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A developmental perspective on personality–relationship transactions: Evidence from three nationally representative samples

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Abstract

Objective: Throughout their lives, people experience different relationship events, such as beginning or dissolving a romantic relationship. Personality traits predict the occurrence of such relationship events (i.e., selection effects), and relationship events predict changes in personality traits (i.e., socialization effects), summarized as personality–relationship transactions. So far, evidence was partly inconsistent as to how personality traits and relationship events are linked with each other. In this article, we argue that unnoticed age differences might have led to these inconsistencies. To systematically test for age differences in transactions, we conceptualize relationship events in terms of gains and losses and apply a developmental perspective on transactions.

Methods: Using longitudinal data from three nationally representative samples (SOEP, HILDA, Understanding Society), we computed event-focused latent growth models and summarized the results meta-analytically.

Results: The findings indicated some transactions. Of these, selection effects were stronger than socialization effects, and effects of gain-based events were stronger than effects of loss-based events. We observed few interactions with age.

Conclusion: Selection effects and, particularly, socialization effects, tend to be rare and fairly independent of age. We discuss a series of broader and narrower factors that may have an impact on the strength of transactions across adulthood.

KEYWORDS

life-span development, personality development, personality–relationship transactions, relationship events, romantic relationships

1 | INTRODUCTION

Throughout their lives, people experience different events in their romantic relationship lives, such as beginning or dissolving a relationship. Research suggests that relationship events are linked with people's personality traits, that is, with their relatively enduring patterns of thoughts, feelings, strivings, and behaviors (John & Srivastava, 1999). Specifically, personality traits have been found to predict the occurrence of relationship events (i.e.,

selection effects), and relationship events have been found to predict changes in personality traits (i.e., socialization effects). This interplay has been summarized as *personality–relationship transactions* (e.g., Magnusson, 1990; Neyer & Asendorpf, 2001).

Although transactions occur across entire adulthood, the specific interplay between personality traits and relationship events might differ across age. For example, patterns of selection and socialization effects may be different for people entering their first romantic relationship in young adulthood compared to others who start their first relationship as middle-aged adults. Such differences may be due to the age-graded normativeness associated with the relationship event. Thus, in the present study we propose that research on transactions would benefit from considering the age-graded normativeness of relationship events, which, in turn, should matter for the strength of selection and socialization effects (Neyer et al., 2014). Using data from three nationally representative samples, we test our hypotheses in each data set separately and then meta-analytically summarize the study-level results, allowing for internal replications and robustness checks (e.g., Duncan et al., 2014).

1.1 | Transactions between personality traits and relationship events

Life events, in general, are defined as "time-discrete transitions that mark the beginning or the end of a specific status" (Luhmann et al., 2012, p. 594). Accordingly, *relationship events* can be characterized as time-discrete transitions that indicate the start or ending of a particular status in the romantic relationship domain (see also Bleidorn et al., 2018). Relationship events are qualitatively different from each other and can be classified into the two broad domains of gain-based and loss-based events (Denissen et al., 2019): *Gain-based relationship events* imply that a particular relationship status has begun, including "beginning a romantic relationship", "moving in with a partner", and "marriage".[1] *Loss-based relationship events* imply that a particular relationship status has ended, including "separation", "divorce", and "death of the partner/widowhood". As noted above, relationship events and personality traits are transactionally linked through selection and socialization effects. Two prominent perspectives discuss the mechanisms that may drive these effects: endogenous and environmental views.

Endogenous views posit that personality traits predispose people to experience a certain event or not (see five-factor theory of personality, McCrae & Costa Jr., 2008). There are various mechanisms by which personality traits may select individuals to experiencing an event

(see theory on person–environment transactions, Caspi et al., 2005; Roberts et al., 2008): People may actively select themselves into an event, may be selected based on their personality into a particular social role by others, or may leave environmental conditions that no longer match their traits. For instance, evidence suggests that less agreeable people, compared to more agreeable people, get more likely divorced (Solomon & Jackson, 2014). This view can account for selection effects, but it is limited in explaining socialization effects.

Environmental views, on the other hand, consider personality as a malleable system that is open to be shaped by environmental factors, such as by life events (see neo-socioanalytic theory, Roberts & Wood, 2006). Evidence suggests that personality traits develop through the normative commitments, social roles, and behavioral scripts that are associated with life events (Lodi-Smith & Roberts, 2007; Roberts et al., 2008). For instance, research provides evidence that divorced people become somewhat less conscientious over time (Roberts & Bogg, 2004). This view more likely accounts for socialization effects.

At the same time, for any selection or socialization effects to occur, individuals and their environments have to interact with each other. For instance, if someone wants to select a romantic partner, there must be potential mates in the environment who are available and interested (Günaydin et al., 2013). Similarly, the relationship event of separation rarely is a stochastic-contextual experience, but it is influenced by the characteristics of the person, including their personality traits (Dyrenforth et al., 2010). Hence, in the real (romantic) world, the categories of endogenous and environmental views are less dichotomous and less exclusive given that individuals and their environments depend on each other. Thus, to fully understand the conditions that precede and result from personality traits, it is important to test selection and socialization effects simultaneously. Otherwise, selection effects might mask socialization effects, and vice versa (e.g., Mund et al., 2018).

1.2 | Selection effects and socialization effects: A brief review

In this section, we briefly review the existing evidence on selection and socialization effects between personality traits and relationship events, differentiating between gain-based and loss-based events (Denissen et al., 2019). An overview of the evidence is given in Table S1, including participants' mean age and methodological information on the study design (i.e., measure and time lag between assessments).[2]

1.2.1 | Selection effects

Gain-based and loss-based relationship events
Beginning a romantic relationship. Divergent findings exist for selection effects on beginning the first serious romantic relationship. Regarding neuroticism or neuroticism-related aspects (i.e., depression), one study observed that higher neuroticism predicted that people enter their first romantic relationship in the following 8 years (e.g., Neyer & Lehnart, 2007), whereas another study indicated that lower depression predicted that people enter a relationship in the following 2 years (Wagner et al., 2015). More consistency exists for extraversion, showing that higher extraversion and higher sociability predicted that people (Neyer & Lehnart, 2007; Wagner et al., 2015), particularly emerging adults (Pusch et al., 2019), enter their first romantic relationship. In addition, higher conscientiousness predicted that people enter a relationship (Pusch et al., 2019), whereas these studies did not indicate selection effects of agreeableness and openness.

Moving in with a partner. Higher neuroticism and lower agreeableness (Asselmann & Specht, 2020), higher extraversion (Asselmann & Specht, 2020; Pusch et al., 2019; Specht et al., 2011) and higher conscientiousness (Pusch et al., 2019) predicted that people move in with their partner. Research did not suggest selection effects of openness.

Marriage. One study indicated that lower neuroticism predicted that people marry (Denissen et al., 2019), while another study indicated that higher neuroticism (among women) predicted that people marry (Specht et al., 2011). In addition, lower agreeableness (Asselmann & Specht, 2020), higher conscientiousness (Denissen et al., 2019), and lower openness (Denissen et al., 2019) predicted marriage.

Separation. Whereas four studies did not observe personality traits to predict separation (Lehnart & Neyer, 2006; Neyer & Asendorpf, 2001; Neyer & Lehnart, 2007; Specht et al., 2011), three other studies reported selection effects on separation: Higher neuroticism (Asselmann & Specht, 2020; Solomon & Jackson, 2014), higher extraversion (Pusch et al., 2019), lower agreeableness (Asselmann & Specht, 2020; Pusch et al., 2019; Solomon & Jackson, 2014), lower conscientiousness (Solomon & Jackson, 2014), and higher openness (Solomon & Jackson, 2014) predicted that individuals separate. The finding that lower agreeableness and higher neuroticism yielded prospective effects on separation also corresponds with research on relationship development, indicating that lower agreeableness and higher neuroticism are among those traits to predict lower relationship satisfaction (Dyrenforth et al., 2010). Lower relationship satisfaction, in turn, may eventually lead to separation or, if married, to divorce (Karney & Bradbury, 1995; Kelly & Conley, 1987).

