Why is there an educational gradient in union dissolution? The strain thesis revisited

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Why is there an educational gradient in union dissolution? The strain thesis revisited

Bram Hogendoorn[1], Matthijs Kalmijn[2] and Thomas Leopold[3]

Abstract

Lower educated individuals have less stable unions across many Western countries. This is in line with Goode's (1962) thesis that lower educated individuals experience more economic strain and are therefore at higher risk of union dissolution. Nonetheless, micro-level evidence is weak. This may be due to a concept of strain that is too limited or due to a focus on only one partner in the union. In this study, we broadened the concept of strain to cover multiple life domains and captured its experience by both partners in a union. We used data from the longitudinal Household, Income and Labour Dynamics in Australia survey (N = 47,360 union-years; 8,092 unions). Event-history mediation analysis showed that lower educated individuals experienced more strains not only in the economic domain but also in other life domains. Moreover, lower educated individuals tended to have partners who experienced more strains as well. In total, the joint experience of life strains explained 47% 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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Introduction

Across many Western societies, lower educated individuals have less stable romantic unions than higher educated individuals (Martin, 2006; Park & Raymo, 2013). Union dissolution has important consequences for the well-being of adults and their children (Amato, 2000). Educational differences in the risk of union dissolution may therefore result in the accumulation of social inequality (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 was provided by Goode (1962, 1963). The core premise of Goode's explanation is that lower educated individuals experience more economic difficulties, or strain. Economic strain contributes to relationship discord. Whether this results in union dissolution, depends on the normative barriers to dissolution. As long as barriers are high, dissolution should be uncommon among the lower educated, as they would not dispose of sufficient cultural resources to work around the barriers. When barriers decrease, dissolution should become more common among the lower educated, as their strained relationships would be allowed to dissolve.

Macro-level evidence on the *normative barriers* to union dissolution supports Goode's thesis. Normative barriers appear to be an important explanation of variation in the educational gradient in dissolution across countries and periods. In countries and periods in which barriers are lower, as indicated by higher rates of divorce, extra-marital childbearing, cohabitation and female labor market participation, union dissolution is more common among lower educated individuals (De Graaf & Kalmijn, 2006; Härkönen & Dronkers, 2006; Matysiak, Styrc, & Vignoli, 2014).

Micro-level evidence on *economic strain*, however, is less conclusive. Recent studies have tried to test the degree to which economic strain explains the educational gradient in union dissolution. These studies have confirmed that lower educated individuals experience greater economic strain, such as material deprivation and employment instability. At the same time, they have found that economic strain explains only 15-20% of the gradient in union dissolution (Boertien & Härkönen, 2018; Kaplan & Herbst, 2015; Raymo, Fukuda, & Iwasawa, 2013).

This raises several questions. First and foremost, a focus on economic strain only might be too limited. The educational gradient in union dissolution could stem from strains in other life domains, too (Brock & Lawrence, 2008). For example, lower educated individuals may experience health strain due to less knowledge about nutrition or network strain due to having fewer confidants to whom they feel close. In addition, union dissolution is an event that involves two partners (Huston, Caughlin, Houts, Smith, & George, 2001). By restricting attention to one partner only, previous studies might have missed how life strains experienced by the other partner play a role.

In the present study, we make two contributions to the literature on the educational gradient in union dissolution. First, we reconceptualize strain by broadening it to multiple life domains, namely work, finance, social relations, health, and residence. Second, we acknowledge the fact

that union dissolution is a joint event by incorporating the experience of life strains by both partners in a couple. To do this, we made use of the longitudinal Household, Income and Labour Dynamics in Australia survey. This survey comprised a national probability panel of cohabiting and married couples (N = 8,092) who were followed over a period of 17 years (2001-2017). Its extensive measures of life strains among both partners in each couple made it ideally suited to the analysis. We assessed the explanatory power of the strain thesis using event-history mediation analysis.

Theory

Life strains

The concept of strain originated in role theory. According to role theory, individuals act in accordance with behavioral expectations as sanctioned by society and mediated in situational interactions (Goffman, 1956; Linton, 1936). The various roles that individuals hold pose various demands on them. These demands are sometimes competing with one another in terms of their content or time (Merton, 1957). In role theory, therefore, strain has been defined as the perceived difficulty in meeting given role demands (Goode, 1960).

Strain has found its way into stress research. In stress research, too, strains are characterized as ongoing difficulties that arise from the inability to meet environmental demands (Pearlin & Johnson, 1977). In contrast to role theory, however, these demands are not limited to role performance but could concern any demand in life. Strains have therefore also been referred to as life strains (Pearlin, Menaghan, Lieberman, & Mullan, 1981). Furthermore, strains are defined in relation to stress. Environmental demands require the individual to adapt. When adaptation efforts have exhausted all available coping resources, the demands may threaten the individual's integrity and turn into a source of stress (McCubbin & Patterson, 1982; Vinokur & Selzer, 1975). Hence, we define life strains as the potentially stressful difficulties in adapting to environmental demands.

Life strains may arise in a variety of life domains. Numerous studies have examined strains in work and finance (Conger et al., 1990; Hansen, 2005; Hardie & Lucas, 2010). However, strains need not be confined to work and finance. The stress literature has identified several other life domains (for a conceptual overview, see Baker & Intagliata, 1982; for an application, see Brock & Lawrence, 2008). In the current study, we examined strains in the domains of work, finance, social relations, health, and residence. We disregarded strains that are internal to the marriage, such as childbirth or domestic violence, because they are highly endogenous to union dissolution (Brock & Lawrence, 2008; Randall & Bodenmann, 2009).

Stress and union dissolution

The idea that life strains increase the risk of union dissolution is well captured by vulnerability-stress-adaptation theory. Vulnerability-stress-adaptation theory (Karney & Bradbury, 1995) starts from the premise of life strains as potential stressors. Indeed, this stress response is well documented. Studies have found disturbed cortisol levels in response to work

demands, material hardship, and poor health (Dahlgren, Kecklund, Theorell, & Åkerstedt, 2009; Kunz-Ebrecht, Kirschbaum, & Steptoe, 2004; Ranjit, Young, & Kaplan, 2005).

Stress, in turn, may spill over to partner interaction. Sometimes individuals are able to cope with stressors by themselves. Yet, often their coping efforts intentionally or unintentionally affect the partner (Bodenmann, 2005). This happens especially when individuals internalize or externalize the stress. Studies have shown that stress often increases internalizing behaviors, such as anxiety and depression, as well as externalizing behaviors, such as anger and drug use (Agnew & White, 1992; Aseltine, Gore, & Gordon, 2000; Kim, Conger, Elder Jr, & Lorenz, 2003). These behaviors have negative repercussions for partner interaction. Partner interaction may become characterized by disengagement, a lack of support, defensiveness, hostility, and sometimes violence (Conger et al., 1990; Randall & Bodenmann, 2009; Umberson, Williams, & Anderson, 2002).

Discordant partner interaction, then, increase the risk of union dissolution. Perceived partner hostility, a lack of partner appreciation, and marital conflict have consistently been shown to increase the risk of dissolution (Amato & Rogers, 1997; Birditt, Brown, Orbuch, & McIlvane, 2010; Conger et al., 1990; Huston et al., 2001). This increased risk of dissolution has been attributed to an increased probability of either partner to break up. On the one hand, a stressed individual may feel that their partner does not comprehend the significance of the stressor or is unable to provide help. On the other hand, the partner may escape from an individual who they view as excessively demanding (Umberson, 1995). This means that life strains may result in union dissolution through their stress impingement on both partners.

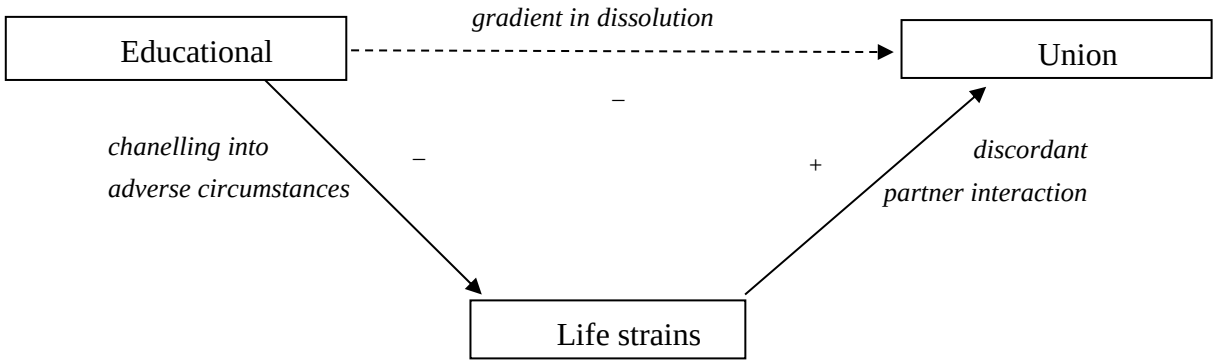
Links to education

Vulnerability-stress-adaptation theory argues that life strains are not distributed randomly but along certain individual characteristics. In fact, the theory explicitly suggests a link between educational attainment and the distribution of strains (Karney & Bradbury, 1995, p. 23). The reasons could be threefold. First of all, lower educated individuals are more often exposed to environmental demands such as negative life events (Baum, Garofalo, & Yali, 1999; Hatch & Dohrenwend, 2007). Second, lower educated individuals encounter more difficulties in adapting to these demands, as they dispose of fewer coping resources such as financial means and health literacy (Park & Kyei, 2011). Third, because of educational homogamy, partners tend to have similar positions (Smits, Ultee, & Lammers, 2000). Lower educated individuals would therefore experience strains related to both their own and their partner's position.

