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### Divorce and inequality

*Stratification in the risk and consequences of union dissolution*

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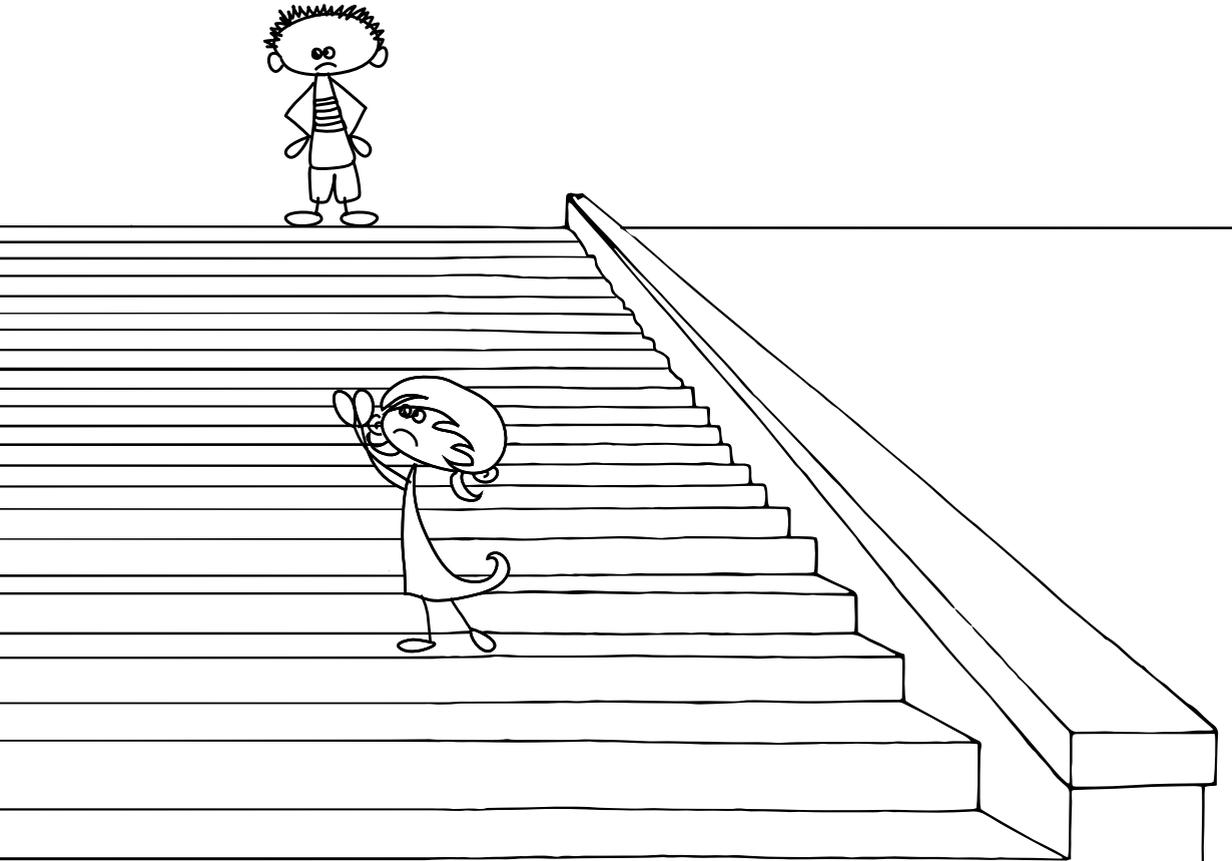
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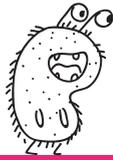
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# CHAPTER 3

## Stratification in the risk of union dissolution

Life strains and the gradient in union dissolution

**ABSTRACT<sup>2</sup>**

*In many Western countries, coresidential unions of less-educated people are less stable than those of highly educated people. A prominent explanation of this gradient in union dissolution holds that those with less education experience more strain. Evidence for this explanation has been limited by a focus on only the economic dimension of strain and on only one partner in each union. In this study, we broadened the concept of strain to cover multiple life domains and capture the experience of both partners in each union. To do so, we used longitudinal data from the Household, Income and Labour Dynamics in Australia survey (N = 52,574 union-years; 7,930 unions). Generalized structural equation models showed that less-educated individuals experienced more strain not only in the economic domain but also in other life domains. Moreover, less-educated individuals tended to have partners who experienced more strain as well. In total, the joint experience of life strains explained 49% of the education gradient in union dissolution. These results suggest that life strains are pivotal to the stratification of family life.*

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<sup>2</sup> A slightly different version of this chapter has been published as Hogendoorn, B., Kalmijn, M., and Leopold, T. (2021). Why do lower educated people separate more often? Life strains and the gradient in union dissolution. *European Sociological Review*, Advance online publication. doi: 10.1093/esr/jcab022

### 3.1 INTRODUCTION

In many Western societies today, the coresidential unions of less-educated individuals are less stable than those of highly educated individuals (Hogendoorn et al. 2020; Matysiak et al. 2014; Raymo et al. 2013). Educational differences in union dissolution have important consequences for social inequality. Whereas highly educated adults and their children accrue the benefits of a stable family life, those with less education miss out because of family instability (McLanahan 2004). Hence, sociologists have increasingly geared their efforts toward understanding the negative educational gradient in the risk of union dissolution.

A prominent explanation of the educational gradient in union dissolution has been provided by William Goode (1962). The core premise of Goode's explanation is that less-educated individuals experience more economic strain. Economic strain, in turn, contributes to relationship discord. When dissolution is culturally accepted, this relationship discord expresses itself in the form of dissolution. Goode's thesis therefore predicts higher dissolution rates among those with less education.

Evidence of Goode's thesis has been mixed. Macro-level evidence confirms that the increased acceptance of divorce has sparked a rise in union dissolution among the less-educated population (De Graaf and Kalmijn 2006; Härkönen and Dronkers 2006; Matysiak et al. 2014). Micro-level evidence, however, is less conclusive. Studies in countries where dissolution is widely accepted have shown that less-educated individuals do indeed experience greater economic strain, such as material deprivation and employment instability. At the same time, these studies found that economic strain explains about 15-20% of the educational gradient in union dissolution, leaving a large part of the gradient unexplained (authors' calculations of Boertien and Härkönen 2018; Kaplan and Herbst 2015; Raymo et al. 2013).

