Gray divorce and mental health in the United Kingdom

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The number of older people who experience marital break-up has increased in many Western countries. However, limited empirical attention has been given to the study of the consequences of later-life divorce or separation. The small body of research focusing on the mental health of divorced older adults is often cross-sectional and tends to blur estimates by capturing a mix of immediate and long-term effects of divorce. Drawing on data from eight waves of the UK Household Longitudinal Study (2009-2017), we apply the crisis model of divorce, which have been tested on the general population, to analyze the effect of marital break-up on the mental health of adults aged 50 or over. We estimate distributed (individual) fixed effects linear regression models to examine changes in SF-12 mental health and GHQ depression score before, upon and after gray divorce. The results indicate that older adults' mental health decreases and depression symptoms increase the years before and during union dissolution. After separation, mental health and depression gradually return to previous baseline levels, indicating that older adults are able to recover after marital break-up. Additionally, we investigate the moderating role of parenthood status and higher-order marriages. Post-divorce adjustments are slower for parents than for childless, and among adults who separate for multiple times than among first-time divorcees. The results suggest that partnership and fertility histories moderate the negative effect of later-life divorce on mental well-being.

Keywords: gray divorce; later-life divorce; mental health; ageing; fixed effects.

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1. Introduction

Marital break-up has become an increasing common experience for older adults in Western societies. Later life divorce – also known as gray divorce (i.e. divorce at age 50 or older) – is more common among middle-aged than older adults, among those in higher-order marriages than those in first marriages, and among adults in good than in poor health (Brown et al., 2016; 2019; Lloyd & Zick, 1986). The rising divorce rates among older adults raise the question of whether and how a marital disruption in later life affects mental health.

Studies focusing on the general population have shown that after temporary decreases in mental health due to union dissolution, mental well-being returns to pre-divorce levels (Amato, 2000; Clark & Georgellis, 2013; Leopold, 2018; Lucas, 2007). However, this general pattern might not reflect the particular patterns for older adults, for whom divorce may have a more detrimental impact. Williams and Umberson (2004) have, for instance, shown that the transition to divorce has greater and more enduring detrimental consequences on physical health among middle-aged and older men than among men in younger age groups, and Wang and Amato (2000) have suggested that it may become increasingly challenging with older age to adjust to divorce. Although older adults generally have more economic resources that may help them to cope with some of the challenges resulting from marital break-up (Vespa, 2012), they tend also to have fewer social resources from which emotional and practical support can be derived (Aquilino, 1994).

The small body of research focusing on the mental health of divorced older adults is often cross-sectional and indicates that divorced parents have worse mental health in later life, compared to partnered counterparts (Glaser et al. 2008; Hank & Wagner, 2013). However, findings of these cross-sectional studies should be interpreted with caution, because estimates of divorce in these studies may effectively capture selection factors. For instance, personality traits, socio-economic status and physical health may be predictive of both divorce (Brown and Lin, 2012; Jocking, McGue & Lykken, 1996; Matyasak, Styrc & Vignoli, 2014) and later-life mental health (Grundy, Van den Broek & Keenan, 2019; Steunenberg et al., 2006). Failure to adjust for every single potential confounder of this kind will result in a biased estimate of the effect of divorce. Furthermore, cross-sectional studies often do not make the distinction between long-term divorcees and gray divorcees (Greenwood, 2012). This is unfortunate, because it blurs estimates by capturing a mix of immediate effects of divorce in later life and long-term effects

of divorce that occurred earlier in the life course. In other cases, follow-up studies conducted many years after divorce (Pudrovska & Carr, 2008) as well as retrospective accounts to capture pre-divorce psychological states (Bowen & Jensen, 2017; Crowley, 2019; Gray et al., 2011) might not be reliable and fail to describe mental-health trajectories around family dissolution.