Empirical studies have indeed found links between educational attainment and strains across all life domains. In the work domain, individuals with lower education experience more distress in unemployment and perceive greater job insecurity, although findings regarding job demands are mixed (Landsbergis, Grzywacz, & LaMontagne, 2014; Mandemakers & Monden, 2013). In the finance domain, individuals with lower education experience greater material deprivation (Nelson, 2012). In the social relations domain, individuals with lower education report less attachment to the local community and fewer friends on whom they can rely for support, although differences in the number of close confidants are probably small (Fischer, 2009; Voydanoff, 2005). In the health domain, individuals with lower education have poorer self-rated health and are more likely to suffer a functional limitation (Von dem Knesebeck &

Geyer, 2007). In the residence domain, individuals with lower education experience greater neighborhood disorder and live in poorer quality housing (Feijten & Mulder, 2005; Hill & Angel, 2005).

Figure 1: *Theoretical model of the educational gradient in union dissolution.*



To summarize, we expected that the differential experience of life strains would partially explain the educational gradient in union dissolution. Figure 1 gives a graphical overview.

The Australian case

We studied the educational gradient in union dissolution using data from Australia. Australia is a country with medium-high marriage and divorce rates (OECD, 2019). In 2010, it had a crude marriage rate of 5.4, comparable to Japan (5.5), somewhat higher than the United Kingdom (4.5) and Germany (4.7), and somewhat lower than the United States (6.8). In that same year, Australia had a crude divorce rate of 2.3, comparable to Germany (2.3), somewhat higher than Japan (2.0) and the United Kingdom (2.1), and again lower than the United States (3.6). Approximately 49% of all Australian divorces involved at least one child, comparable to Germany (49%) and Japan (57%), and lower than the United Kingdom (68%) (UNSD, 2009, there are no official statistics of the United States).

Even though marriage remains the norm in Australia, cohabitation is on the rise. In 1996, approximately 14% of all individuals aged 30-34 in a residential partnership were married. By 2006, this number had increased to 24%. This rise of cohabitation is a consequence of increased pre-marital cohabitation, longer marriage postponement, and a growth of the never-married population (Heard, 2011). These trends are similar to those in Europe and the United States (Perelli-Harris, Berrington, Sánchez Gassen, Galezewska, & Holland, 2017). The Australian legal system has responded to these trends and now recognizes unmarried cohabitation, granting the right to inheritance and access to family courts after two years of cohabitation. Nonetheless, cohabitation is less popular among individuals with higher education, higher incomes, Australian-born parents, and who grew up with both parents

(Perelli-Harris, Hoherz, Lappegåard, & Evans, 2019). To avoid selection issues, our analysis therefore 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. Australian men and women with an upper secondary degree have 23% higher wages than their lower educated counterparts. For tertiary education, this number amounts to 40% (Strauss & De la Maisonneuve, 2009). Adjusted for study duration, tuition fees, and taxes, this yields a rate of return of 10% per year of tertiary education. This is one of the highest returns to education of all industrialized countries, alongside the United Kingdom (11%) and the United States (10%) (Boarini & Strauss, 2010).

Methods

Data

We used longitudinal data from the Household, Income and Labour Dynamics in Australia survey (HILDA). HILDA is a large representative panel study of Australian private households. All members household members aged fifteen and older were asked to participate in the first wave and in annual follow-up waves. Initial participants were also followed after household splits, and new participants entered the panel if they joined an existing panel household or if they turned fifteen while living in one. The household response rate of the first wave was good (66%) and attrition rates were very low (3-13% annually, 35% cumulatively). A refreshment sample was added in 2011. A major benefit of HILDA was that it provided comprehensive information about life strains as part of the core questionnaire. Another benefit was that it provided information of both partners in a couple. Partner response rates were very high (94%). This also significantly reduced the censoring of dissolution events.[4] The data can be requested from the University of Melbourne (https://melbourneinstitute.unimelb.edu.au/hilda). The code will be made available via the Open Science Framework (https://osf.io/cq83b/?view_only=7bda14a4a9354969b5906c8da793458d).

[4] It is difficult to establish the exact reduction in dissolution censoring that was realized by using partner information, because of a complex data cleaning scheme. Nonetheless, one can make an indicative calculation. If 20% of respondents were lost upon dissolution but 50% of the respondents had a participating partner with the same loss-on-dissolution rate in the dataset, then 40% of these 20% would be recovered, resulting in a final loss of 12%. More generally, the recovery rate of censored dissolution events by using partner information is given by *partner participation* – *partner participation* x *loss upon dissolution*.

Table 1: *Descriptive statistics at first union observation.*

	M	*SD*	*min*	*max*	*N*
Union characteristics					
Duration	3.48	5.63	0	20	8,092
Cohort	2003.44	9.06	1981	2016	8,092
Married	0.41		0	1	8,092
Same-sex	0.02		0	1	8,092
Individual characteristics					
Age at union formation	30.72	10.45	15	95	8,092
Union order	1.83	1.20	1	10	8,092
Female	0.51		0	1	8,092
Ethnicity					
Australian-born	0.78		0	1	8,092
Overseas-born English speaking	0.10		0	1	8,092
Overseas-born non-English speaking	0.12		0	1	8,092
Religiosity	2.97	3.22	0	10	6,584
Parents separated	0.30		0	1	8,092
Educational attainment	15.97	2.48	11	22	8,092

The analytic sample was constructed using the first 17 waves of HILDA (2001-2017). It consisted of all cohabiting and marital unions (N = 12,717). Unions that started prior to the first wave were included, with the analysis adjusted accordingly. We considered the first twenty years of these unions, as the educational gradient in dissolution opened up during those years (N = 10,011). We removed observations that were censored by widowhood, dropout, or because they took place in the latest wave (N = 8,775). We then restricted the sample to unions for which the educational attainment of both partners was available (N = 8,092). This yielded a total sample size of 47,360 union-years nested in 8,092 unions. In order to prevent double entries, each union was represented by one randomly chosen partner (cf. Hewitt & De Vaus, 2009). Partner information was added separately (see next section).

Table 1 describes the sample. The average union was formed in the early 2000s (2003), less than half were legal marriages (41%), and few were same-sex unions (2%). The average age at union formation was in the early thirties (30.72) and for many individuals it was not the first union (1.83). Half of the individuals were female (51%), around one in five was born abroad (22%), and religiosity was low (2.97). Many individuals grew up with separated or divorced parents (30%). Average educational attainment was around the level of post-secondary vocational education (15.97 completed years).

Measures

Union status was a binary indicator of married or unmarried cohabitation with a partner. It was measured using a household roster, with respondents indicating their relationship to the other household members in each wave. *Union dissolution* was a binary indicator of separation or divorce, whichever occurred first. It was measured using information from the next wave. In case the main respondent dropped out, this information was obtained from other (ex-)

household members. Union dissolution by widowhood was censored. *Educational attainment* was measured in years of completed education. In the graphs, we used the level of completed education, categorized as lower secondary education or less (International Standard Classification of Education 0-2), upper or post-secondary education (ISCED 3-5), and tertiary education (ISCED 6-8). We also experimented with using levels rather than completed years in the statistical analysis. This produced very similar results.