The limited support for the strain thesis is surprising. It is well documented that those with less education face more economic strain, and strain is often seen as the root cause of relationship dissatisfaction and dissolution (Conger et al. 2010; Randall and Bodenmann 2009). We argue that the reasons for this limited support may be twofold. First, a focus on economic strain may be insufficient. The educational gradient in union dissolution could stem from strains in other life domains as well (Brock and Lawrence 2008). For example, less-educated individuals may experience greater strain regarding their health or social relations. Even if strains in other domains partly overlap with economic strain, disregarding them would yield an incomplete picture. Second, union dissolution is a joint process. Strains experienced by one partner could spill over to the other partner and trigger the dissolution process. By restricting attention to one partner, previous studies may have missed the dyadic nature of dissolution.

In the present study, we make two contributions to the literature on the educational gradient in union dissolution. First, we broaden the concept of strain to cover multiple life

domains, namely work, finance, social relations, health, and residence. Second, we model union dissolution as a joint process by incorporating the strain experiences of both partners in a couple. To accomplish this, we used longitudinal data from the Household, Income and Labour Dynamics in Australia survey. This nationally representative household panel allowed us to follow cohabiting and married couples ( $N = 7,930$ ) over a period of 17 years (2001–2017). The extensive measures of life strains in these couples made the panel ideally suited to our analysis. We used generalized structural equation modeling to examine the relationships between education, strains, and dissolution, and to assess the explanatory power of the strain thesis.

## **3.2 THEORY**

### **3.2.1 Life strains**

The concept of strain originated in role theory. According to role theory, individuals hold various social roles that place various demands on them, which may compete in terms of time or content (Merton 1957). Strain then arises from the perceived difficulty in meeting role demands (Goode 1960). Later work generalized this definition, suggesting that demands need not be limited to role performance but could concern any demand in life. Strains have therefore also been referred to as life strains (Pearlin and Johnson 1977).

Life strains are inherently connected to stress. That is, research in social psychology views strain and stress as two sides of the same coin. Whereas strain concerns the cognitive appraisal of environmental demands, stress concerns the physiological response to these demands (Lazarus and Folkman 1984). The argument here is that environmental demands, such as job-related tasks or care for a sick relative, require individuals to adapt. Once adaptation efforts have exhausted an individual's capacity to cope, these demands threaten the individual's integrity and turn into a source of stress (Aneshensel 1992).

Life strains may arise in a variety of domains. The principal domains identified in the literature are work, finance, social relations, health, and residence (Brock and Lawrence 2008). Strains in these domains can be considered external, in the sense that they originate primarily outside of the couple's relationship. Even so, external strains put pressure on internal couple dynamics, including relationship satisfaction or decisions regarding children (Brock and Lawrence 2008; Randall and Bodenmann 2009). Strains therefore bridge between individuals' position in the social structure and the functioning of their romantic unions (Conger et al. 2010).

### **3.2.2 Strain and union dissolution**

Strains have long been recognized as a disruptive force on family systems (Conger et al. 1990; Karney and Bradbury 1995; McCubbin and Patterson 1982). The process by which external life

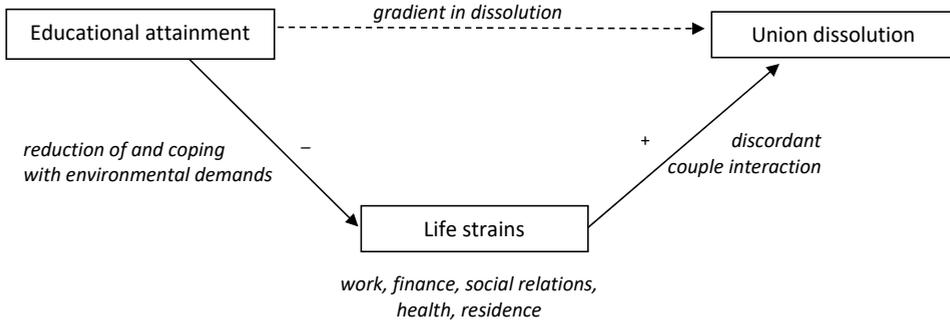
strains spill over to the functioning of a couple is often described as a “cascade” (Bodenmann 2005). In this cascade, strains provoke a stress response. Romantic partners initially try to cope with this stress individually. Once individual coping efforts turn out unsuccessful, dyadic coping is brought into play. Dyadic coping may occur directly, by asking the partner for help in removing the strain or for emotional support to endure the stress. Yet, the partner may also become involved without help seeking, following internalizing (anxiety, depression) or externalizing (anger, substance abuse) coping behaviors (Slopen et al. 2011).

Dyadic coping implies the spill-over of external strains to internal couple dynamics. While there are instances in which couples successfully deal with strain, continuous exposure to strain may exhaust a couple’s coping resources (Hansen 2005). The result is an increase in discordant couple interactions, ranging from withdrawal and a lack of warmth to ambivalence, defensiveness, and hostility (for reviews, see Conger et al. 2010; Perry-Jenkins and Wadsworth 2017; Randall and Bodenmann 2009).

Couple discord, in turn, increases the risk of union dissolution. Reports of conflict and poor relationship quality have consistently been associated with a higher dissolution hazard (Birditt et al. 2010; Conger et al. 2010; Karney and Bradbury 1995; Randall and Bodenmann 2009). Both partners play a role in this process. On the one hand, the stressed individual may feel that their partner does not comprehend the significance of the strain or is unable to provide help. On the other hand, the partner may escape from an individual whom they view as excessively demanding (Umberson 1995). This means that life strains may result in union dissolution through their stress impingement on both partners.

### **3.2.3 Links to education**

Life strains provide a plausible explanation for the educational gradient in union dissolution because their distribution is socially structured. First of all, less-educated individuals are more often exposed to environmental demands that require adaptation, such as negative life events (Hatch and Dohrenwend 2007). In fact, individuals with less education also worry more about future demands, and these worries too are psychologically demanding (Grace 2020). In addition, less-educated individuals encounter more difficulties in adapting to environmental demands. This is in part due to their having fewer personal coping resources, such as financial means or health literacy (Park and Kyei 2011). It is also due to their lower propensity to seek help from outside, perhaps because of unfamiliarity with this possibility or because outside interventions are typically designed for individuals with more education (Karney 2020). Education thus represents a resource that enables individuals to seek out healthy environments and deal with problems, which together reduce the experience of strain.