Divorce. Whereas one study indicated that personality traits do not predict divorce (Lehnart & Neyer, 2006), four other studies indicated that higher neuroticism (Solomon & Jackson, 2014), lower agreeableness (Asselmann & Specht, 2020; Solomon & Jackson, 2014), lower conscientiousness (Roberts & Bogg, 2004; Solomon & Jackson, 2014), and higher openness (Denissen et al., 2019; Solomon & Jackson, 2014) predicted divorce.

Widowhood. Two studies showed that none of the Big Five traits predicted widowhood (Denissen et al., 2019; Specht et al., 2011), suggesting that there is no evidence for selection effects of personality traits on experiencing widowhood.

1.2.2 | Socialization effects

Gain-based and loss-based relationship events
Beginning a romantic relationship. Beginning a romantic relationship, particularly the first serious romantic relationship, has consistently been found to relate to a decrease in neuroticism (Lehnart et al., 2010; Neyer & Asendorpf, 2001; Neyer & Lehnart, 2007; Wagner et al., 2015). Somewhat less consistently, starting a relationship has also been found to relate to an increase in extraversion (Neyer & Lehnart, 2007; Wagner et al., 2015), an increase in conscientiousness (Neyer & Asendorpf, 2001; Wagner et al., 2015), and a decrease in openness (Pusch et al., 2019). Research did not suggest socialization effects on agreeableness.

Moving in with a partner. One study observed no socialization effects of moving in with a partner (Specht et al., 2011), while three other studies observed significant effects: Moving in with a partner predicted an increase in agreeableness (Pusch et al., 2019), an increase in conscientiousness (Asselmann & Specht, 2020), and a decrease in openness (Pusch et al., 2019). Research did not suggest socialization effects on neuroticism and extraversion.

Marriage. Two studies observed no associations between getting married and changes in personality traits (Denissen et al., 2019; Neyer & Asendorpf, 2001). In three other

studies, however, marriage revealed prospective effects on personality change: Marriage predicted decreases in neuroticism (Costa Jr. et al., 2000), extraversion (Costa Jr. et al., 2000; Specht et al., 2011), and openness (Asselmann & Specht, 2020; Costa Jr. et al., 2000; Specht et al., 2011).

Separation. Whereas four studies indicated no socialization effects of separation on personality traits (Asselmann & Specht, 2020; Denissen et al., 2019; Neyer & Asendorpf, 2001; Pusch et al., 2019), two studies observed prospective effects: Neyer and Lehnart (2007) found that separation predicted an increase in extraversion, while Specht et al. (2011) found that separation predicted increases in agreeableness and openness (only in men).

Divorce. Whereas one study observed no socialization effects of divorce on traits (Denissen et al., 2019), five studies revealed prospective effects, but for different traits and in different directions: Specifically, divorce has been found to predict an increase in neuroticism (Asselmann & Specht, 2020), an increase (Costa Jr. et al., 2000) or decrease (Allemand et al., 2015) in extraversion, an increase in agreeableness (Spikic et al., 2021), a decrease (Costa Jr. et al., 2000; Roberts & Bogg, 2004; Spikic et al., 2021) or increase (Specht et al., 2011) in conscientiousness, and an increase in openness (Costa Jr. et al., 2000; Spikic et al., 2021).

Widowhood. Whereas widowhood has not been found to predict personality change in a representative Dutch sample (Denissen et al., 2019), gender-differential socialization effects emerged in a representative German sample (Specht et al., 2011): Women decreased in conscientiousness after having lost their spouse, whereas men increased in conscientiousness after the experience of this event. Research did not provide evidence for socialization effects of widowhood on changes in neuroticism, extraversion, agreeableness, and openness.

1.2.3 | Interim summary on selection effects and socialization effects

Most of the studies reviewed used large nationally representative samples with long time lags between assessments (i.e., 1 to 22 years). These previous findings suggest that relationship events are transactionally linked with personality traits, but the size of the effects tended to be small (see Table S1). Moreover, some inconsistency exists as to *how* relationship events are linked to personality traits. We argue these inconsistencies might have been driven by unnoticed moderators, namely by participants' age. Many of the studies reviewed were either based on

samples from young and middle adulthood or did not specifically consider age-specific developmental patterns (although some studies considered age as covariate, see Asselmann & Specht, 2020; Denissen et al., 2019; Specht et al., 2011). Hence, the observed inconsistencies in transactions may be partly driven by age effects.

1.3 | Age matters: Transactions across the life span

The reviewed evidence informs about personality–relationship transactions, but existing findings may be limited in their generalizability across adulthood due to the shortage of studies testing age-specific hypotheses in age-heterogeneous samples. For example, regarding socialization effects, Neyer and Asendorpf (2001) stated that "engaging in a [first] serious partnership is a game one can only win" (p. 1200). This conclusion, however, is drawn from a young-adult sample ($M = 28.6$ years, $SD = 3.8$ years) and, as the authors themselves stated, it remains open whether engaging in the first romantic relationship is a game that people of either age can only win, or whether relationship events have different predictors and different implications at different ages. Moreover, even in samples of young adults, age-differential socialization effects may occur: Wagner et al. (2015) observed that engaging in the first romantic relationship was related to later personality (i.e., lower neuroticism, extraversion, conscientiousness, and self-esteem) between ages 23 and 25, but not between ages 21 and 23. Hence, to allow conclusions about the generalizability of transactions across adulthood, it is essential to account for age-differential effects, both theoretically and empirically.

In their theoretical review, Neyer et al. (2014) stated that the *normativeness* of a life event (or, in this case, a relationship event) is crucial when studying selection and socialization effects, for two reasons. First, the less normative an event is, the more likely personality contributes to the event (relevant for selection effects). Second, the more normative an event is, the more transparent are the associated role demands and behavioral scripts and the clearer is the guidance of how to behave adaptively (relevant for socialization effects; see also Caspi & Moffitt, 1993). This normativeness, in turn, facilitates adapting to a new status, which then guides personality change (Neyer et al., 2014). Although events are often too complex to be categorized in either of two categories (i.e., normative vs. non-normative), they can be described along a continuum of normativeness according to three aspects (Neyer et al., 2014).

First, normativeness depends on whether an event is considered *mandatory* for people in a (sub)cultural context in a certain life period (Neyer et al., 2014). For example, marriage

is considered more mandatory in some cultures than in other cultures (e.g., the crude marriage rate, defined as the number of marriages during the year per 1000 persons, is higher in Germany [5.0] than in Italy [3.1]; OECD, 2019).

Second, normativeness depends on whether an event is *common and frequently experienced* among members of a reference group (i.e., peers of the same age in a [sub] population; Neyer et al., 2014). For example, widowhood is more frequently experienced among adults between 65 and 74 years (from a total of 92,522 people, 20.7% indicated that they were currently widowed) than among adults between 35 and 44 years (1.1% indicated current widowhood) (U.S. Census Bureau, 2021).

Third, normativeness depends on whether an event is *socially expected and socially scripted* among members of a reference group (Neyer et al., 2014). The normative timing of social expectations and scripts is, among other aspects, defined by culture-specific social clocks (Bleidorn et al., 2013; Neugarten et al., 1965) and developmental tasks (Havighurst, 1972). For example, young adults of recent cohorts, compared to previous cohorts, may follow more diverse romantic scripts (Bühler & Nikitin, 2020; Scheling & Richter, 2021).

Following this developmental approach, we argue that age is crucial to determine the normativeness of relationship events and expect that the strength of transactions varies systematically across adulthood. Specifically, according to developmental theories, young adults (18–40 years) typically focus on gains and growth (Havighurst, 1972), establish long-lasting social ties, and commit to their first long-term romantic relationships (Ebner et al., 2006). Middle-aged (40–65 years) and older (age 65 and above) adults, conversely, are more concerned with consolidation and avoiding losses, which is expressed in caring for the next generation and in maintaining social relationships, including marriage (e.g., Baltes, 1987; Infurna et al., 2020). Continuing with this developmental view, this implies that gain-based relationship events should be more common (and hence more normative) for young adults, while loss-based relationship events should be more common (and hence more normative) for middle-aged and older adults. Thus, if normativeness plays a crucial role for transactions (Neyer et al., 2014) and if normativeness depends on age (e.g., Havighurst, 1972; Rubin et al., 2009) then selection and socialization effects should differ across adulthood in the following ways.