Life strains were included that took place in the domains of work, finance, relationships, health, and residence. In the theory section, we defined life strains as the potential stressful difficulties in adapting to environmental demands. In the absence of direct measures of stress or adaptation, we measured life strains using subjective (e.g. dissatisfaction) or semi-subjective (e.g. negative perception) indicators. We believed that these measures came closest to capturing the experience of difficulties. Table 2 gives an overview of the life strain measures. All of these measures referred to the experience of difficulties during the past year. They were coded so that higher scores indicated more strain. Some of them require additional explanation. The index of job stress originally had twelve items (GESIS, 1997), but we removed six items that did not measure strain (e.g. "I have little freedom to decide when I do my work") or that were ambiguous (e.g. "My job is not complex or difficult"). The index of social isolation originally had ten items (Henderson, Duncan-Jones, McAuley, & Ritchie, 1978; Marshall & Barnett, 1993), but we removed three items on emotional loneliness, as they might be endogenous to the relationship between the partners (e.g. "I often feel very lonely"). The index of health strain was constructed using the Australian-specific general health classification that adjusts for health preferences (Norman et al., 2014), but again we removed two items that might be endogenous to the relationship (e.g. "Emotional problems interfered with my social activities"). The index of neighborhood strain was constructed using all of its original eleven items (NatCen Social Research, 2001).

Table 2: *Life strains across five domains.*

Life strains	*M*	*SD*	min	max	*N*	description
Work						
Job stress	-0.29	0.75	-1.25	2.52	41,116	Sumscore of six standardized items on stress and insecurity in current job (e.g. "My job is more stressful than I had ever imagined").
Employment difficulty	2.86	2.18	0	10	42,543	Dissatisfaction with employment opportunities in general.
Finance						
Income insufficiency	3.16	0.78	1	6	40,947	Subjective prosperity given daily needs and financial responsibilities.
Emergency problems	1.72	0.99	1	4	43,476	Perceived difficulty of raising 2000 AUD within a week in case of emergency.
Relations						
Social isolation	0.00	0.70	-1.59	2.90	41,045	Sumscore of six standardized items on lack of social support (e.g. "I often need help from people but can't get it").
Community exclusion	3.34	2.11	0	10	45,533	Dissatisfaction with feeling part of the local community.
Health						
Health difficulties	0.13	0.18	-0.12	1.00	39,994	Preference-weighted sumscore of nine items on health difficulties (e.g. "My health limits me in moderate activities").
Functional limitation	0.18	0.38	0	1	45,602	Perceived restrictions in everyday activities due to a long-term health condition, impairment or disability.
Residence						
Home dissatisfaction	2.30	1.87	0	10	45,575	Dissatisfaction with the home of residence.
Neighborhood disorder	0.01	0.63	-1.64	2.57	40,625	Sumscore of eleven standardized items of perceived neighborhood disorder (e.g. "Burglary and theft are common in my neighborhood").

A number of control variables were included in the analysis. Three control variables were at the union level, providing the correct "baseline" relationship between education and union dissolution to be explained. *Union duration* was measured as the time since union formation, whereby transitions between cohabitation and marriage with the same partner were disregarded. *Union cohort* was measured as the year of union formation. *Union sex composition* was a binary indicator of a same-sex or different-sex union. The other control variables were

at the individual level, adjusting for individual characteristics that might confound the relationships between education and life strains or between life strains and union dissolution. *Age at union formation* was measured as the individual's age at current union formation. *Union order* was measured using the individual's number of previous cohabiting and marital unions. *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.

The analysis included partner information. Partner information was obtained from direct interviews (not by proxy), since HILDA surveyed all household members and we randomly selected one partner to represent the union. We considered three ways of including it. First, we could ignore partners, rendering the analysis similar to those that rely on surveys without partner information. However, this would underutilize the available information. Second, we could gender the theory, distinguishing between his and her characteristics. However, this would add further complexity to the theory, exclude same-sex couples without theoretical justification, and result in two gradients to be explained. Besides, additional analyses yielded similar results for men and women, thought for women the gradient was somewhat smaller and husband's strains less important (see online Supplementary Material). Third, we could add partner education and life strains as additional variables to the egos. This would improve model parsimony, because it would yield coefficients equal across egos and partners as dissolution took place at the union level and individuals were randomly assigned as ego or partner. Furthermore, this would reveal how much ego strains only, versus ego and partner strains jointly, contributed to the educational gradient in union dissolution. Hence, we decided to take this option.

Analytic strategy

The design of HILDA had two consequences for the observation of unions. The first was that some dissolution events were right-censored, as not all unions dissolved before the observation period ended. The second was that duration was sometimes left-truncated, as some unions had formed before the observation period started. We employed conditional likelihood event-history techniques to deal with both right-censoring and left-truncation (Guo, 1993).

The analysis comprised three steps. In a first step, we described educational differences in the experience of life strains (left arrow in Figure 1). This was done by estimating linear regression models of strains on education, net of controls. These models provided the average increase in strains for each additional year of completed education. In a second step, we examined the effects of life strains on union dissolution (right arrow). This was done by estimating proportional hazards models of dissolution on strains, net of controls. These models should take account of the fact that HILDA provides measures on an annual basis. Hence, we estimated them as Poisson regressions with piecewise constant baseline hazards and standard errors clustered at the union level (Allison, 1982; Guo, 1993). This provided the ratios by which the dissolution hazard increased with the experience of additional strains. In a third step, we examined whether the differential experience of life strains explained the educational gradient

in union dissolution (upper arrow). This was done by estimating a proportional hazards model of dissolution on education and union-level controls, and by subsequently adding strains and individual-level controls. The attenuation of the education coefficient indicated the degree to which differential strains mediated the educational gradient in dissolution. Because coefficients cannot be directly compared across nonlinear models, the attenuation was estimated using the KHB-method (Karlson, Holm, & Breen, 2012).

All analyses were multiply imputed to deal with missing values. Around 30% of the person-years had a missing value on least one variable, 16% on at least two variables, and 13% on at least three variables. Including partner variables, these percentages increased to respectively 43%, 28%, and 21%. There were no clear patterns of missingness. The imputations were conducted using chained equations with predictive mean matching from the five nearest neighbors (Morris, White, & Royston, 2014). Index variables were treated using the just-another-variable approach (Seaman, Bartlett, & White, 2012). We took account of the longitudinal structure of the data by including within-union variable means as auxiliary variables (Young & Johnson, 2015), and made the imputation suitable for event-history analysis by including the divorce outcome and the Nelson-Aalen cumulative hazard estimates as auxiliary variables (White & Royston, 2009). In total, we imputed twenty complete datasets. This procedure aimed to reduce bias and increase statistical power, in order to facilitate the high data demands of our analysis.

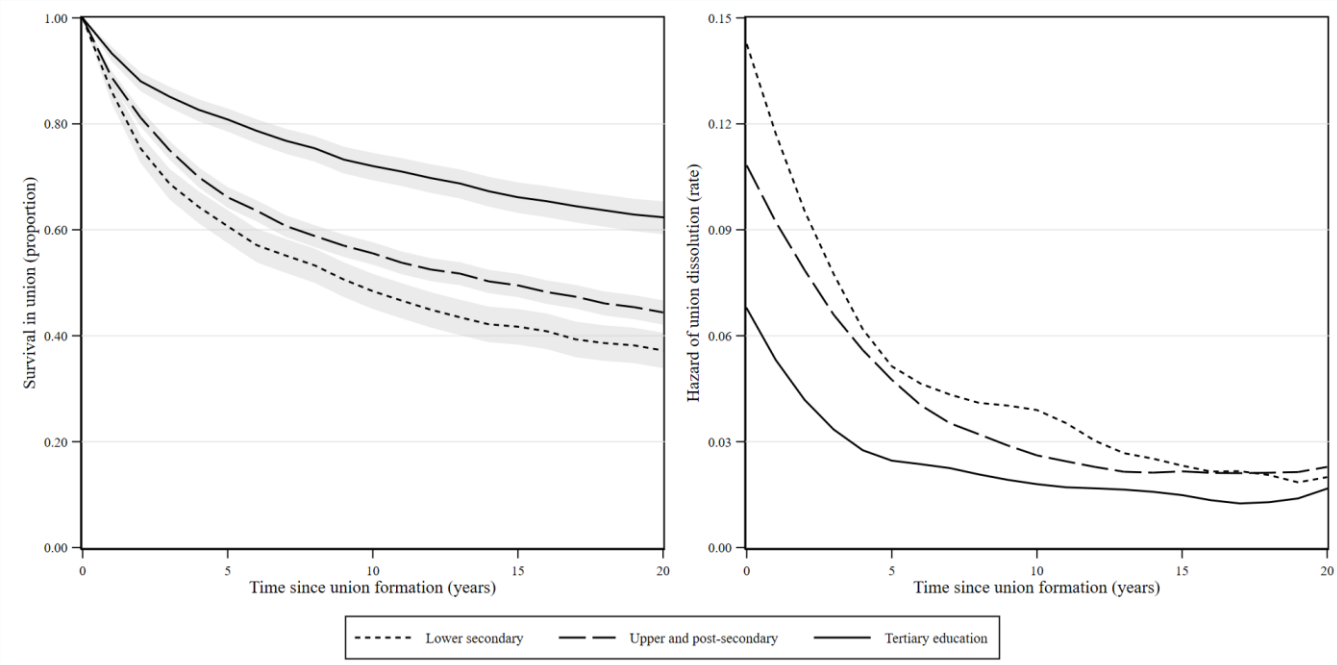
Results

Descriptive results

Figure 2 describes educational differences in union dissolution. It confirms the existence of a clear gradient in dissolution. This is illustrated by the left panel of Figure 2, which shows the union survival curves. Twenty years after a given union was formed, survival in that union was 62% among the higher educated, compared to 44% among the intermediately educated, and 37% among the lower educated. In other words, individuals with lower education were almost half as likely to still be with their partner as individuals with higher education.