**Figure 3.1** Conceptual model of the educational gradient in union dissolution

Empirical studies have confirmed the existence of educational differences for most life strains. In the work domain, for example, individuals with less education perceive greater job insecurity and lower job control, though findings regarding job demands have been mixed (Landsbergis et al. 2014). In the finance domain, individuals with less education experience greater material deprivation (Bedük 2018). In the social relations domain, individuals with less education engage less in civic participation and report fewer people on whom they can rely for social support, though findings regarding close confidants and neighborhood ties have been mixed (Fischer 2009; Schafer and Vargas 2016). In the health domain, individuals with less education report poorer general health and are more likely to suffer from functional limitations (Cambois et al. 2016). In the residence domain, individuals with less education experience greater neighborhood disorder and live in poorer quality housing (Burdette and Hill 2008).

Moreover, educational differences in strain may accumulate in couples. Part of this accumulation can be expected because of educational homogeneity. After all, less-educated individuals are more likely to experience strains related to both their own and their partner's education (De Lange et al. 2013). Yet, couples also accumulate strain over and above homogeneity. For example, employment insecurity in couples is greater when one of the partners has attained less education, even when the other partner has a tertiary degree (Grotti and Scherer 2014). This suggests that an assessment of the strain thesis should not only include partner education but should also explicitly include partner strains.

Following the above argument, we expected that life strains would partly explain the educational gradient in union dissolution. That is, we expected that those with less education experienced more strain, that strain increased the risk of union dissolution, and that the negative association between education and dissolution would become weaker after accounting for strains. Figure 3.1 gives a graphical overview.

### 3.2.4 The Australian case

We studied the educational gradient in union dissolution using data from Australia. Australia is a country where divorce and separation are common phenomena and hence provides a suitable context for testing the strain thesis. In 2001, around the start of the data collection, its crude marriage rate was 5.3, comparable to the Netherlands (5.0) and the United Kingdom (4.8), but lower than for instance the United States (8.2) (OECD 2019). Approximately 15% of Australian marriages dissolve within ten years (Hewitt et al. 2005), again comparable to the Netherlands (Hogendoorn et al. 2020), but less than in the United Kingdom (Boertien and Härkönen 2018) and the United States (Martin 2006).

Even though marriage remains the norm in Australia, cohabitation is on the rise. Unmarried cohabitation among partnered individuals aged 30-34 increased from 14% in 1996 to 24% in 2006, resembling trends in Northwest Europe, Central Europe, and the United States (Heard 2011; Perelli-Harris et al. 2017). This increase is driven mainly by increased premarital cohabitation and longer marriage postponement and to a lesser extent by the substitution of marriage. The Australian legal system recognizes unmarried cohabitation as “de facto marriage” after two years of uninterrupted coresidence. Such recognition is unique, shared only with New Zealand and parts of Canada and the United States. Nonetheless, cohabitation remains selective of individuals with less education, lower incomes, and separated parents (Heard 2011). To avoid selection issues, our analysis included both cohabiting and marital unions.

Education plays an important role in the stratification of Australian society. This is evidenced by the returns to education. Australians with an upper secondary degree receive 23% higher wages and those with a tertiary degree 40% higher wages than their less-educated counterparts. Adjusted for study duration and income taxation, this implies a return rate of 10% per year of tertiary education, one of the highest returns of all industrialized countries (Boarini and Strauss 2010). Moreover, couples tend to form between people of similar education. Educational homogamy is most pronounced among those with less than compulsory education and those with a master’s degree (authors’ calculations).

## 3.3 METHOD

### 3.3.1 Data

We used longitudinal data from the Household, Income and Labour Dynamics in Australia survey (HILDA). HILDA is a large representative panel study of private households in Australia. All persons aged 15 and older in sampled households were asked to participate in the first wave and in annual follow-up waves. Initial participants were followed also after household splits, and new participants entered the panel if they joined an existing panel household or if they turned 15 while living in one. A refreshment sample was added in 2011.

The data can be requested via the University of Melbourne (<https://melbourneinstitute.unimelb.edu.au/hilda>).

The household response rate of the first wave was good (66%) and attrition rates were very low (3-13% annually, 35% cumulatively). In case a separated person was lost on follow-up, we identified the separation from the ex-partner. There was no difference in the annual response rate between persons who separated (93%) and who did not separate (91%) during the time of observation. A major benefit of HILDA was that it provided information about partners' life strains as part of the core questionnaire.

The analytic sample was constructed using the first 17 waves of HILDA (2001-2017). We started by selecting all existing and newly formed cohabiting and marital unions ( $N = 10,208$ ). We considered the first 30 years since union formation because these were the years during which the educational gradient opened up ( $N = 8,666$ ). We dropped unions in which both partners were enrolled in full-time education, because the living conditions of students are little indicative of their socioeconomic status ( $N = 8,473$ ). We also dropped unions for which the educational attainment of one or both partners was missing ( $N = 8,467$ ). We censored observations ending in death, widowhood, or dropout ( $N = 7,930$ ). This yielded a total sample size of 52,574 union-years nested in 7,930 unions. In order to prevent double entries, each union was represented by one randomly chosen partner (cf. Hewitt and De Vaus 2009). Table 3.1 describes the analytic sample. Partner information was added separately (see next section).

**Table 3.1** Descriptive statistics of the analytic sample

	<i>M</i>	<i>SD</i>	<i>min</i>	<i>max</i>	<i>N unions</i>
<i>Individual characteristics</i>					
Educational attainment	15.96	2.46	11	22	7,930
Female	0.50		0	1	7,930
<i>Ethnicity</i>					
Australian-born	0.78		0	1	7,930
Overseas-born Anglophone	0.10		0	1	7,930
Overseas-born non-Anglophone	0.12		0	1	7,930
Religiosity	3.09	3.23	0	10	6,506
Parents separated in youth	0.28		0	1	7,930
Age at union formation	29.66	10.06	15	85	7,930
Union order	1.68	1.03	1	10	7,773
<i>Union characteristics</i>					
Union cohort	1999.90	11.96	1971	2016	7,930
Married since start	0.30		0	1	7,930
Same-sex union	0.02		0	1	7,930
Refreshment sample	0.15		0	1	7,930

*Notes:* Values without multiple imputation.