Selection effects of personality traits should be stronger when the event is less normative because less normative events are less regulated by social expectations, which gives personality more chance to shape the occurrence of the event (Neyer et al., 2014). Following this argumentation, selection effects on loss-based relationship events should be stronger the younger people are (because losses are less normative the younger people are). Selection effects on gain-based relationship events, conversely, should be stronger the older people are (because gains are less normative the older people are).

Socialization effects of relationship events on personality traits should be stronger when the event is more normative because more normative events provide clearer advice and guidance about how to behave adaptively (Roberts et al., 2005). Accordingly, socialization effects of gain-based events should be stronger the younger people are (because gains are more normative the younger people are). Socialization effects of loss-based events, conversely, should be stronger the older people are (because losses are more normative the older people are).

1.4 | The present study

People experience relationship events across entire adulthood, and evidence suggests that relationship events are transactionally linked with personality traits. So far, however, research has led to partly conflicting findings as to how personality traits and relationship events predict each other. In the case of such inconsistency, two approaches are needed.

First, to examine systematic variations in selection and socialization effects, moderator variables need to be identified. We contend that progress in understanding personality–relationship transactions benefits from considering the role of age for transactions, based on the developmental gains and losses that accompany the event.

Second, to address the heterogeneity of previous findings, hypotheses should be tested in more than one data set, and evidence should be systematically summarized (Curran & Hussong, 2009; Duncan et al., 2014; Hofer & Piccinin, 2009). To that aim, we use longitudinal data from three nationally representative samples: the German Socio-Economic Panel (SOEP), the Household Income and Labour Dynamics in Australia (HILDA) Survey, and Understanding Society from the United Kingdom (Understanding Society is the UK Household Longitudinal Study, using waves of the British Household Panel Study [BHPS], harmonized with Understanding Society. BHPS is the household-based panel survey of residents of the UK, which ran from 1991 to 2009). We will first conduct study-level analyses in each data set. Next, we will aggregate these findings meta-analytically to increase the power of tests, the precision of estimates, and the generalizability of findings (Viechtbauer, 2005, 2010), allowing for internal replications and robustness checks (e.g., Duncan et al., 2014). By pursuing these approaches, the present coordinated analysis offers the unique opportunity to

provide a clearer picture of the transactions between personality traits and relationships events and, most importantly, to gain a better understanding of the role of age for these transactions.

2 | METHOD

2.1 | Transparency and openness

We follow the Journal Article Reporting Standards (Appelbaum et al., 2018; Kazak, 2018) and describe how we obtained the three samples included in this study. The data sets are publicly available, and links for obtaining information on study protocol, data access, and publications using these data sets are provided in Footnotes 1, 2, and 3. Analysis scripts and research materials (e.g., coding manual) are available on the Open Science Framework (OSF; https://osf.io/4cxhz/). The present work was explorative, and hypotheses and analyses were not preregistered. The analyses were computed in R (R Development Core Team, 2020), using the lavaan (Rosseel, 2012) and metafor (Viechtbauer, 2010) packages.

2.2 | Samples and procedures

2.2.1 | Three household-panel studies

SOEP

The first data set comes from SOEP of the German Institute of Economic Research and was approved by

the research ethics officer from the German Institute for Economic Research. SOEP is an ongoing yearly household-based panel study of people above age 17 years living in Germany (for more details, see Goebel et al., 2019; Wagner et al., 2007).[3] Since 1985, relationship events have been assessed yearly, and since 2005, personality traits have been assessed every four years with the most recent assessment in 2017. Given our focus on traits, we used SOEP data from all personality assessments (i.e., 2005 to 2017). We included individuals who had completed at least two of three items to assess traits on at least two consecutive assessments. The event-specific samples are reported in Table 1 (left part).

HILDA

The second data set comes from HILDA of the Melbourne Institute of Applied Economic and Social Research, and ethical approval was given by the University of Melbourne's research ethics committee. HILDA is an ongoing household-based panel survey of people above age 15 years living in Australia (for more details, see Melbourne Institute of Applied Economic and Social Research, 2017).[4] Since 2002, relationship events have been assessed yearly, and since 2005, personality traits have been assessed every four years with the most recent assessment in 2017. We used HILDA data from 2005 to 2017 and included individuals who had completed at least two of the personality items on at least two consecutive assessments. The event-specific samples are reported in Table 1 (middle part).

Understanding Society

The third data set comes from Understanding Society of the University of Essex and was approved by the University

TABLE 1 Occurrence of relationship events and age at occurrence in the three data sets (SOEP, HILDA, Understanding society)

Variable	SOEP Occurrence		SOEP Age		HILDA Occurrence		HILDA Age		Understanding Society Occurrence		Understanding Society Age	
	Yes	No	*M*	*SD*	Yes	No	*M*	*SD*	Yes	No	*M*	*SD*
Gain-based event												
New relationship	3586	17,600	32.13	13.02	492	2812	34.13	13.30	–	–	–	–
Moving in	3959	16,453	32.69	11.55	3531	11,324	29.44	10.37	933	10,338	33.08	12.46
Marriage	3261	16,487	36.05	10.87	3552	10,569	35.10	12.83	1132	3075	36.78	11.91
Loss-based event												
Separation	3099	16,697	36.77	11.93	3982	10,450	36.57	14.94	348	3104	42.13	11.09
Divorce	976	17,880	43.39	9.46	808	12,272	43.91	11.01	555	2997	46.83	12.83
Widowhood	951	17,629	68.16	12.41	528	12,562	70.85	13.11	441	3066	69.66	12.44

Note: Occurrence indicates the number of people who have experienced the event at least once during the study period (only events are considered for which it can be ensured that the event took place between two consecutive personality measurements). Yes = Event occurred; No = Event did not occur. Age = Age at the occurrence of the event. In the SOEP data set, events were considered between 2005 to 2017, except for beginning a relationship, which was assessed between 2011 and 2017. In the HILDA data set, events were considered between 2005 to 2017. In the data set of Understanding Society, events were considered between 2005 and 2011, except for moving in with a partner, which was assessed between 2010 and 2011. The event "beginning a relationship" was not assessed in the data set of Understanding Society.

of Essex ethics committee.[5] Since 2009, Understanding Society has been conducting yearly interviews with around 40,000 households, including 8000 of the original BHPS households. Since 1992, relationship events have been assessed yearly. Personality traits have been assessed twice (2005 and 2011). In this research, we used data from individuals who had completed at least two of the personality items at both assessments. The event-specific samples are reported in Table 1 (right part).

2.3 | Measures

2.3.1 | Personality traits

Below, we describe the measures of personality traits in each data set. The event-specific Cronbach's alphas are reported in Table S2 and ranged between 0.48 to 0.82. The relatively low internal consistencies have also been reported in previous research using these nationally representative data sets (Dyrenforth et al., 2010).

SOEP
Personality traits were assessed with the Big Five Inventory-SOEP (BFI-S; Schupp & Gerlitz, 2014), based on the Big Five Inventory (John et al., 1991). Each Big Five trait was assessed with three items on a 7-point scale (1 = "not at all" to 7 = "absolutely").

HILDA
Personality traits were assessed with an adaptation of the 36-item version of the Trait Descriptive Adjectives (Saucier, 1994). Neuroticism, extraversion, conscientiousness, and openness were measured with six items, while agreeableness was measured with four items. Responses were assessed on a 7-point scale (1 = "does not describe me at all" to 7 = "describes me very well").

Understanding Society
Personality traits were measured with a 15-item version of the Big Five Inventory (John & Srivastava, 1999). Each trait was assessed with three items on a 7-point scale (1 = "does not apply to me at all" to 7 = "applies to me perfectly").

2.3.2 | Relationship events

In each data set, we coded three gain-based relationship events (i.e., beginning a relationship, moving in with partner, marriage) and three loss-based relationship events (i.e., separation, divorce, widowhood).[6] The event of beginning a relationship was included only in the SOEP

and HILDA data sets. For each relationship event, we dichotomously coded whether participants experienced the event at least once during the study period (coded with "1") or did not experience the event during the study period (coded with "0"). Thus, the resulting relationship-event variable contrasted between those participants who experienced the event (i.e., event sample) and those participants who did not experience the event during the specific time period (i.e., control sample). If participants had experienced a relationship event more than once, we used data from the first occurrence. We set this focus because repeated events tend to be more frequent for gain-based events than for loss-based events, suggesting that considering multiple events might bias the conclusions (Denissen et al., 2019; Luhmann & Eid, 2009).

