distress was statistically the same between the two profiles.

8.4 Demographic Correlates of SocWB Profiles

Table 5 shows the association of the demographic correlates with the latent profiles. Profiles differed mainly by adolescents' sexual orientation, gender, and ethnic identities. Using the Stable-Low profile as the reference group, significantly more adolescents identified as straight than those with other sexual orientations in the Recovering and Stable-High profiles. More females than males were classed into the Stable-Low profile than the Stable-High profile. There was also a higher proportion of non-Latin@ White adolescents than Latin@ adolescents in the Stable-High profile. Study grade cohorts (Grades 7, 8, and 9 in 2019) did not differentiate the profiles' membership. Generally, demographic variations of adolescents' backgrounds across profiles were minimal.

Table 5 Students' demographic correlates for the five-class solution with the stable-low (Profile 1) as the reference group

Mental Health Class	Variable	Logit	SE	OR
2. Languishing	Female	-0.65	0.33	0.52
	Sexual Minorities	0.51	0.36	1.67
	Ethnic Minorities	0.11	0.44	1.12
	White	-0.32	0.36	0.73
	Cohort: Grades 7–10	-0.19	0.44	0.83
	Cohort: Grades 8–11	0.34	0.38	1.40
3. Succumbing	Female	0.19	0.53	1.20
	Sexual Minorities	0.69	0.51	1.99
	Ethnic Minorities	0.29	0.62	1.34
	White	-0.38	0.57	0.68
	Cohort: Grades 7–10	-0.15	0.55	0.86
	Cohort: Grades 8–11	-0.71	0.62	0.49
4. Recovering	Female	-0.37	0.30	0.69
	Sexual Minorities	-1.29*	0.53	0.27
	Ethnic Minorities	0.10	0.45	1.10
	White	0.34	0.33	1.40
	Cohort: Grades 7–10	0.53	0.40	1.70
	Cohort: Grades 8–11	0.42	0.39	1.52
5. Stable-High	Female	-0.51*	0.22	0.60
	Sexual Minorities	-1.83***	0.42	0.16
	Ethnic Minorities	-0.36	0.35	0.70
	White	0.52*	0.23	1.68
	Cohort: Grades 7–10	0.38	0.27	1.47
	Cohort: Grades 8–11	0.13	0.27	1.14

OR Odds Ratio

*$p < .05$. ***$p < .001$

9 Discussion

Latent profile analysis identified five profiles we interpreted as providing relevant and meaningful information about adolescents' SocWB trajectories during the COVID-19 pandemic. Consistent with homeostasis theory, the analysis delivered two ordered profiles, lower and higher SocWB profiles (Stable-Low and Stable-High). These two profiles accounted for about 50% of the sample. These two profiles had slight SocWB declines but were relatively stable across the four observations. Also following from homeostasis theory, adolescents in the Stable-Low profile reported experiencing positive SocWB experiences no more than 1–2 times a month across all observations. This trajectory contrasted with the Stable-High profile, which reported positive SocWB affirmations more frequently (2–3 per week—nearly daily). Notably, these groups make up about 50% of the sample. Another general observation is that even before the pandemic's onset, about one-third of the adolescents reported less than optimal social well-being, consistent with previous studies finding that adolescents report lower SocWB levels (Reinhardt et al., 2020).

9.1 Post-Restriction Mental Health Outcomes

Of specific interest, 54% of adolescents had trajectories between the Stable-Low (26%) and Stable-High (28%) patterns. We identified three profiles reflecting different SocWB levels across the four observations. These three trajectories included adolescents showing Recovering, Succumbing, and Languishing patterns. Again, we used the gerund (ing) noun form to describe these groups because we do not regard these as established trait characteristics but still emerging trajectories.

The first observation is that about 40% of the adolescents in the Stable-Low and Languishing trajectories reported less than optimal or sub-optimal SocWB even before the pandemic, a finding consistent with previous research (Reinhardt et al., 2020). This finding points to the need to attend to adolescents' SocWB because even without considering the effects of events such as a pandemic, many adolescents reported insufficient daily experiences to foster optimal SocWB. By the end of 2022, after the post-pandemic restrictions were relaxed, these adolescents reported, on average, experiencing positive SocWB affirmations less than once a week each month.

Adolescents with higher initial SocWB levels in 2019 reported various SocWB levels between 2020 and 2022. The Stable-High group (27%) reported some diminished SocWB in 2020 and 2021 but returned to near-2019 levels by 2022. The Recovering profile showed substantial decreases in 2020 and 2021 but returned to 2019 levels in 2022. This profile is only 12% of all the participants. Still, it is encouraging because it shows that some adolescents' resilience capacity allows them to recover to their pre-pandemic well-being set point.