*Source:* Household, Income and Labour Dynamics in Australia, own calculations.

### 3.3.2 Measures

The main variables of interest were the following. *Union dissolution* was measured as the termination of a coresidential union, following a split from the household by one or both partners. Living-apart-together relationships were not considered. This information was obtained using a household roster, with the person or persons most responsible for family care indicating all relationships between household members and the interviewer verifying these relationships with the household members in question. *Educational attainment* was measured as the highest out of 22 qualifications (e.g., “Certificate I”, Associate degree”, or “Master’s degree”). In the graphs, we simplified it into the categories lower secondary education or below, upper or post-secondary education, or tertiary education. In the statistical analysis, we converted it to nominal years of completed education (see Table A.2 of the Appendix).

Life strains regarded the domains of work, finance, relations, health, and residence. Although these domains overlapped considerably, the analysis confirmed that the measurement of strain across multiple domains improved on measurement in a single domain. In the work domain, we included an index of *job strain* (6 items, e.g. “I worry about the future of my job”, Cronbach’s  $\alpha = .81$ ) and a single-item measure of *employment difficulty* (“satisfaction with employment opportunities”). In the finance domain, we included a single-item measure of *income insufficiency* (“perceived prosperity given needs and responsibilities”) and a single-item measure of *emergency problems* (“difficulty to raise AUD 2000 for an emergency”). In the social relations domain, we included an index of *social isolation* (6 items, “I have no one to lean on in times of trouble”,  $\alpha = .78$ ) and a single-item measure of *community exclusion* (“satisfaction with feeling part of local community”). In the health domain, we included an index of *health difficulties* (9 items, “health limits me in bathing or dressing yourself”,  $\alpha = .82$ ) and a single-item measure of *functional limitations* (“long-term health condition, impairment, or disability that restricts my everyday activities”). In the residence domain, we included an index of *neighborhood disorder* (10 items, “burglary and theft are common in my neighborhood”,  $\alpha = .82$ ) and a single-item measure of *home dissatisfaction* (“satisfaction with the home in which I live”). In some cases, the HILDA questionnaire contained items that did not measure the constructs of interest, such as items with ambiguous phrasing (“my job is not complex or difficult” for job strain) or items that captured couple discord rather than external strains (“emotional problems interfered with my social activities” for health difficulties). These items were not included in the measures. All strain variables were time-varying, were coded so that higher scores indicated more strain, and were z-standardized since they were not always measured on a natural scale. Table 3.2 describes the life strain variables. Detailed information on the items can be found in the Appendix (Table A.3).

**Table 3.2** Life strains across five domains

	<i>M</i>	<i>SD</i>	<i>min</i>	<i>max</i>	<i>N</i> union-years
<i>Work</i>					
Job strain	0	1	-1.26	3.94	45,803
Employment difficulty	0	1	-1.29	3.25	46,409
<i>Finance</i>					
Income insufficiency	0	1	-2.76	3.68	45,721
Emergency problems	0	1	-0.69	2.4	45,575
<i>Social relations</i>					
Social isolation	0	1	-2.29	4.32	45,805
Community exclusion	0	1	-1.56	3.23	50,473
<i>Health</i>					
Health difficulties	0	1	-1.44	5.11	45,984
Functional limitation	0	1	-0.49	2.02	50,538
<i>Residence</i>					
Neighborhood disorder	0	1	-2.64	4.46	46,466
Home dissatisfaction	0	1	-1.23	4.34	50,507

Notes: Values without multiple imputation.

Source: Household, Income and Labour Dynamics in Australia, own calculations.

We included the following background variables. *Sex* was a binary indicator of being male or female. *Ethnicity* was measured as country of birth and categorized as Australian-born, foreign-born in an English-speaking country, or foreign-born in a non-English speaking country. *Religiosity* was measured as the importance of religion on a scale from one to ten. *Parental separation* was a binary indicator of having parents who separated or divorced before age 15. *Age at union formation* was measured as the individual's age at the formation of the current union. *Union order* was measured using the individual's number of previous unions. *Marital status* was a binary indicator of being married or unmarried at the moment of union formation. *Union sex composition* was a binary indicator of a same-sex or different-sex union. *Union cohort* was measured as the calendar year of union formation. *Refreshment sample* was a binary indicator of belonging to the original or refreshment sample. All background variables were time-invariant. Note that we did not include relationship satisfaction, because it might both precede and follow strains so its location in the causal chain is unclear.

The analysis included partner information. This information was obtained from direct interviews (not by proxy), since HILDA surveyed all household members. We added partner information via additional variables. This revealed the degree to which ego strains alone, as opposed to ego and partner strains jointly, contributed to the educational gradient in union dissolution. (We also considered conducting the analyses separately for men and women. However, this would further complicate the theory with a gender component, exclude same-sex couples without theoretical justification, and result in two gradients to be explained.)

We used multiple imputation to deal with missing values. Around 30% of the union-year observations was missing on at least one variable, 15% on at least two variables, and 13% on three variables or more. Including partner variables, these percentages increased to respectively 41%, 27%, and 20%. These high percentages were due almost entirely to missings on five of the strain variables, which accumulated as the analysis required many variables. The imputation was conducted using chained equations with predictive mean matching from the five nearest neighbors. Indices and standardized variables were treated using the just-another-variable approach (Seaman et al. 2012). We took account of the longitudinal structure of the data by including within-union variable means as auxiliary variables (Young and Johnson 2015), and we made the imputation suitable for event-history analysis by including the dissolution outcome and the cumulative hazard (White and Royston 2009). In total, we imputed 20 complete datasets (see Table A.4 of the Appendix for imputation diagnostics). This procedure aimed to reduce bias and increase statistical power, facilitating the high data demands of our analysis.

