

Journal of Personality and Social Psychology

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Online First Publication, January 12, 2026. <https://dx.doi.org/10.1037/pspp0000595>

CITATION

Krämer, M. D., Stern, J., Buchinger, L., MacDonald, G., & Bleidorn, W. (2026). Life satisfaction, loneliness, and depressivity in consistently single young adults in Germany and the United Kingdom. *Journal of Personality and Social Psychology*. Advance online publication. <https://dx.doi.org/10.1037/pspp0000595>

Life Satisfaction, Loneliness, and Depressivity in Consistently Single Young Adults in Germany and the United Kingdom

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Young adults increasingly abstain from committed romantic relationships. However, psychological theories of singlehood are lacking, and it remains unclear who selects into remaining single throughout emerging adulthood and how consistent singles' well-being is affected over time. Here, we included 17,390 initially never partnered respondents from three panel studies from the United Kingdom and Germany providing 110,261 yearly observations from ages 16 to 29. First, we used survival analysis to predict who remained single. Young adults with lower well-being, male gender, higher education, and living alone or with parents stayed single longer. Second, we compared within-person age trajectories of life satisfaction, loneliness, and depressivity between consistent singles and eventually partnered respondents. Across emerging adulthood, consistent singles experienced comparatively stronger life satisfaction decreases and loneliness increases. Well-being deficits became more pronounced in the later 20s, when depressivity increases also diverged between groups. Evidence for moderation of these changes (e.g., by gender) was absent or inconsistent. Third, we examined how the first romantic relationship affected well-being aspects longitudinally. In both the short and long term, the first romantic relationship was associated with increases in life satisfaction and decreases in loneliness but not depressivity. Together, the findings indicate moderate average well-being risks when staying single in emerging adulthood. Well-being differences between consistent singles and eventually partnered respondents were minimal in adolescence but were exacerbated with prolonged singlehood. This highlights difficulties for first partnership formation in the later 20s because, concurrently, low well-being predicted remaining in singlehood longer. We discuss critical questions for singlehood theory development.

Keywords: singlehood, never partnered, young adulthood, well-being, romantic relationships


Supplemental materials: <https://doi.org/10.1037/pspp0000595.supp>

Traditionally, being in a long-term romantic relationship has been considered as the societal norm and often related to higher well-being (DePaulo & Morris, 2006; Soons et al., 2009). Still, the proportion of singles is on the rise in many countries (Adamczyk & Trepanowski, 2023; Esteve, Kashyap, et al., 2020; Pepping et al., 2018)—in terms of unmarried people (i.e., a legal definition of singlehood) but also in terms of people who are currently not in a committed romantic relationship including those who have never entered such a relationship (Eckhard, 2015; Fry & Parker, 2021; van den Berg &


Verbakel, 2022). Accordingly, social scientists are showing rising interest in the well-being implications of singlehood across the lifespan (Beckmeyer & Jamison, 2023b; Girme et al., 2023).


Conceptual and empirical research within the last 10 years has pointed out that there is great diversity in singlehood motivations and experiences (Apostolou et al., 2021; Beckmeyer & Jamison, 2023a, 2023b; Girme et al., 2016, 2022, 2023), ranging from voluntary to involuntary singlehood and from short- to long-term durations. One line of thought has criticized a deficit-oriented


Eranda Jayawickreme served as action editor.

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No outside funding was used. The authors thank everyone at the Institute for Social and Economic Research at the University of Essex, the German Institute for Economic Research (DIW Berlin), and the German Family Panel involved in making the data available to the research community.

Michael D. Krämer played a lead role in conceptualization, data curation, formal

analysis, methodology, software, validation, visualization, and writing—original draft. Julia Stern played a supporting role in conceptualization and methodology and an equal role in writing—review and editing. Laura Buchinger played a supporting role in conceptualization and methodology and an equal role in writing—review and editing. Geoff MacDonald played a supporting role in conceptualization and methodology and an equal role in writing—review and editing. Wiebke Bleidorn played a lead role in supervision, a supporting role in conceptualization and methodology, and an equal role in writing—review and editing.

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theoretical focus of past approaches that cast singles as unhappy and stuck in an unwanted state of not being able to find a partner (DePaulo, 2023; DePaulo & Morris, 2006; Kislev, 2019). Instead, young adults may experience long-term advantages of singlehood such as a focus on educational investment, work, social lives (Beckmeyer & Jamison, 2023b; van den Berg & Verbakel, 2022, 2024), and a better work–life balance (Park, MacDonald, & Impett, 2023). These advantages might be especially pronounced for women who tend to report lower average gratification from relationships compared to men (Hoan & MacDonald, 2024; Wahring et al., 2024; Willitts et al., 2004). Therefore, this recent stream of research proposes that singlehood can have advantages or be positively associated with well-being, at least for some individuals.

At the same time, other empirical research using large-scale representative samples indicates associations of singlehood with poorer health and lower well-being (Gonzalez Avilés, 2024; Gonzalez Avilés et al., 2021; Oh et al., 2022; Purol et al., 2021; Stern et al., 2024; Ta et al., 2017). Thus, there is preliminary evidence that singlehood across the lifespan is—on average—a risk factor for physical and psychological health (Braithwaite et al., 2010; Carr et al., 2024; Lee et al., 2020; Roelfs et al., 2011), including lower life satisfaction, higher loneliness, and depressivity (Beckmeyer & Cromwell, 2019; Gonzalez Avilés, 2024; Watkins et al., 2024; Whitton et al., 2013). Further, finding a partner and especially entering cohabitation is beneficial for well-being in the short term and, in some studies, also in the long term (Asselmann & Specht, 2023; Blekesaune, 2018; Dush & Amato, 2005; Krämer, Rohrer, et al., 2025; Qin et al., 2025; Soons et al., 2009; Uunk & Hoffmann, 2023). Still, it remains unclear to what extent well-being differences between single and partnered individuals are driven by preexisting differences (i.e., selection effects) or the (lack of) romantic relationship experiences (i.e., socialization effects).

The present study compared never-partnered, consistent singles with those who eventually find a romantic partner during the developmental phase of emerging adulthood¹ (Arnett et al., 2014) to shed more light on the well-being implications of singlehood and factors that shape singles' experiences. First, we investigated predictors of how initially never-partnered individuals select into consistent singlehood or entering a relationship. Second, we compared the trajectories of psychosocial well-being from age 16 until age 29 between consistently single and eventually partnered people. We also examined how person characteristics moderate these age-related changes. Third, we estimated well-being changes over the course of experiencing the first romantic relationship and, again, tested moderators that related to differential event-related change (Haehner, Wright, et al., 2024). We used data from three large-scale representative panel studies from Germany and the United Kingdom and focused on life satisfaction, loneliness, and depressivity as key aspects of psychosocial well-being (Willroth, 2023) that cover cognitive–evaluative, interpersonal, as well as affective components that are relevant to singlehood.

Because singlehood encompasses diverse experiences and relationship histories (for a review, see Girme et al., 2023), it is important to clearly define different groups of singles (Kersten et al., 2024; Mortelmans et al., 2023; Park et al., 2024; Stern et al., 2024). Compared to those who are currently single but who have experienced previous relationships, those who have never been partnered in their life have larger well-being deficits (Stern et al., 2024). This is especially the case if continued singlehood is seen as involuntary or

undesired (Girme et al., 2023; Pepping et al., 2018), which a majority of singles report (Lehmann et al., 2015). Thus, in young adulthood, consistently single (i.e., never partnered) people might be distinct in terms of their psychological characteristics compared to people who have been in relationships (Beckmeyer & Jamison, 2023b; Bellani et al., 2017) and most at risk regarding health and well-being (Carr et al., 2024). So far, however, most research on never partnered individuals is based on cross-sectional data (e.g., Beckmeyer & Cromwell, 2019; Stern et al., 2024). Thus, it remains unclear whether these differences exist from early on in adolescence or emerge and intensify over years spent in singlehood.

Gauging effects of singlehood (vs. partnering) is also complicated, because previous research has typically not used comparison groups when examining changes over time (cf. Qin et al., 2025; Soons et al., 2009). To further investigate well-being in singles, the period of adolescence and early adulthood represents a critical window (also termed emerging adulthood; Arnett, 2000; Bleidorn & Schwaba, 2017; Roberts & Davis, 2016), where developmental paths diverge and there are many opportunities for forming relationships (Girme et al., 2023; Rapp, 2018; Walsh et al., 2024). Thus, longitudinal comparisons between never partnered and eventually partnered individuals are possible over this period. In addition, satisfaction with singlehood is lower compared to later phases of the lifespan (Oh et al., 2022; Park et al., 2022).

Theoretical Perspectives on Singlehood in Young Adulthood

Several theories from psychology, sociology, and related disciplines can be applied indirectly to singlehood although no single theory currently aims to describe the phenomenon and its relation to well-being in its complexity (Girme et al., 2023; Lavender-Stott et al., 2023). First, emerging adulthood has been described as a life phase (primarily from ages 18 to 29; Arnett et al., 2014) that is characterized by identity exploration and formation as well as delays in stable commitment in the domains of love and work (Arnett, 2000; Bleidorn & Schwaba, 2017). This phase primarily (but not exclusively) applies to young adults in Western cultures who pursue tertiary educational degrees and have not yet invested in stable social roles considered part of established adulthood. Thus, it is possible that singlehood is seen as more normative and consequently is less adverse for well-being during this phase compared to established adulthood, when well-being differences between consistent singles and partnered individuals might exacerbate.

Second, theoretical perspectives on developmental tasks converge on the view that certain age-graded, normative social roles such as the first romantic relationship are especially important in adolescence or early adulthood (Havighurst, 1972; Hutteman et al., 2014; Lodi-Smith & Roberts, 2007; Sieber, 1974). Mastering these developmental tasks by taking on committed, age-graded social roles contributes to maturation, a stabilization of the self-concept, and adaptive well-being development (Heckhausen et al., 2010; Roberts & Nickel, 2017). In addition, a committed romantic relationship may also be a source of social support (Cohen & Wills, 1985) and satisfy basic relatedness needs (Ryan & Deci, 2000). In

¹ We use the terms emerging and young adulthood interchangeable here, referring to ages 18–29. We also include ages 16 and 17 in analyses to provide a reference point for later development.

turn, satisfaction of relatedness needs is associated with higher well-being (Chen et al., 2015). Specifically for emerging adulthood, developmental task theory predicts that engaging in committed, stable romantic relationships at a normative² age relates to higher well-being compared to delaying or not pursuing this task (Furman & Collibee, 2014; Schulenberg et al., 2004). Thus, on average, these theories would predict lower well-being among consistent singles and adverse age trajectories. Conversely, they would predict positive adjustment in those eventually committing to a romantic relationship. This prediction also fits Erikson's (1994) stage theory of identity development in which the stage of intimacy versus isolation is described as the central conflict for identity formation in young adulthood.

Third, hedonic adaptation theories predict that positive life events such as a new romantic relationship improve well-being temporarily but that people return to their baseline levels within a few years of experiencing the event, on average (Diener et al., 2006; Luhmann & Intelisano, 2018). Conversely, a negative life event such as separation may impact young adults' well-being negatively for a few years afterward.

Together, although no theoretical framework specifically deals with *consistent* singlehood, some indirect conclusions can be drawn (see also Girme et al., 2023). Developmental theories conceptualize consistent singlehood as detrimental for well-being due to the delay or neglect of important developmental milestones. Although young adulthood is a period characterized by exploration and less selectivity in social relationships compared to middle and older adulthood (Carstensen et al., 2003; Heckhausen et al., 2010), forming a stable and happy relationship or marriage emerges as the most important life goal in the late 20s for many (Buchinger et al., 2022). In Erikson's (1994) theory of identity development, consistent singlehood would represent a central barrier toward reaching a sense of intimacy with others which is seen as a prerequisite to form meaningful, supportive relationships in adulthood. Thus, singlehood that is ongoing throughout adolescence and emerging adulthood likely neglects basic intimacy needs and leads to avoidant or anxious attachment styles which are associated with lower well-being in singles (Pepping et al., 2018, 2025). This may form vicious cycles further extending the duration of (involuntary) singlehood (MacDonald & Park, 2022).

Contrasting frameworks typically cast a happy single person as being single voluntarily, having a secure attachment style (e.g., regarding their friendships), and desiring romantic and sexual relationships comparatively less (DePaulo, 2023; see also Girme et al., 2023). From this perspective, consistent singlehood may offer autonomy and individuality (Kislev, 2018; Ryan & Deci, 2000) as well as psychological richness (Oishi & Westgate, 2022), while allowing singles a greater social commitment to nonromantic close others (Burton-Chellew & Dunbar, 2015). However, the extent to which these considerations apply to consistent singles in emerging adulthood is unknown. Last, consistent singlehood can also be conceptualized as a social identity (Kislev, 2024). Choosing to avoid romantic relationships and actively identifying with that choice likely shapes well-being in singlehood.

Empirical Research on Singlehood and Well-Being

So far, few studies have investigated how singlehood and romantic relationships relate to well-being changes in adolescence and young

adulthood. Some of these studies have focused on early dating and sexual activity as risk factors for adjustment and psychosocial well-being (Ciairano et al., 2006; Connolly et al., 2013; Natsuaki et al., 2009). For example, one study reported that adolescents in the United States who dated increased more in depressivity than those who did not (Joyner & Udry, 2000). At the same time, other studies reported that adolescents who did not date at all reported lower self-esteem and dissatisfaction with their social life (Beckmeyer & Malacane, 2018; Ciairano et al., 2006). These previous studies often surveyed smaller convenience samples of adolescents at one time point during their development. Further, although there is initial evidence for cross-sectional associations between singlehood and well-being, less is known about links with developmental changes in well-being (cf. Gonzalez Avilés et al., 2021; Joyner & Udry, 2000; Oh et al., 2022), as well as on changes in well-being when experiencing the first committed relationship (cf. Gonzalez Avilés et al., 2021; Krämer, Rohrer, et al., 2025; Wagner et al., 2015).