This becomes clearer from the right panel of Figure 2, which shows the hazard of union dissolution among the non-dissolved unions at each duration. Five years after union formation, the hazard of dissolution was 2.5% among the higher educated, compared to 4.8% among the intermediately educated, and 5.1% among the lower educated. Ten years after union formation, these numbers were respectively 1.8%, 2.6%, and 3.9%. Twenty years after union formation, they were respectively 1.7%, 2.3% and 2.0%. That is, during the first twenty years of the union, individuals with lower education were about twice as likely to dissolve their unions at a given duration as individuals with higher education. As time passed by, the remaining union were less prone to dissolve and the educational gradient became less pronounced.

Figure 2: *Kaplan-Meier estimates of union survival (left) and derived hazard rates (right) by education level.*



Note: Shaded areas indicate 95% confidence intervals. N = 47,360 union-years; 8,092 unions.

Regression results

In the first step of the analysis, we described educational differences in the experience of life strains. The results confirmed the existence of a moderate strain differential. This is illustrated by the left columns of Table 3, which for each strain show the education coefficient, controlling for union-level and individual-level characteristics. Individuals with fewer years of completed education experienced more strains across the board. The educational differential was strong for problems in the finance domain. A one year decrease in education was associated with a 0.10 (b_{std} = 0.25) points increase in problems accessing emergency funds and a 0.07 (b_{std} = 0.22) points increase in perceived income insufficiency. The educational differential was also present, albeit weaker so, in the other life domains. The only exceptions regarded home dissatisfaction, where there was no educational differential, and job stress, which was experienced more by individuals with higher levels of education.

The educational differential in the experience of life strains was even stronger when taking account of the partner. This is illustrated by the right columns of Table 3, which show the sum of ego and partner education coefficients, controlling for union-level and individual-level characteristics of both ego and partner. Individuals with fewer years of completed education experienced more strains not only from themselves but also from their partner. For instance, a one year in decrease in education was associated with a 0.03 (b_{std} = 0.11) points increase in ego social isolation, but with a 0.06 (b_{std} = 0.20) points increase in the sum of ego and partner social isolation. In all cases, the strain differential was stronger when considering the strains experienced by both partners than when considering one partner only.

Table 3: *Regression coefficients of life strains on educational attainment.*

	Ego			Ego + partner		
Life strains	***b***	***SE***	b_{std}	***b***	***SE***	b_{std}
Work						
Job stress	0.04***	0.00	0.13	0.07***	0.00	0.24
Employment difficulty	-0.13***	0.01	-0.14	-0.22***	0.01	-0.24
Finance						
Income insufficiency	-0.07***	0.00	-0.22	-0.14***	0.01	-0.43
Emergency problems	-0.10***	0.00	-0.25	-0.21***	0.01	-0.50
Relations						
Social isolation	-0.03***	0.00	-0.11	-0.06***	0.00	-0.20
Community exclusion	-0.05***	0.01	-0.06	-0.09***	0.01	-0.11
Health						
Health difficulties	-0.01***	0.00	-0.11	-0.02***	0.00	-0.22
Functional limitation	-0.02***	0.00	-0.11	-0.03***	0.00	-0.22
Residence						
Home dissatisfaction	-0.01	0.01	-0.01	-0.03***	0.01	-0.04
Neighborhood disorder	-0.02***	0.00	-0.08	-0.04***	0.00	-0.14

Note: Coefficients from separate linear regressions of each life strain on education, controlling for union characteristics and ego characteristics. Partner regressions further controlled for partner education and partner characteristics. Standard errors accounted for clustering at the union level. The subscript std indicates xy-standardized regression coefficients. N = 47,360 union-years; 8,092 unions. * p < .05, ** p < .01, *** p < .001

In the second step 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 columns of Table 4, which for each life domain show the hazard ratios of the strain variables, controlling for union-level and individual-level characteristics. All life strains were associated with a greater risk of union dissolution. The associations were particularly strong regarding social isolation and problems accessing emergency funds. A one standard deviation increase in social isolation was associated with a 28% increase in the hazard of dissolution, and a one standard deviation increase in emergency problems was associated with a 23% increase in the hazard of dissolution. The associations were moderately strong regarding the other strains. The only exception was job strain, which was not statistically associated with union dissolution.

The effects of life strains on union dissolution were even stronger when taking account of the partner. This is illustrated by the right columns of Table 4, which show the sum of the hazard ratios of ego and partner strain variables, controlling for union-level and individual-level characteristics of both ego and partner. Dissolution was more common when individuals experienced strains not only from themselves but also from their partner. For instance, a one standard deviation increase in perceived employment difficulty by ego only was associated with a 16% increase in the hazard of dissolution. An increase of one standard deviation in employment difficulty by both ego and partner, however, was associated with a 29% increase

in the hazard of dissolution. Similar patterns applied to the other strains. In other words, including information from both partners in a union showed that their joint experience of life strains substantially increased the risk of dissolution.

Table 4: *Regression coefficients of union dissolution on life strains.*

	Ego			Ego + partner		
Life strains	***HR***	***SE***	HR_{std}	***b***	***SE***	HR_{std}
Work						
Job stress	0.96	0.03	0.97	0.95	0.03	0.96
Employment difficulty	1.07***	0.01	1.16	1.12***	0.01	1.29
Finance						
Income insufficiency	1.21***	0.05	1.17	1.25***	0.03	1.20
Emergency problems	1.22***	0.04	1.23	1.24***	0.02	1.25
Relations						
Social isolation	1.40***	0.06	1.28	1.61***	0.03	1.43
Community exclusion	1.04***	0.01	1.09	1.05***	0.01	1.11
Health						
Health difficulties	2.46***	0.77	1.18	4.21***	0.13	1.30
Functional limitation	1.24***	0.09	1.09	1.44***	0.05	1.15
Residence						
Home dissatisfaction	1.06***	0.01	1.12	1.08***	0.01	1.15
Neighborhood disorder	1.12**	0.05	1.08	1.13***	0.03	1.09

Note: Hazard ratios show the exponentiated coefficients from separate Poisson regressions of union dissolution on each block of life strains, controlling for union characteristics and ego characteristics. Partner regressions further controlled for partner education and partner characteristics. Standard errors accounted for clustering at the union level. The subscript std indicates x-standardized hazard ratios. N = 47,360 union-years; 8,092 unions. * p < .05, ** p < .01, *** p < .001

In the third step of the analysis, we examined whether the differential experience of life strains could explain the educational gradient in union dissolution. The results confirmed that the strain differential explained a large part of the gradient in dissolution. This is illustrated by the left columns of Table 5, which show the attenuation of the education coefficient on union dissolution holding constant union-level controls, after adding strains by life domain and individual-level controls. In line with the original strain thesis, strains in the finance domain explained a large part of the gradient in dissolution, namely 33%. Nevertheless, strains in the social relations and health domains also explained a relevant part of the gradient, 13% and 11%, respectively. Strains in the work and residence domains explained less, 9% and 3%, respectively. When entered altogether, the differential experience of life strains by one partner in the union explained 40% of the educational gradient in union dissolution.

The inclusion of life strains experienced by both partners further improved the explanation. This is illustrated by the right columns of Table 5, which show the attenuation of the education coefficient after adding strains and control variables of both ego and partner. For instance, the differential experience of health strains by ego only explained 11% of the gradient

in dissolution. Including the differential experience of health strains by both ego and partner, however, increased this to 19%. Similar increases were observed across the other life domains. This means that the gradient in dissolution stemmed not only from the fact that lower educated individuals experienced more strains themselves, but also from the fact that they tended to have partners who experienced more strains. In total, the differential experience of life strains by both partners in a union explained 47% of the educational gradient in union dissolution. This is a sizeable portion and considerably more than models that restrict attention to the economic domain or disregard the partner.