2.4 | Data-analysis approach

To test the associations between personality traits and relationship events, we used latent growth models (LGMs; Bollen & Curran, 2006; Grimm et al., 2016). LGMs are well suited to study overall change in personality traits (e.g., Jackson & Allemand, 2014) and allow testing selection effects and socialization effects (see Specht et al., 2011). To test these effects, we had to restructure the data in the following ways (see Figures S2 and S3).

In the event sample, we restructured the personality data depending on the relationship event. More precisely, we used data from the last personality assessment before the event and from the first personality assessment after the event, which ensured temporal proximity between traits and events. In the remainder, we refer to the pre-event and post-event personality assessments as Times 1 and 2, respectively. In the control sample, we had to ensure that the time lag between personality assessments was identical to the time lag in the event sample. Therefore, we used data from two consecutive personality assessments that were randomly chosen and equally balanced over the study period. We refer to these personality assessments as Times 1 and 2. We used first-order models, in which intercepts and slopes were modeled with manifest indicator variables from Times 1 and 2 (see Figure S1).

We note that using household data means that some participants were clustered in households. Tables S3–S5 show the percentages of participants with the same household ID in the event (left part) and control (right part) samples. As the tables indicate, percentages were between 0% and 24% in the event samples and between 6% and 22% in the control samples, suggesting that around 80% were independent data. Hence, we did not expect systematic effects of household clustering on selection and socialization effects. Moreover, although there exists the

lavaan.survey package (Oberski, 2014) to deal with clustered data, the interaction terms with age, which were crucial in the present study, cannot be modeled with this package. Hence, we conducted the analyses without controlling for household ID.

Overall, our approach (a) allowed using all available information on relationship events, (b) ensured temporal proximity between traits and events in the event sample, and (c) considered data with identical time lags in the event and control samples, which substantially increased the reliability of the event measure and the power for the analyses. Furthermore, the use of LGMs enabled us to study both personality change that was independent of relationship events and personality change that was predicted by relationship events. To deal with missing values, we used listwise deletion, which is the default behavior in the lavaan package if data include missing values. The significance level was set to $p < 0.01$ due to the considerable number of tests. Gender was entered as covariate on the intercept and slope in all models.

2.4.1 | Operationalization of selection effects, socialization effects, and age effects

A selection effect was operationalized as the effect of the relationship event on the intercept of the personality trait (see also Specht et al., 2011). The path coefficients of the intercept were constrained to 1 across both assessments. A significant effect of the relationship event on the intercept indicated that participants who experienced (vs. did not experience) the event had a lower (or higher) score in the trait measure at Time 1. In other words, the Time 1 trait predicted the occurrence of the event between Time 1 and Time 2.

A socialization effect was operationalized as the effect of the relationship event on the slope of the personality trait (see also Specht et al., 2011). The path coefficients of the slope were constrained to 0 (i.e., Time 1) and 1 (i.e., Time 2). A significant effect of the event on the slope indicated that participants who experienced (vs. did not experience) the event differed in their average rate of change in the personality trait across assessments. Thus, the occurrence of a relationship event predicted personality change between Time 1 and Time 2.

We included age effects into the models in two ways. First, we regressed both the intercept and the slope on a linear and quadratic age variable. A significant age effect on the intercept indicated that people with higher (or younger) age had a higher (or lower) Time 1 mean value of the personality trait. A significant age effect on the slope indicated that people with higher (or younger) age experienced a steeper (or flatter) rate

of personality change across assessments. Second, we included interaction terms between the relationship event and the linear and quadratic age variables and regressed these terms on both the intercept and the slope. A significant interaction effect on the intercept indicated that people with higher (or younger) age have a stronger (or weaker) selection effect, while a significant interaction effect on the slope indicated that people with higher (or younger) age have a stronger (or weaker) socialization effect. For each event, we used an event-specific age variable: In the event sample, we used the average age at which participants experienced the specific event, and in the control sample we used participants' mean age at Time 1. Age was grand-mean centered and, to avoid numerically small estimates, rescaled by the factor 10.

2.5 | Measurement invariance

Given that the scores of personality traits are comparable over time only if factorial invariance is given (Widaman et al., 2010), we tested for measurement invariance across assessments (i.e., pre-event and post-event assessments). We tested three measurement models per trait and event: Model 1 included configural invariance for the indicator variables. Model 2 tested metric invariance by constraining the loadings to be equal across assessments and Model 3 tested scalar invariance by constraining thresholds to be equal across assessments. To allow for pre-event and post-event comparisons of mean levels, we had to ensure that measures showed scalar invariance. To assess model fits, we used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) with CFI ≥ 0.95 and RMSEA ≤ 0.06 indicating a good model fit (Hu & Bentler, 1999). We considered a change of ≤ 0.01 in CFI as indicative of measurement invariance (Chen, 2007; Cheung & Rensvold, 2002).

3 | RESULTS

3.1 | Descriptive information and preliminary analyses

Table 1 provides an overview of the occurrence of relationship events in each data set, including participants' mean age at the occurrence of the event. Relationship events were experienced by around 5% to 25% of participants in each sample during the respective study period, with lowest occurrence rates for widowhood and highest occurrence rates for marriage and separation. On average, participants tended to be younger when experiencing a

gain-based relationship event, compared to a loss-based relationship event, and participants' mean ages were closer together in the case of gain-based events (29.44 to 36.78 years), compared to loss-based events (36.57 to 70.85 years).

Tables S3–S6 report descriptive information on personality traits, ordered by gain-based and loss-based events in the event and control samples of each data set. As the tables indicate, mean-level changes in personality traits emerged in both the event and control samples. In the event samples, fewer mean-level changes were observed when people experienced the loss-based relationship events of separation and marriage. Tables S7–S23 report the fit indices of the measurement models to test invariance. As the tables indicate, the fits of Model 3 (i.e., scalar measurement invariance) were generally good, indicating that mean levels could be compared across the pre-event and post-event assessments.

3.2 | Latent growth models

The LGMs were fully saturated. Below, we first report selection and socialization effects, which are summarized in Figures 1 and 2, and then discuss the effects of age (for all details, see Tables S27–S43).

3.2.1 | Selection and socialization effects

Figure 1 depicts the point estimates and 99% confidence intervals for selection effects in each data set. Regarding gain-based events, (a) higher extraversion and higher openness were significantly linked with beginning a relationship, (b) higher extraversion and higher openness were significantly linked with moving in with the partner, and (c) higher extraversion, higher openness, and higher agreeableness were significantly linked with marrying.