Early romantic relationships are often comparatively short and low in commitment (Seiffge-Krenke, 2003). During the late teens or early 20s, relationships typically reach a higher level of commitment and duration, although considerable variation between individuals exists in how and when serious romantic relationships are formed (Boisvert & Poulin, 2016). Still, a considerable proportion of teens and young adults do not date at all, in Germany up to an estimated 20% (Gonzalez Avilés et al., 2021; Wagner et al., 2015). Compared to past decades, not having a partner is also seen as less unusual and less essential for happiness today (Böger & Huxhold, 2020; Bühler & Nikitin, 2020; Gonzalez Avilés et al., 2025; Scheling & Richter, 2021). Thus, today's societal norms in Western countries are more accepting toward voluntary singlehood, although stigmatization against voluntary singles (Byrne & Carr, 2005; DePaulo & Morris, 2006; Fisher & Sakaluk, 2020) as well as social pressures from family and friends potentially still contribute to negative singlehood experiences (Himawan et al., 2018; Sprecher & Felmler, 2021). Nowadays, during emerging adulthood (from ages 18–29), many young adults aim to balance education, career, and relationship goals simultaneously but might need to negotiate trade-offs between these life domains (Arnett et al., 2014; Shulman & Connolly, 2013; Sneed et al., 2007).

In this context, it is critical to examine which factors predict who remains single in early adulthood and who eventually finds a partner. This provides a fuller picture of the potential influences that underlie selection mechanisms (Luhmann et al., 2013) and reveals what group differences exist from the start.

Selection Into Singlehood (RQ1)

Research on dating more generally indicates that people who are happier (and more extraverted) are also more popular, are perceived as more attractive, and find a partner more easily (Andrae, Krämer, Hopwood, Denissen, Scholz, Bocklet, & Bleidorn, 2025; Back et al., 2011; Harris & Vazire, 2016; Hoan & MacDonald, 2025; Neyer & Lehnart, 2007; Ramsey & Gentzler, 2015; Stutzer & Frey, 2006). Conversely, lower happiness, extraversion, and agreeableness seem to increase the likelihood of singlehood (Apostolou & Tsangari, 2022; Back et al., 2023; Harris & Vazire, 2016; Hoan & MacDonald, 2025). Life event research has also supported this view, finding small

² *Normative* refers to typicality in a given social context here.

effects of life satisfaction predicting future romantic relationships and marriages (Bühler, Mund, et al., 2024; Luhmann et al., 2013; Oh et al., 2022; Qin et al., 2025; Wagner et al., 2015). Similarly, higher social withdrawal, which is related to loneliness, predicted delays in romantic involvement in adolescence (Barzeva et al., 2021). It can thus be expected that lower levels of well-being likely predict staying single for longer during young adulthood.

Demographic and sociological research has found that the links between socioeconomic factors and singlehood in young adulthood differ by gender. This evidence generally shows that men with lower educational degrees and women with higher educational degrees are more likely to remain single (Bellani et al., 2017; van den Berg & Verbakel, 2022; Wiik & Dommermuth, 2014). However, one Dutch study reported that university-educated men are also more likely to remain single compared to men with lower education degrees (Dykstra & Poortman, 2010). Similarly, there is some evidence that a lack of economic resources, such as low income or unemployment, makes singlehood more likely in men (Peetz & MacDonald, 2025), whereas more economic resources increase the likelihood of long-term singlehood in women (Dykstra & Poortman, 2010; Kalmijn, 2011; cf. Peetz & MacDonald, 2025). For men, this is also in line with theoretical considerations of a hierarchy of fundamental needs in which prioritization of mate acquisition is conceptualized as following establishment of social status through resource access (Kenrick et al., 2010). Thus, young men might (need to) prioritize economic resource acquisition to some extent before finding a partner. Initial evidence also showed that living alone decreases the odds of singlehood in young adulthood compared to living with parents or roommates (Staff & Vuolo, 2024). Thus, in addition to education and income, we examined gender, living alone, and living with a parent as potential sociodemographic predictors of singlehood.

Taken together, there might be preexisting differences in psychological and sociodemographic factors when comparing consistently single to eventually partnered adolescents. However, previous research has not always adopted ideal designs to test such selection effects of singlehood in emerging adults prospectively, starting before their first romantic relationship, and longitudinally tracking relationship status over time.

Comparison of Age Trajectories in Well-Being (RQ2)

In addition to examining predictors of singlehood, more research is needed on age-related well-being changes in young adulthood in consistent singles particularly when compared to eventually partnered individuals. Overall, studies tracking general well-being found slight decreases in life satisfaction during adolescence and young adulthood (Baird et al., 2010; Kratz & Brüderl, 2025; Orben et al., 2022), with only relatively small gender differences. A recent coordinated data analysis of eight large-scale panel studies supports this view, indicating medium-sized ($d \approx -.40$) decreases from age 15 to age 23 after which mean levels more or less plateau in midlife (Wright et al., 2025). Concurrently, somewhat smaller increases occur in loneliness and depressivity (Wright et al., 2025). However, deviations from the mean-level changes are substantial, and there were considerable individual differences in life satisfaction changes during adolescence and young adulthood (Orben et al., 2022).

These individual differences in change may partly be explained by differential singlehood and relationship experiences (Gonzalez Avilés et al., 2021; Oh et al., 2022). On average, singles are lower

in life satisfaction and other well-being outcomes compared to cohabitating and noncohabitating partnered people (e.g., Evans et al., 2023; Stahnke & Cooley, 2021), but it is unclear at which point in adulthood these differences emerge and whether singlehood translates to continually lower well-being across age. Only a few studies explicitly tested differences in age-graded well-being trajectories between singles and partnered individuals using longitudinal data. Two studies longitudinally traced and compared well-being trajectories depending on relationship status using the German *pairfam* panel data. First, Gonzalez Avilés et al. (2021) found that singles in young adulthood had lower initial levels of life satisfaction and higher levels of loneliness (around age 16) compared to moderate daters but not compared to those who found a partner at a relatively late age or to those who frequently changed relationships. Further, singles did not differ from partnered groups in how their life satisfaction and loneliness changed over ages 16–25, and initial well-being gaps persisted until the end of the study (Gonzalez Avilés et al., 2021). Groups did not differ in depressive symptoms which increased slightly over time. Second, Oh et al. (2022) investigated three age cohorts sampled in *pairfam* ($M_{\text{age}} = 22$ at baseline; range 15–48) and also found a slight decline in life satisfaction over time in consistent singles, while satisfaction with being single was stable over time. However, this decline in life satisfaction seemed to be limited to the first few waves of participation and could thus also be partly explained by initial elevation bias (Baird et al., 2010; Kratz & Brüderl, 2025; Shrout et al., 2018). Still, much remains unknown regarding singles' well-being trajectories (where much previous research was based on a single data set) including moderators that relate to differential trajectories.

Because singles' experiences are diverse depending on a multitude of factors (Adamczyk, 2021; Girme et al., 2023; Gonzalez Avilés, 2024), we also examined moderators of age trajectories in well-being within the group of consistent singles. First, women may be happier in singlehood than men because they experience less gratification from relationships on average (Hoan & MacDonald, 2024, 2025; Wahring et al., 2024). Second, the household composition, especially living alone compared to living with others, may influence singles' well-being trajectories (Esteve, Reher, et al., 2020; Kersten et al., 2024; Mortelmans et al., 2023). Living alone likely relates to more adverse well-being trajectories. In addition, living with parents while being single may relate to more adverse well-being trajectories because it might be seen as a failure to adapt to adult roles in multiple domains of life. Third, as for selection effects, education and income may also influence well-being trajectories in singles (van den Berg, 2023), with higher household income and the pursuit or attainment of tertiary education relating to more positive age-graded well-being changes.

In summary, the literature on singles' well-being development in young adulthood remains sparse, and it is mostly unclear at which point of the lifespan well-being differences emerge between consistent singles and partnered individuals or whether they exist from the start and predict long-term singlehood. In addition, little is known about moderators of age trajectories.

Effects of the First Romantic Relationship on Well-Being (RQ3)

Although more studies have investigated changes in well-being when starting a romantic relationship, only a few studies have

focused on the *first* serious romantic relationship in young adulthood or on changes in aspects of psychosocial well-being besides life satisfaction such as loneliness and depressivity. Multiple studies have examined how romantic relationship experiences relate to well-being in adulthood and found generally positive effects on life satisfaction that might revert back to baseline, though, according to some accounts (Bühler, Mund, et al., 2024; Bühler, Orth, et al., 2024; Haehner, Krämer, et al., 2024; Krämer, Rohrer, et al., 2025). However, comparisons of life satisfaction changes with consistently single people were generally not included. Compared to life satisfaction, even less is known about changes in loneliness and depressivity.

Further, there is little research that explicitly focuses on how the first romantic relationship affects young adults' well-being during their teens and 20s. Results from this line of research are mixed; the first romantic relationship is either seen as part of healthy development or as associated with problem behaviors and worse mental health. On the one hand, entering the first relationship was related to increases in life satisfaction (Wagner et al., 2015) as well as decreases in neuroticism and increases in self-esteem (Lehnart et al., 2010; Neyer & Lehnart, 2007), both of which are related to well-being (Anglim et al., 2020; Gallagher et al., 2023; Sun et al., 2018). On the other hand, some studies indicated associations of adolescent romantic relationships with less favorable adjustment including worse mental health, drug use, and lower academic performance (Connolly et al., 2013; Kreager & Haynie, 2011; Longmore et al., 2016; Natsuaki et al., 2009; Orpinas et al., 2013). However, most of these studies were based on smaller samples. Less favorable effects might also be driven by frequent separations caused by the instability of relationships in early adolescence (Shulman & Connolly, 2013). Yet another study included adolescents and early adults and found stability in life satisfaction and depressivity across several partnership formations and separations, although older age and female gender predicted well-being decreases (Johnson et al., 2021).

One factor potentially explaining these mixed results is age at the first romantic relationship. While a very early age of the first committed relationship and first sexual intercourse has been described as a risk factor for adaptive development (Tolman & McClelland, 2011; cf. Harden, 2014), a delay of this developmental task and life goal toward adulthood may also be adverse for self-esteem and well-being (Heckhausen et al., 2010; Hutteman et al., 2014; cf. Gonzalez Avilés et al., 2023), especially if it is a highly valued life goal.

A majority of studies points to beneficial well-being trajectories of young people experiencing romantic relationships compared to those remaining single. However, there might also be benefits of prolonged singlehood, including greater autonomy, a stronger focus on educational attainment and personal interests, and broader social circles (Sarkisian & Gerstel, 2016; Tillman et al., 2019; van den Berg & Verbakel, 2022; for a review, see DePaulo, 2023). Over longer time periods, potential singlehood benefits for well-being may also be explained by the effect of separations. In adulthood, both men and women tend to decline in well-being at the end of a relationship and after (nonmarital) separation (Krämer, Rohrer, et al., 2025), although the immediate aftermath of a divorce seems to be characterized by relative stability or even increases in well-being compared to the last years of the relationship (Bleidorn et al., 2021; Doré & Bolger, 2018; van Scheppingen & Leopold, 2020). In older

adulthood, more frequent lifetime changes in marital partners are associated with lower life satisfaction compared to consistent partnering (Purol et al., 2021). There is also some evidence that men are more severely affected in their well-being losses because they initiate breakups less often (Brüning, 2022; Leopold, 2018; Wahrung et al., 2025) and are more dependent on a romantic partner for emotional support than women (Liao et al., 2018; Stronge et al., 2019). Thus, as additional moderators of well-being changes (besides age at the first relationship), we will test gender and the number of subsequent relationship transitions young adults experience during the observation period.

Thereby, a third main goal of the present study is to trace how the end of singlehood in young adulthood (i.e., the first romantic relationship) affects well-being and which moderating factors shape changes in well-being that are related to this transition.

The Present Study

To address current gaps in the literature on singlehood and well-being, we investigated the following research questions using longitudinal data from three nationally representative panel studies—two from Germany and one from the United Kingdom.

RQ1: What are the predictors of staying single throughout adolescence and emerging adulthood as compared to entering a romantic relationship?

RQ2a: How does well-being develop throughout adolescence and emerging adulthood in continuous singles as compared to those eventually partnered?

RQ2b: How do gender and contextual factors moderate well-being age trajectories in continuous singles?

RQ3a: How does the first romantic relationship affect well-being?

RQ3b: How do gender, age at the event, and subsequent relationship transitions moderate effects of the first romantic relationship on well-being changes?

The observation period of adolescence and emerging adulthood was defined as ages 16–29. We investigated life satisfaction, the cognitive component of subjective well-being (Diener et al., 1999), as well as loneliness and depressivity. These aspects covered well-being from several relevant angles, that is, cognitive–evaluative, interpersonal, and negative affective well-being, and were available in long time series in the data. An expected decrease in well-being would correspond to an increase in loneliness and depressivity. Based on theoretical frameworks and previous empirical research, we derived the following hypotheses:

Hypothesis 1: Female gender, lower well-being, living together with others, living with parents, higher educational attainment (for women), and higher household income (for women) increase the likelihood of consistent singlehood compared to finding a partner during emerging adulthood.

Hypothesis 2a: Consistent singles on average decrease in well-being across age, with the gap in well-being compared to

eventually partnered individuals further widening over emerging adulthood.