### 3.3.3 Analytic strategy

Before conducting the analysis, we described the educational gradient in union dissolution. This aimed to show the association between education and dissolution “as is”, that is, without including any factors that might explain this association. The association was specified as a discrete-time event-history model:

$$\ln(h_{it}) = \beta X_i^e + \delta_t + \nu U_i + \rho R_i \quad (0)$$

where  $h$  represented the hazard of dissolution,  $X^e$  educational attainment,  $\delta$  time since union formation,  $U$  union cohort, and  $R$  refreshment sample. To reduce the computational burden in the subsequent analysis, we specified a piecewise-constant baseline hazard with eight dummies  $\delta$ , where each dummy represented a similar portion of union-year observations. The model was estimated using Poisson regression with standard errors clustered at the union level, which is the appropriate estimator for event-history models with a piecewise-constant baseline hazard (Guo 1993). Our interest lied in the exponentiated coefficient  $e^\beta$ , which indicated the ratio by which the dissolution hazard increased with an additional year of education. This description gave an initial impression of the gradient.

The analysis consisted of three parts, which were estimated simultaneously using generalized structural equation modeling. The first part concerned educational differences in the experience of life strains (left arrow in Figure 3.1). These educational differences were specified as linear models:

$$\mathbf{Z}_{it}^e = \gamma X_i^e + \zeta_t + \eta U_i + \kappa R_i \quad (1a)$$

where  $\zeta$  was the time since union formation and the other terms as described before.  $\mathbf{Z}^e$  included the life strains.  $\mathbf{Z}^e$  also included marital status, union sex composition, sex, ethnicity, religiosity, parental separation, age at union formation, and union order, because these variables might confound the effect of strains on dissolution in the other parts of the analysis. Our interest lied in the coefficients  $\gamma$ , which indicated the increase in strain with an additional year of education.

The second part concerned the effects of life strains on union dissolution (right arrow in Figure 3.1). The effects were specified as a discrete-time event-history model:

$$\ln(h_{it}) = \theta X_i^e + \lambda \mathbf{Z}_{it}^e + \xi_t + \mu U_i + \nu R_i \quad (2a)$$

where  $\xi$  was time since union formation and the other terms as described before. By again including life strains and confounders in  $\mathbf{Z}^e$ , this part obtained the effects of strain on the dissolution hazard, net of confounders. Our interest lied in the exponentiated coefficients  $e^\theta$ , which indicated the ratio by which the dissolution hazard increased with an additional point of strain.

The third part tested whether the differential experience of life strains could explain the educational gradient in union dissolution (upper arrow in Figure 3.1). It combined the other parts into an event-history mediation analysis. The direct effect was the effect of education on union dissolution (coefficient  $\theta$  from Eq. 2a). The indirect effect was the effect of education on each life strain and confounder (coefficient  $\gamma$  from Eq. 1a) times the effect of each life strain and confounder on union dissolution (coefficient  $\lambda$  from Eq. 2a). The total effect was the sum of the direct effect and all indirect effects. We constructed the total effect in this way, rather than by taking the descriptive gradient, because adding variables to the descriptive gradient would affect the total variance and hence the scale of the coefficients (Karlson et al. 2012). Our interest lied in percentage of the total effect that could be attributed to the indirect effects, which indicated the explanatory power of the strain thesis.

The above analysis considered only one partner in each couple. To examine the role of the other partner, we repeated the analysis using information from both partners. We specified the following models:

$$\mathbf{Z}_{it}^e = \gamma^e X_i^e + \zeta_t^e + \eta^e U_i + \kappa^e R_i \quad (1b^e)$$

$$\mathbf{Z}_{it}^p = \gamma^p X_i^e + \zeta_t^p + \eta^p U_i + \kappa^p R_i \quad (1b^p)$$

$$\ln(h_{it}) = \theta' X_{it}^e + \lambda' Z_{it}^e + \lambda' Z_{it}^p + \xi'_{it} + \mu' U_i + v' R_i \quad (2b)$$

where the superscript  $e$  denoted ego and  $p$  partner.  $Z^e$  again included ego life strains and ego confounders.  $Z^p$  included partner life strains and partner confounders, as well as partner education, to ensure that partner life strain effects did not capture other characteristics related to partner education. Note that the effects of ego and partner strains on dissolution were constrained to equality to avoid overfitting, as dissolution took place at the union level and individuals were randomly assigned as ego or partner. According to these models, ego education related to the experience of ego strain and partner strain, and jointly these strains contributed to dissolution. Comparing the results to the ego-only analysis indicated whether an account of both partners provided a better explanation of the gradient in dissolution than an account of one partner only.

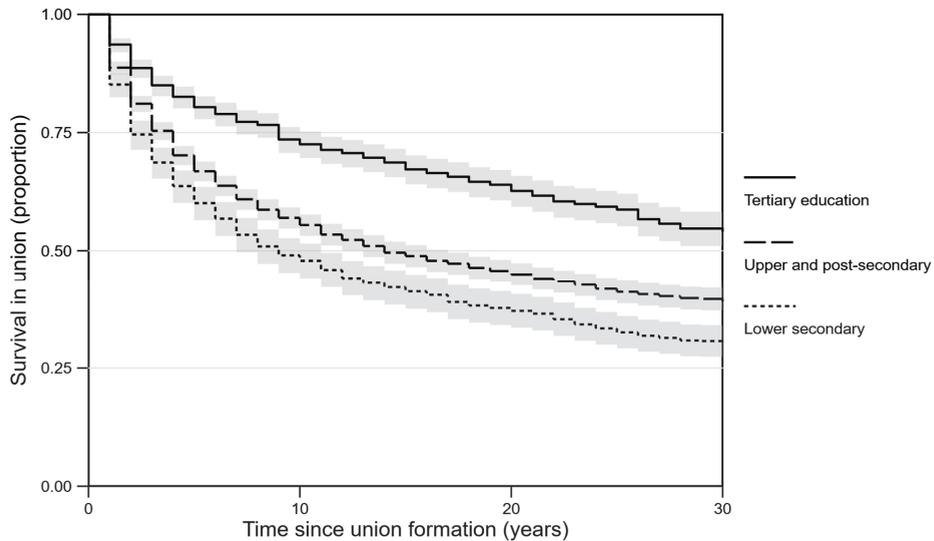
The analysis included all life domains to show the total explanatory power of the strain thesis and to account for overlap between domains. To enable others to replicate the analysis or conduct similar analyses, we uploaded the replication files to the Open Science Framework (<https://osf.io/cq83b>). The files include a user-written package *nmed* for conducting nonlinear mediation analysis (see also Appendix A.5).

