

**Marital loss and mental health: the role of social support in an Australian based longitudinal population study**

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Marital status is strongly associated with a range of mental health outcomes, where the married have lower levels of depression, anxiety, psychological distress and better overall mental health than the unmarried (1-3). Among the unmarried, people who are separated, divorced or widowed tend to have worse mental health than their never married counterparts (4, 5) which suggests that marital loss is particularly consequential for mental health.

An observed cross sectional association between marital status and mental health does not establish a causal link. Our review therefore concentrates on longitudinal research as these studies are better positioned to isolate changes in mental health due to marital transitions rather than other unobserved factors (4, 6). Longitudinal research shows that marital loss, either due to separation or widowhood, significantly increases the likelihood of common mental disorders, such as anxiety and depression (7-13), increases levels of psychological distress (6, 14, 15) and decreases overall mental well being and happiness (16-19). These declines in mental health and well being may be more acute for the separated compared to widowed (7) and they may continue for several years after separation, whereas the widowed recover more quickly (4, 7, 19). Many longitudinal studies find no gender differences in the effect of marital loss on mental health (6, 7, 12, 14, 15, 19), however when gender differences are found women who separate or become widowed typically have worse mental health than men (8, 9, 11, 16, 17).

Longitudinal studies have also shown that the psychological consequences of separation and widowhood are likely to vary depending on personal and social circumstances before and after transitions out of marriage (6, 14, 20). Declines in mental health after marital loss, for example have been mediated by socioeconomic circumstances (7, 14, 19), the presence of children (18, 19), marital quality (21) and attitudes and beliefs towards marriage and divorce (10,

**14).** Relatively few studies have examined the role of social support for the mental health of people who experienced a marital loss (**9, 12**).

Having social relationships and high levels of social support are important for a range of mental health outcomes (**5, 20, 22-24**). People who are not married tend to have lower levels of social support, which may contribute to their lower levels of mental health (**24**). In a cross-sectional study, Turner & Marino (**20**) found that social support explains around 50 percent of marital status differences in depression between the married and previously married (separated, divorced and widowed). However, social support could also have a protective function against psychological distress when persons are faced with the challenge of adverse life events, such as marital loss (**23**). Aseltine and Keller (**9**) find that interactions with friends ameliorated the effects of marital loss on depression, albeit the size of the effect was small. Previous studies of social support, marital status and mental health have two main limitations. The cross sectional studies are unable to take into account social support and mental health prior to marital loss (**4**). The longitudinal studies examined social support and mental health several years after the marital loss (**9, 12**), when it is likely that people have recovered from the immediate stress of the event. Consequently, it is difficult to ascertain the exact role social support may play in attenuating or buffering declines in mental health with marital loss based on previous research.

We use the first 6 waves of a national Australian panel study, the Households Income and Labour Dynamics in Australia (HILDA) survey to examine the relationship between marital loss, social support and mental health. In our analyses we take into consideration whether the association between marital loss and mental health varies for men and women, or according to whether they separated or become widowed. We address three key questions:

- 1) Is marital loss associated with a decline in mental health?

- 2) Does social support explain some or all of the mental health differences for those who experience a marital loss?
- 3) Does the relationship between marital loss and mental health vary depending on level of social support?

## **Methods**

### Study Population

The first six waves of The Household, Income and Labour Dynamics in Australia (HILDA) survey were collected between 2001 and 2006. Wave 1 comprised 7,682 households and 13,969 individuals. Households were selected using a multi-stage sampling approach, and a 66% response rate was achieved (25). Within households, data were collected from each person aged over 15 years (where available) using face-to-face interviews and self-completed questionnaires, and achieved a 92% response rate of household members (25). Wave 2 was collected in 2002 retaining 86.8% of participants from wave 1; wave 3 was collected in 2003 retaining 90.4% of participants from wave 2; wave 4 was collected in 2004 retaining 91.6% of wave 3 participants; wave 5 was collected in 2005 retaining 94.4% wave 4 participants; and wave 6 was collected in 2006 with a response rate of 94.9% of wave 5 participants. In the current study we focused on all participants who were legally married in their *first* marriage at Wave 1 and follow them through to wave 6. The analytic sample comprised 3017 men with an average of 4.5 observations and 3225 women with an average of 4.6 observations.