Hypothesis 2b: Consistent singles' age-graded well-being trajectories are more favorable for women, with tertiary educational attainment, with higher household income, and when living with others (compared to men, lower education and income and living alone or with parents).

Hypothesis 3a: The first romantic relationship predicts temporary increases in well-being, after which well-being again decreases.

Hypothesis 3b: Effects of the first romantic relationship on well-being are more favorable for men than for women. Effects are less favorable for those with more unstable relationship patterns in emerging adulthood as indicated by a higher number of subsequently reported relationship transitions.

Last, we examined moderation by age at the transition to the first romantic relationship exploratorily.

Method

Transparency and Openness

We preregistered hypotheses and analyses at <https://osf.io/xuns4>. We used de-identified archival data, and the study was exempt from ethics evaluation at the University of Zurich. Materials including analysis scripts to reproduce our findings and html documents of all results are publicly available at <https://osf.io/n4k7a> (Krämer, Stern, et al., 2025). Adhering to the Journal Article Reporting Standards (Appelbaum et al., 2018), we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the studies. Deviations from the preregistration are listed on the Open Science Framework (see *deviations_prereg.pdf*). We preregistered using both survival analysis and logistic regression models for RQ1 but focused on reporting the survival analyses in the main article, because they model the time-varying nature of the predictors more appropriately. In addition, we adjusted the reference age in the RQ2 models in some cases because of limited data (e.g., information from age 16 was unavailable in the German Socio-Economic Panel [SOEP]).

We used R and specifically the *tidyverse* packages for data cleaning and visualization (Wickham et al., 2019), *survival* for survival analysis (Therneau et al., 2024), and *plm* for fixed effects modeling (Croissant & Millo, 2008). We used $\alpha = .01$ as our main inference criterion.

Sample

We used data from three different yearly panel studies, the Understanding Society Survey from the United Kingdom, including the harmonized British Household Panel Survey waves (BHPS/US; University of Essex, Institute for Social and Economic Research, 2024), the SOEP (Goebel et al., 2019), and the German Family Panel (pairfam, release 14.2; Brüderl et al., 2024). These are archival data, available to researchers in the public domain. Additional information on data collection in the BHPS/US can be found at <https://www.understandingsociety.ac.uk/documentation/mainstage/>, in the SOEP at https://www.diw.de/en/diw_01.c.678568.en/resea

[rch_data_center_soep.html](https://www.diw.de/en/diw_01.c.678568.en/research_data_center_soep.html), and in pairfam at https://search.gesis.org/research_data/ZA5678. We selected these data sets because they are large and representative, already assess respondents from age 16 or 17 onward (or even earlier in some instances), contain data on relevant well-being outcomes, and allowed us to track romantic relationships over time while also including relationship history data.

Across the three data sets, we harmonized data and applied the following criteria to define the analysis samples. Our overall goal was to include adolescents or young adults who initially have never had a serious romantic relationship and then, over time, compare those who remain single until and including age 29 (or until dropout from the study) with those who eventually enter a romantic relationship until age 29.³ First, included respondents were aged 14–18 at their first recorded assessment in the panel study, potentially but not necessarily in a special youth survey for children of adult respondents. Second, at this first assessment, respondents were currently single (i.e., not in a cohabitating or noncohabitating romantic relationship). Third, respondents reported no previous romantic relationships retrospectively. Fourth, respondents did not have any children initially. Fifth, to be included, respondents had valid data on either life satisfaction, loneliness, or depressivity. From these respondents, we included all observations from ages 16 to 29 (see Table 1).

Measures

Well-Being

Generally, where multi-item scales were used, we formed mean scores so that higher values represented a higher construct manifestation. For better comparability across and within samples, we scored well-being variables as percent of maximum possible (POMP) to be interpretable on a scale from 0 to 100. See Supplemental Table S1 for a more detailed overview of the well-being measures and their harmonization.

Life Satisfaction. All three panel studies relied on a single item to assess life satisfaction (e.g., in SOEP: “How satisfied are you with your life, all things considered?”). In pairfam and the SOEP, an 11-point Likert scale was used (0 = *completely dissatisfied*, 10 = *completely satisfied*), whereas a 7-point scale was used in BHPS/US in every wave since 1996. Single-item measures of life satisfaction have high reliability and produce comparable results to longer scales (Cheung & Lucas, 2014; Lucas & Donnellan, 2012).

Loneliness. Loneliness was measured with four items from 2017 to 2022 in BHPS/US (feeling “lonely,” “left out,” “lack of companionship,” and “isolated from others”), each answered on a 3-point scale (1 = *hardly ever or never*, 2 = *some of the time*, 3 = *often*). In the SOEP, loneliness was measured with a single item from 1990 to 1993, 1995 to 1997, in 2008, 2013, and 2018 (“I often feel lonely”; 4-point response format), but also with a three-item scale in 2013, 2017, 2020, and 2021 (feeling “left out,” “lack of companionship,” and “isolated from others”). We combined information from the two scales across waves by POMP-scoring both variables. In pairfam, loneliness was assessed in all waves except 2, 3, and 6 with a single item (“I feel lonely”; 5-point Likert scale). Items in all three panel studies were based on different versions of the UCLA Loneliness Scale (Russell, 1996).

³ More details, including a few panel-specific exceptions to these inclusion conditions, can be found in the preregistration.

Table 1
Descriptives for Each Analysis Sample

Research question	Observation	Respondent	% women	M_{age}	SD_{age}
BHPS/US: Years 1996–2022					
Selection effects (RQ1)	38,739	9,959	49.69	19.18	2.88
Age trajectories (RQ2) and relationship transition (RQ3)	58,675	10,098	53.04	20.51	3.56
SOEP: Years 1984–2022					
Selection effects (RQ1)	17,143	3,805	40.40	20.08	2.83
Age trajectories (RQ2) and relationship transition (RQ3)	31,665	3,900	45.27	21.88	3.56
Pairfam: Years 2009–2022					
Selection effects (RQ1)	7,430	2,646	40.50	18.72	2.69
Age trajectories (RQ2) and relationship transition (RQ3)	19,921	3,392	46.13	20.15	3.55
Mega-analysis sample: Years 1984–2022					
Selection effects (RQ1)	63,312	16,410	46.09	19.37	2.88
Age trajectories (RQ2) and relationship transition (RQ3)	110,261	17,390	49.56	20.84	3.62

Note. RQ1 refers to the survival analysis samples. Sample sizes of final analysis samples differ due to individual patterns of missingness for each outcome (e.g., loneliness was not assessed in the SOEP in each wave). Additional descriptive information can be found in Supplemental Tables S2–S5 and in the html document at <https://osf.io/k95jw/> (Section 4). BHPS/US = British Household Panel Survey/Understanding Society Survey; SOEP = German Socio-Economic Panel; RQ = research question.

Depressivity. Depressivity was assessed in BHPS/US every year using the 12-item General Health Questionnaire-12 (Goldberg et al., 1997) which measures psychological distress. The assessed symptoms mostly overlap in content with depressivity. In the SOEP, depressivity was measured every other year since 2002 using a translated Short-Form-12 Health Survey questionnaire which assesses mental health-related quality of life and has large content overlap with depressivity (Andersen et al., 2007; Nübling et al., 2006). In pairfam, depressivity was assessed every year since Wave 2 using the 10-item State-Trait Depression Scales (Spaderna et al., 2002). Only in Wave 14, this scale was reduced to three items (“melancholy,” “depressed,” “sad”). We POMP-scored and combined the mean scale values across waves.

As detailed above, not all well-being measures were included in each wave in each panel study. These partial gaps in the data were not included in the data structure of the final analysis samples but still informed the age trajectories as well as the trajectory in relation to the transition to the first romantic relationship. Thus, gaps for each outcome were only removed in the last step when forming final analysis samples.

Singlehood and Romantic Relationships

We used all available information on romantic relationships by combining retrospective and yearly information to determine singlehood status as accurately as possible in each panel study. In BHPS/US, we used data from the youth (until and including age 15) and adult questionnaires (age 16 and older) from 1996 to 2022. However, the youth data only provided information to define the singlehood groups. We used information on relationship and marital status from all waves although noncohabitating relationships were not assessed in a few waves.

In the SOEP, we used information on romantic relationship status from 1984 to 2022 (marital status, romantic relationships, cohabitation) as well as relationship/marriage histories from the *biocouply/biomarsy* data sets (Hamjediers et al., 2022), childbirth histories from the *biobirth* data set (Schmitt, 2020), and when available, the youth questionnaire. Romantic relationship histories

were only available since 2011, however. Before that only marriage histories were tracked. The SOEP typically aimed to interview all respondents in a household aged 17 and older using the adult version of the questionnaire.

In pairfam, we included data from Wave 1 (2009/2010) to Wave 14 (2021/2022). We used these yearly data to track relationship status. In addition, we relied on relationship history data to exclude respondents with previous romantic relationships.

Moderators

Gender. In all three panel studies, gender was assessed as a binary variable and dummy-coded (0 = men, 1 = women).

Education. To harmonize educational attainment across studies, we used years of education as a common metric representing already completed degrees. In BHPS/US, we translated the highest attained degree into categories from the International Standard Classification of Education (United Nations Educational, Scientific and Cultural Organization Institute for Statistics, 2012), according to the procedure by the Comparative Panel File (<https://cpfdata.com>). International Standard Classification of Education categories in turn were translated into years of education. In the SOEP and pairfam, years of education (based on attained degrees) were already provided as variables. We coded years of education as a time-varying variable but also created a time-invariant dummy variable representing trajectories of tertiary education (0 = *no tertiary education*, 1 = *enrolled in or obtained tertiary education until last observation*).

Living Situation. Based on information about the household composition and relationships between household members, we coded two dummy variables, living alone (0 = *no*, 1 = *yes*) and living with one’s mother and/or father (0 = *no*, 1 = *yes*). These dummy variables representing the living situation were time-varying.

Income. We relied on household income as a broader indicator of socioeconomic status compared to personal income which was often not reported for nonworking adolescents and young adults. To account for household size, we used equalized net annual

household income (using the modified Organization for Economic Co-operation and Development scale). Where available, we used imputations of missing values. To make income metrics more comparable, we log-transformed and z -standardized household income within each panel study.

Age at Relationship Transition. Based on the identified transition to the first serious romantic relationship, we coded age at relationship transition as a time-invariant variable in the subsample of individuals who eventually found a partner before age 30.

Number of Subsequent Relationships. To obtain a proxy measure of the stability of romantic relationship involvement, we counted how many subsequent romantic relationship transitions were reported. As a transition, we counted each instance when someone reported being in a committed romantic relationship after being single in the previous year. Therefore, this proxy measure does not necessarily represent the total number of romantic partners but rather stability in romantic involvement. This variable was also coded as a time-invariant variable in the subsample of eventually partnered respondents.

Analytical Strategy

Based on the harmonized data, we created a pooled “mega-analysis” sample of the three individual samples (see Table 1). Here, we report the results of the mega-analysis sample unless major differences in interpretation arose between the three samples. We present all results including the individual sample results in the html report on <https://osf.io/k95jw/> and in the Supplemental Materials.

Selection Effects Into Singlehood (RQ1)

We used survival analysis to investigate which variables predicted when someone entered their first romantic relationship or remained single over the observation period.⁴ To match the required data structure for survival analysis, we dummy-coded the outcome variable 0 for all years in which respondents were single and 1 for the first year when respondents transitioned into the first romantic relationship. Age was the survival time variable. As predictors, we included life satisfaction, loneliness, depressivity, gender, income, years of education, living alone, and living with parents. We also specified interaction effects of gender with income and education. Metric predictors were z -standardized in each of the three samples before combining them in a mega-analysis sample.

The survival models included all data points until and including the relationship transition to estimate survival probabilities and thus also modeled changes in the predictors over time (Zhang et al., 2018). Thus, we retained all observations from consistent singles but only those observations from eventually partnered individuals when they were still single as well as the first observation when the first relationship was reported. We used Cox regression models to conduct survival analyses and Kaplan–Meier curves for visualization. Because planned missingness in the well-being variables partly occurred in different survey waves, we ran a separate model for each of the three well-being predictors. Each model contained one of the well-being predictors and all other, non-well-being predictors. For results presentation, we selected the estimates from the life satisfaction model for the other predictors. This maximized sample size, and we found only small differences across models.

Comparison of Age Trajectories in Well-Being (RQ2)

To analyze and compare young adults’ age-related well-being trajectories, we used fixed effects models (Allison, 2019; Brüderl & Ludwig, 2015; Hamaker & Muthén, 2020; Lawes et al., 2025). Importantly, these models controlled for measured and unmeasured time-invariant confounding and exclusively analyzed within-person variance. Specifically, to model age-related changes without imposing a functional form of change, we created age dummy variables for each age in the observational period from 17 to 29 (e.g., $\text{Age}_{17} = 1$ if a person was 17 years old, otherwise coded 0). Thus, age 16 served as the reference age category to which subsequent changes were compared. This approach was similar to Seifert et al. (2024) who used fixed effects models to analyze age trajectories of personality change. The equation for an exemplary model predicting life satisfaction (LS) for a person i at time t reads

$$LS_{it} = \alpha_i + (\theta_1 \text{Age}_{17,it} + \theta_2 \text{Age}_{18,it} + \theta_3 \text{Age}_{19,it} + \theta_4 \text{Age}_{20,it} + \theta_5 \text{Age}_{21,it} + \theta_6 \text{Age}_{22,it} + \theta_7 \text{Age}_{23,it} + \theta_8 \text{Age}_{24,it} + \theta_9 \text{Age}_{25,it} + \theta_{10} \text{Age}_{26,it} + \theta_{11} \text{Age}_{27,it} + \theta_{12} \text{Age}_{28,it} + \theta_{13} \text{Age}_{29,it}) \times \text{single}_i + \beta_1 \text{three_years}_{it} + \epsilon_{it}, \quad (1)$$

α_i represents the person fixed effect (i.e., the cluster-specific affiliation dummy). Fixed effects models only analyze within-person variance by including a cluster affiliation dummy variable for each person, which is possible in a simple ordinary least squares regression framework. Variables without variation within persons are automatically dropped. This is equivalent to demeaning all involved variables, that is, subtracting the person-mean from each person-year observation (McNeish & Kelley, 2019).