In this study, we extend earlier research on the mental health impact of gray divorce in multiple ways. Drawing on British panel data, we estimate distributed fixed effects models to analyze how older people's mental health develops before, upon and following divorce. As explained in further detail later, the approach taken is considerably less prone to bias due to omitted confounding variables than the commonly taken cross-sectional approach. Furthermore, it allows us to estimate patterns of change in mental health around divorce, rather than an average of immediate and long-term effects of divorce. Studying these patterns is important, because a short-term decline in mental health followed by recovery has much less severe implications for older adults than a persistent detrimental effect. Moreover, we will explore potential heterogeneity in the impact of divorce in later life. As considered in further detail later, it may be expected that the presence of children has the potential to moderate the impact of gray divorce and that the mental health implications of first divorces differ from those of subsequent divorces. These moderators have received only limited attention in previous studies on later-life divorce, although the effect of divorce on parents with minor children is widely documented in existing research (e.g. Williams and Dunne-Bryant, 2006). We will therefore test whether parenthood status and earlier experiences of divorce moderate the effects of later-life divorce on mental health.

2. Theoretical background and hypotheses

The crisis model of divorce posits that marital break-up is a so-called stress-to-adjustment process that leads to a temporary decrease in wellbeing (Amato, 2000; Johnson & Wu, 2002). Before separation, estrangement from one's spouse is stressful and is often accompanied by disputes and conflicts between partners. Couples may spend considerable time and effort to attempt to renegotiate their relationship prior to final separation. Additional stress may be associated with the decision to separate that is often taken by one of the two partners. After the decision to separate, the end of marriage or cohabitation brings several life changes, such as finding new accommodation, arranging custody for children, division of goods, and adjustment to living alone, all of which can be detrimental for individuals' wellbeing (Amato, 2000; Dewilde & Stier, 2014; Leopold & Kalmijn, 2016). However, these practical and emotional

changes are followed by adjustment, through which the wellbeing of divorcees returns to previous baseline levels. The crisis model would thus lead one to expect a mental health decline preceding divorce, followed by recovering mental health post-divorce. Longitudinal studies examining multiple well-being outcomes in the general population have provided evidence in support of this hypothesis (Andreß & Bröckel, 2007; Booth & Amato, 1991; Clark et al., 2009; Clark & Georgellis, 2013; Leopold, 2018; Lucas, 2007; Soons, Liefbroer & Kalmijn, 2009). It remains unclear to what extent the post-divorce recovery postulated in the crisis model can also be observed among gray divorcees, however, as it has been suggested that adjustment to divorce may be more difficult for older persons than for their younger counterparts (Wang & Amato, 2000).

The mental health impact of gray divorce may be contingent on personal characteristics. First, impact of separation may differ by the parental status of the older divorcee. The presence of minor children is known exacerbates the negative effect of separation on wellbeing among young parents (e.g. Leopold & Kalmijn, 2016), but far less is known about how the impact of divorce in later life may be shaped by children when they reached adulthood and are no longer dependent on parents' resources. Children are an important source of support and companionship for older adults (Dykstra, 2015; Steinbach, et al., 2019; Van der Pas, Van Tilburg, & Knipscheer, 2007) that divorce may put in jeopardy. When parents have conflicts, adult children may take the side of one and weaken their relationship with the other. They may also withdraw from relationships with both parents (Greenwood, 2012). Research has shown that parental divorce is associated with less frequent parent-child contact and a poorer quality of the relationship between parents and adult children, also when the divorce occurs when parents are older and the children have already reached adulthood (Kaufman & Uhlenberg, 1998; Kalmijn, 2007; Shapiro & Cooney, 2007; Tosi & Gähler, 2016; Ward, Deane, & Spitze, 2014). Infrequent face-to-face contacts with adult children and poor quality parent-child relationships are, in turn, associated with worse mental health for older adults (Koropeckyj-Cox, 2002; Teo et al., 2015; Tosi & Grundy, 2019). The immediate effect of marital break-up, which may include conflicts between ex-partners as well as conflicts between parents and children, may be more detrimental for parents than childless adults, although childlessness per se is associated with higher risks of loneliness and depression in later life (Gibney et al., 2017; Grundy, van den Broek & Keenan, 2017; Van den Broek, Tosi, & Grundy, 2019). These considerations lead us to expect that the impact of gray divorce on mental health is more strongly negative for parents than for childless older adults.