Table 5: *Mediation of educational differences in union dissolution by life strains.*

	Ego			Ego + partner		
Life strains	***b***	***SE***	**Explained (%)**	***b***	***SE***	**Explained (%)**
Work			9.52			14.39
Job stress	-0.002	0.001	1.64	-0.002	0.001	1.85
Employment difficulty	-0.008***	0.001	7.88	-0.012***	0.001	12.54
Finance			33.44			38.66
Income insufficiency	-0.013***	0.002	13.17	-0.016***	0.002	16.12
Emergency problems	-0.020***	0.002	20.26	-0.022***	0.002	22.54
Relations			12.66			17.66
Social isolation	-0.011***	0.001	10.76	-0.014***	0.001	15.31
Community exclusion	-0.002***	0.001	1.90	-0.002***	0.000	2.35
Health			11.18			18.57
Health difficulties	-0.008***	0.001	7.60	-0.012***	0.001	12.29
Functional limitation	-0.004***	0.001	3.68	-0.006***	0.001	6.29
Residence			2.79			3.62
Home dissatisfaction	-0.001	0.000	0.53	-0.001***	0.000	1.25
Neighborhood disorder	-0.002**	0.001	2.26	-0.002***	0.001	2.37
All mediators			39.60			47.32

Note: KHB estimates from separate Poisson regressions of union dissolution on each block of life strains and education. Estimates indicate the decrease in the regression coefficient of education compared to the baseline model. The baseline model regressed education on union characteristics. The ego model added ego strains, controlling for ego characteristics. The partner model further added partner strains, controlling for partner education and partner characteristics. Standard errors accounted for clustering at the union level. N = 47,360 union-years; 8,092 unions. * $p < .05$, ** $p < .01$, *** $p < .001$

Robustness checks

We conducted several robustness checks. The first check concerned the seriousness of the relationship. The first years of cohabitation may be used to weed out bad relationships. In addition, Australian unmarried cohabitors do not have legal entitlements until two years of continuous cohabitation. Our results might therefore overestimate the extent to which life

strains result in union dissolution. Hence, we repeated the analysis excluding the first two years of the union duration. The results confirmed the main findings (Table 6). The associations between strains and dissolution were nearly identical to those in the full sample.

The second robustness check concerned the underlying mechanism. We argued that life strains might result in union dissolution through discordant partner interaction. To give some substance to this idea, we analyzed whether the associations between strains and dissolution were mediated by partner interaction. Absent better measures, partner interaction was proxied using the sumscore of three items on partner satisfaction. The results confirmed the role of partner interaction (Table 7). Partner interaction as experienced by both partners mediated 24-72% of the associations between strains and dissolution.

The third robustness check concerned the direction of causality. Life strains may to some extent be endogenous to internal relationship dynamics. Our results might therefore reflect those dynamics rather than a causal effect of strains on dissolution. Hence, we analyzed the relationship between strains and dissolution using instrumental variables. Typical instruments such as involuntary job loss and the Great Recession period were too weak, since job loss was a rare event and the recession hardly affected Australia. Instead, we relied on unexpected life events during the past year. Income insufficiency was instrumented with major financial improvement (e.g. winning a lottery) and major financial worsening (e.g. bankruptcy), health difficulties with serious personal injury or illness and death of a close friend (Frijters, Johnston, & Shields, 2014), and neighborhood disorder with residential change and victim of property crime (e.g. burglary). The results confirmed the main findings (Table 8). All effects of strains on dissolution were statistically significant and stronger than those obtained without instruments.

Table 6: Regression coefficients of union dissolution on life strains, excluding union durations under two years.

	Ego			Ego + partner		
Life strains	***HR***	***SE***	HR_{std}	***b***	***SE***	HR_{std}
Work						
Job strain	0.96	0.04	1.02	0.97	0.05	0.98
Employment strain	1.07***	0.01	1.17	1.13***	0.02	1.33
Finance						
Income strain	1.19***	0.06	1.15	1.25***	0.05	1.20
Wealth strain	1.28***	0.05	1.28	1.30***	0.04	1.30
Relations						
Support strain	1.43***	0.08	1.30	1.69***	0.05	1.47
Community strain	1.05***	0.02	1.10	1.06***	0.02	1.13
Health						
Health strain	2.68***	1.22	1.20	5.75***	0.22	1.37
Functional strain	1.14	0.10	1.05	1.26*	0.10	1.09
Residence						
Home strain	1.08***	0.02	1.15	1.09***	0.02	1.18
Neighborhood strain	1.15**	0.07	1.10	1.20***	0.05	1.13

Note: Hazard ratios show the exponentiated coefficients from separate Poisson regressions of union dissolutionon each block of life strains, controlling for union characteristics and ego characteristics. Partner regressions further controlled for partner education and partner characteristics. Standard errors accounted for clustering at the union level. The subscript std indicates x-standardized hazard ratios. N = 38,447 union-years; 6,400 unions. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 7: *Mediation of life strain effects on union dissolution by partner interaction.*

Life strains	*b*	*SE*	Explained (%)
Work			
Job strain	*N/A*		
Employment strain	0.04***	0.00	58.20
Finance			
Income strain	0.12***	0.01	42.88
Wealth strain	0.06***	0.01	25.12
Relations			
Support strain	0.26***	0.01	72.18
Community strain	0.05***	0.00	66.56
Health			
Health strain	0.56***	0.04	58.44
Functional strain	0.08***	0.02	24.25
Residence			
Home strain	*N/A*		
Neighborhood strain	0.10***	0.01	64.86

Note: KHB estimates from separate Poisson regressions of union dissolution on each ego life strain and ego and partner indices of partner satisfaction. Estimates indicate the decrease in the regression coefficients of each strain compared to the baseline model. The baseline models regressed each strain on union characteristics and ego characteristics. Standard errors accounted for clustering at the union level. N = 38,205 union-years; 7,372 unions. *N/A* indicates that the strain was not analyzed because the ego strain did not mediate a statistically significant part of the gradient in dissolution. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8: *Regression coefficients of union dissolution on life strains, with and without instrumental variables.*

	Ego			Ego + partner		
Life strains	***HR***	***SE***	HR_{std}	***b***	***SE***	HR_{std}
As observed						
Income strain	1.37***	0.03	1.27	1.44***	0.04	1.33
Health strain	2.94***	0.13	1.21	5.69***	0.17	1.36
Neighborhood strain	1.17***	0.04	1.11	1.21***	0.05	1.13
Instrumented						
Income strain	1.78***	0.11	1.56	1.89***	0.14	1.64
Health strain	5.71***	0.45	1.37	13.49***	0.71	1.59
Neighborhood strain	1.85	0.33	1.49	2.29**	0.32	1.72

Note: Hazard ratios show the exponentiated coefficients from separate Poisson regressions of union dissolution on each strain, controlling for union characteristics and ego characteristics. Partner regressions further controlled for partner education and partner characteristics. Instrumental variable Poisson regressions were estimated using the generalized method of moments. N = 32,780 observations; 6,733 individuals. Standard errors accounted for clustering at the union level. The subscript std indicates x-standardized hazard ratios. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Lower educated individuals are more likely to separate across many Western societies today (Martin, 2006; Park & Raymo, 2013). The strain thesis suggests that this is the result of the differential experience of economic strain (Goode, 1962, 1963). Indeed, previous work has shown that the experience of greater economic strain by lower educated individuals explains 15-20% of the educational gradient in union dissolution (Boertien & Härkönen, 2018; Kaplan & Herbst, 2015; Raymo et al., 2013). Although this work provides a useful starting point, it has not fully tested the strain thesis and leaves open several questions.

In this study, we revisited the strain thesis by broadening it to multiple life domains and by considering both partners in a union. The central argument was that lower educated individuals experience more strains in the domains of work, finance, social relations, health, and residence, which act as stressors and thus increase the risk of union dissolution. To assess this argument, we used the longitudinal Household, Income and Labour Dynamics in Australia survey (N = 47,360 union-years; 8,092 unions), a national probability panel with information on strains of both partners in each couple. Our results showed that lower educated individuals were relatively strained across all life domains. Moreover, they tended to have strained partners as well. The joint experience of strain strongly increased the risk of their union dissolving. All in all, the revisited strain thesis explained up to 47% of the educational gradient in union dissolution.

These findings demonstrate that life strains are pivotal to the stratification of romantic relationships. Rather than simply engaging in bad relationships, individuals with lower education are subject to external forces that make it difficult to maintain them. This resonates previous research showing little socioeconomic differences in romantic standards or skills-based relationship problems but larger differences in problems due to external stressors (Trail & Karney, 2012). In this sense, it could be fruitful to think in terms of "excess dissolutions". Doing so would direct attention to policy measures that may help prevent certain dissolutions. Policy measures are probably most effective if they make the lower educated less vulnerable to life strains. Tentative suggestions include better opportunities to invest in human capital, full access to health services, and the financial possibility to postpone union formation to start with (Huston & Melz, 2004). The search for effective policy measures is not only relevant for the individual consequences of union dissolution. Excess dissolutions are known to feed into a process of cumulative disadvantage, whereby lower educated adults and their children fall behind in terms of resources (McLanahan, 2004). Reducing the incidence of excess dissolutions may therefore help reduce the large inequalities that persist to this day.