## Measures

At each wave participants were asked about their mental health, marital status, perceived social support and a range of social and demographic characteristics using identically worded questions.

### *Mental health*

This paper focuses on the 5-item mental health sub-scale (MHI-5) derived from the Short-Form 36 (SF-36). The SF-36 is a self-completion measure of health status comprising 36 items that measures 8 dimensions of functional health and well-being (26). The MHI-5 is a well-validated measure for common mental disorders such as anxiety and depression (27), and has been found to be a good predictor of clinical mental health problems and other health outcomes (28-31). Scale scores range from 0 to 100, with a lower score indicating that a person feels nervousness and depression all of the time and higher scores indicating a person feels peaceful, happy and calm all of the time (26).

### *Marital status*

Respondents were asked their current marital status at each wave, including legally married, cohabiting, separated, divorced, widowed and never married. In addition to this general measure a detailed marital history for the previous year was collected. In cases where contradictory marital transitions between waves were reported, information from both sources was used to allocate a marital status. Our measure of marital status comprises five categories; 1 = married; 2 = separated; 3 = divorced; 4 = widowed; 5 = repartnered (i.e. defacto or remarried).

### *Social support*

Our measure of social support indicates a person's perception of the social support they receive from friends and family (23, 32). The scale was derived by summing responses to 10 questions, including: *People don't come and visit as much as I would like; I often need help from other people but can't get it; I seem to have a lot of friends; I don't have anyone I can confide in; I have no one to lean on in times of trouble; There is someone who can always cheer me up when I am down; I often feel very lonely; I enjoy the time I spend with the people who are important to me; when something's on my mind, just talking with the people I know can make me feel better; When I need someone to help me out, I can usually find someone.* Responses ranged from 1 "strongly disagree" to 7 "strongly agree". Initially a factor analysis was conducted on the 10 items yielding two factor scores with eigen values over 1, however, the factors identified loaded on the positively- and negatively-worded items. We therefore constructed a single dimensional scale by summing responses to each question (reverse coding the negatively-worded questions). A similar scale has been used in previous research and has been shown to have acceptable levels of reliability (Cronbach's alpha of 0.79) (33).

### *Covariates*

We included several covariates found to be associated with basic demographic variation in mental health (8, 14, 19). Marriage duration in years and months at wave 1 was included as a continuous measure. Respondents' age was included as a continuous measure. Education had four groups indicating 1 = year 12 or less (highschool or less); 2 = trade qualifications; 3 = diploma; 4 = bachelor degree or higher. Income was annual household income. Employment

status was: 1 = full time; 2 = part time; 3 = unemployed; 4 = not in the labour force (NILF). All covariates were time-varying. The descriptive statistics for the controls, mental health and social support measures are presented in Table 1.

#### TABLE 1 HERE

##### Analytic strategy

A random effect model (6, 34) was used to examine change in mental health with marital loss. The random effect model is a mixed model that takes into consideration the clustering of observations within persons and has the capacity to handle unbalanced panel designs (inconsistent numbers of observations per person). The models were fitted using *xtreg* in STATA Version 10.1.

To exploit the longitudinal nature of the data and to best capture the effect of marital loss on mental health several lagged effects were included in our models. We included a 1-year lag for marital status, where the reference group were those participants stably married for the six waves. There are six lagged marital status measures ( $t_{-1}$ ): 0 = stably married (ref); 1 = married in the previous wave, but experienced marital loss; 2 = separated; 3 = divorced; 4 = widowed and 5 = repartnered. This lagged marital status measure enabled us to estimate the effect of a transition from being married in the previous wave ( $t_{-1}$ ) to being separated or widowed ( $t$ ) on mental health. We also include measures for lagged mental health and lagged social support. The lagged measures helped control for unobserved heterogeneity between individuals and reduced the potential for reverse causality. For example, unobserved factors could be associated with low levels of social support, poorer mental health and a marital loss. By controlling for prior mental

health and social support we account for unobserved factors that may explain any association between marital loss, social support and mental health. Our models therefore capture the effects of separation or widowhood on mental health taking into account prior mental health and changes in social support as a result of marital loss.