Summary of Standardized Coefficients for Selection Effects of Latent Growth Curve Models
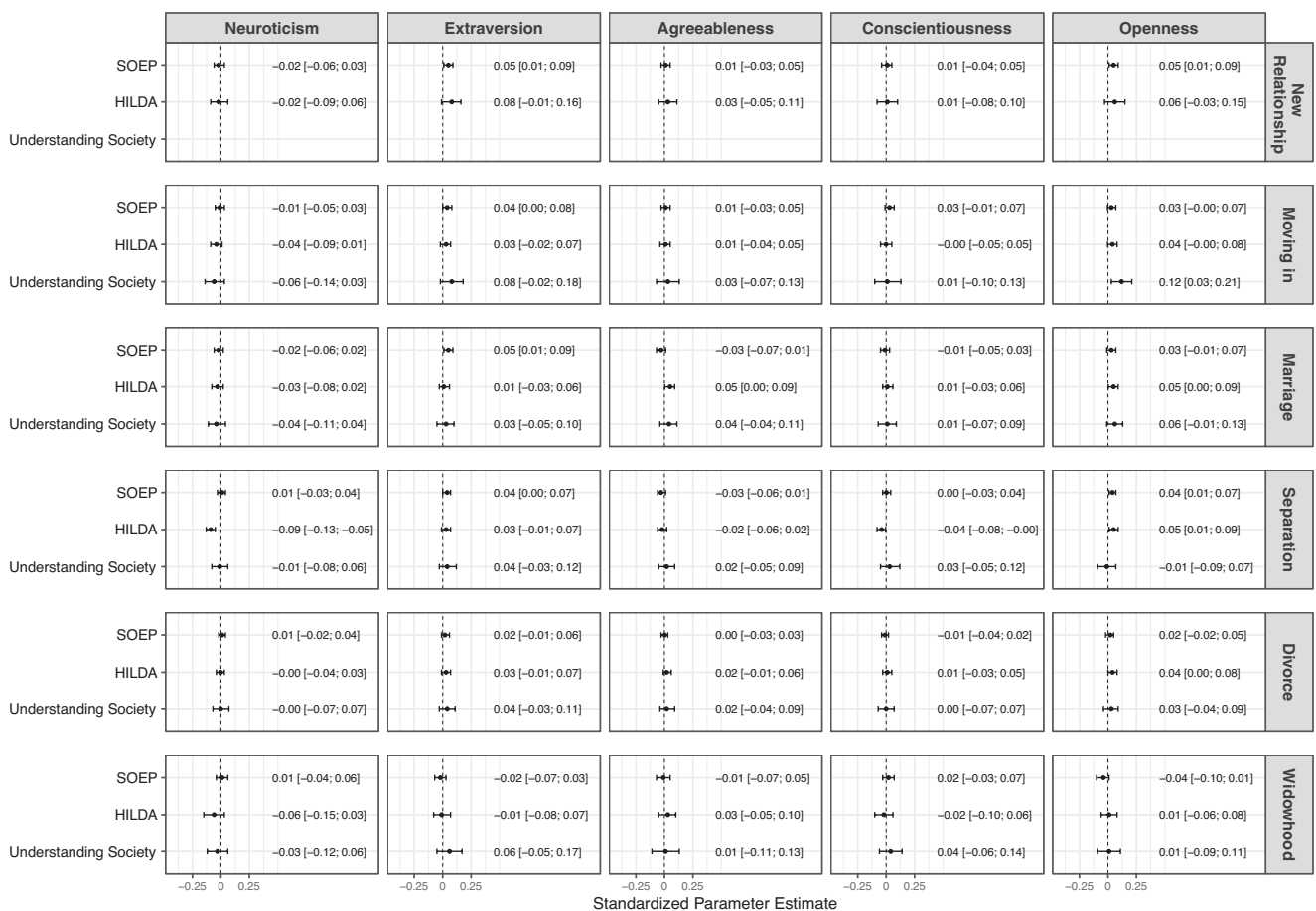

FIGURE 1 Summary of standardized coefficients for selection effects of latent growth curve models.
Note. The figure shows standardized estimates and their 99% confidence intervals. The event "beginning a relationship" was not assessed in the data set of Understanding Society.

Summary of Standardized Coefficients for Socialization Effects of Latent Growth Curve Models
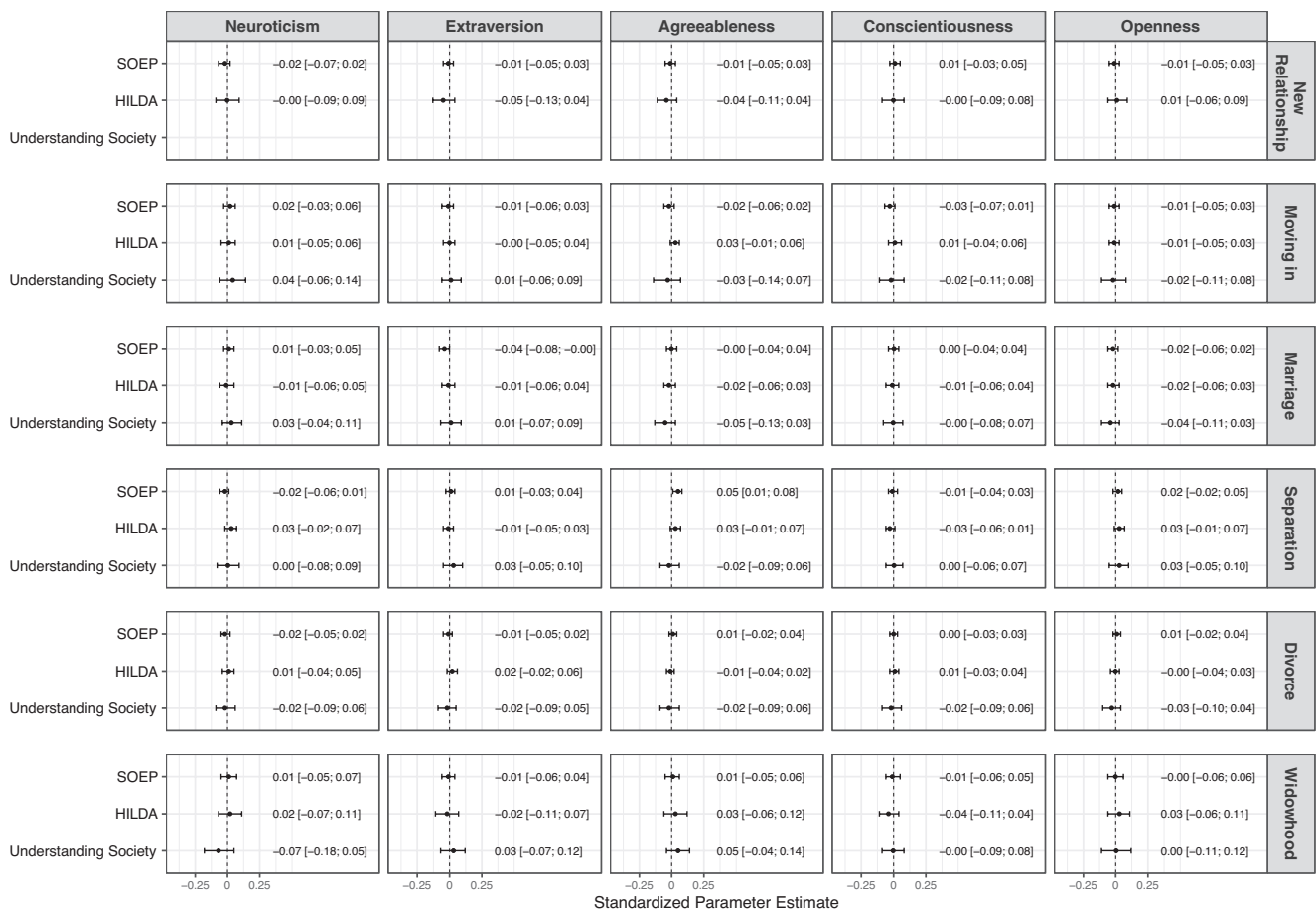

FIGURE 2 Summary of standardized coefficients for socialization effects of latent growth curve models. *Note.* The figure shows standardized estimates and their 99% confidence intervals. The event "beginning a relationship" was not assessed in the data set of Understanding Society.

Regarding loss-based events, lower neuroticism, higher extraversion, lower conscientiousness, and higher openness were significantly linked with separation. No significant selection effects were observed on divorce and widowhood. Moreover, only one of the reported selection effects (i.e., openness on separation) replicated across two datasets, and none of the effects replicated across all three datasets. However, as the point estimates in Figure 1 illustrate, the effects were often in similar ranges.

Figure 2 shows the point estimates and 99% confidence intervals for socialization effects in each data set. The gain-based event marriage predicted significant decreases in extraversion, while the loss-based event separation predicted significant increases in agreeableness. No significant socialization effects were observed for beginning a relationship, moving in with a partner, divorce, and widowhood, and none of the reported effects replicated across data sets. However, the effects were again in similar ranges.