The dummy-coded age predictors that described within-person change at that age (in comparison to age 16) were represented by the 13 Age_{it} variables. The Age_{it} variables were interacted with single_i ($0 = \text{eventually partnered}$, $1 = \text{consistently single}$) to model group differences in the age trajectories of well-being. Last, a dummy variable indicating whether a respondent was in the first three waves of panel participation was added to control for initial elevation bias in well-being responses (Anvari et al., 2023; Shrout et al., 2018). In a few cases, but never in models based on the mega-analysis sample, we encountered low precision (i.e., large confidence intervals) or convergence issues when using all 13 age dummy variables due to fewer longitudinal observations in some age brackets. In such cases, we either dropped the $\text{Age}_{17,it}$ dummy or collapsed the last four age dummies into two, $\text{Age}_{26-27,it}$, $\text{Age}_{28-29,it}$, to estimate those effects more precisely. Throughout, we used panel-robust standard errors in fixed effects models to account for serial correlation and heteroscedasticity in the nested data structure.

We built on these models to investigate moderation of age trajectories in the group of consistent singles by including the

⁴ As a second strategy, we also preregistered to use logistic regression models comparing the cross-section of respondents who remained single with those who eventually found a partner. However, compared to the survival analyses, we found the logistic regression analyses less informative, because the time-varying nature of key predictors was not modeled. Thus, we prefer the survival analyses to address the research question of selection effects because they make full use of the available longitudinal information. We report all results of the logistic regression models in the html document on <https://osf.io/k95jw/> (Section 5.1.1).

following moderators in the model: gender (0 = men, 1 = women; time-invariant), tertiary educational attainment (or enrollment; at the last available observation for each person before age 30; time-invariant), living alone (0 = no, 1 = yes; time-varying), living in same household as one or two parents (0 = no, 1 = yes; time-varying), and socioeconomic status (log-transformed and z -standardized Organization for Economic Co-operation and Development equivalized annual household income; time-varying). Thus, the equation for an exemplary model predicting life satisfaction (LS) for a person i at time t , with the moderator *living alone* reads

$$LS_{it} = \alpha_i + (\theta_1 \text{Age}_{17,it} + \theta_2 \text{Age}_{18,it} + \theta_3 \text{Age}_{19,it} + \theta_4 \text{Age}_{20,it} + \theta_5 \text{Age}_{21,it} + \theta_6 \text{Age}_{22,it} + \theta_7 \text{Age}_{23,it} + \theta_8 \text{Age}_{24,it} + \theta_9 \text{Age}_{25,it} + \theta_{10} \text{Age}_{26,it} + \theta_{11} \text{Age}_{27,it} + \theta_{12} \text{Age}_{28,it} + \theta_{13} \text{Age}_{29,it}) \times \text{living_alone}_{it} + \beta_1 \text{three_years}_{it} + \varepsilon_{it}. \quad (2)$$

Effects of the First Romantic Relationship on Well-Being (RQ3)

To analyze the well-being trajectories of young adults who entered their first romantic relationship, we also used fixed effects models because of their focus on estimating within-person change while controlling for time-invariant confounding. Here, we used five discrete dummy variables to model the temporal trajectory in years in relation to the transition to the first romantic relationship flexibly without imposing a functional form (see Table 2 and Krämer, Rohrer, et al., 2025; Perales, 2019): “-2” (in the second to last year before the transition was first reported), “-1” (in the last year before the transition was first reported), “+1” (in the first year when the transition is reported), “+2” (in the second year after the transition was reported), and “≥3” (more than 3 years after the transition was reported, indicating longer term adaptation). As control variables, we included age and age squared to account for aging effects and again a dummy variable for the first three waves of panel participation. Thus, an exemplary model formula reads

$$LS_{it} = \alpha_i + \theta_{-2} E_{-2,it} + \theta_{-1} E_{-1,it} + \theta_1 E_{1,it} + \theta_2 E_{2,it} + \theta_{\geq 3} E_{\geq 3,it} + \beta_1 \text{age}_{it} + \beta_2 \text{age}_{it}^2 + \beta_3 \text{three_years}_{it} + \varepsilon_{it}. \quad (3)$$

The dummy-coded predictors that describe time in relation to the event were represented by the five E_{it} variables. Besides the sample of respondents who eventually entered a romantic relationship, we also included the sample of consistent singles as a control group in the estimation of these models. However, in the fixed effects model framework, the goal was to analyze within-person change in the transition group. Thus, the control group only served two secondary purposes: to estimate the intercept more reliably and to account for the effect of aging appropriately through the included covariates.

In further models, the following moderators were added to investigate how they shape well-being trajectories in relation to the first romantic relationship: gender, linear age⁵ at the first romantic relationship (centered on sample grand-mean; time-invariant), and the number of subsequent relationship transitions (during the observation period; time-invariant). An exemplary model with the

moderator *gender* reads

$$LS_{it} = \alpha_i + (\theta_{-2} E_{-2,it} + \theta_{-1} E_{-1,it} + \theta_1 E_{1,it} + \theta_2 E_{2,it} + \theta_{\geq 3} E_{\geq 3,it}) \text{female}_{it} + \beta_1 \text{age}_{it} + \beta_2 \text{age}_{it}^2 + \beta_3 \text{three_years}_{it} + \varepsilon_{it}. \quad (4)$$

Results

Effects of interest and their confidence intervals are shown in Figures 1–5. The supplemental html document on <https://osf.io/k95jw/> presents further information on variable distributions (Section 4.4) and complete model results (Sections 5.1–5.5).

Selection Effects Into Singlehood (RQ1)

Single women were more likely to find a partner until age 29 compared to men (HR = 1.47, 99% confidence interval, CI [1.38, 1.55], $p < .001$; see Figure 1),⁶ as also shown in the Kaplan–Meier survival curves (see Supplemental Figure S1). Conversely, with higher income (HR = 0.94, 99% CI [0.91, 0.99], $p < .001$) and more years of education (HR = 0.79, 99% CI [0.75, 0.82], $p < .001$), respondents were more likely to stay single. However, apart from the mega-analysis sample, the association for income was only significant in the SOEP. There was also an interaction effect such that women were even more likely to remain single with higher education than men were (HR = 0.93, 99% CI [0.88, 0.98], $p = .001$). This interaction effect was, however, mostly driven by the BHPS/US data. Conversely, living alone (HR = 0.48, 99% CI [0.43, 0.54], $p < .001$) and living with at least one parent (HR = 0.72, 99% CI [0.67, 0.78], $p < .001$) were consistently associated with a lower likelihood to find a partner.

Last, all three well-being aspects were associated with remaining single versus finding a partner. With higher life satisfaction, single young adults were more likely to find a partner (HR = 1.22, 99% CI [1.18, 1.25], $p < .001$), whereas higher loneliness and depressivity related to a higher likelihood to stay single (loneliness: HR = 0.72, 99% CI [0.68, 0.76], $p < .001$; depressivity: HR = 0.92, 99% CI [0.89, 0.95], $p < .001$). Notably, effect sizes were larger for life satisfaction and loneliness compared to depressivity (see Figure 1).

Comparison of Age Trajectories in Well-Being (RQ2)

Next, we examined how well-being changed as consistent singles went through emerging adulthood. We found broad support for our hypothesis that consistent singles decreased in well-being across age compared to eventually partnered individuals (see Figure 2).

⁵ We also tested whether models with a quadratic term of age at the first romantic relationship improved model fit but found that this was not the case. Therefore, for parsimony we omitted quadratic age at the first romantic relationship.

⁶ Here, hazard ratios (HR) quantify the momentary relative “risk” of the first romantic relationship occurring over time. A value of HR = 0.50 indicates that the risk is half as high when the corresponding predictor increases by 1. A value of HR = 2.00 indicates that the risk is twice as high when the corresponding predictor increases by 1. Confidence intervals overlapping 1 indicate no significant association.

Table 2
Exemplary Coding Scheme to Model the Transition to the First Romantic Relationship

Wave	Relationship reported?	Time dummy variable					Age	Age ²	<i>first_three</i>
		-2	-1	+1	+2	≥3			
1	No	1	0	0	0	0	16	256	1
2	No	0	1	0	0	0	17	289	1
3	Yes	0	0	1	0	0	18	324	1
4	Yes	0	0	0	1	0	19	361	0
5	Yes	0	0	0	0	1	20	400	0
6	No	0	0	0	0	1	21	441	0
7	Yes	0	0	0	0	1	22	484	0
8	Yes	0	0	0	0	1	23	529	0
9	Yes	0	0	0	0	1	24	576	0
10	Yes	0	0	0	0	1	25	625	0

Note. -2 = Year 2 before the transition; -1 = Year 1 before the transition; 1 = Year 1 after the transition; 2 = Year 2 after the transition; ≥3 = 3 or more years after the transition. *first_three* = control for initial elevation bias in the first 3 years of panel participation.

Life Satisfaction

Life satisfaction already decreased at age 17 in both groups (eventually partnered: $b = -1.26$, 99% CI [-2.08, -0.44], $p < .001$; consistently single: $b = -2.16$, 99% CI [-3.05, -1.28], $p < .001$), without significant differences. However, throughout the rest of emerging adulthood, that is, from age 18 to 29, we found that life satisfaction decreased to a significantly greater extent in consistently single compared to eventually partnered respondents (at $p < .001$; see Figure 2). This gap in life satisfaction changes further widened toward the end of emerging adulthood, for example, when comparing age 20 (eventually partnered: $b = -4.00$, 99% CI [-5.02, -2.97], $p < .001$; consistently single: $b = -7.20$, 99% CI [-8.46, -5.94], $p < .001$) to age 27 (eventually partnered: $b = -5.65$, 99% CI [-6.84, -4.46], $p < .001$; consistently single: $b = -11.94$, 99% CI [-14.1, -9.78], $p < .001$). Thus, within persons, consistent singlehood was associated with increasingly large life satisfaction deficits, reaching a difference of 7.33 on the POMP scale by age 29 ($p < .001$; corresponding to around 36% of the overall sample standard deviation). These results were mostly consistent across the three panel studies, although group differences in within-person life satisfaction did not reach significance in a few cases at the preregistered $\alpha = .01$ in the individual (smaller) analysis samples.

Loneliness

Similar to life satisfaction, initial increases in loneliness did not differ between groups (at age 17; eventually partnered: $b = 3.71$, 99% CI [1.30, 6.12], $p < .001$; consistently single: $b = 2.64$, 99% CI [0.67, 4.60], $p < .001$). By age 19, loneliness increases were significantly larger in consistent singles compared to eventually partnered people. Again, this difference became more pronounced over emerging adulthood (see Figure 2), although changes in loneliness for eventually partnered respondents were relatively constant across age—always slightly but significantly lower compared to the reference age 16 (e.g., at age 20: $b = 4.90$, 99% CI [2.12, 7.69], $p < .001$). Thus, within-person loneliness increases became more pronounced with older age for consistent singles (e.g., at age 20: $b = 8.73$, 99% CI [5.87, 11.59], $p < .001$; at age 27: $b = 14.37$, 99% CI [9.46, 19.28], $p < .001$). Differences between consistently single and eventually partnered young adults reached a magnitude

of 15.32 on the POMP scale at age 29 ($p < .001$; corresponding to around 53% of the overall sample standard deviation in loneliness). Across the three individual samples, results for loneliness were not as consistent as for life satisfaction. Smaller sample sizes for loneliness, especially in the SOEP, resulted in lower precision to detect group differences. Still, patterns in BHPS/US and pairfam largely agreed as both samples indicated a widening gap of loneliness increases in the latter half of emerging adulthood between single and partnered people (see html document at <https://osf.io/k95jw/>, Section 5.2).