### 3.4 RESULTS

#### 3.4.1 Describing the gradient

Descriptive results confirmed the existence of an educational gradient in union dissolution. This is illustrated by Figure 3.2, which shows the Kaplan-Meier curves of union survival. Ten years after union formation, union survival was 73% among the higher educated, 55% among the intermediately educated, and 48% among the lower educated. Thirty years after union formation, these figures amounted to 54%, 39%, and 30%, respectively. In other words, individuals in the lower education category were almost half as likely to still live with their partner as individuals in the higher education category.

The educational gradient in union dissolution was also confirmed statistically. This is illustrated in Table 3.3, which shows the results from a discrete-time event-history model of union dissolution that included educational attainment, union cohort, refreshment sample, and duration (Eq. 0). The education coefficient was -0.104, amounting to a hazard ratio of 0.90 ( $e^{-0.104} = 0.90$ ). Put differently, a one-year increase in completed education was associated with a 10% decrease in the hazard of dissolution.

**Figure 3.2** Union survival curves by education level

Source: Household, Income and Labour Dynamics in Australia, own calculations.

**Table 3.3** Event-history model of union dissolution

	<i>b</i>	<i>HR</i>
Educational attainment (ego)	-0.104***	0.90
Union cohort	0.010*	1.01
Refreshment sample	-0.094	0.91
Duration 1-2 years	-0.338***	0.71
Duration 3-5 years	-0.774***	0.46
Duration 6-8 years	-1.037***	0.35
Duration 9-12 years	-1.369***	0.25
Duration 13-17 years	-1.555***	0.21
Duration 18-23 years	-1.590***	0.20
Duration 24-30 years	-1.804***	0.16
Intercept	-20.604*	0.00
<i>N</i> union-years	52,574	
<i>N</i> unions	7,930	
<i>N</i> dissolutions	1,977	

Notes: Hazard ratios show exponentiated coefficients from a Poisson regression. The mediation analysis used different total effects because of the rescaling implied in nonlinear models. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Source: Household, Income and Labour Dynamics in Australia, own calculations.

### 3.4.2 Explaining the gradient

In the first part of the analysis, we examined educational differences in the experience of life strains. The results confirmed the existence of a moderate strain differential. This is illustrated by the left-hand column of Table 3.4, which shows the education coefficient for each strain (Eq. 1). Individuals with fewer years of completed education experienced more strains across the board. The educational differential was large for strains in the finance domain, where a one-year decrease in education was associated with a 0.11 standard deviation increase in emergency problems and a 0.09 standard deviation increase in income insufficiency. The educational differential was also present, albeit smaller, in the other life domains. The only exceptions regarded home dissatisfaction, which showed no educational differential, and job strain, which surprisingly increased with education.

Education related not only to the personal experience of life strains, but also to partners' experience of life strains. This is illustrated by the right-hand columns of Table 3.4, which show the coefficients of ego education on ego and partner strains. For instance, a one-year decrease in education was associated with both a 0.05 standard deviation increase in ego social isolation and a 0.04 standard deviation increase in partner social isolation. In all cases, the educational differential became more discernible when observing both partners in a union.

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**Table 3.4** Effects of educational attainment on ego's and partner's life strains

	<b>Ego model</b>	<b>Ego + partner model</b>	
	Ego strains	Ego strains	Partner strains
	<i>beducation</i>	<i>beducation</i>	<i>beducation</i>
<i>Work</i>			
Job strain	0.05***	0.05***	0.04***
Employment difficulty	-0.07***	-0.07***	-0.04***
<i>Finance</i>			
Income insufficiency	-0.09***	-0.09***	-0.10***
Emergency problems	-0.11***	-0.11***	-0.11***
<i>Social relations</i>			
Social isolation	-0.05***	-0.05***	-0.04***
Community exclusion	-0.03***	-0.03***	-0.03***
<i>Health</i>			
Health difficulties	-0.05***	-0.05***	-0.05***
Functional limitation	-0.05***	-0.05***	-0.04***
<i>Residence</i>			
Neighborhood disorder	-0.03***	-0.03***	-0.03***
Home dissatisfaction	-0.00	-0.00	-0.01*

Notes: Coefficients from linear regressions of each life strain on ego education, controlling for duration, union cohort, and refreshment sample. Full model results available in Tables A.5-A.6 of the Appendix.  $N = 52,574$  union-years; 7,930 unions. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Source: Household, Income and Labour Dynamics in Australia, own calculations.

In the second part of the analysis, we examined the effects of life strains on union dissolution. The results confirmed that the experience of strains increased the risk of dissolution. This is illustrated by the left-hand column of Table 3.5, which shows the hazard ratios from a model including all strains (Eq. 2). Most life strains were associated with a higher risk of union dissolution. Associations were particularly strong regarding social isolation and problems accessing emergency funds. A standard deviation increase in social isolation was associated with a 13% increase in the hazard of dissolution, and a standard deviation increase in emergency problems was associated with a 14% increase in the hazard of dissolution. Associations were moderately strong for income insufficiency, community exclusion, and home dissatisfaction. Those of employment difficulty, health difficulties, functional limitation, and neighborhood disorder were in the expected direction but did not reach statistical significance. Job strain posed an exception, as it appeared to decrease the risk of union dissolution.

Accounting for the situation of both partners revealed the destabilizing effect of life strains more clearly. This is illustrated by the right-hand columns of Table 3.5, which show the hazard ratios of ego and partner strain variables. The risk of union dissolution increased substantially when both partners experienced strain. For instance, a standard deviation increase in social isolation by ego was associated with a 13% increase in the hazard of dissolution. A standard deviation increase in social isolation by both ego and partner, however, was associated with a 22% increase ( $e^{0.10+0.10} = 1.22$ ) in the hazard of dissolution. These patterns also held for most of the other strains. At the same time, strain effects in the joint model never exceeded strain effects in the model with only one partner. This underscores the relevance of looking at both partners since, in models with only one partner, what appears to be the consequence of personal strain picks up on partner strain.