Next, we meta-analytically aggregated the findings across data sets, to gain a more comprehensive picture on selection and socialization effects (Table 2). We note, however, that meta-analytic computations based on few (even large) data sets may be underpowered, and conclusion should be drawn with caution. Therefore, the meta-analytic computations mainly serve illustrative purposes rather than providing robust effect size estimates (for a similar approach, see Mund et al., 2020). Nevertheless, the data sets are among the largest and most representative data sets that can be used to study transactions, and thus the aggregated point estimates shown in Table 2 may serve as suitable estimates for future research in this field. The heterogeneity indices in the Table (Q, τ^2, and I^2) inform about the consistency of the estimates across data sets (Borenstein et al., 2017), but, again, need to be interpreted with caution when the number of studies is small (Huedo-Medina et al., 2006). In general, selection effects tended to be more consistent than socialization effects, indicated by

TABLE 2 Meta-analytic aggregation of coefficients for selection and socialization effects across samples

Model	Neuroticism		Heterogeneity			Extraversion		Heterogeneity			Agreeableness		Heterogeneity		
	ES	99% CI	Q	τ²	I²	ES	99% CI	Q	τ²	I²	ES	99% CI	Q	τ²	I²
Selection effects															
New relationship	−0.02	[−0.05, 0.01]	0.0	0.00	0.0	**0.06**	[0.02, 0.09]	1.4	0.00	29.6	0.01	[−0.01, 0.04]	0.6	0.00	0.0
Moving in	−0.03	[−0.07, 0.02]	3.4	0.00	41.5	**0.04**	[0.02, 0.07]	2.1	0.00	4.8	0.01	[−0.01, 0.03]	0.5	0.00	0.0
Marriage	**−0.03**	[−0.04, −0.01]	0.9	0.00	0.0	0.03	[−0.01, 0.07]	6.9	0.00	71.0	0.02	[−0.06, 0.09]	30.1	0.00	93.4
Separation	−0.03	[−0.12, 0.06]	**43.6**	0.00	95.4	**0.04**	[0.02, 0.05]	0.5	0.00	0.0	−0.02	[−0.05, 0.01]	4.0	0.00	49.7
Divorce	0.004	[−0.01, 0.02]	0.8	0.00	0.0	**0.03**	[0.01, 0.04]	0.9	0.00	0.0	0.01	[−0.01, 0.03]	1.6	0.00	0.0
Widowhood	−0.03	[−0.09, 0.04]	**21.0**	0.00	90.5	0.004	[−0.04, 0.05]	10.1	0.00	80.2	0.01	[−0.03, 0.05]	6.8	0.00	70.6
Socialization effects															
New relationship	−0.02	[−0.04, 0.01]	0.5	0.00	0.0	−0.03	[−0.07, 0.02]	2.5	0.00	60.2	−0.02	[−0.05, 0.02]	1.4	0.00	29.3
Moving in	0.02	[−0.001, 0.04]	0.6	0.00	0.0	−0.01	[−0.03, 0.02]	0.5	0.00	0.0	−0.02	[−0.04, 0.004]	1.6	0.00	0.0
Marriage	0.01	[−0.02, 0.03]	3.1	0.00	36.1	−0.02	[−0.05, 0.02]	6.5	0.00	69.2	−0.02	[−0.05, 0.01]	4.7	0.00	57.3
Separation	0.004	[−0.04, 0.05]	**10.7**	0.00	81.3	0.01	[−0.02, 0.03]	3.0	0.00	33.6	0.03	[−0.02, 0.07]	8.2	0.00	75.5
Divorce	−0.01	[−0.04, 0.02]	4.1	0.00	50.8	−0.001	[−0.03, 0.03]	4.6	0.00	56.8	−0.001	[−0.02, 0.02]	2.5	0.00	20.6
Widowhood	−0.01	[−0.06, 0.04]	**12.2**	0.00	83.7	−0.01	[−0.04, 0.02]	3.7	0.00	45.3	0.02	[−0.002, 0.05]	3.4	0.00	41.4

Model	Consciousness		Heterogeneity			Openness		Heterogeneity		
	ES	99% CI	Q	τ²	I²	ES	99% CI	Q	τ²	I²
Selection effects										
New relationship	0.01	[−0.02, 0.04]	0.0	0.00	0.0	**0.06**	[0.01, 0.10]	0.10	0.00	0.0
Moving in	**0.03**	[0.004, 0.05]	1.0	0.00	0.0	0.06	[−0.02, 0.15]	**10.1**	0.00	80.2
Marriage	−0.001	[−0.02, 0.02]	2.0	0.00	0.0	**0.04**	[0.02, 0.06]	2.6	0.00	23.1
Separation	−0.01	[−0.05, 0.04]	**11.1**	0.00	82.1	**0.03**	[0.001, 0.07]	5.3	0.00	62.2
Divorce	−0.002	[−0.02, 0.02]	1.7	0.00	0.0	**0.03**	[0.01, 0.05]	1.7	0.00	0.0
Widowhood	0.01	[−0.03, 0.05]	8.9	0.00	77.6	−0.01	[−0.06, 0.04]	**12.1**	0.00	83.4
Socialization effects										
New relationship	0.01	[−0.02, 0.03]	0.2	0.00	0.0	0.00	[−0.04, 0.04]	0.4	0.00	0.0
Moving in	**−0.03**	[−0.05, −0.004]	1.0	0.00	0.0	−0.01	[−0.04, 0.01]	0.1	0.00	0.0
Marriage	−0.002	[−0.02, 0.02]	0.7	0.00	0.0	**−0.02**	[−0.04, −0.004]	0.7	0.00	0.0

(Continues)

TABLE 2 (Continued)

Model	Conscientiousness					Openness				
			Heterogeneity					Heterogeneity		
	ES	99% CI	Q	τ^2	I^2	ES	99% CI	Q	τ^2	I^2
Separation	−0.02	[−0.04, 0.01]	2.4	0.00	18.1	**0.02**	[0.01, 0.04]	0.5	0.00	0.0
Divorce	0.002	[−0.02, 0.02]	1.4	0.00	0.0	0.001	[−0.02, 0.02]	2.6	0.00	24.0
Widowhood	−0.02	[−0.05, 0.01]	4.4	0.00	54.1	0.01	[−0.02, 0.04]	4.2	0.00	51.8

Note: Computations were made with random-effects models. The number of samples was 3 for all models except for beginning a relationship ($k = 2$). ES = Weighted mean effect size, indicating the effect of personality traits on the occurrence of relationship events (for selection effects) or the effect of relationship events on change in personality traits (for socialization effects). CI = confidence interval; Q = statistic used in heterogeneity test; τ^2 = estimated amount of total heterogeneity; I^2 = ratio of total heterogeneity to total variability (given in percent). Values in bold are significant at $p < 0.01$.

somewhat higher estimates of I^2 for socialization effects than for selection effects.

3.2.2 | Effects of age

Tables S27–S43 report the effects of age, indicating significant main effects of age on personality traits. Most consistently, participants reported higher levels in agreeableness and conscientiousness with higher age. Yet, few significant age moderations emerged. More precisely, we observed significant interactions between age and relationship events with selection and socialization effects in six cases. Regarding selection effects, we observed significant interactions between (a) linear age and moving in with a partner in the analyses with conscientiousness in the SOEP data set ($\beta = 0.06$, 99% CI [0.03, 0.10]), (b) linear age and marriage in the analyses with neuroticism in the HILDA data set ($\beta = -0.05$, 99% CI [−0.09, −0.01]), (c) linear age and marriage in the analyses with extraversion in the HILDA data set ($\beta = -0.04$, 99% CI [−0.08, −0.004]), and linear age and widowhood in the analyses with extraversion in the HILDA data set ($\beta = -0.19$, 99% CI [0.01, 0.37]). Regarding socialization effects, we observed significant interactions between (d) linear age and beginning a relationship in the analyses with conscientiousness in the HILDA data set ($\beta = -0.08$, 99% CI [−0.15, −0.01]), and (e) quadratic age and moving in with a partner in the analyses with neuroticism in the Understanding Society data set ($\beta = -0.08$, 99% CI [−0.15, −0.002]). Hence, the great majority of age moderations occurred with gain-based relationship events.

4 | DISCUSSION

In this study, we examined selection and socialization effects between personality traits and relationship events in three nationally representative data sets. We classified relationship events into gain-based and loss-based events, which allowed us to test theoretically derived predictions about how age would matter for personality–relationship transactions. Overall, the findings indicated stronger selection than socialization effects (mainly with gain-based events) with only few country-specific age-moderation effects.

4.1 | Selection effects rather than socialization effects

So far, evidence was partly mixed as to how personality traits and relationship events are transactionally linked

with each other (Bleidorn et al., 2018). In the present study, we sought to provide a more robust picture by testing transactions between personality traits and relationship events in three household panel data sets. Across five personality traits and six relationship events, the overall picture is that transactions occurred rarely and that the size of the observed effects was rather small. Selection effects tended to be stronger and more consistent than socialization effects, which corresponds with previous research (e.g., Asendorpf & Wilpers, 1998; Denissen et al., 2019; Neyer & Asendorpf, 2001; Specht et al., 2011) and may suggest that relationships are more sensitive to personality effects than vice versa.