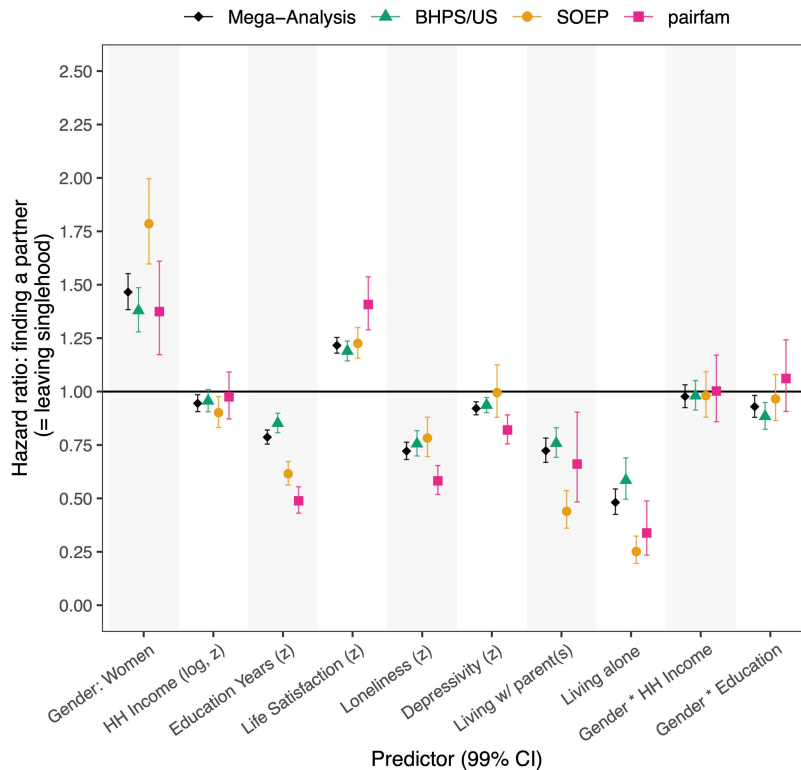
Depressivity

Both consistent singles and eventually partnered young adults increased in depressivity with older age. However, differences in the age trajectories between the two groups were more subtle compared to life satisfaction and loneliness and only significant at age 23 (eventually partnered: $b = 4.56$, 99% CI [3.71, 5.41], $p < .001$; consistently single: $b = 6.59$, 99% CI [5.32, 7.87], $p < .001$), as well as at ages 25–28 (e.g., at age 27: eventually partnered: $b = 5.37$, 99% CI [4.41, 6.34], $p < .001$; consistently single: $b = 8.17$, 99% CI [6.35, 9.99], $p < .001$; see Figure 2). Differences between consistently single and eventually partnered young adults in depressivity were not significant, anymore, at age 29 ($b = 1.76$ on the POMP scale corresponding to around 10% of the overall sample standard deviation in depressivity). This pattern of small group differences that were partly still significant in one's 20s was reflected in both the BHPS/US and pairfam but not in the SOEP which indicated mostly stability in depressivity (again with smaller sample sizes per age; see html document at <https://osf.io/k95jw/>, Section 5.2).

Moderation of Singles' Age Trajectories

Gender was not consistently associated with differences in singles' well-being age trajectories. Gender differences were only significant at a few ages where they indicated that women experienced less severe life satisfaction decreases at age 24 ($b = 3.75$, 99% CI [0.38, 7.13], $p = .004$), less severe loneliness increases at age 26 ($b = -10.10$, 99% CI [-19.10, -1.14], $p = .004$), and less severe depressivity increases at age 26 ($b = -3.71$, 99% CI [-7.03, -0.39], $p = .004$). Thus, although single men typically experienced

Figure 1
Hazard Ratios of Finding a Partner Based on Cox Regression Models



Note. A hazard ratio of 1 indicates no significant association. Hazard ratios above 1 indicate that this predictor is associated with a higher likelihood of finding a partner (= leaving singlehood). CIs (99%) reflect the precision of the estimated effects. Estimates shown here are based on three models per data set, one for each well-being predictor plus the other predictors. Predictors other than well-being are based on the model with life satisfaction which had fewer missing values than loneliness and depressivity models. HH = household; log = natural log; z = z -standardized variable; w/= with; BHPS/US = British Household Panel Survey/Understanding Society Survey; SOEP = German Socio-Economic Panel; CI = confidence interval. See the online article for the color version of this figure.

slightly worse well-being than single women across age, these differences were small in size and seldom statistically significant (see Figure 3).

Further, we found that living with parents moderated singles' age-graded trajectories of well-being but only in specific circumstances. Specifically, singles living with parents decreased more strongly in life satisfaction at ages 21, 23–26, and 28 compared to singles living without parents (e.g., at age 24: $b = -6.22$, 99% CI $[-10.80, -1.63]$, $p < .001$). In addition, singles living with parents increased more strongly in loneliness than singles living without parents, but these differences were only significant at $\alpha = .01$ at ages 20 and 22 (e.g., at age 22: $b = -13.50$, 99% CI $[-26.00, -1.03]$, $p = .005$). Precision of the estimates was partly reduced here because there were generally fewer singles living without parents at younger ages (see Supplemental Figure S2).

We found no evidence for moderation of singles' well-being age trajectories for the remaining moderators we examined, that is, for tertiary education, living alone, and income (see Supplemental Figures S3–S5 and html document at <https://osf.io/k95jw/>, Sections

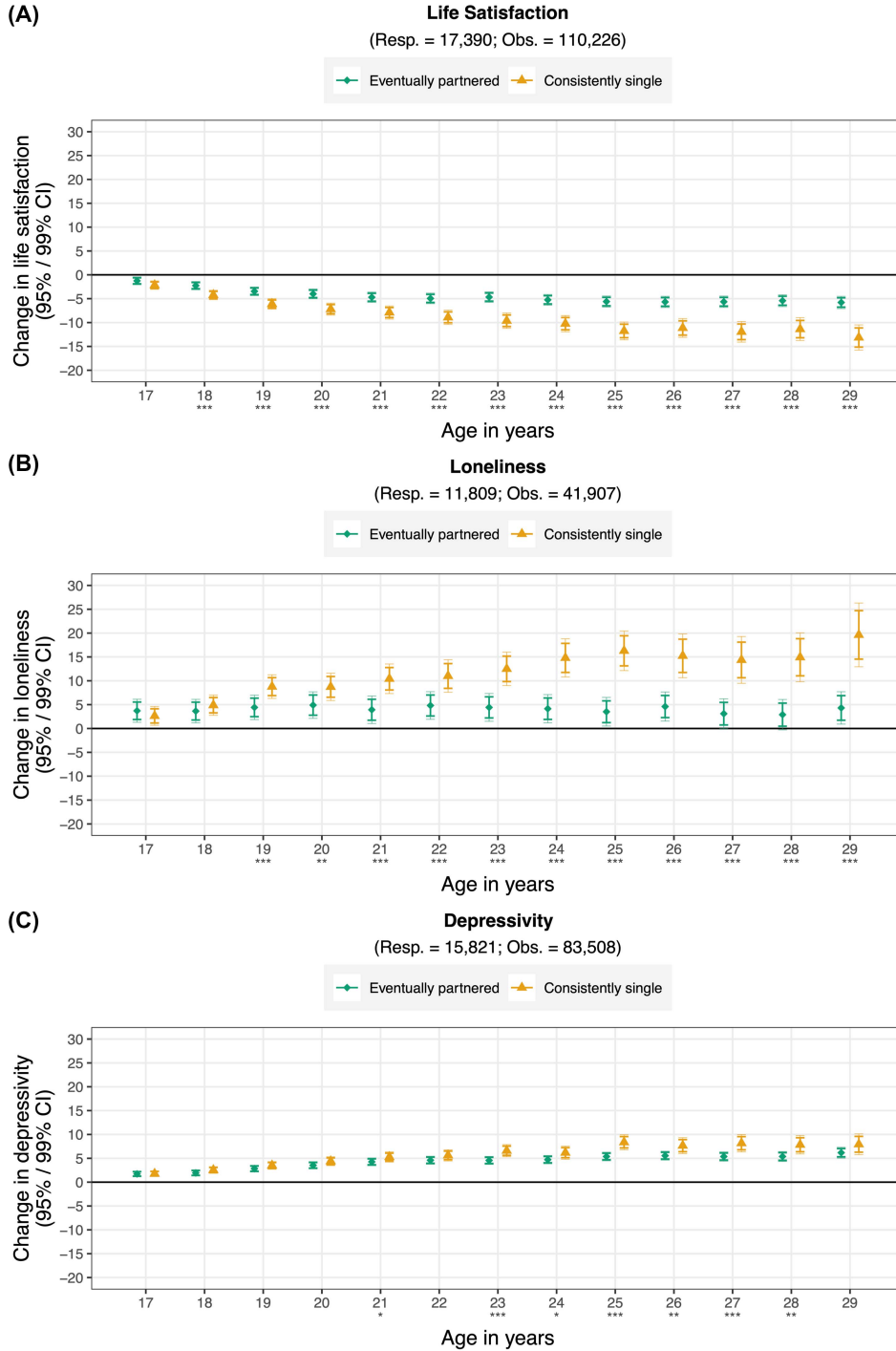
5.3.3, 5.3.4, and 5.3.6). Thus, overall evidence for the theoretically derived moderators was relatively thin. The few effects we found for gender and living with parents in the mega-analysis sample also did not consistently replicate across the three individual studies (see html document at <https://osf.io/k95jw/>, Sections 5.3.2 and 5.3.5).

Effects of the First Romantic Relationship on Well-Being (RQ3)

When young adults started their first romantic relationship, they increased in life satisfaction and decreased in loneliness but did not change in depressivity (see Figure 4). These changes occurred during the 2 years immediately after the transition into a relationship (e.g., life satisfaction in the first postevent year: $b = 2.49$, 99% CI $[1.69, 3.29]$, $p < .001$) but also persisted in the long term with a similar size (e.g., life satisfaction at 3 or more years postevent: $b = 2.71$, 99% CI $[1.72, 3.71]$, $p < .001$), indicating a more permanent shift of the well-being level for eventually partnered people which

Figure 2

Age Trajectories of Well-Being in Consistently Single and Eventually Partnered Respondents in the Mega-Analysis Sample (Panel A: Life Satisfaction; Panel B: Loneliness; Panel C: Depressivity)



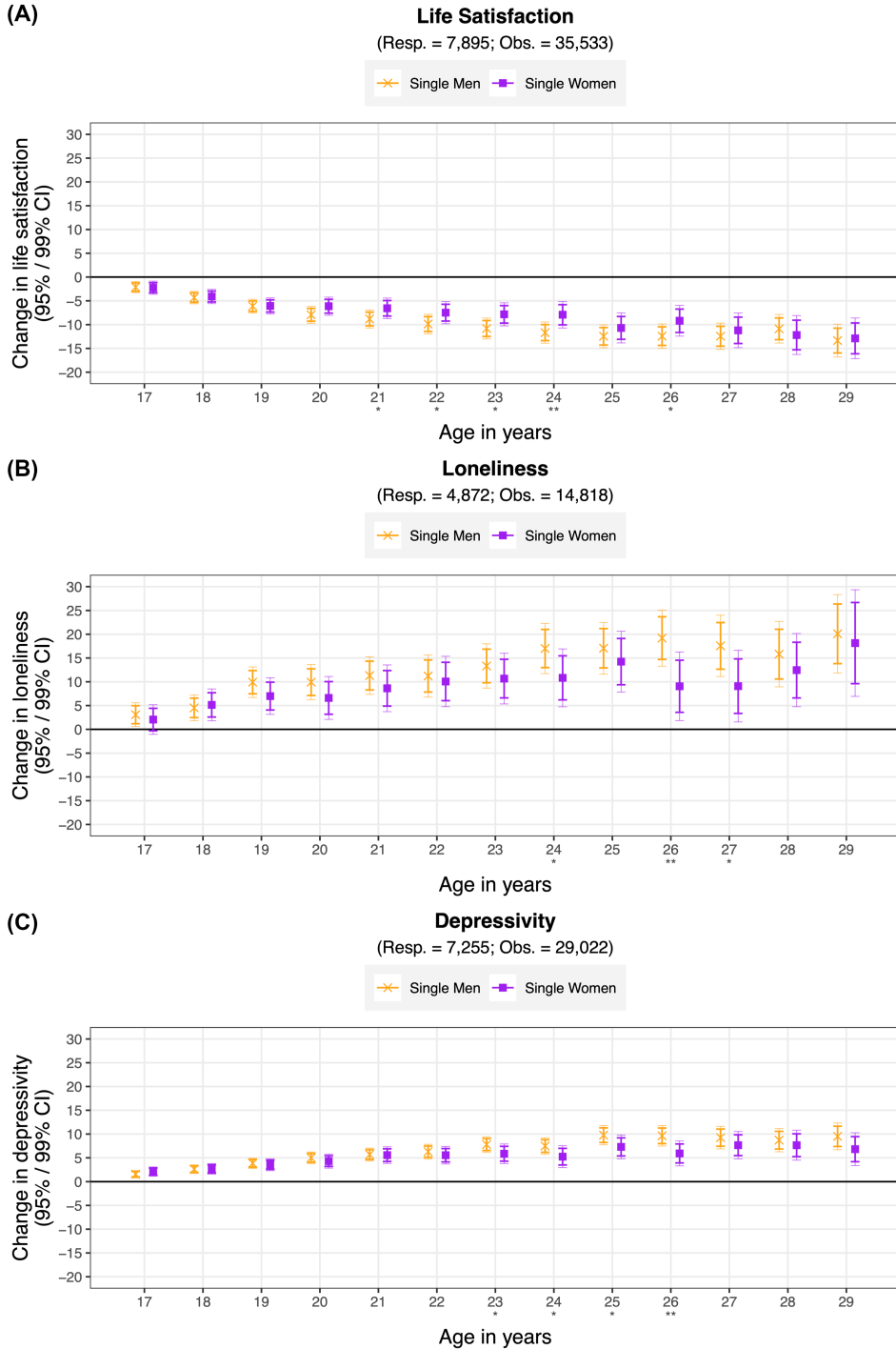
Note. Effects indicate changes in the well-being outcomes on the percent of maximum possible scale from 0 to 100 relative to well-being at age 16. CIs (both 95% and 99%) reflect the precision of the estimated effects. The horizontal line indicates no within-person changes. Complete results of the three individual panel studies are presented in the html document at <https://osf.io/k95jw/> (Section 5.2). Resp. = respondents; obs. = observations; CI = confidence interval. See the online article for the color version of this figure.

* $p < .05$. ** $p < .01$. *** $p < .001$; asterisks below each age indicate the significance of group differences in changes at that age.