Second, the mental health consequences of a first divorce may differ from those of subsequent divorces. Earlier research examining retrospective information on family histories suggests that adults who divorced more than once are less likely to be happy (Hetherington & Kelly, 2002) and more likely to feel lonely in later life (Peters & Liefbroer, 1997). Negative effects of multiple union disruptions may reflect stigmatization. Divorce is often stigmatized (Gerstel, 1987), and adults who divorced multiple times are particularly likely to be perceived as interpersonally, morally, and psychologically inferior (Hoffman & Willers, 1996). Hatzenbuehler et al. (2013) show that social stigma is a cause of health inequality and has detrimental effects on multiple life domains, such as social relationships and coping behaviors. Given the negative impact of stigma on mental health, we expect that higher-order divorces are more detrimental for mental health than first divorces.

3. Data and Methods

3.1 Sample

We use data from the eight waves (2009/2010 – 2016/2017) of the UK Household Longitudinal Study (UKHLS). This annual population-representative survey includes approximately 40,000 households and collects information on many aspects of life, including physical and mental health, from all household members aged 16 or over. We select older adults aged 50 or over who experienced divorce or separation during the observation window. We exclude therefore respondents who divorced before entering the survey and did not experience a higher-order divorce in the period of observation. The choice of selecting older adults who experienced family dissolution is driven by our research goal, i.e. analyzing mental health trajectories around the actual date of the event. We then focus on within-individual changes in mental health and how these changes are distributed over the life course (for a similar strategy, see Myrskylä & Margolis, 2014). We exclude individual-year observations with missing values in the dependent variable (N = 594). The analytical sample includes 858 older adults followed for 4.3 points in time on average, corresponding to 3,562 year-observations (see Tables 1 and 2).

3.2 Dependent variable

The dependent variable is the Mental Component Summary score computed from the SF-12 health questionnaire, which consists of six questions regarding mental wellbeing. These are: during the last four weeks, how much of the time 1) have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious? 2) did you work or other regular daily activities less carefully than usual as a result of any emotional

problems, such as feeling depressed or anxious? 3) have you felt calm and peaceful? 4) did you have a lot of energy? 5) have you felt downhearted and depressed? 6) has your physical health or emotional problems interfered with your social activities like visiting friends or relatives? The answer categories were five points on a Likert scale ranging from "all of the time" to "none of the time". The scale converts these items into a single mental functioning score, resulting in a continuous scale with a range of 0 (low functioning) to 100 (high functioning). In our sample of older divorcees, the scale has a good internal consistency: the Cronbach's Alpha is equal to 0.86. The scale has been validated in different European contexts, as a reliable measure indicator of mental health and a screening tool to detect mental disorders (Ware et al., 1996).

Table 1. Characteristics of the sample: dependent variables, controls, and moderators.

	% or mean (SD)	N
Dependent variables		
SF-12 mental health (*mean, sd*)	47.6 (11.2)	
GHQ depression score (*mean, sd*)	2.5 (3.6)	
Control variables		
Age (*mean, sd*)	59.3 (6.8)	
Re-partnering	7.3	260
Moderators (Time constant)		
Second divorce	30.7	1,095
Parent	81.4	2,901
N. of individuals		858
Year-observations	100	3,562

Note: changes in variables over time are computed on older people at risk of experiencing a given life course state.