A more concerning finding was that the Succumbing and Languishing trajectories had higher-range SocWB in 2019 but reported having positive SocWB affirmations only about once weekly across 2020–2022. The Languishing profile, representing one

in five study participants, had lower PsyWB, school connectedness, and optimism levels than the Stable-High and Recovering profiles. However, the Succumbing profile had higher PsyWB than the Stable-Low and Languishing profiles. Further research is needed to determine if the Succumbing and Languishing profiles might return to pre-COVID-19 SocWB levels or if the challenges of their pandemic-related experiences were substantial enough to decrease their social well-being homeostatic set point.

As previously reported, adolescents' SocWB was substantially associated with their overall PsyWB (Franken et al., 2018; Luijten et al., 2019). Adolescents in the Stable–Low and Languishing profiles reported experiencing positive PsyWB only once a week. These groups also reported the lowest levels of school connectedness, higher levels of psychological distress, and lower optimism. These findings reinforce the need for an increased focus on SocWB in mental health services and are consistent with a study of Israeli college students during COVID-19 that found SocWB was lower than EmoWB and PsyWB and was significantly correlated with anxiety (Bashkin et al., 2022).

9.2 Fostering Adolescents Social Well-Being

As mental health professionals and educators consider how adolescents' experiences during the height of the COVID-19 pandemic restrictions affected their SocWB, they may want to consider related conceptual perspectives that could increase understanding of factors affecting adolescents' SocWB trajectories. Research has found that students' perceptions of higher school social support moderated the adverse impacts on well-being during the pandemic (Rodríguez-Rivas et al., 2023). A potential complementary perspective to consider how to build and maintain school support comes from research examining the *mattering* construct (Flett, 2022).

Educators and mental health professionals are aware of and concerned that adolescents experience life in ways that support accurate positive cognitions that foster higher SocWB. Encouraging young people's SocWB is desirable because it indicates the status of their life journey to become fully engaged and contributing members of their societies (Lerner et al., 2019). Similarly, youth development and resilience research has identified student engagement and meaningful contributions to the community as essential elements of optimal youth development (Cress et al., 2023). Many schools include service learning or community service activities in their curriculum and graduation requirements. These educational programs recognize that young people benefit from experiences that positively engage them as contributing community members. More significantly, adolescents receive positive, encouraging feedback from community members, acknowledging them as consequential citizens whose opinions are sought and matter. Of course, low perceptions of SocWB are engagement's antithesis.

Related to school connectedness and SocWB experiences is the *mattering* construct. Rosenberg and McCullough (1981) Mattering construct had three essential emotional and cognitive components, defined from a young person's viewpoint: (a) a youth feeling that when they are not present, someone will notice their absence (seen); (b) perceptions that other people regard the youth as necessary

(contributing); (c) other people paying attention and acknowledging the youth (valued). Pedagogical practices such as purposeful project-based learning can enhance students' sense of meaningful engagement and making valued contributions (Virtue & Hinnant-Crawford, 2019). Adolescents with low Mattering may feel unacknowledged or invisible in their environments—as when an adolescent is absent from school for a few days, and when the student returns to school, no teachers acknowledge the absence and inquire if the student is well.

Social distancing restrictions during the COVID-19 pandemic decreased adolescents' interactions with peers and adults at school and in communities. Decreased social interaction could have contributed to adolescents' sense that they were not meaningfully engaged and that their participation in school and community was not acknowledged and valued. These experiences are directly related to adolescents' overall sense of SocWB. This circumstance is a concern because previous research shows that adolescents with lower Mattering are vulnerable to negative developmental experiences, including depression and suicidal ideation (Flett, 2022). The Mattering construct could contribute by considering how the pandemic may have affected adolescents' SocWB via its links to adolescents' resilience. Could high mattering have had strength-boosting power in helping adolescents manage social challenges during COVID-19?

Flett and others more recently suggested that "anti-mattering" is not just low-mattering—it is when an individual infuses their self-identity with the belief that they do not matter and are socially invisible. In adopting this mindset, individuals can avoid social interactions that might otherwise foster a sense of engagement, personal importance, and significance in their community. The extent to which adolescents' mattering suffered during the pandemic is a topic worthy of exploration. In addition, understanding the combined effects of mattering and SocWB would also be interesting to explore further. What are the relative levels of Mattering for adolescents with SocWB patterns like those identified in the present study? Is the Stable-High profile associated with high Mattering and the Stable-Low profile associated with low Mattering? Are adolescents in the Succumbing profile infusing their self-identities with anti-mattering cognitions with possible long-term negative developmental implications?