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Figure 3

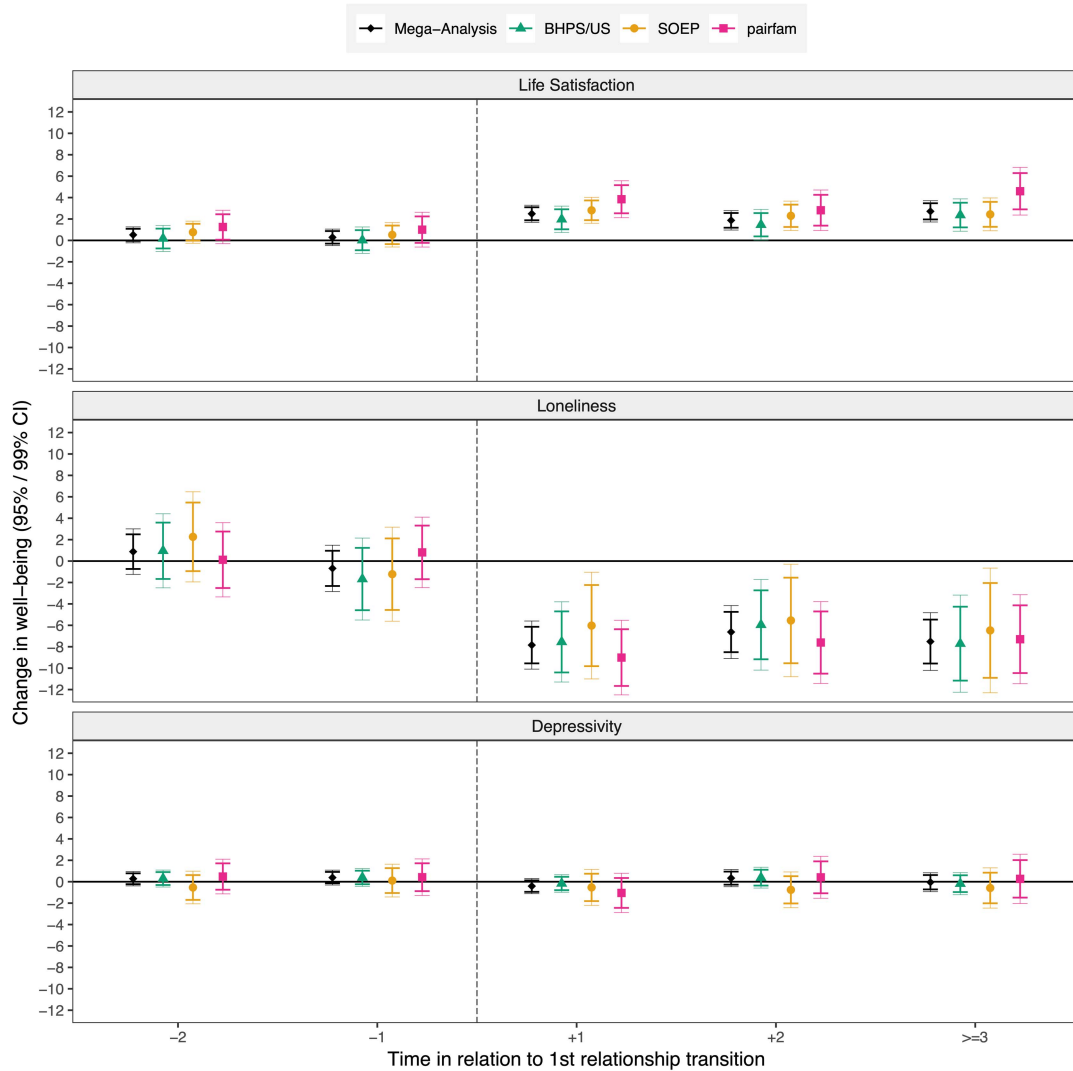
Age Trajectories of Well-Being in Consistently Single Respondents Moderated by Gender in the Mega-Analysis Sample (Panel A: Life Satisfaction; Panel B: Loneliness; Panel C: Depressivity)



Note. Effects indicate changes in the well-being outcomes on the percent of maximum possible scale from 0 to 100 relative to well-being at age 16. CIs (both 95% and 99%) reflect the precision of the estimated effects. The horizontal line indicates no within-person changes. Complete results of the three individual panel studies are presented in the html document at <https://osf.io/k95jw/> (Section 5.3.2). Resp. = respondents; obs. = observations; CI = confidence interval. See the online article for the color version of this figure.

* $p < .05$. ** $p < .01$; asterisks below each age indicate the significance of group differences in changes at that age.

Figure 4
Well-Being Change Trajectories Over the Transition to the First Romantic Relationship



Note. Effects reflect changes in the well-being outcomes on the percent of maximum possible scale from 0 to 100. CIs (both 95% and 99%) reflect the precision of the estimated effects. The horizontal line indicates no within-person changes. The vertical, dashed line indicates the approximate timing of the transition to the first romantic relationship. BHPS/US = British Household Panel Survey/Understanding Society Survey; SOEP = German Socio-Economic Panel; CI = confidence interval. See the online article for the color version of this figure.

consistently single people did not experience. There were no lead effects, that is, changes in anticipation of the event. The pattern of results was generally very consistent across the three samples (see Figure 4).

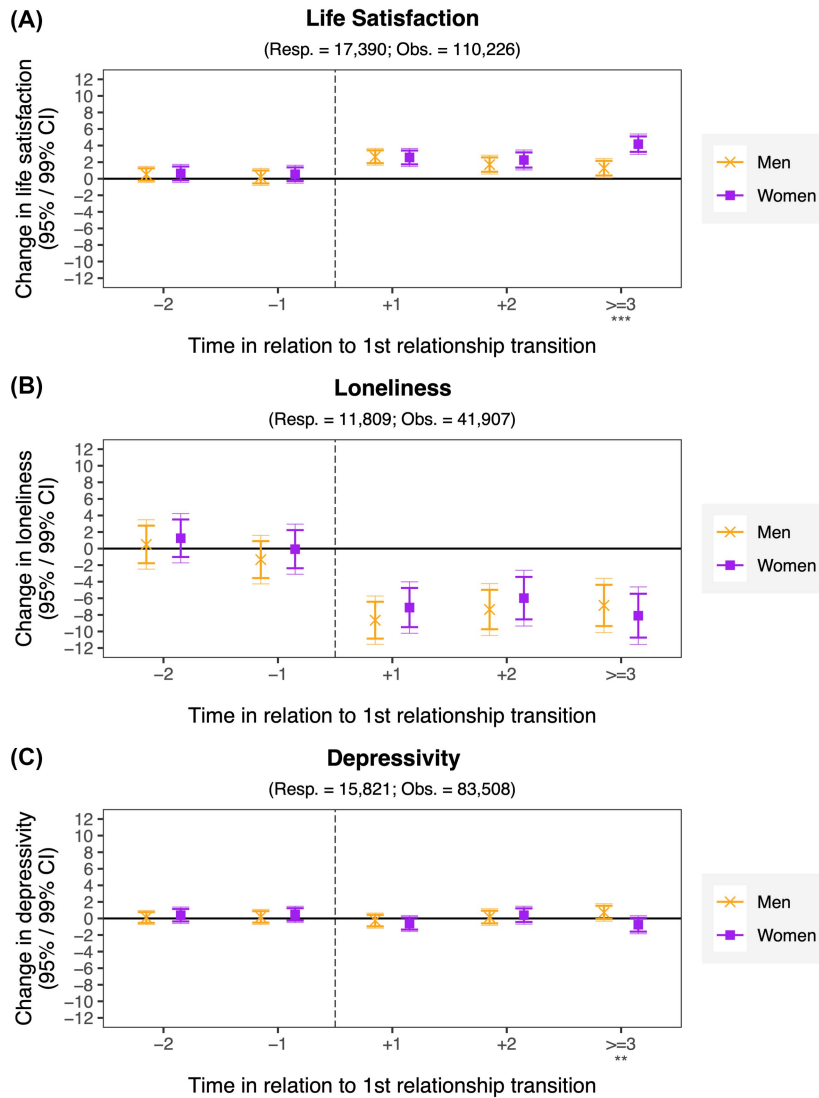
Moderation of Effects of the First Romantic Relationship on Well-Being

Gender differences in event-related well-being changes were generally small and specific to a few time periods in relation to the transition (see Figure 5). Women experienced more positive long-term well-being increases than men (until age 29), as

indicated by stronger life satisfaction increases ($b = 2.89$, 99% CI [1.58, 4.21], $p < .001$) and depressivity decreases ($b = -1.48$, 99% CI [-2.70, -0.26], $p = .002$). There were no differences, however, for changes in loneliness. These findings on gender differences were consistent in both BHPS/US and SOEP but not in pairfam where gender differences were not significant.

We also tested how age at the start of the first committed relationship ($M_{\text{age}} = 19.94$, $SD_{\text{age}} = 2.66$ in the mega-analysis sample) moderated event-related well-being changes. Young adults with a later age at the first relationship experienced more adaptive well-being changes afterward (see Supplemental Figure S6). In the year after the start of the relationship, these adaptive changes were consistently significant

Figure 5
Well-Being Change Trajectories Over the Transition to the First Romantic Relationship Moderated by Gender in the Mega-Analysis Sample (Panel A: Life Satisfaction; Panel B: Loneliness; Panel C: Depressivity)



Note. Effects reflect changes in the well-being outcomes on the percent of maximum possible scale from 0 to 100. CIs (both 95% and 99%) reflect the precision of the estimated effects. The horizontal line indicates no within-person changes. The vertical, dashed line indicates the approximate timing of the transition to the first romantic relationship. Complete results of the three individual panel studies are presented in the html document at <https://osf.io/k95jw/> (Section 5.5.1). Resp. = respondents; obs. = observations; CI = confidence interval. See the online article for the color version of this figure. ** $p < .01$. *** $p < .001$; asterisks below each age indicate the significance of group differences in changes at that age.

across all three well-being aspects (e.g., life satisfaction: $b = 0.40$, 99% CI [0.12, 0.68], $p < .001$), whereas later within-person changes were only moderated by age at the first relationship in the case of life satisfaction increases ($b = 0.37$, 99% CI [0.05, 0.69], $p = .003$).

Finally, young adults with a higher number of subsequently reported relationship transitions (i.e., less stable relationship patterns) experienced less pronounced decreases in loneliness

compared to those with fewer transitions (e.g., at “+1” years: $b = 2.44$, 99% CI [0.12, 4.76], $p = .007$). This was also the case for the long-term changes in loneliness ($b = 2.81$, 99% CI [0.46, 5.16], $p = .002$). Changes in life satisfaction and depression in relation to the first romantic relationship did, however, not differ significantly depending on the number of subsequent relationship transitions (see Supplemental Figure S7).

Discussion

The well-being of single and partnered young adults is increasingly the focus of empirical research across social science disciplines (DePaulo, 2023; Girme et al., 2023; Lavender-Stott et al., 2023; Watkins et al., 2024), although mixed conclusions on trajectories and moderators of singles' well-being have impeded theoretical advancement. Across three representative panel studies from Germany and the United Kingdom, we leveraged long-running longitudinal data to disentangle prospective selection effects and socialization effects. Zooming in on the critical developmental period of emerging adulthood (ages 16–29), we can draw three main conclusions regarding the interplay between singlehood and life satisfaction, loneliness, and depressivity (see Table 3 for a summary of findings and theoretical contributions). First, lower well-being, male gender, higher education, and living alone or with parents increased the likelihood of staying single longer compared to finding a partner.

Second, with increasing age, consistent singles' well-being decreased to a greater extent than that of eventually partnered young adults. These differences in age-related well-being changes were especially consistent for life satisfaction and loneliness, whereas depressivity increases diverged from partnered respondents mostly in the later 20s. Across theoretically informed moderators, well-being decreases in singles were relatively uniform, with only inconsistent evidence for more favorable well-being in women and in singles living without parents.

Third, the first romantic relationship resulted in increased life satisfaction and decreased loneliness in subsequent years (until the end of the observation period at age 29), whereas depressivity was not affected. Together, these findings emphasize that, on average, young adults experience consistent singlehood as adverse for well-being (Gonzalez Avilés et al., 2021; Oh et al., 2022; Ta et al., 2017), whereas higher well-being relates to better chances of finding a partner (Hoan & MacDonald, 2025; Qin et al., 2025; Ramsey & Gentzler, 2015; Stutzer & Frey, 2006) which in turn increases well-being in the short and long term (Blekesaune, 2018; Krämer, Rohrer, et al., 2025; Qin et al., 2025; Uunk & Hoffmann, 2023). Across analyses of well-being change, differences in these effects for the investigated moderators were relatively minor across samples.

How Do Young Adults Select Into Singlehood?

Supporting our first hypothesis, survival analyses indicated that lower life satisfaction, higher loneliness, and higher depressivity were associated with an increased likelihood of remaining single (until at least age 29) compared to finding a partner. Results thus converge with research on relationships in general; happier (and more extraverted and less neurotic) people are seen as more attractive in dating and are more likely to enter a relationship and marriage (Back et al., 2023; Hoan & MacDonald, 2025; Neyer & Lehnart, 2007; Qin et al., 2025; Stutzer & Frey, 2006). In addition, the current results are in line with earlier life event research that found prospective selection effects of life satisfaction for the events new relationship, cohabitation, and marriage (Bühler, Mund, et al., 2024; Luhmann et al., 2013; Oh et al., 2022; Wagner et al., 2015). Related to earlier work on social withdrawal (Barzeva et al., 2021), we also found consistent selection effects of higher loneliness for remaining single. Interestingly, the well-being selection effects for remaining

single emerged when treating predictors as time-varying in the survival analyses, whereas *initial* well-being differences at age 16/17 did not predict later consistent singlehood in logistic regression models (see Section 5.1.1 at <https://osf.io/k95jw/>). This emphasizes that selection effects are not based on static person characteristics but reflect dynamic statelike components of well-being, too (similar to selection effects for first sexual intercourse; Andrae, Krämer, Hopwood, Denissen, Scholz, & Bleidorn, 2025).