We replicate our analyses using the Caseness version of the GHQ depression score, which counts the number of questions for which the response is in one of the two "depression" categories (Clark & Georgellis, 2013; Goldberg and Blackwell, 1970). It is assessed by summing twelve items: have you recently 1) been able to concentrate on whatever you're doing? 2) lost much sleep over worry? 3) felt that you were playing a useful part in things? 4) felt capable of making decisions about things? 5) felt constantly under strain? 6) felt you couldn't overcome your difficulties? 7) been able to enjoy your normal day-to-day activities? 8) been able to face up to problems? 9) feeling unhappy or depressed? 10) been losing confidence in yourself? 11) been thinking of yourself as a worthless person? 12) been feeling reasonably happy, all things considered?. The dichotomized items were subsequently summed in an internally consistent (Cronbach's Alpha= .93) scale ranging from 0 (less distressed) to 12 (most distressed). Table 1 presents descriptive statistics of the sample, including the means and standard deviations of the two outcome measures. As indicated by a standard deviation larger

than its mean, the distribution of SF-12 mental health and GHQ depression score is skewed. To address this issue, we replicated our analysis using the logarithm of these variables and the findings are robust (available upon request). Our empirical strategy, which consist of using individual fixed effects models with robust standard errors, produces estimates that are less affected by the skewedness of the dependent variables.

3.3 Independent variable

The independent variable is a measure of the time to and from marital break-up. We, first, identify older adults who divorce or separate during the observation window, by using information about marital status. We consider respondents who report being married or living with a partner in a given point in time and divorce or separate in the subsequent interview. Second, we calculate the number of years elapsed between the transition to divorce and the date of each interview. We create a categorical variable distinguishing between: 2 or more years before divorce (baseline); 1 year before divorce (anticipation); the transition to separation; 1 year after divorce (adjustment); and 2 or more years after gray divorce (subsequent adjustment). Table 2 shows the distribution of the independent variable: The sample includes 504 transitions to divorce, 467 observations in the pre-divorce year and 417 observations in the year after divorce. This strategy to examine the distributed effects of marital break-up before and after the event has been used in previous research focusing on wellbeing implications of different life course events, such as divorce and childbearing (Goisis, A., Özcan, B., & Van Kerm, 2019; Giesselmanna, Hagenb & Schunckc, 2019; Myrskylä & Margolis, 2014).

3.4 Moderators

We analyze the moderating effect of high-order divorces and parenthood status (see Table 1). The variable regarding first/second union dissolution is derived from a question about the number of marriages or cohabitations that a respondent has had in life. This is treated as a time-constant dummy variable distinguishing between older adults who were in their first marriage or cohabitation at baseline, and those who had at least one partner relationship prior to the current one. In Table 2, we observe 354 transitions to first divorces and 150 to higher-order divorces. Moreover, among the cohorts considered here (born before 1959) only few older adults were childless: 152 respondents were childless and 706 had at least on adult child. The moderating effect of parenthood is, therefore, estimated on a small subsample, including 96 transitions to divorce/ separation, 94 observations in the pre-divorce year, and 70 observations in the year after union dissolution. Parenthood status is created by using information on the total

number of children that the respondents had in life and is treated as a time constant factor, because only few people become parents after age 50.

Table 2. Sample of older adults aged 50 or over who divorce or separate over the observation window.

	First divorce		Second divorce		Childless		Parents		Total	
	N.	%	N.	%	N	%	N	%	N.	%
Years before/ after gray divorce										
-2 or less	719	29.1	349	31.9	211	31.9	857	29.5	1,068	30.0
-1	319	12.9	148	13.5	94	14.2	373	12.8	467	13.1
0	354	14.3	150	13.7	96	14.5	408	14.1	504	14.1
+1	295	11.9	122	11.2	70	10.6	347	11.9	417	11.7
+2 or more	780	31.6	326	29.8	190	28.7	916	31.6	1,106	31.0
N. of individuals	598		260		152		706		858	
Person-year observations	2,467	100	1,095	100	661	100	2,901	100	3,562	

3.5 Analytical strategy

We use distributed fixed effects models to predict changes in SF-12 mental health and GHQ depressive symptoms before, upon and after marital break-up (cf. Amato & Anthony, 2014). This specification enables us to capture not only its immediate effect but also the anticipation and adaptation effects of gray divorce on older adults' mental health. Anticipation effects, which occur one year before the event, may be due to increased conflicts and decreased quality of partner relationships before the actual decision to separate (cf. Kalmijn & Monden, 2006). Recovery following separation can be associated with individuals' ability to adapt to changes in living arrangements.