Several questions remain. First, we proposed a stress mechanism connecting life strains to union dissolution. Our results provide some substance to this mechanism but are not conclusive. This poses an interesting question, as the stress mechanism contrasts with the social rationality mechanism proposed by social exchange theory, and it is unclear how the two might be integrated (but see Esser, 2002). Second, the associations found in this study might not be causal. We tried to minimize this problem by carefully selecting the measures and control variables, and by conducting additional analyses using instrumental variables. However, our identification relied on the experience of strains in response to events, which tells us less about

strains that are chronically present. Chronic strains are believed to have particularly adverse effects on the course of romantic relationships (Karney, Story, & Bradbury, 2005). It would be worthwhile to investigate their causal effects. Third, the explanatory power of the strain thesis depends on the stratification of life strains and their associations with union dissolution. Australia is a highly stratified country with medium-high divorce rates, akin to other Anglo-Saxon countries. The results probably translate well to those countries, but may be different where a strong welfare state equalizes the educational distribution of strains or where economic necessities impede leaving a relationship.

Future research can further explore the dynamics of life strains. Our study highlights their role in the continuing connections between social stratification and family life.

References

Agnew, R., & White, H. R. (1992). An empirical test of general strain theory. *Criminology*, *30*(4), 475–500. https://doi.org/10.1111/j.1745-9125.1992.tb01113.x

Allison, P. D. (1982). Discrete-time methods for the analysis of event histories. *Sociological Methodology*, *13*, 61–98. https://doi.org/10.2307/270718

Amato, P. R. (2000). The consequences of divorce for adults and children. *Journal of Marriage and Family*, *62*(4), 1269–1287. https://doi.org/10.1111/j.1741-3737.2000.01269.x

Amato, P. R., & Rogers, S. J. (1997). A longitudinal study of marital problems and subsequent divorce. *Journal of Marriage and Family*, *59*(3), 612–624. https://doi.org/10.2307/353949

Aseltine, R. H., Gore, S., & Gordon, J. (2000). Life stress, anger and axiety, and delinquency: An empirical test of the General Strain Theory. *Journal of Health and Social Behavior*, *41*(3), 256–275. https://doi.org/10.2307/2676320

Baker, F., & Intagliata, J. (1982). Quality of life in the evaluation of community support systems. *Evaluation and Program Planning*, *5*(1), 69–79. https://doi.org/10.1016/0149-7189(82)90059-3

Baum, A., Garofalo, J. P., & Yali, A. M. (1999). Socioeconomic status and chronic stress: Does stress account for SES effects on health? *Annals of the New York Academy of Sciences*, *896*(1), 131–144. https://doi.org/10.1111/j.1749-6632.1999.tb08111.x

Birditt, K. S., Brown, E., Orbuch, T. L., & McIlvane, J. M. (2010). Marital conflict behaviors and implications for divorce over 16 years. *Journal of Marriage and Family*, *72*(5), 1188–1204. https://doi.org/10.1111/j.1741-3737.2010.00758.x

Boarini, R., & Strauss, H. (2010). What is the private return to tertiary education? New evidence from 21 OECD countries. *OECD Journal: Economic Studies*. https://doi.org/10.1787/eco_studies-2010-5kmh5x51fv5f

Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (Vol. 1, pp. 33–50). Washington, United States: American Psychological Association.

Boertien, D., & Härkönen, J. (2018). Why does women's education stabilize marriages? The role of marital attraction and barriers to divorce. *Demographic Research*, *38*, 1241–1276. https://doi.org/10.4054/demres.2018.38.41

Brock, R. L., & Lawrence, E. (2008). A longitudinal investigation of stress spillover in marriage: Does spousal support adequacy buffer the effects? *Journal of Family Psychology*, *22*(1), 11. https://doi.org/10.1037/0893-3200.22.1.11

Conger, R. D., Elder Jr, G. H., Lorenz, F. O., Conger, K. J., Simons, R. L., Whitbeck, L. B., … Melby, J. N. (1990). Linking economic hardship to marital quality and instability. *Journal of Marriage and Family*, *52*(3), 643–656. https://doi.org/10.2307/352931

Dahlgren, A., Kecklund, G., Theorell, T., & Åkerstedt, T. (2009). Day-to-day variation in saliva cortisol—Relation with sleep, stress and self-rated health. *Biological Psychology*, *82*(2), 149–155. https://doi.org/10.1016/j.biopsycho.2009.07.001

De Graaf, P. M., & Kalmijn, M. (2006). Change and stability in the social determinants of divorce: A comparison of marriage cohorts in the Netherlands. *European Sociological Review*, *22*(5), 561–572. https://doi.org/10.1093/esr/jcl010

Esser, H. (2002). In guten wie in schlechten Tagen? *Kölner Zeitschrift Für Soziologie Und Sozialpsychologie*, *54*(1), 27–63. https://doi.org/10.1007/s11577-002-0002-4

Feijten, P., & Mulder, C. H. (2005). Life-course experience and housing quality. *Housing Studies*, *20*(4), 571–587. https://doi.org/10.1080/02673030500114474

Fischer, C. S. (2009). The 2004 GSS finding of shrunken social networks: An artifact? *American Sociological Review*, *74*(4), 657–669. https://doi.org/10.1177/000312240907400408

Frijters, P., Johnston, D. W., & Shields, M. A. (2014). The effect of mental health on employment: Evidence from Australian panel data. *Health Economics*, *23*(9), 1058–1071. https://doi.org/10.1002/hec.3083

GESIS. (1997). *ISSP Module on Work Orientations* (Source Questionnaire No. 3090). Mannheim, Germany: GESIS - Leibniz-Institut für Sozialwissenschaften.

Goffman, E. (1956). *The presentation of self in everyday life*. Edinburgh, United Kingdom: University of Edinburgh.

Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, *25*(4), 483–496. https://doi.org/10.2307/2092933

Goode, W. J. (1962). Marital satisfaction and instability: A cross-cultural analysis of divorce rates. In R. Bendix & S. M. Lipset (Eds.), *Class, status, and power* (pp. 377–387). New York, United States: The Free Press.

Goode, W. J. (1963). *World revolution and family patterns*. New York, United States: The Free Press.

Guo, G. (1993). Event-history analysis for left-truncated data. *Sociological Methodology*, *23*, 217–243. https://doi.org/10.2307/271011

Hansen, H.-T. (2005). Unemployment and marital dissolution: A panel data study of Norway. *European Sociological Review*, *21*(2), 135–148. https://doi.org/10.1093/esr/jci009

Hardie, J. H., & Lucas, A. (2010). Economic factors and relationship quality among young couples: Comparing cohabitation and marriage. *Journal of Marriage and Family*, *72*(5), 1141–1154. https://doi.org/10.1111/j.1741-3737.2010.00755.x

Härkönen, J., & Dronkers, J. (2006). Stability and change in the educational gradient of divorce. A comparison of seventeen countries. *European Sociological Review*, *22*(5), 501–517. https://doi.org/10.1093/esr/jcl011

Hatch, S. L., & Dohrenwend, B. P. (2007). Distribution of traumatic and other stressful life events by race/ethnicity, gender, SES and age: A review of the research. *American Journal of Community Psychology*, *40*(3), 313–332. https://doi.org/10.1007/s10464-007-9134-z

Heard, G. (2011). Socioeconomic marriage differentials in Australia and New Zealand. *Population and Development Review*, *37*(1), 125–160. https://doi.org/10.1111/j.1728-4457.2011.00392.x

Henderson, S., Duncan-Jones, P., McAuley, H., & Ritchie, K. (1978). The patient's primary group. *The British Journal of Psychiatry*, *132*(1), 74–86. https://doi.org/10.1192/S0007125000283001

Hewitt, B., & De Vaus, D. (2009). Change in the association between premarital cohabitation and separation, Australia 1945–2000. *Journal of Marriage and Family*, *71*(2), 353–361. https://doi.org/10.1111/j.1741-3737.2009.00604.x

Hill, T. D., & Angel, R. J. (2005). Neighborhood disorder, psychological distress, and heavy drinking. *Social Science & Medicine*, *61*(5), 965–975. https://doi.org/10.1016/j.socscimed.2004.12.027

Huston, T. L., Caughlin, J. P., Houts, R. M., Smith, S. E., & George, L. J. (2001). The connubial crucible: Newlywed years as predictors of marital delight, distress, and divorce. *Journal of Personality and Social Psychology*, *80*(2), 237. https://doi.org/10.1037//0022-3514.80.2.237

Huston, T. L., & Melz, H. (2004). The case for (promoting) marriage: The devil is in the details. *Journal of Marriage and Family*, *66*(4), 943–958. https://doi.org/10.1111/j.0022-2445.2004.00064.x

Kaplan, A., & Herbst, A. (2015). Stratified patterns of divorce: Earnings, education, and gender. *Demographic Research*, *32*, 949–982. https://doi.org/10.4054/demres.2015.32.34

Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology*, *42*(1), 286–313. https://doi.org/10.1177/0081175012444861

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, methods, and research. *Psychological Bulletin*, *118*(1), 3. https://doi.org/10.1037/0033-2909.118.1.3

Karney, B. R., Story, L. B., & Bradbury, T. N. (2005). Marriages in context: Interactions between chronic and acute stress among newlyweds. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 13–32).