The selection effects that we observed occurred more frequently with gain-based (vs. loss-based) events, and the two traits that were most dominant in this regard were extraversion and openness. In general, people higher in extraversion or openness were more likely to begin a relationship, to move in with a partner, to marry, and to separate. Openness was also the only trait that showed consistent effects across data sets (i.e., selection effects on separation; see Figure 1 and Tables S32 and S33). In general, people higher in extraversion are more sensitive to rewarding stimuli and tend to have higher levels of energy, dominance, and positivity (Smilie, 2013; Wilt & Revelle, 2017). People higher in openness are more motivated to approach and to create new experiences, tend to have higher levels of intelligence, curiosity, and creativity, and are characterized by being more open to change (DeYoung, 2015; McCrae & Costa Jr., 1997). While extraversion has been consistently linked with social interactions and relationships (Harris & Vazire, 2016; Wrzus & Neyer, 2016), openness has often been considered an intellectual rather than "social" trait (John & Srivastava, 1999). The current findings demonstrate that both traits, extraversion and openness, are relevant for individual differences in social relationships, as they enable people to initiate and to engage in new experiences, including new experiences in the romantic relationship domain. The predominance of extraversion and openness regarding selection effects corresponds with Digman's (1997) higher-order factor β. Subsuming extraversion and openness (or intellect), factor β can be interpreted as personal growth and self-actualization, involving exploration of social and intellectual domains. It is likely that a strong factor β (i.e., indicated by high values in extraversion and openness) motivates people to approach and to select new experiences, including relationship experiences. Moreover, a strong factor β contains an openness towards all life experiences, including the risky and potentially negative experiences, such as a loss-based relationship event (Digman, 1997). This, in turn, may explain why the most robust selection effects were found for a loss-based relationship event (i.e., openness on separation).

The finding that no consistent socialization effects emerged corresponds with previous findings, showing that people do not—as would be expected theoretically (Roberts & Wood, 2006)—become psychologically more mature, when they transition into a new social role, such as becoming a mother or father (van Scheppingen et al., 2016). Although their study focused on parenthood, which was not among the relationship events included in this study due to the age-specificity of this event, both the study by van Scheppingen et al. (2016) and the present work revealed that transitioning into a new social role does not necessarily trigger psychological maturity. There are, at least, two reasons for why socialization effects emerge rarely and inconsistently: First, relationship events do effectively not change personality. Second, relationship events may change personality, but a more fine-grained analysis of the mechanisms and conditions is needed to understand when and how personality changes in response to relationship events. For instance, the inconsistency observed for socialization effects may indicate that people do not consistently react to relationship events but vary in their reactions. In other words, people may show greater individual differences in response to a relationship event, compared to when they select themselves into a relationship event, and more knowledge is needed to better understand these individual variations.

4.2 | How does age matter?

We observed significant main effects of age on personality traits, suggesting that people develop as they age, corresponding with previous research (e.g., Caspi et al., 2005; Roberts et al., 2006). The present data, however, indicated few significant interactions between age and relationship events with selection and socialization effects. Hence, individuals develop differently strongly across the life span, but individual differences in personality development cannot validly be captured by the occurrence of relationship events. This also indicates that personality development was not more or less pronounced depending on whether individuals experienced a certain relationship event at a given age or not. The six significant age interactions that we observed occurred mainly for gain-based relationship events, which could speak for a greater importance of gain-based relationship events when interacting with age. Nevertheless, a central conclusion from the findings is that personality–relationship transactions occurred relatively independent of age.

Consistent with previous literature, we classified relationship events into gain-based and loss-based events (Denissen et al., 2019). Still, this twofold distinction is rather broad given that each relationship event itself

includes aspects of gains and losses. For example, beginning a relationship may fall into the category of gain-based relationship events, but may be accompanied by a series of individual gains and losses (e.g., gaining intimacy and closeness, but losing flexibility and independence). Similarly, the presumably loss-based relationship event of separation might involve both losses and gains (e.g., loosing existing closeness, but gaining new independence). Thus, the categorization and stratification of relationship events might be more complex than a dichotomy allows to capture (Luhmann et al., 2020).

In addition, we conceptualized normativeness based on a developmental approach, that is, depending on whether gains and losses accompany the relationship event. However, other conceptualizations of normativeness are tenable, such as the mere frequency of relationship events in certain developmental periods (e.g., Mayer, 2009). For example, in young adulthood individuals often try different relationships and may leave unsatisfying relationships more readily, which could make separation fairly normative in young adulthood, simply because it is part of an explorative paradigm (e.g., Arnett, 2000).

Finally, we used people's chronological age to test associations with age. However, other age-related aspects, such as the age difference between both partners or people's subjective age, may also be important to understand how personality–relationship transactions unfold across adulthood. For instance, at the time of marriage, men are usually 2.5 years older than women (Statista, 2021), which may consequently be considered a normative age difference for marriage. If a given couple has a non-normative age difference (e.g., the woman being 4 years older than the man), this could result in stronger (or weaker) personality–relationship transactions. Also, partners may behave differently depending on the other partner's age. For example, a 55-year-old person, who is in a relationship with a 35-year-old partner, may rather focus on gains and gain-related situations, compared to a 55-year-old person, who is in a relationship with a same-aged or older partner. Finally, people also differ in how old they feel compared with their chronological age (i.e., subjective age; Pinquart & Wahl, 2021), which, in turn, may have implications for the strength of selection and socialization effects (Stephan et al., 2014). For example, a 55-year-old person who feels like 40 years may rather approach and select gain-based situations and may react differently to these situations than a 55-year-old person who feels like 60 years. Therefore, as noted above, it is essential to broadening the scope and to discuss further influences that may impact personality–relationship transactions across adulthood.

4.3 | The relevance of broader and narrower environmental influences

In the following, we discuss four sets of influences that may be relevant for how people select and respond to relationship events and that may contribute to explaining the strength of transactions across adulthood.

4.3.1 | Social scripts

A first set that may impact the transactions between personality traits and relationship events are the societal scripts that are associated with the relationship event. Scripts differ between cohorts and cultures (Bleidorn et al., 2013) and they navigate people through their love lives (Dunlop et al., 2017). Deviations from these scripts and differences in individual commitments to these scripts may account for individual differences in selection and socialization effects. For instance, someone who strongly commits to the step of marrying may show stronger socialization effects than someone who steps into marriage out of societal sense of duty or external pressure. In fact, cross-sectional data from a meta-analysis on social investment and personality traits demonstrated that personality change towards greater psychological maturation (i.e., lower neuroticism, higher agreeableness, higher conscientiousness; Roberts et al., 2006) is associated with cognitive and emotional investment in the social role rather than with the pure change in status (Lodi-Smith & Roberts, 2007). Thus, rather than the mere exposure to relationship events, the psychological investment and commitment associated with the relationship event may be crucial for transactions.

4.3.2 | Idiosyncratic experience and meaning

A second set that may matter for personality–relationship transactions are the idiosyncratic experiences of relationship events, that is, the individual meaning that people ascribe to a relationship event, such as divorce (e.g., Bühler & Dunlop, 2019; Haehner et al., 2021; Luhmann et al., 2020). In other words, rather than the relationship event per se, it may be the perception and interpretation of the event that may be associated with selection effects and, particularly, with socialization effects. For example, someone who sees a divorce as a possible, almost natural, component of relationship trajectories may react differently to their own divorce than someone who sees a divorce as a personal, or relational, failure. These different meanings, in turn, may bring the divorcee into a distinct

role and will likely guide them differently through the following months and years, which, in turn, has implications for their feelings, thoughts, and behaviors (Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006). Therefore, beginning a relationship, moving in together, and marrying may individually not be perceived as a gain but as a cultural, familial, or social obligation. On the contrary, separation and divorce may individually not be perceived as a loss but as a liberation. Even the sorrowful event of widowhood may be perceived as a relief for the deceased partner. Hence, putting more emphasis on the meaning of events in an individual's life course is an important path for future research (see also Denissen et al., 2019).