In the third and final step of the analysis, we examined whether the differential experience of life strains could explain the educational gradient in union dissolution. The results showed that strains explained a large part of the gradient. This is illustrated by the left-hand columns of Table 3.6, which show the indirect effect of education through strains on dissolution. In line with the original strain thesis, strains in the finance domain explained a large portion of the gradient in dissolution, around 23%. Nevertheless, strains in the social relations domains also explained relevant a portion of the gradient, around 8%. Strains in the residence and health domain did not explain a statistically significant part of the gradient. Job strain again played an unexpected role, a finding we come back to in the discussion section. In total, the differential experience of life strains recorded for one person in a union explained 44% of the educational gradient in union dissolution.

**Table 3.5** Effects of ego's and partner's life strains on union dissolution

	<b>Ego model</b>		<b>Ego + partner model</b>			
	Ego effects		Ego effects		Partner effects	
	<i>b</i> <sub>strain</sub>	<i>HR</i> <sub>strain</sub>	<i>b</i> <sub>strain</sub>	<i>HR</i> <sub>strain</sub>	<i>b</i> <sub>strain</sub>	<i>HR</i> <sub>strain</sub>
<i>Work</i>						
Job strain	-0.08***	0.92	-0.02	0.98	-0.02	0.98
Employment difficulty	0.02	1.02	-0.00	1.00	-0.00	1.00
<i>Finance</i>						
Income insufficiency	0.06*	1.06	0.03*	1.03	0.03*	1.03
Emergency problems	0.13***	1.14	0.07***	1.07	0.07***	1.07
<i>Social relations</i>						
Social isolation	0.12***	1.13	0.10***	1.10	0.10***	1.10
Community exclusion	0.04*	1.05	0.03*	1.03	0.03*	1.03
<i>Health</i>						
Health difficulties	0.05	1.05	0.04*	1.04	0.04*	1.04
Functional limitation	0.04	1.04	0.04**	1.05	0.04**	1.05
<i>Residence</i>						
Neighborhood disorder	0.03	1.03	0.01	1.01	0.01	1.01
Home dissatisfaction	0.07***	1.07	0.04**	1.04	0.04**	1.04

Notes: Coefficients from a Poisson regression of union dissolution on all life strains. Ego models controlled for ego education, duration, union cohort, refreshment sample, marital status, union sex composition, and ego sex, ethnicity, religiosity, parental separation, age at union formation, and union order. Ego + partner models additionally controlled for partner education and partner ethnicity, religiosity, parental separation, age at union formation, and union order. Full model results available in Tables A.5-A.6 of the Appendix.  $N = 52,574$  union-years; 7,930 unions. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Source: Household, Income and Labour Dynamics in Australia, own calculations.

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**Table 3.6** Mediation of educational gradient in union dissolution by ego's and partner's life strains

	<b>Ego model</b>		<b>Ego + partner model</b>	
	<i>b</i> <sub>indirect effect</sub>	Explained (%)	<i>b</i> <sub>indirect effect</sub>	Explained (%)
<i>Work</i>				
Job strain	-0.004**	4.84	-0.001	1.75
Employment difficulty	-0.002	1.80	0.000	-0.26
<i>Finance</i>				
Income insufficiency	-0.006*	6.46	-0.006**	7.09
Emergency problems	-0.014***	16.41	-0.014***	17.07
<i>Social relations</i>				
Social isolation	-0.006***	6.90	-0.009***	10.88
Community exclusion	-0.001	1.44	-0.002**	2.03
<i>Health</i>				
Health difficulties	-0.003	2.87	-0.004**	4.76
Functional limitation	-0.002	2.20	-0.004***	4.61
<i>Residence</i>				
Neighborhood disorder	-0.001	0.92	-0.000	0.41
Home dissatisfaction	-0.000	0.12	-0.000	0.46
All mediators		43.95		48.81

Notes: Products of coefficients from a generalized structural equation model with paths linking education to life strains and paths linking life strains to union dissolution. Full model specification available in Eq. 1 and 2. Full results available in Tables A.5-A.6 of the Appendix.  $N = 52,574$  union-years; 7,930 unions. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Source: Household, Income and Labour Dynamics in Australia, own calculations.

The inclusion of life strains experienced by both partners somewhat improved the explanatory power. This is illustrated by the right-hand columns of Table 3.6, which show the indirect effect of ego education through ego and partner strains on dissolution. For instance, the differential experience of strains in the health domain now explained 9% of the gradient in dissolution. Increases were observed in the other life domains as well, except in the work and residence domains, which did not play a statistically significant role. This means that the gradient stemmed from the fact that less-educated individuals not only experienced more strains themselves, but also tended to have partners who experienced more strains. In total, the differential experience of life strains by both partners in a couple explained 49% of the educational gradient in union dissolution. This is a sizeable portion, considerably more than explained by economic life domains alone, and somewhat more than models that disregard the partner.

### 3.4.3 Robustness checks

We conducted several robustness checks, the results of which are available in the Appendix. The first set of checks concerned the model specifications. In the previous sections, we explained the educational gradient in union dissolution “as is”, by first describing the gradient and then adding mediators and confounders. We also tried to explain the “causal” part of the gradient, by modeling the gradient net of all confounders and then adding the remaining mediators. This yielded a smaller gradient of which a larger part was explained, though results did not differ much (Tables A.7-A.10). Furthermore, the previous sections were based on multiple imputation to facilitate our high data demands. We repeated the analysis using listwise deletion. The smaller number of observations resulted in larger standard errors, but point estimates were similar (Tables A.11-A.13).

The second set of checks concerned subpopulations. In the previous sections, we examined the educational gradient in union dissolution across all individuals. However, the gradient might differ by sex and parenthood. Hence, we repeated the analysis separately for heterosexual men and heterosexual women (not for same-sex couples because of few cases). This resulted in few notable differences, except that men’s job strain appeared to stabilize unions whereas women’s job strain was unrelated to union stability (Figures A.8-A.9 and Tables A.14-A.21). We also repeated the analysis separately for couples with and without children. This again resulted in few differences, except that couples with children witnessed a larger gradient in dissolution and somewhat larger effects of strains on dissolution (Figures A.10-A.11 and Tables A.22-A.29).