9.3 Study Limitations

Qualifications include this study's questionnaire was not anonymous, with possible social desirability response influences. The participants entered a unique district identifier so the school staff could monitor student progress. Each school had a mental health care team that followed up to support students reporting low life satisfaction and higher levels of emotional distress. Providing this school support means that some adolescents whose SocWB was not optimal during the study period received counseling support services. These services could have comforted the adolescents who might not have received help using an anonymous response format. However, the district administered a wellness survey for nearly 10 years. The procedures used in this study were ones with which the district staff, parents,

and students were quite familiar. Despite the possible access to support services in school for adolescents who might have been struggling, the study findings still show that many adolescents' SocWB diminished during the study period.

The study sample had a reasonable level of diversity. However, the results have limited generalizability because of the geographical limitations (a coastal California community and a moderate-sized, well-resourced community). Nonetheless, we believe that the results of this study are compelling enough to motivate future research examining the adolescents' SocWB in broader socioeconomic, sociopolitical, and geographical regions. The results of this study suggest that broadening the focus of school-based mental wellness surveys and evaluation to include social aspects of well-being may expand insights into understanding which adolescents are developing optimally or not.

Another limitation is that no clear signal in the LTA fit indices indicated a single model that best represented the patterns of adolescents' SocWB from pre to post-COVID-19 restrictions. We selected the model based on several criteria, including fit statistics, conceptual meanings of the emerging profiles, profile size, and the principle of parsimony. While the five-profile solution produced meaningful and interpretable profiles, it had low entropy (0.56). The Languishing and Succumbing profiles were not as well differentiated as the others. By way of comparison, Gierczyk et al. (2022) used latent class analysis to analyze the responses of more than 2,500 Polish adolescents to a modified version of the Brief Multidimensional Life Satisfaction Scale (Huebner et al., 2006) in early 2021, about one year into the pandemic. They identified six profiles. One profile, comprising 50 percent of adolescents, reported high life satisfaction (scores between 8–9 on the ten-point response scale), which is higher than the 28% Stable-High class. Although we hypothesized that social turmoil associated with pandemic management would be expected to have some impact on adolescents' SocWB, we did not directly ask them to assess if they attended to and were affected by community and national disruption and turmoil. We also could not identify which student personal assets and social resources of the Stable-High and Recovering groups may have helped them maintain/cope with the pandemic challenges. For example, Wang et al. (2023), at the onset of the pandemic, asked more than 12,000 American adolescents to complete a daily diary for 29 days and found that peer support, parent support, and sleep quality operated as well-being promotive factors. Parent–child conflict, COVID-19 health-related stress, and low economic resources were risk factors for aversive effects. Identifying the resilience factors that support high SocWB is a topic for continued research consideration.

9.4 Conclusion

9.4.1 Main Study Findings

The present study's main observations and conclusions of this study are presented below.

1. *SocWB was suboptimal, even before COVID-19.* The sense of connectedness to a community (social integration) is the only SocWB indicator reported to occur an average of 2–3 times per week.
2. *SocWB diminished for many students.* A substantial portion of the adolescents, approximately 40%, reported diminished SocWB three years after COVID-19 restrictions began.
3. *Distal SocWB "larger society" items diminished the most.* Social coherence and actualization were experienced on average only about once a week.
4. *Diminished SocWB correlated with suboptimal mental health in 2022.* Adolescents' SocWB was positively associated with their overall mental health. Those reporting the most optimal mental health indicators in 2022 maintained a Stable-High SocWB level throughout the pandemic restrictions. The same relation was found for adolescents with declining SocWB and then recovering to pre-pandemic levels in 2022.
5. *Languishing and Succumbing: Vulnerable profiles.* Even though the Languishing and Succumbing profiles were less well differentiated, these two profiles expressed the poorest mental health outcomes in 2022 and comprised 34% of the sample. This observation emphasizes the importance of monitoring adolescents' SocWB for signs of instability, which may be associated with suboptimal global well-being.

9.4.2 Building Sense of Community and Making Contributions

Does SocWB's foundation, as suggested by the mattering construct (Flett, 2022), build from providing adolescents with authentic daily experiences, conveying to them that they (a) are visible (seen) and noticed by their peers and adults in their community; (b) think they are making meaningful contributions that are not taken for granted; and (c) feel valued as human beings? Mental health providers and educators should consider bringing this adolescent valuing perspective to their work and encourage schools and communities to create experiences to foster adolescents' SocWB. Indeed, from a societal perspective, a substantial portion of emerging adults harboring jaded views about their societies is highly undesirable. Societies need engaged adolescents to make meaningful contributions to sustain the arc of healthy and viable communities. Additionally, comprehensive mental health services should attend to adolescents' internal psychological experiences, build their internal assets, and consider their SocWB links to the external resources available to help them cope with life challenges.

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Data Availability Submit study data requests to the corresponding author.

Declarations

Informed Consent Informed parental consent was obtained for all students before administering surveys. Students gave consent before beginning the survey and could end participation at any time.

Conflicts of Interest The authors declare no conflicts of interest.

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