The estimates are based on within-person changes in Mental Component Summary score and GHQ depression. Our focus on within-person variation means that observed and unobserved time-invariant characteristics that may bias the association between gray divorce and mental health are accounted for. This is particularly relevant for older adults, because marital break-up may be associated with unobserved factors, such as family orientations, personality treats, and previous experiences about partner relationships (Brown & Lin, 2012). In our modelling strategy, individual changes in mental health are estimated with respect to the baseline level measured two years before divorce or separation. The assumption is that the process of leading up to marital break-up starts about two years before the final separation, although it may vary depending on the time spent by couples in attempting to renegotiate the relationship or avoiding problems (Amato, 2000). Due to a small sample size, we run models on the overall sample of men and women, although previous studies found gender differences in the wellbeing impact

of marital break-up on the overall population (Andreß & Bröckel 2007). Our additional analyses (available upon request) showed no significant differences in the mental health trajectories of divorced men and women aged 50 or over.

In the first models (1a and 1b), we analyze mental health trajectories around later-life divorce, and adjust for age, wave dummies and re-partnering. The crisis model of divorce would lead one to expect that mental health and depressive symptoms decrease before separation and return to previous levels in the years after the event. In Models 2a-b and 3a-b, we include interaction terms to test possible sources of heterogeneity in the effect of marital break-up on later-life mental health. In Models 2a-b, we examine whether mental health and depression trajectories around gray divorce vary according to the divorce order. In Models 3a-b, we analyze the role of children in moderating the association between marital break-up and changes in mental health and depressive symptoms.

4. Results

Table 3 presents results from fixed effects linear regression models predicting changes in SF-12 mental health (Model 1a) and GHQ depressive symptoms (Model 1b). Model 1a shows that older adults' mental health decreases one year before divorce or separation. Such anticipation effect is not surprising, given that the process leading up to family dissolution may involve marital conflict and decreases in relationship quality before the decision to separate. Mental health score declines by 1.3 points in the year before divorce and by 2.0 points around the time of the marital break-up. The coefficient related to the category "2 years or more" after separation is non-significant and close to zero (Coef. = -0.33), indicating that older adults gradually recover to pre-separation levels two years after marital break-up. To capture adjustment process, we consider the year of divorce as reference category (category 0): older adults' mental health increases only marginally (Coef. = 0.70, S.E. = 0.54) in the year after divorce and by 1.7 (S.E. = 0.69) points two years after the event.

Model 1b presents results on GHQ depression score. Depressive symptoms increase by 0.45 points one year before marital break-up and by 0.79 points upon the transition to divorce. After this increase, depressive symptoms rapidly return to previous baseline levels in the year after separation. The coefficient associated with the post-separation year is equal to 0.22, suggesting a decrease in depression symptoms after family dissolution. Changing reference category (the year of divorce as reference point), the findings show a decline in depressive symptoms equal to 0.56 (S.E. = 0.19) points in the year after divorce and equal to 0.55 (S.E. = 0.24) two years after divorce. These findings regarding mental health and depressive symptoms provide

evidence that, in line with the crisis model, marital break-up is a stress-to-adjustment process for mid-aged and older adults. Following divorce, a rapid and statistically significant recovery can be noted, with levels becoming statistically indistinguishable from baseline levels one (GHQ) or two (SF-12) years post-divorce.

Table 3. Fixed effects linear regression models predicting changes in mental health and depressive symptoms.