Kim, K. J., Conger, R. D., Elder Jr, G. H., & Lorenz, F. O. (2003). Reciprocal influences between stressful life events and adolescent internalizing and externalizing problems. *Child Development*, *74*(1), 127–143. https://doi.org/10.1111/1467-8624.00525

Kunz-Ebrecht, S. R., Kirschbaum, C., & Steptoe, A. (2004). Work stress, socioeconomic status and neuroendocrine activation over the working day. *Social Science & Medicine*, *58*(8), 1523–1530. https://doi.org/10.1016/S0277-9536(03)00347-2

Landsbergis, P. A., Grzywacz, J. G., & LaMontagne, A. D. (2014). Work organization, job insecurity, and occupational health disparities. *American Journal of Industrial Medicine*, *57*(5), 495–515. https://doi.org/10.1002/ajim.22126

Linton, R. (1936). *The study of man: An introduction*. New York, United States: Appleton Century.

Mandemakers, J. J., & Monden, C. W. (2013). Does the effect of job loss on psychological distress differ by educational level? *Work, Employment and Society*, *27*(1), 73–93. https://doi.org/10.1177/0950017012460312

Marshall, N. L., & Barnett, R. C. (1993). Work-family strains and gains among two-earner couples. *Journal of Community Psychology*, *21*(1), 64–78.

Martin, S. P. (2006). Trends in marital dissolution by women's education in the United States. *Demographic Research*, *15*, 537–560. https://doi.org/10.4054/demres.2006.15.20

Matysiak, A., Styrc, M., & Vignoli, D. (2014). The educational gradient in marital disruption: A meta-analysis of European research findings. *Population Studies*, *68*(2), 197–215. https://doi.org/10.1080/00324728.2013.856459

McCubbin, H. I., & Patterson, J. M. (1982). Family adaptation to crisis. In H. I. McCubbin, A. E. Cauble, & J. M. Patterson (Eds.), *Family stress, coping, and social support*. Springfield, United States: Charles C Thomas.

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography*, *41*(4), 607–627. https://doi.org/10.1353/dem.2004.0033

Merton, R. K. (1957). The role-set: Problems in sociological theory. *The British Journal of Sociology*, *8*(2), 106–120. https://doi.org/10.2307/587363

Morris, T. P., White, I. R., & Royston, P. (2014). Tuning multiple imputation by predictive mean matching and local residual draws. *BMC Medical Research Methodology*, *14*(1), 75. https://doi.org/10.1186/1471-2288-14-75

NatCen Social Research. (2001). *1998 British Social Attitudes Survey* [User Guide]. London, United Kingdom: National Centre for Social Research.

Nelson, K. (2012). Counteracting material deprivation: The role of social assistance in Europe. *Journal of European Social Policy*, *22*(2), 148–163. https://doi.org/10.1177/0958928711433658

Norman, R., Viney, R., Brazier, J., Burgess, L., Cronin, P., King, M., … Street, D. (2014). Valuing SF-6D health states using a discrete choice experiment. *Medical Decision Making*, *34*(6), 773–786. https://doi.org/10.1177/0272989X13503499

OECD. (2019). Family database. Retrieved July 23, 2019, from https://stats.oecd.org/Index.aspx?DataSetCode=FAMILY

Park, H., & Kyei, P. (2011). Literacy gaps by educational attainment: A cross-national analysis. *Social Forces*, *89*(3), 879–904. https://doi.org/10.1093/sf/89.3.879

Park, H., & Raymo, J. M. (2013). Divorce in Korea: Trends and educational differentials. *Journal of Marriage and Family*, *75*(1), 110–126. https://doi.org/10.1111/j.1741-3737.2012.01024.x

Pearlin, L. I., & Johnson, J. S. (1977). Marital status, life-strains and depression. *American Sociological Review*, *42*(5), 704–715. https://doi.org/10.2307/2094860

Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, *22*(4), 337–356. https://doi.org/10.2307/2136676

Perelli-Harris, B., Berrington, A., Sánchez Gassen, N., Galezewska, P., & Holland, J. A. (2017). The rise in divorce and cohabitation: Is there a link? *Population and Development Review*, *43*(2), 303–329. https://doi.org/10.1111/padr.12063

Perelli-Harris, B., Hoherz, S., Lappegård, T., & Evans, A. (2019). Mind the "Happiness" Gap: The Relationship Between Cohabitation, Marriage, and Subjective Well-being in the United Kingdom, Australia, Germany, and Norway. *Demography*, *56*(4), 1–28. https://doi.org/10.1007/s13524-019-00792-4

Randall, A. K., & Bodenmann, G. (2009). The role of stress on close relationships and marital satisfaction. *Clinical Psychology Review*, *29*(2), 105–115. https://doi.org/10.1016/j.cpr.2008.10.004

Ranjit, N., Young, E. A., & Kaplan, G. A. (2005). Material hardship alters the diurnal rhythm of salivary cortisol. *International Journal of Epidemiology*, *34*(5), 1138–1143. https://doi.org/10.1093/ije/dyi120

Raymo, J. M., Fukuda, S., & Iwasawa, M. (2013). Educational differences in divorce in Japan. *Demographic Research*, *28*, 177–206. https://doi.org/10.4054/demres.2013.28.6

Seaman, S. R., Bartlett, J. W., & White, I. R. (2012). Multiple imputation of missing covariates with non-linear effects and interactions: An evaluation of statistical methods. *BMC Medical Research Methodology*, *12*(1), 46. https://doi.org/10.1186/1471-2288-12-46

Smits, J., Ultee, W., & Lammers, J. (2000). More or less educational homogamy? A test of different versions of modernization theory using cross-temporal evidence for 60 countries. *American Sociological Review*, *65*(5), 781–788. https://doi.org/10.2307/2657547

Strauss, H., & De la Maisonneuve, C. (2009). The wage premium on tertiary education: New estimates for 21 OECD countries. *OECD Journal: Economic Studies*, *2009*, 183–210. https://doi.org/10.1787/eco_studies-v2009-art7-en

Trail, T. E., & Karney, B. R. (2012). What's (Not) Wrong With Low-Income Marriages. *Journal of Marriage and Family*, *74*(3), 413–427. https://doi.org/10.1111/j.1741-3737.2012.00977.x

Umberson, D. (1995). Marriage as support or strain? Marital quality following the death of a parent. *Journal of Marriage and the Family*, 709–723. https://doi.org/10.2307/353925

Umberson, D., Williams, K., & Anderson, K. (2002). Violent behavior: A measure of emotional upset? *Journal of Health and Social Behavior*, *43*(2), 189–206. https://doi.org/10.2307/3090196

UNSD. (2009). Demographic yearbook. Retrieved July 23, 2019, from https://unstats.un.org/unsd/demographic/products/dyb/dyb2007/Table25.pdf

Vinokur, A., & Selzer, M. L. (1975). Desirable versus undesirable life events: Their relationship to stress and mental distress. *Journal of Personality and Social Psychology*, *32*(2), 329. https://doi.org/10.1037//0022-3514.32.2.329

Von dem Knesebeck, O., & Geyer, S. (2007). Emotional support, education and self-rated health in 22 European countries. *BMC Public Health*, *7*(1), 272. https://doi.org/10.1186/1471-2458-7-272