Besides well-being, several sociodemographic indicators predicted selection into consistent singlehood. Across data sets, we found that higher educational attainment was related to a higher probability to remain single. Thus, contrary to our expectations, men as well as women delayed partnering when obtaining higher educational degrees. Emerging adults might make trade-offs between tasks in different life domains (e.g., relationships, education, and career; Shulman & Connolly, 2013; Sneed et al., 2007), matching earlier findings in Dutch data (Dykstra & Poortman, 2010). While working on their education, they may see singlehood as advantageous for greater independence. At the same time, in several European countries, higher educational status predicted young women's but less so men's singlehood (van den Berg & Verbakel, 2022; Wiik & Dommermuth, 2014). Typically, higher educational attainment is assumed to represent economic resources and prospects, which foster men's and delay women's partnership formation. However, effects of education are likely more complex because they also reflect young adults' cultural values and openness to adopt nonconformist lifestyles (longer; Myers & Booth, 2002). Therefore, higher education might increase the likelihood of singlehood in young adulthood across genders, as our analyses suggest. Future work investigating predictors of young adults' singlehood should investigate cultural values and gender role preferences as moderators of selection effects of education.

For gender, we found a robust main effect suggesting that men were more likely to remain single longer as well as an interaction effect with education that was, however, only present in the British data. The main effect that men remained single longer than women may be explained by traditional gender role specialization such that women value male partners for their resource and earning potential which increases with men's age (Kalmijn, 2011; Oppenheimer, 1994). More recently, however, the importance of men's and women's economic resources for partnering has aligned somewhat in Western countries due to the larger participation of women in tertiary education and in the labor market (Domínguez-Folgueras & Castro-Martín, 2008; Sweeney, 2002). At the same time, women on average still express mate preferences for slightly older male partners (Antfolk, 2017; Gottfried et al., 2024). Thus, economic factors alone might be insufficient to explain why gender predicts young adults' consistent singlehood in more recent cohorts. In the United Kingdom but not in Germany, we found that the effect of education was more pronounced for women. Compared to men, women were even more likely to remain single when they had obtained higher educational degrees. This difference across countries might be due to different systems of higher education in the two countries. In the United Kingdom, university graduates face higher economic returns—with large inequalities by institution and major—but also higher financial risks due to tuition fees, whereas German graduates benefit from a somewhat more equitable and vocationally integrated system (Boliver, 2013; Triventi, 2013). Therefore, female university graduates in the United Kingdom may

Table 3
Summary of Research Questions, Empirical Gaps, Findings, and Theoretical Advancements

Research question	Relevant theory	Main finding	Theoretical advancement
RQ1: What are the predictors of staying single throughout adolescence and emerging adulthood as compared to entering a romantic relationship?	<ul style="list-style-type: none"> Emerging adulthood (Arnett, 2000) 	<ul style="list-style-type: none"> Lower momentary life satisfaction and higher loneliness and depression predict an increased likelihood of remaining single Higher educational attainment is associated with an increased likelihood of remaining single in both men and women Remaining single longer is more likely when living alone or living with parents Men are more likely to remain single longer than women 	<ul style="list-style-type: none"> Well-being differences at age 16/17 were minimal and not predictive of singlehood; instead, lower well-being at later ages in emerging adulthood mattered Heterogeneity in predictors of consistent singlehood; these may reflect aspects related to autonomy and personal growth (higher education, living alone) but at the same time also dissatisfaction of intimacy needs and withdrawal (lower well-being) Together with RQ2 and RQ3 results: Delaying partnering may offer benefits for personal growth and independence (e.g., to focus on educational attainment), but these benefits may still need to be balanced against well-being costs
RQ2: How does well-being develop throughout adolescence and emerging adulthood in continuous singles as compared to those eventually partnered?	<ul style="list-style-type: none"> Emerging adulthood (Arnett, 2000) Developmental task and social role theories (Havighurst, 1972; Hutteman et al., 2014; Lodi-Smith & Roberts, 2007; Sieber, 1974) Attachment style theory (Pepping et al., 2018) Intimacy versus isolation in identity development theory (Erikson, 1994) Voluntary singlehood as a positive, flourishing identity (DePaulo, 2023; Kislev, 2018) 	<ul style="list-style-type: none"> No initial differences in well-being change at age 17 Compared to eventually partnered young adults, consistent singles experience more adverse changes in life satisfaction from age 18 and in loneliness from age 19 onward Well-being gaps widen in the 20s, especially for loneliness after 23 Depressivity changes are initially uniform but also diverge significantly by age 23, with singles experiencing more pronounced increases Mostly no gender differences in change; no evidence for moderation by education, living alone, and income Partial evidence for more adverse life satisfaction and loneliness changes in singles living with parents 	<ul style="list-style-type: none"> Support for theories highlighting the importance of the first romantic relationship as a developmental task, social role, driver of identity formation, and source of secure attachment Timing of singlehood well-being costs: Ongoing singlehood in young adulthood comes with broad well-being costs, which manifest more strongly in the later 20s Aspects of well-being: The later onset of depression increases and exacerbating loneliness may reflect the accumulation of deprived intimacy needs, ongoing identity formation conflicts, or increasing social stigma and peer pressure Largely absent moderation effects may reflect a somewhat universal response to deprived closeness and intimacy needs; although more detailed assessments of moderators and mechanisms are needed Importance of distinguishing consistent singles as a group with distinct developmental well-being risks in young adulthood Support for task and social role theories highlighting the importance of the first romantic relationship for life satisfaction and loneliness No evidence for hedonic adaptation (at least until age 29) in life satisfaction and loneliness changes after experiencing the first relationship Singles' recovery from age-related well-being losses also possible in the later 20s (and even a small "catching up" effect) Both men and women profit from the first romantic relationship (and suffer relatively equally in consistent singlehood; see RQ2)
RQ3: How does the first romantic relationship affect well-being?	<ul style="list-style-type: none"> Social support and relatedness need satisfaction theories (Cohen & Wills, 1985; Ryan & Deci, 2000) Hedonic adaptation and set-point theories (Diener et al., 2006; Luhmann & Intellisano, 2018) 	<ul style="list-style-type: none"> Consistent decreases in life satisfaction and increases in loneliness after the first romantic relationship Long-term benefits for life satisfaction and loneliness No changes in depression Little evidence for gender differences; only somewhat more beneficial long-term effects for women Larger immediate well-being increases with later age at transition 	

Note. RQ = research question.

prioritize romantic relationships somewhat less (or later) than in Germany due to a stronger career focus in this more competitive system.

Further, young adults' household composition consistently predicted selection into consistent singlehood but slightly differently than we expected. In line with our hypothesis, still living with one or both parents in the same household predicted longer singlehood (Staff & Vuolo, 2024). Living in the parents' household likely signals both economic and psychological unreadiness to transition into committed romantic relationships. However, we found no support for the hypothesis that living with others (parents or roommates) generally increased the likelihood of remaining single (cf. Staff & Vuolo, 2024). Instead, living alone—compared to living with others but not parents—was related to staying single for a longer time period. Emerging adults might see flats shared with peers as more temporary solutions until they find success in dating. In addition, people living in shared flats might have larger peer networks than those in solo households and be more sociable which, as a facet of extraversion, is related to finding a new partner more easily (Back et al., 2023; Harris & Vazire, 2016).

Taken together, the heterogenous pattern of selection effects might point to distinct profiles of thriving and nonthriving singles. Regarding nonthriving singles, there is some resemblance to portrayals of “incels” (involuntary celibates; Costello et al., 2024; Sparks et al., 2024), that is, unhappy single men still living with their parents. Regarding thriving singles who voluntarily delay or abstain from partnering, one may interpret educational attainment and living alone as a focus on personal growth and independence during emerging adulthood (Arnett, 2000; Beckmeyer & Jamison, 2023a). However, both previous research on delaying developmental goals (Heckhausen et al., 2001, 2010; Schulenberg et al., 2004) and our own results on consistent singles' well-being age trajectories suggest that voluntary delays in romantic attachment may need to be balanced against well-being costs, on average.

How Do Singles and Partnered Young Adults Differ in Age-Graded Well-Being Changes?

Well-being generally decreased with age in the earlier phase of emerging adulthood (until about age 25) and plateaued afterward (until age 29), replicating recent studies based on large-scale surveys (Kratz & Brüderl, 2025; Orben et al., 2022; Wright et al., 2025). We extended this work by examining fine-grained age trajectories of life satisfaction, loneliness, and depression and comparing them between consistently single and eventually partnered young adults. Importantly, we formed analysis groups such that both groups started out at age 16 or 17 in the same position in their relationship biography, that is, before their first romantic relationship. Accordingly, we also found no group differences in well-being changes at that early age (cf. Gonzalez Avilés et al., 2021, who differed in their operationalization of single and partnered groups).⁷

Supporting hypothesis H2a, single and eventually partnered young adults differed in their well-being change, and these differences intensified with growing age. Specifically, we found that singles experienced worse life satisfaction and loneliness, starting from age 18 or 19, respectively. These gaps between single and eventually partnered young adults further widened in their 20s, as consistent singles experienced lower life satisfaction and higher loneliness throughout.

Findings differed somewhat for depressivity. Again, both groups experienced an increase with older age that leveled off during the later 20s. However, compared to loneliness, group differences between single and eventually partnered young adults were smaller and significant mostly in the later 20s. This may indicate that consistent singles first decrease in cognitive- and social-evaluative well-being constructs such as life satisfaction and loneliness and later—with ongoing singlehood during the latter half of emerging adulthood—in negative affective constructs such as depressivity (Lim et al., 2016; Matthews et al., 2019; Vanhalst et al., 2012). Although smaller in size, the delayed effects for depressivity could thus reflect a chronic progression of loneliness with age for some singles (Vanhalst et al., 2015) or low self-worth resulting from a sense of rejection. Future research with more frequent assessments is needed to further investigate such cross-domain mechanisms (e.g., Kuczynski et al., 2024). In addition, social stigma of persistent singlehood and pressure from peers and relatives to attempt to find a partner likely increase in later emerging adulthood (DePaulo & Morris, 2006; Fisher & Sakaluk, 2020; Girme et al., 2022; Sprecher & Felmlee, 2021). The social normativity of being with a partner differs across developmental phases (Furman & Collibee, 2014; Schulenberg et al., 2004) and may thus indirectly affect the average satisfaction with singlehood (Park et al., 2022) and singles' well-being, more generally. Indeed, toward the end of one's 20s, the influence of social pressure likely further increases because other developmental tasks such as marriage and parenthood, which typically require leaving singlehood, become more normative. However, more research is needed to examine how singles' motives and social pressure relate over age (e.g., Park, MacDonald, & Impett, 2023).

Follow-up analyses of personal characteristics that might shape age-graded well-being trajectories of consistent singles showed more evidence for similarity than distinctness across gender, educational attainment, household income, living alone, and living with parents. Systematic differences only surfaced for gender and living with parents but were small and inconsistently significant. Single men experienced somewhat worse well-being changes compared to women, with significant gender differences limited to ages 24–26. While the direction of these effects is in line with our expectation and prior literature (Hoan & MacDonald, 2024, 2025), the current findings emphasize adverse well-being changes for both male and female singles rather than pronounced gender differences. Similarly, although singles differed in their well-being changes depending on whether they currently lived with parents or not, these differences were restricted to a few age–outcome combinations and did not generalize broadly (Kersten et al., 2025). Thus, in emerging adulthood, singles decreased in well-being across age, relatively independent of their gender, socioeconomic status, and living situation—despite the finding that these factors robustly predict selection into consistent singlehood. This absence of moderation effects may reflect a somewhat universal response to the prolonged deprivation of closeness and

⁷ This does not contradict results from the survival analyses showing that lower well-being predicts longer singlehood because the survival analyses take the time-varying nature of the predictors into account. In cross-sectional logistic regression analyses, we modeled time-invariant predictors (i.e., well-being at the first observation) and found no significant effects for well-being predicting singlehood (see html document at <https://osf.io/k95jw/>, Section 5.1.1). Thus, there were no significant preexisting differences between consistent singles and eventually partnered people in their life satisfaction, loneliness, and depressivity.

intimacy needs (Baumeister & Leary, 1995; Hofer & Hagemeyer, 2018). However, the examined moderators constituted relatively broad operationalizations, and more detailed assessments of the theorized mechanisms might reveal systematic differences in singlehood experiences in future studies. For example, while following a tertiary education trajectory did not explain differences in within-person well-being change, specific components accompanying higher education such as more progressive gender role attitudes (van den Berg, 2023) or more family–career goal conflicts might do so (Griep et al., 2016; Schieman & Glavin, 2011).

In terms of effect sizes, gaps in life satisfaction and loneliness between consistent singles and eventually partnered young adults ranged from small to medium (Funder & Ozer, 2019) at the end of the observation period by which point the latter had already found a partner. That is, average within-person increases in loneliness from age 16 to age 29 were larger by $d = 0.53$ in consistent singles compared to eventually partnered people (scaled by the overall sample standard deviation; $d = -0.36$ for life satisfaction; $d = 0.10$ for depressivity). To anchor this effect size, meta-analyses indicate that loneliness, on average, increased by around $d = 0.25$ from age 15 to age 30 in the general population (Wright et al., 2025), by $d = 0.27$ during the COVID-19 pandemic (Ernst et al., 2022), and decreases by $d = -0.43$ through psychological interventions (Hickin et al., 2021).