	SF-12 mental health		GHQ depression score	
	Model 1a		Model 1b	
	Coef.	S.E.	Coef.	S.E.
Years before/ after gray divorce (Ref. -2 or less)				
-1	-1.30*	(0.55)	0.45*	(0.19)
0	-2.02**	(0.71)	0.79**	(0.25)
+1	-1.32	(0.86)	0.22	(0.29)
+2 or more	-0.33	(1.04)	0.22	(0.36)
Re-partnering	-0.03	(0.70)	0.07	(0.26)
Age	-0.01	(0.54)	0.26	(0.21)
Observations	3,562		3,562	
R-squared	0.02		0.01	
Number of individuals	858		858	

Note: Robust standard errors in parentheses ** p<0.01, * p<0.05, † p<0.1. Estimates adjusted for wave dummies.

4.1 Parenthood and higher-order divorces

In Models 2a-b and 3a-b we add interaction terms to test the moderating effects of parenthood status and multiple partnerships. Models 2a and Figure 1a show results for mental health measured with the SF-12 scale. Interaction coefficients are negative and significant with regard to the post-divorce year, indicating that older adults who separate for the second time are less able to recover after marital break-up than their counterparts who experienced a first divorce (Model 2a). Figure 1a shows that the mental health patterns associated with first and second divorces are similar in the years before and during family dissolution, but differ in the post-divorce period. The mental health of first-divorced adults returns to baseline levels one year after the event, while the mental health of second-divorced adults remains lower than the baseline level. Similarly, results on depressive symptoms show that older adults who separate for the first time recover faster than those who had a second marital break-up (Figure 1b). Older adults who divorce or separate for the second time do not recover completely after union dissolution, and their GHQ depression score remains higher than the baseline level. The coefficient estimates of the interaction terms presented in Model 2b confirm that there are differences in adjustment processes (particularly two or more years after divorce) between first-divorced adults and repeatedly divorced adults.

Table 4. Models with interactions between marital breakup, divorce order and number of children. Fixed effects linear regression models on SF-12 mental health and GHQ depression score.

	SF-12 mental health				GHQ depression score			
	Model 2a		Model 3a		Model 2b		Model 3b	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Years before/ after gray divorce (Ref. -2 or less)								
-1	-1.33*	(0.63)	-1.72†	(1.00)	0.40†	(0.22)	0.28	(0.34)
0	-2.15**	(0.77)	-2.08†	(1.10)	0.76**	(0.29)	1.15**	(0.44)
+1	-0.38	(0.91)	0.49	(1.22)	0.01	(0.31)	-0.35	(0.41)
+2 or more	0.33	(1.09)	1.55	(1.39)	-0.05	(0.39)	-0.35	(0.49)
Re-partnering	-0.01	(0.68)	-0.07	(0.68)	0.06	(0.26)	0.09	(0.26)
Age	0.02	(0.54)	-0.05	(0.54)	0.25	(0.21)	0.27	(0.21)
Years before/ after gray divorce * Second divorce								
-1 * second divorce	0.10	(1.04)			0.16	(0.34)		
0 * second divorce	0.45	(1.18)			0.07	(0.41)		
+1 * second divorce	-3.09*	(1.27)			0.63	(0.42)		
+2 or more * second divorce	-1.90	(1.21)			0.85*	(0.36)		
Years before/ after gray divorce * Parenthood status								
-1 * Parent			0.49	(1.16)			0.22	(0.37)
0 * Parent			0.01	(1.17)			-0.44	(0.47)
+1 * Parent			-2.28†	(1.20)			0.72†	(0.41)
+2 or more * Parent			-2.38†	(1.25)			0.75†	(0.45)
Observations	3,562		3,562		3,562		3,562	
R-squared	0.02		0.02		0.01		0.01	
Number of individuals	858		858		858		858	

Note: Robust standard errors in parentheses. ** p<0.01, * p<0.05, † p<0.1. Estimates adjusted for wave dummies.