The third set of checks concerned the direction of causality. Our analysis focused on strains in external life domains because these are relatively exogenous to couple dynamics. Still, couple dynamics might influence personal decisions in these domains and consequently

the experience of strain. Hence, we conducted an instrumental-variable regression. Instruments such as job loss and the Great Recession could not be used, since job loss was rare and the recession hardly affected Australia. Instead, we used unexpected life events. Income insufficiency was instrumented with major financial improvement (e.g., winning a lottery) and worsening (e.g., bankruptcy), health difficulties with serious injury or illness and death of a friend (Frijters et al. 2014), and neighborhood disorder with victimhood of property crime (e.g., burglary). These instruments were plausibly exogenous, exhibited good first-stage correlations with the strain variables (Sanderson-Windmeijer  $F \geq 30$ ), and seemed to comply with the exclusion criterion ( $p_{\text{Hansen } J} \geq .32$ ). The results showed that strains caused a higher risk of dissolution (Table A.30). Nonetheless, previous work has casted some doubt on the lottery instrument (Boertien 2012), so we view these results as tentative and encourage others to conduct a more rigorous test.

### 3.5 DISCUSSION

Less-educated individuals are more likely to separate across many Western societies (Hogendoorn et al. 2020; Matysiak et al. 2014; Raymo et al. 2013). Because of its consequences for social inequality, sociologists have had a longstanding interest in the educational gradient in union dissolution (McLanahan 2004). Particular interest has been paid to the strain thesis, which proposes that the gradient stems from the differential experience of economic strain (Goode 1962). Recent work has found that economic strain explains about 15-20% of the gradient (Boertien and Härkönen 2018; Kaplan and Herbst 2015; Raymo et al. 2013), leading some to conclude that “the argument that increased educational attainment reduces divorce risk by reducing financial hardship and stress [...] stands on weak empirical ground” (Raley and Sweeney 2020, p. 85).

In this study, we revisited the strain thesis, by broadening it to multiple life domains and by considering both partners in each couple. We used longitudinal data from the Household, Income and Labour Dynamics in Australia survey to follow cohabiting and married couples ( $N = 52,574$  union-years; 7,930 unions) over a period of 17 years (2001-2017). The results showed that less-educated individuals and their partners were more strained across all life domains, and that the joint experience of strain strongly increased the risk of union dissolution. All in all, life strains explained nearly half of the educational gradient in union dissolution. This is a considerable advance on previous studies.

Zooming in on the results, several findings are noteworthy. First, social support and the ability to raise emergency funds stood out as key factors for union stability. This reaffirms the dual role of education as human capital, giving access to higher and more secure incomes, and as social capital, giving access to network resources such as advice and practical help (Schafer and Vargas 2016). Second, neighborhood disorder was unrelated to union stability.

Further analysis (not reported) suggested this was due to its overlap with financial strain. Indeed, the connection between education and residence is mainly financial in nature, whereas the connections between education and other life domains are also non-financial. Third, job strain appeared to decrease rather than increase the risk of union dissolution. We believe that this had to do with the measurement. Following Karasek's (1979) model, in which job strain results from a combination of high job demand and low job control, our measure might have captured the demand aspect only. This would also explain why the stabilizing effect was observed for men's but not for women's job strain, as a man's demanding job indicates his successful enactment of the breadwinner role (Hansen 2005). Last, when considering each life domain in isolation (not reported), adding information on the partner strongly improved the explanatory power of the strain thesis. This was less the case when considering all life domains at once. This may indicate that couples rarely face *particular* strains together but rather accumulate an *overall* amount of strain. Such interpretation is consistent with the spillover-crossover model, according to which strain in one life domain intensifies strain in another life domain of the partner (Bakker et al. 2008). Examples include spillover-crossover from one partner's work exhaustion to the other partner's health behavior or from one partner's home dissatisfaction to the other partner's parenting behavior (Doumas et al. 2003; Nelson et al. 2009).

Our findings demonstrate that life strains are pivotal to the stratification of romantic relationships. Contrary to notions of match quality, individuals with less education appear to face circumstances that get in the way of their relationships. This resonates with previous research showing small socioeconomic differences in problems due to romantic standards or social skills, yet large differences due to external stressors (Trail and Karney 2012). Dissolutions related to external stressors are undesired and possibly preventable. In this sense, it may be fruitful to think of "excess dissolutions", in analogy to "excess mortality" from preventable causes. This could aid the search for policy measures that reduce life strains. For example, the public provision of long-term care might reduce the social strain experienced by family caregivers, education programs and the taxation of unhealthy foods might reduce health strain, and comprehensive social assistance might reduce financial strain (Baert et al. 2008; Briggs et al. 2017; Nelson 2012).

At the same time, life strains cannot fully explain the gradient in dissolution. To an extent, this might relate to the nature of the strains. This study considered relatively major and enduring strains, which respondents were able to recall when looking back to the past year. Minor or acute strains, including momentary social obligations or difficult customers at work, were not reported in the survey, while they are at least as important for couple interaction (Randall and Bodenmann 2009). Still, other factors may be at play. One of these factors derives from social exchange theory, according to which highly educated people face higher barriers to

dissolution. Recent studies have found that home ownership and divorce intolerance deter highly educated people from dissolving their unions (Boertien and Härkönen 2018; Van Damme 2020). This raises questions about the interplay between strains and barriers. One possibility is that dissolutions follows a conditional model, whereby moderately strained unions are most sensitive to the presence or absence of barriers (Amato and Hohmann-Marriott 2007). Another possibility is that dissolution follows a sequential model, whereby strain triggers the consideration of breaking up and subsequently of barriers to doing so. Yet another model accounts for couple dynamics. Less-educated people may be less able to adapt to changes in their relationships, because the ability to adapt deteriorates in the face of external stressors (Neff and Karney 2009). This could result in the couple growing apart and eventually separating. Future research could explore these theoretical models.

A final question regards the institutional context. The relevance of strains depends on their educational distribution and their connection to union dissolution. Australia is a highly stratified country where dissolution is widespread. Our findings likely generalize to other Anglo-Saxon countries, which are similar in these respects. Our findings may also hold in the Nordic countries and Western Europe, albeit for a different reason. These countries have been forerunners of the expansion of higher education, so that the less-educated population represents an increasingly disadvantaged group, despite redistributive efforts of the welfare state (Jalovaara et al. 2019). A different picture may emerge in the Mediterranean countries, where normative barriers to dissolution remain high. Nonetheless, also in those countries, the continuing deinstitutionalization of family life could strengthen the link between strain and dissolution (Härkönen and Dronkers 2006). It may only be a matter of time before we witness the stratified consequences of life strains elsewhere.