How Does the First Romantic Relationship Affect Well-Being?

Last, we examined well-being changes in relation to the year in which young adults started their first romantic relationship, taking on a temporal perspective complimentary to age-graded trajectories. Emerging adults who reported committing to a first romantic relationship increased in life satisfaction and decreased in loneliness but did not change in depressivity. These well-being gains started in the first year after the event and persisted in the following years, at least until age 29. Changes in well-being were consistent across data sets and small in terms of effect size measures at each time point, for example, 12% of the standard deviation for life satisfaction and 27% for loneliness in the first postevent year. However, over time, these effects might further accumulate (Funder & Ozer, 2019; Götz et al., 2022) and partly explain the observed well-being gaps by age 29. Effect sizes were comparable in size to effects of major life events on life satisfaction, such as any new romantic relationship ($d = 0.13$), marriage ($d = 0.22$), or separation ($d = -0.26$), in the immediate postevent year (Haehner et al., 2025).

Thus, in support of hypothesis H3a, these findings replicate previous work on how romantic relationships affect life satisfaction (e.g., Bühler, Mund, et al., 2024; Haehner, Krämer, et al., 2024; Krämer, Rohrer, et al., 2025) and extend them to (a) the biographically first romantic relationship after an initial period of singlehood and (b) loneliness and depressivity as additional developmentally relevant psychosocial well-being aspects (cf. Buecker, Denissen, et al., 2021, for loneliness with cohabitation and marriage). Conversely, some earlier studies indicating less favorable outcomes of adolescent romantic relationships, including worse mental health, did not find support (e.g., Connolly et al., 2013; Natsuaki et al., 2009).⁸

Follow-up analyses into theoretically relevant moderators showed that the immediate postevent changes were more adaptive in the short term for all three well-being aspects the later young adults

transitioned into the first relationship. After having experienced more severe age-related well-being declines than those already partnered, this increment might reflect that well-being catches up when fulfilling the developmental task somewhat delayed compared to societal norms (Hutteman et al., 2014; Luhmann et al., 2021), but only in the first year after partnering. In addition, with fewer subsequent relationship transitions (i.e., repartnering after a period of singlehood), young adults decreased even more in loneliness after starting their first relationship. Potentially, in this case, young adults were more securely attached in their first relationship (Mikulincer et al., 2021) and did not experience detrimental effects of one or several future separations within the observation period (Krämer, Rohrer, et al., 2025; Wahring et al., 2025). In contrast, longer term life satisfaction improvements after the first relationship did not vary systematically depending on subsequent relationship stability. This may suggest more enduring benefits of having achieved this developmental task (Erikson, 1994; Hutteman et al., 2014; Stern et al., 2024).

Last, gender differences were not pronounced, with only slightly more favorable long-term life satisfaction and depressivity changes for women and no differences in loneliness. At least with regard to the first committed relationship, the current findings thus add more nuance to the recent claim that men derive substantially greater psychological benefits from romantic relationships than women (Wahring et al., 2024).

Theoretical Implications

The current findings support theoretical frameworks that underline the importance of romantic relationships for well-being in emerging adulthood (Arnett, 2000; Arnett et al., 2014). Among adolescent respondents initially identified as never partnered, delays in romantic commitment until their 20s were relatively common (63% of respondents were not partnered by age 20). Trade-offs between different life domains that are described as typical for emerging adulthood could also be observed indirectly (Arnett, 2000). Specifically, both single men and women with more advanced educational degrees delayed partnering further, hinting at the societal advancement of tertiary education as a partial explanation for the rise in singlehood rates. Historical developments that lead more and more young adults to postpone committed romantic relationships while focusing on education and identity exploration are likely accompanied by average well-being costs over the young adulthood developmental period, which may in part explain temporal trends of increasing loneliness (Buecker, Mund, et al., 2021). However, lower well-being also consistently predicted remaining single longer when treating predictors of selection into singlehood as time-varying (i.e., in survival analyses), which was not the case cross-sectionally (i.e., in logistic regression analyses). Thus, potential other pathways from well-being risk factors to consistent singlehood should be explored in future research.

The results are also in line with conceptualizations of the first romantic relationship as an important developmental task (Havighurst, 1972; Hutteman et al., 2014; Lodi-Smith & Roberts, 2007). Its importance is increased because of downstream consequences for

⁸ As a caveat, however, note that we could not include romantic relationship transitions before age 17 and that early romantic and sexual relationships are sometimes seen as a developmental risk factor.

further developmental tasks that are otherwise barred or impeded (e.g., marriage, childbirth). Results on loneliness may imply that consistently single young adults are lacking intimate social support that could otherwise be provided by a partner and perhaps their wider social network. Conversely, eventually finding a partner within one's 20s alleviated previous loneliness increases to some extent, and even a later transition time did not come with any direct downsides, except that, indirectly, young adults remained in the state of higher loneliness longer (Furman & Collibee, 2014; Rook et al., 1989). Together, these findings allow for more precise theoretical considerations of developmental trends and the timing of developmental tasks in young adulthood.

When leaving singlehood, the first relationship transition improved young adults' life satisfaction and loneliness also in the long term relative to their baseline—at least until age 29. Therefore, the theorized principle of hedonic adaptation, that is, a return to baseline levels after both positive and negative life events, might not apply for the first romantic relationship (Diener et al., 2006; Luhmann & Intelisano, 2018), even when experiencing subsequent separations (Krämer, Rohrer, et al., 2025). In other words, missing out on this centrally important life event may, on average, be costly for well-being in the long term (Luhmann et al., 2021), even when shelving or disengaging from romantic relationship goals and subsequent parenthood goals (Mayer & Freund, 2022; Wrosch & Heckhausen, 1999).

Here, we relied on more general theories of development and romantic relationships because no comprehensive developmental theories of singlehood exist, although recent literature reviews point out areas of progress (Girme et al., 2023; Lavender-Stott et al., 2023). Theoretical frameworks especially tailored to well-being in singlehood should define different states of singlehood clearly (Bergström & Brée, 2023) but also describe and offer answers to the following questions.

First, *when* is singles' well-being most sensitive to change? On a scale of yearly assessments, our results indicate that initial life satisfaction and loneliness differences are minimal at age 16/17, but deficits are already present relatively early on (from age 18/19) and become more pronounced with older age, especially for loneliness after age 24. Depressivity deficits emerge later (from age 23) and remain relatively stable. However, other temporal dimensions are also critical to consider such as monthly or weekly well-being changes and fluctuations.

Second, *which aspects* of psychosocial well-being, broadly conceived (Willroth, 2023), are relevant (see also Girme et al., 2023; Gonzalez Avilés, 2024)? Notably, consistent singles' life satisfaction and loneliness displayed similar developmental trajectories and event-related changes, while depressivity had comparatively lower plasticity, with singlehood deficits emerging after age 23 and no recovery effect after experiencing the first romantic relationship. A renewed focus on broader well-being aspects may reveal diverging patterns with more varied negative (e.g., psychopathology dimensions or lower sexual satisfaction; Qin et al., 2025) and positive sides to singlehood (e.g., self-acceptance; Ryff, 2014).

Third, *for whom* does singlehood lead to adverse or adaptive well-being changes? Together with recent research into later life singlehood (Stern et al., 2024), the current results support the distinctive deficits of consistent (i.e., never partnered) singles compared to those who have some relationship experience. For a more complete picture, comprehensive theories of singlehood should distinguish groups of single people not only by their relationship history and phase

of the lifespan but also by their personal characteristics (i.e., personality, motives/goals, and values) and broader sociocultural context (Bergström & Brée, 2023; Girme et al., 2023). These factors likely influence how singlehood is experienced affectively and cognitively on an individual basis. For example, the current findings indicate that living with parents while single is an additional risk factor for singles' well-being development.

Last, *how* does singlehood affect well-being? Although challenging to accomplish with observational designs, more research into mechanisms of well-being changes during singlehood is needed to derive clear practical implications for resilience-focused interventions. Intensive longitudinal designs and natural experiments (Grosz et al., 2023) may be potential routes to achieve this.

All in all, more research is needed until integrative theoretical perspectives can be sufficiently tested to help delineate concrete practical implications, for example, for counseling and therapy as well as for broader societal intervention programs to counter rising rates of loneliness in some adolescent and young adult populations (Buecker, Mund, et al., 2021; Matthews et al., 2019).

Limitations and Future Directions

Several limitations have to be considered. First, fixed effects models are advantageous for causal inference of within-person well-being change, but interpreting change estimates causally requires the additional assumption that no important time-varying confounds are missing from the model (Lawes et al., 2025). We controlled for aging and initial elevation bias, but other processes that affect both well-being and the likelihood of singlehood versus partnering might still bias model estimates. For example, a past relocation or occupational change may affect both one's chances of finding a partner and well-being (Haehner et al., 2025; Nowok et al., 2018). At the same time, careful attention needs to be paid to avoid overcontrol bias (Wysocki et al., 2022), that is, controlling for colliders which are downstream effects of the treatment (e.g., singlehood vs. partnering leading someone to relocate or change their occupation). In addition, while fixed effects models control for unmeasured time-invariant confounding, they only estimated average within-person effects but no individual differences in change beyond the moderators we included. Future research should take a closer look at heterogeneity in subgroups of young adult singles (Adamczyk, 2021; Walsh et al., 2024) and also investigate more extensive sets of moderators including values or life goals (Buchinger et al., 2024; Fischer & Karl, 2022).

Second, we focused on the developmental phase of emerging adulthood and thus restricted our observation period to an upper limit of age 29. This had both conceptual and practical reasons. Conceptually, this fit with the developmental period of emerging adulthood (Arnett, 2000). Practically, due to panel attrition, it would not have been possible to further trace well-being trajectories throughout the 30s reliably. Respondents in the three data sets were identified from representative household studies that aimed to assess all members of the sampled households and follow them in case members moved out of the household. Still, the process of moving out of the parents' household is associated with additional panel attrition. Modern, internet-based survey methods might make such follow-up procedures easier in the future with the right incentives.

Third, although the panel studies we used offer high external validity due to their random sampling and broad scopes, they were

not specifically designed to study singlehood and were therefore limited in the available information. For example, the studies assessed committed romantic relationships, but it is likely that other, more casual forms of romantic and sexual involvement also matter for singles' well-being (Andrae, Krämer, Hopwood, Denissen, Scholz, & Bleidorn, 2025; Park et al., 2021; Schmiedeberg & Avilés, 2025). Therefore, we may have underestimated age-related well-being differences to some extent, assuming that casual romantic involvements had positive average well-being effects. In addition, information of further theoretically relevant moderators was not available such as (in-)voluntary singlehood or specific motivations for singlehood and partnering (Apostolou et al., 2019; MacDonald et al., 2025; Park, MacDonald, & Impett, 2023). While we could harmonize most measures well across the three data sources, we reached comparatively lower agreement for loneliness where the SOEP represented an outlier due to fewer available waves and a change in instruments. This might explain the observed deviation in the loneliness age trajectories.

Fourth, the current results are specific to the included countries, Germany and the United Kingdom, which constrains the generalizability of the findings. Across these two countries, results were quite consistent. Smaller differences in the age trajectories between the three data sets did not run along country lines. Future research should still attempt to delineate how cultural differences relate to differential well-being among singles (e.g., Sim & Edelstein, 2025) and whether the current results generalize to other cultural contexts. Previous research has identified some level of cross-cultural consistency in the general well-being benefits of committed relationships compared to singlehood (Apostolou et al., 2024; Diener et al., 2000; Stern et al., 2024) and in structural relations of reasons for being single (Apostolou et al., 2021). However, important cultural differences exist, between as well as within countries, in how accepted or stigmatized singlehood is (Byrne & Carr, 2005; Day et al., 2011), which potentially has important consequences for well-being experiences in singlehood (Girme et al., 2022). The most common reasons for being single also differed between countries in Europe, Brazil, India, China, and Japan (Apostolou et al., 2021). Still, a stark majority of research on (unmarried) singlehood has been conducted in Western countries high in individualism, whereas less is known about singles in countries high in collectivism (cf. Choi & Qian, 2023; Yoshida, 2023). In addition, average life trajectories in the domains of education and employment in early adulthood also differ quite substantially between countries. In Europe, the relationship between education levels and consistent singlehood has been shown to vary across both gender and country, potentially due to a country's gender egalitarianism (Bellani et al., 2017).

Conclusion

Being consistently single in young adulthood is related to broad and consistent well-being costs, especially in life satisfaction and loneliness, compared to those who find their first partner. These comparative deficits in well-being exacerbate in the later 20s, where consistent singles also experience deficits in depressivity compared to eventually partnered young adults. Singles' well-being deficits were also mostly consistent across several moderators including gender. Although it is important to recognize that variability exists in singlehood experiences and that a considerable number of singles

are as happy as partnered people (Walsh et al., 2023, 2024), our results indicate considerable risks when missing out on the developmental task of the first romantic relationship in young adulthood, which increased life satisfaction and decreased loneliness. Thus, while singlehood offers avenues for identity formation and self-reflection for some young adults (Beckmeyer & Jamison, 2023b), such advantages of singlehood may need to be traded off against lower well-being (see also Gonzalez Avilés, 2024). Over time, young adults with lower well-being were also more likely to remain single longer. Given that there were minimal initial well-being differences between consistently single and eventually partnered adolescents, this may indicate that transitions out of singlehood at a later age become more difficult. Finally, as highlighted by others (Lavender-Stott et al., 2023), there is a clear need for more advanced longitudinal singlehood research, on time scales covering both the life course but also daily life.

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Received July 29, 2025

Revision received November 14, 2025

Accepted December 3, 2025 ■

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