In Models 3a and 3b, we include interactions between gray divorce and parenthood status. We find no significant differences by parenthood status before the transition to divorce, while the coefficients regarding the post-divorce adjustment are marginally significant (Models 3a and 3b). Figure 2a illustrates these changes in mental health: the mental health of childless adults increases to and above the baseline level in the years after union dissolution, while such adjustment is slower for older parents. This pattern is similar in the analysis of GHQ depression score (Figure 2b): among childless adults, depressive symptoms increase in the year of divorce and rapidly return to previous pre-divorce levels; among older parents, by contrast, depressive symptoms increase before separation and remain higher than the baseline level. However, during the post-divorce years, parents' depression score is not significantly higher than the baseline level and this pattern differs only marginally significantly from the pattern observed among childless adults (Model 3b). We find, therefore, some (weak) evidence in support of the hypothesis that adjustment to gray divorce varies according to parenthood status.

Figure 1a. Predicted values from Model 2a

Figure 2a. Predicted values from Model 3a

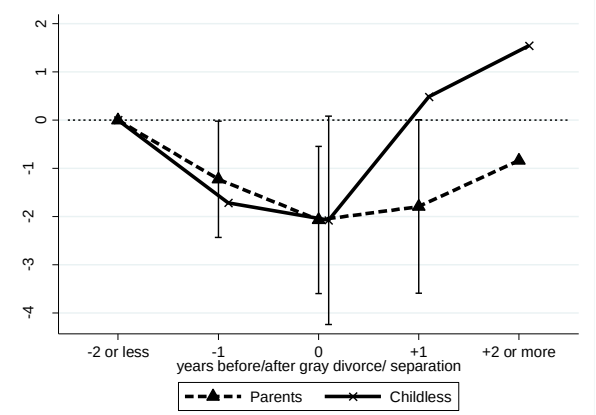


Figure 1b. Predicted values from Model 2b

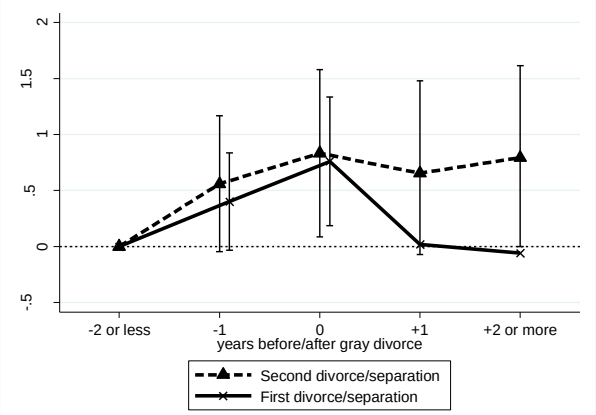
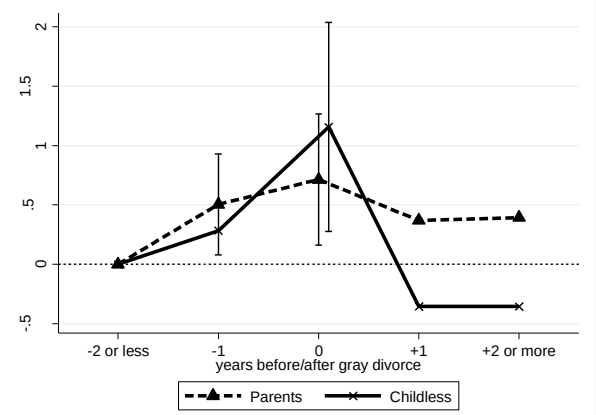


Figure 2b. Predicted values from Model 3b



5. Conclusion

Drawing on data from eight waves of the UK Household Longitudinal Study, we assessed whether union dissolution is associated with a decrease in mental health among middle-aged and older adults. Longitudinal studies focusing on the general population have analyzed the effect of divorce on mental wellbeing (Mandemakers, Monden & Kalmijn, 2010), while research on later-life divorce is often cross-sectional (Bowen & Jensen, 2017; Brown & Lin, 2012; Gray et al., 2011; Glaser et al., 2008). We integrate these two streams of research, by examining the implications of gray divorce on mental health longitudinally, and apply the crisis model of divorce to this increasing sub-group of the population. .