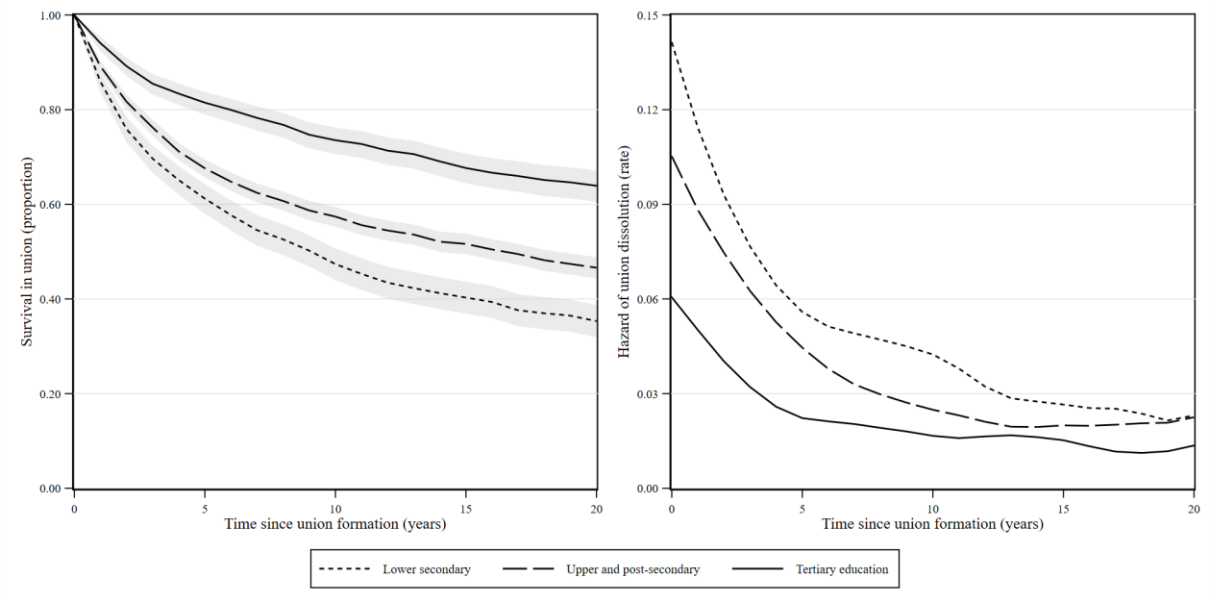
Voydanoff, P. (2005). Social integration, work-family conflict and facilitation, and job and marital quality. *Journal of Marriage and Family*, *67*(3), 666–679. https://doi.org/10.1111/j.1741-3737.2005.00161.x

White, I. R., & Royston, P. (2009). Imputing missing covariate values for the Cox model. *Statistics in Medicine*, *28*(15), 1982–1998. https://doi.org/10.1002/sim.3618

Young, R., & Johnson, D. R. (2015). Handling missing values in longitudinal panel data with multiple imputation. *Journal of Marriage and Family*, *77*(1), 277–294. https://doi.org/10.1111/jomf.12144

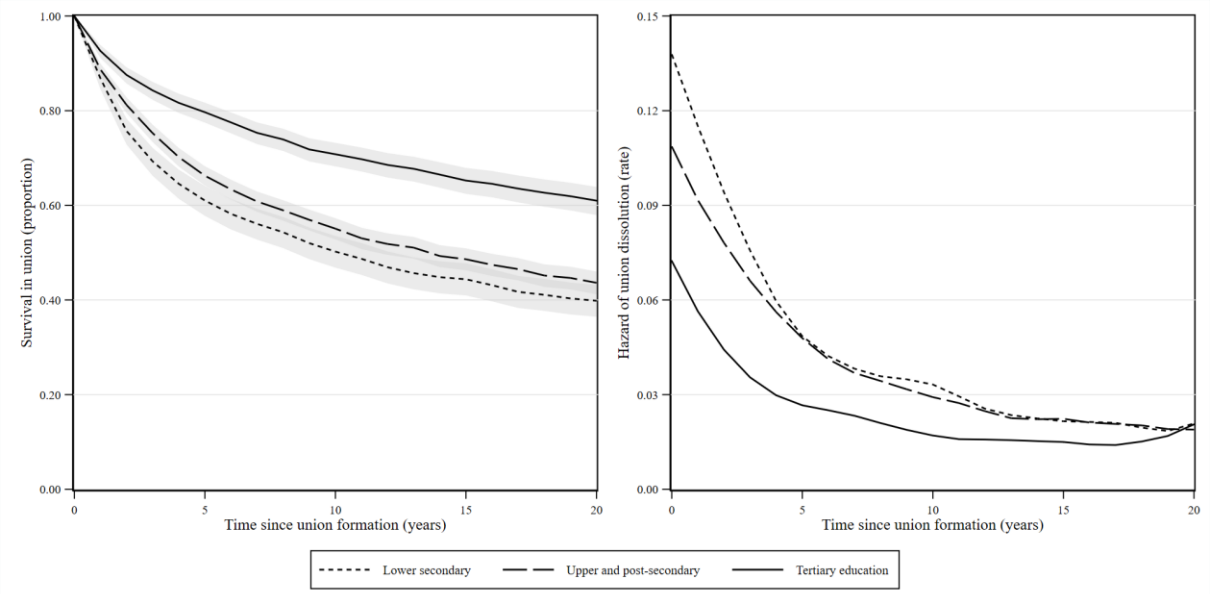
Supplementary material

Figure S.1: *Kaplan-Meier estimates of union survival (left) and derived hazard rates (right) by education level, men in heterosexual unions only.*



Note: Shaded areas indicate 95% confidence intervals. *N* = 46,542 union-years; 7,916 unions.

Figure S.2: *Kaplan-Meier estimates of union survival (left) and derived hazard rates (right) by education level, women in heterosexual unions only.*



Note: Shaded areas indicate 95% confidence intervals. *N* = 46,542 union-years; 7,916 unions.

Table S.1: *Mediation of educational differences in union dissolution by life strains, men in heterosexual unions only.*

Life strains	His			His + her		
	b	***SE***	**Explained (%)**	***b***	***SE***	**Explained (%)**
Work			10.11			12.91
Job stress	-0.003**	0.001	2.79	-0.001	0.001	1.19
Employment difficulty	-0.008***	0.001	7.33	-0.012***	0.001	11.82
Finance			29.89			40.01
Income insufficiency	-0.013***	0.003	11.16	-0.017***	0.002	16.77
Emergency problems	-0.021***	0.003	18.73	-0.024***	0.002	23.25
Relations			10.07			17.52
Social isolation	-0.010***	0.001	8.52	-0.015***	0.001	15.26
Community exclusion	-0.002***	0.001	1.56	-0.002***	0.000	2.26
Health			12.89			19.09
Health difficulties	-0.009***	0.001	8.17	-0.012***	0.001	12.40
Functional limitation	-0.005***	0.001	4.73	-0.007***	0.001	6.70
Residence			2.05			3.65
Home dissatisfaction	0.000	0.000	-0.00	-0.001**	0.000	1.26
Neighborhood disorder	-0.002**	0.001	2.06	-0.002***	0.001	2.39
All mediators			36.66			47.55

Note: KHB estimates from separate Poisson regressions of union dissolution on each block of life strains and education. Estimates indicate the decrease in the regression coefficient of education compared to the baseline model. The baseline model regressed education on union characteristics. The ego model added his strains, controlling for his characteristics. The partner model further added her strains, controlling for her education and her characteristics. Standard errors accounted for clustering at the union level. N = 46,542 union-years; 7,916 unions. * $p < .05$, ** $p < .01$, *** $p < .001$

Table S.2: *Mediation of educational differences in union dissolution by life strains, women in heterosexual unions only.*

Life strains	Her			Her + his		
	b	***SE***	**Explained (%)**	***b***	***SE***	**Explained (%)**
Work			12.21			15.49
Job stress	0.001	0.002	-1.64	-0.002	0.001	1.70
Employment difficulty	-0.011***	0.002	13.85	-0.012***	0.001	13.79
Finance			43.70			39.68
Income insufficiency	-0.014***	0.002	16.95	-0.015***	0.002	16.11
Emergency problems	-0.022***	0.003	26.75	-0.021***	0.002	23.57
Relations			17.81			19.26
Social isolation	-0.012***	0.001	14.53	-0.015***	0.001	16.68
Community exclusion	-0.003***	0.001	3.29	-0.002***	0.000	2.58
Health			14.16			19.89
Health difficulties	-0.007***	0.001	8.85	-0.012**	0.001	13.05
Functional limitation	-0.004***	0.001	5.31	-0.006***	0.001	6.84
Residence			3.76			3.65
Home dissatisfaction	-0.001*	0.000	1.20	-0.001**	0.000	1.16
Neighborhood disorder	-0.002**	0.001	2.56	-0.002***	0.001	2.49
All mediators			50.75			49.71

Note: KHB estimates from separate Poisson regressions of union dissolution on each block of life strains and education. Estimates indicate the decrease in the regression coefficient of education compared to the baseline model. The baseline model regressed education on union characteristics. The ego model added her strains, controlling for her characteristics. The partner model further added his strains, controlling for his education and his characteristics. Standard errors accounted for clustering at the union level. N = 46,542 union-years; 7,916 unions. * $p < .05$, ** $p < .01$, *** $p < .001$