4.3.3 | Quality of the relationship

A third set that may matter for personality–relationship transactions is the quality of the relationship experience. For instance, knowing that a person began a new relationship says little about how satisfied this person is with the new relationship. Similarly, losing a relationship that was low in quality may have a different impact than losing a relationship that was high in quality and closely related to the person's self-concept (Lewandowski Jr. et al., 2006). From research on self-esteem, we know that the quality of the relationship may explain both selection effects on separation and socialization effects of beginning a relationship (Luciano & Orth, 2017). Moreover, satisfaction with the relationship and the event also depends on characteristics of the partner and how he or she reacts to the event (e.g., Dyrenforth et al., 2010), further contributing to the complexity of personality–relationship transactions. Thus, the occurrence of an event does not necessarily inform about the felt quality of the experience, and future research may test additional relationship characteristics to further advance the understanding on transactions.

4.3.4 | Micro events and daily mechanisms

A final set that needs to be considered is the right timing to assess relationship events and personality traits (see also Luhmann et al., 2014). Specifically, in the present work the time lag between personality assessments was rather long and most of the assessed relationship events occurred in the first (e.g., beginning a relationship) or last (e.g., separation) years of the relationship (e.g., Denissen et al., 2019). However, romantic relationships likely unfold in the middle of these two endpoints, with the most crucial developmental period in the first ten years of the relationship (Bühler et al., 2021). Therefore, research is needed that more strongly considers the timing between

relationship events and personality assessments, for example through assessing micro-events that are happening over the course of the relationship (Bleidorn et al., 2018).

Moreover, less is known about the specific daily experiences that people have immediately after a relationship event. For instance, couple members who move into a shared household need to adapt to the new affordances of a shared home and must negotiate their responsibilities. Therefore, people who experience a relationship event likely create new daily situations, expectations, and behaviors, which may lead to changes in their daily lives and to long-term changes in their personality (Wrzus & Roberts, 2017). For instance, recent findings have demonstrated that people who show more affective reactivity to daily hassles, such as conflicts, increase in their neuroticism over six years (Wrzus et al., 2021). Hence, to better understand the potential impact of relationship events, such as moving in together, on personality traits, it is crucial to zoom into couples' daily lives, with its potential daily stressors, to examine the mechanisms that lead to long-term personality development. Moreover, the daily experiences that people encounter may differ depending on the personality of their partner. For example, moving in with an organized and structured partner (i.e., high in conscientiousness) may create different daily situations and routines than living together with a less organized and less structured partner (i.e., low in conscientiousness), which, in turn, may lead to stronger (or weaker) socialization effects. Hence, future research is needed that studies both partners' daily experiences close to a relationship event (Wrzus & Roberts, 2017).

To conclude, people may select themselves into certain relationship events, and certain relationship events may trigger developmental processes. To better understand these transactions, research is needed to (1) identify the broader, societal scripts, and expectations that are associated with the relationship event, (2) determine the meaning that people ascribe to the relationship event, (3) account for the quality of the relationship experience, and (4) assess the daily experiences that are associated with the relationship event. While issues 1 to 3 emphasize that transactions may depend on more subtle, idiosyncratic conditions, issue 4 points to the necessity of considering the right timing between relationship events and personality assessments. Together, this knowledge will advance the understanding of the conditions, under which transactions between traits and events occur across adulthood.

4.4 | Strengths and limitations

In this work, we studied selection and socialization effects between personality traits and relationship events with

representative, longitudinal data sets from three nations. The use of independent data sets as well as the analytic approach of meta-analytic integration and internal replication strengthens the validity of the conclusions (Duncan et al., 2014; Orth et al., 2018). Still, some limitations need to be discussed.

First, although we assessed data sets that are representative for people living in either Germany, Australia, or the United Kingdom, the findings may not hold outside the Western culture. People across cultures may differ in the timing, normativeness, and meaning of relationship events, which may have implications for the strength of transactions (Bleidorn et al., 2013; Gardiner et al., 2020). Moreover, some participants were clustered in households (see Tables S3−S5), which might have had some impact on selection and socialization effects. Specifically, regarding selection effects, given that family members share parts of genetic and environmental variance, their personality might have been more similar (Kandler et al., 2012) and so they might have selected more similar events. Regarding socialization effects, given that some people participated with their partner, their relationship events might have been more similar (e.g., experiencing a messy, compared to an amicable, divorce) and thus the effects of the events might have been more similar. However, we did not expect systematic effects, given that only a small percentage of participants were clustered in households.

Second, in addition to studying selection and socialization effects, it might be worthwhile to examine anticipatory effects, that is, anticipatory personality development before actually experiencing the relationship event (Roberts et al., 2004). Particularly in the case of events that can be planned in advance (e.g., marriage), social roles and psychological investments may happen before experiencing the event (Denissen et al., 2019). However, given that anticipatory effects most likely occur in the context of gain-based, rather than loss-based, events (simply because loss-based events are often harder to plan, at least not by both partners equally), we did not examine anticipatory effects, but see promising paths to study anticipatory effects from a developmental perspective in future research.

Third, in this research we set the focus on relationship events as important markers of adulthood, consistent with previous research (e.g., Lodi-Smith & Roberts, 2007). However, in many developmental periods relationship events may coincide with occupational events, such as committing to both a long-term romantic relationship and a serious job in young adulthood, while becoming potentially widowed and retired in late adulthood. This, in turn, makes it more difficult to unequivocally isolate the effect of one life event, due to the naturalistic design of life–event research. A future path may be to ask individuals which event they think they have selected the most (i.e., selection effects) and which event they think has shaped their personality the most (i.e., socialization effects; Bleidorn et al., 2018).

Fourth, similar to previous studies (see Table S1), the time lags between personality assessments were rather long in the present research, ranging from 4 to 6 years. Therefore, the present study generated knowledge about transactions over longer time lags, but it could not inform about transactions on a narrower time perspective. As noted, it would be useful to determine the immediate daily mechanisms, by using experience sampling designs in the moment when people transition into a new relationship event, such as when partners are moving into a shared household (for an example study, see https://osf.io/u5sg3/). This fine-grained analysis of daily situations and experiences accompanying the relationship event might provide a more detailed understanding of how transactions between personality traits and relationship events occur. Moreover, a higher number of assessments with a shorter density would allow to also model nonlinear trajectories of personality development, including temporary and sudden changes (Denissen et al., 2019; Luhmann et al., 2014).

5 | CONCLUSION

This research assessed transactions between personality traits and relationship events in three independent, nationally representative data sets, focusing on the role of age. The findings indicated that selection effects were more frequent, stronger, and more consistent than socialization effects and that transactions with gain-based events were more prominent than transactions with loss-based events. Only few interactions with age were observed, and most of these interactions emerged with gain-based events. Implications of the findings are that personality traits and relationship events are relatively weakly related to each other across adulthood. This, however, may not necessarily mean that no effects are present, but that research is still in the process of identifying the most suitable theoretical and methodological ways to comprehensively understand personality–relationship transactions. In this study, we discussed a series of influences that might matter for the strength of transactions and that might be addressed in future research.

CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

ETHICS STATEMENT

The nationally representative data sets used in this paper received ethical approval.

AUTHOR CONTRIBUTIONS

Janina Larissa Bühler: conceptualization (lead), data management (lead), data analysis (lead), writing (lead). Marcus Mund: conceptualization (supporting), data analysis (supporting), writing (supporting). Franz J. Neyer: conceptualization (supporting), writing (supporting). Cornelia Wrzus: conceptualization (supporting), writing (supporting).

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ENDNOTES

[1] In this study, we did not include the gain-based event parenthood because our main goal was to examine age effects on selection and socialization effects. For that purpose, we had to ensure that all included relationship events could theoretically occur across entire adulthood, which would not have been the case for parenthood (according to the World Health Organization (2019), women's maximum reproductive age is 49 years).

[2] Given the focus of the present manuscript, this overview focuses on transactions with Big Five personality traits, but transactions may also occur with surface characteristics of personality (Kandler et al., 2014), such as with self-esteem and subjective well-being (Luciano & Orth, 2017; Luhmann et al., 2012).

[3] For information on study protocol, data access, and publications using this data set, see https://www.diw.de/en/soep.In the present study, we used Version 35 of the data set.

[4] For information on study protocol, data access, and publications using this data set, see https://melbourneinstitute.unimelb.edu.au/hilda. In the present study, we used Release 18 of the data set.

[5] For information on study protocol, data access, and publications using this data set, see https://www.understandingsociety.ac.uk/. In the present study, we used the 13th Edition of the data set.

[6] A detailed description of the coding procedure is provided in the Supplemental Material (Part B) and on OSF.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.