The findings show that, in line with previous research findings on divorce and wellbeing, mental health decreases in anticipation of a divorce or separation in later life. Marital break-up is a broader process, which involves stress and intra-marital conflicts before the actual decision to separate. Consistent with the crisis model of divorce (Amato, 2000; Amato & Anthony, 2014), older adults' mental well-being decreases before and upon marital break-up and gradually returns to previous levels after the event. We showed that the mental health and depression

trajectories of gray divorcees are similar to those described in previous research for younger age groups, suggesting that the ability to adjust to marital break-up does not vanish during older ages. This result does not support the claim that adjustment to divorce is increasingly challenging in older age (Wang and Amato, 2000). Moreover, previous cross-sectional findings indicate that gray divorce may have either null (Bowen & Jensen, 2017) or negative effects on older adults' well-being (Glaser et al. 2008; Hank & Wagner, 2013), while others show a mix of positive and negative effects on happiness, life satisfaction, and loneliness (Crowley, 2019). These varying findings may depend on the reference point that is taken into account: we show that there is a negative effect before and upon the transition to divorce (with respect to the baseline) and a positive one after union dissolution (with respect to the year of divorce).

With regard to moderators, previous studies have examined the role of younger children for divorced parents' well-being. These studies showed that the effect of marital break-up on subjective and mental wellbeing is larger for parents than for the childless (Leopold and Kalmijn, 2016; Williams & Dunne-Bryant, 2006). Our study suggests that the moderating effect of having a child persists in later life when children are no longer dependent on parents. Post-separation adjustment tends to vary by parenthood status, with older parents recovering slower than childless counterparts. However, these findings are based on marginally significant interactions, which provide no strong evidence in support of this hypothesis; more research using a larger sample size is needed.

Our study provides evidence on the moderating role of multiple divorces. Adjustment to post-divorce circumstances varies according to the number of marriages and cohabiting unions, indicating that recovery is faster after first divorces than after higher-order divorces. This is consistent with some previous studies suggesting that multiple union dissolutions are detrimental on parent-child relationships (Shapiro, 2012) and older people's happiness (Hetherington & Kelly, 2002). This could also suggest that increasing complexity in partnership histories is associated with worse mental health and more depressive symptoms in later life.

Three main limitations should be acknowledged in interpreting these results. First, as mentioned above, the data used do not include comprehensive measures of social relationships, which can limit our ability to capture changes in social resources after union dissolution. These measures may explain, in part, as to why older adults suffer from marital break-up. Second, reverse causality might partly affect the results, although previous research findings and our preliminary analyses indicate that older divorcees are characterized by better health before

separation. Third, divorce is an increasing life experience for older adults, but in our sample there is still only a rather small number of people who divorce or separate at age 50 or over. The small sample size derived from UKHLS data produces high variability around the estimates, particularly for interaction terms which are based on smaller sub-groups. The low statistical power does not allow us to provide conclusive evidence (i.e. marginal significant coefficients) on whether or not adult children are catalyst for the negative impact of later-life marital disruption. It also hampers further distinctions between fathers and mothers, although research suggests that gray divorce affects adult children's contacts and relationship with fathers more negatively those with mothers (Kaufman & Uhlenberg, 1998; Shapiro, 2003).

Nevertheless, these limitations are largely offset by the advantages of using rich longitudinal data that enable us to look at changes in their psychological states before and after gray divorce. Our results indicate that, in line with previous findings on younger adults, older people's mental health decreases around marital break-up and gradually returns to previous levels of wellbeing. Such adjustment tends to be slower for parents and those who separate multiple times, suggesting that partnership and fertility histories moderate the effect of life course events on mental health.

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