Analysis proceeded in three stages. Firstly, we estimated a baseline model of the associations between marital status and marital loss and mental health, including covariates (Model A). Second, we included perceptions of social support in the model to see if this accounts for any mental health differences for those who experience marital loss (Model B). In our final model (Model C) we included interactions between perceived social support and marital status and lagged marital status to investigate the extent to which social support buffers any adverse mental health affects due to transitions out of marriage.

The models were run separately for men and women, but we also re-estimated all models with a pooled sample and included gender interactions with the covariates to test whether the observed gender differences were statistically significant (results not shown). We used a robust standard error to adjust for the clustering of individuals (i.e. husbands and wives) within households.

## **Results**

### Marital loss transitions

Table 2 presents the number of marital transitions. The main transitions of interest for this study are in the first row (people who were married and transition out of marriage); this shows that 235 men and women transitioned from married to separated, and 108 men and women transitioned from married to widowed.



## TABLE 2 HERE

The associations between marital loss and mental health

The results of the random effects models are presented in Table 3. The strongest single determinant of mental health is lagged mental health, where high levels of mental health in the previous wave indicate high levels of mental health in the next. The effect of a marital loss on mental health is calculated by summing the coefficient for current marital status, i.e. separated or widowed, and the lagged coefficient for married ( $t_{-1}$ ). Men who transitioned from married to separated between waves had mental health scores 5.79 points ( $-3.79^* + -2.00^* = -5.79$ ), or 18% lower ( $5.79/31.95 \times 100$ ) than stably married men. Compared to stably married men, those who transitioned from married to widowed had mental health scores 7.63 points (23.9%) lower. Transitions out of marriage had a similar association with women's mental health. Compared to stably married women, those who transitioned from married to separated had mental health scores 6.65 points (21.4%) lower, and widowed women had mental health scores 9.28 points (29.9%) lower. Even though the decline in women's scores was slightly larger than for men, none of the gender differences were significant.

## TABLE 3 HERE

Marital loss, social support and mental health

In Model B, there was a strong positive association between perceptions of social support and mental health for men and women. Social support in the previous wave was not associated with men's mental health in the present wave. In contrast, for women the association for lagged social support was negative and significant, indicating that higher levels of social support in the

previous wave reduced mental health in the current wave, although the magnitude of the association was small.

For men, the results indicated that social support explains some, although not all of the difference in mental health between those who separated or widowed and the stably married. The lagged coefficient for previously married was no longer statistically significant and the coefficient for separated men was only marginally significant. In this model men who transitioned from married to separated had mental health scores 4.43 points, or 11.8% lower than stably married men, the gap was 8% lower than in the first model not adjusting for social support. The story is similar for widowed men, while the effect of being widowed was significant the difference between their mental health and stably married men's is 7.06 points lower (18.8%), compared to 23.9% in the first model.

For women, there was less change in the significance and magnitude of the associations for transitions into separation and widowhood when controlling for the effect of social support on mental health. Women who separated had mental health scores 6.71 points (18.7%) lower than stably married women, compared to 21.4% in the first model. Women who were widowed had mental health scores 9.07 points (25.3%) lower, down from 29.9% in the first model. None of the gender differences were significant.

In Model C we interacted perceived social support with marital status and lagged marital status to investigate whether the association between marital loss and mental health varied depending on levels of perceived social support. For ease of interpretation, these results are presented graphically in the figures. For men (Figure 1), high levels of social support are associated with higher levels of mental health, but the only significant interaction terms is for those who transitioned from married to widowed. The results of Model C for women suggest a

different story (Figure 2). Higher levels of social support were associated with higher levels of mental health, but different levels of social support did not close the gap in mental health between married women and those who transitioned into separation or widowhood. The gender differences in the patterns of association for men and women who become widowed were statistically significant.

FIGURE 1 HERE

FIGURE 2 HERE

## **Discussion**

We used several waves of a longitudinal Australian national population panel study to examine the relationship between marital loss and mental health. Our study provides novel insights into the role of social support in attenuating declines in mental health associated with marital loss. Previous cross sectional studies have been unable to take into account prior mental health and social support when assessing the effect of a marital loss on mental health. Previous longitudinal studies have been limited by gaps of 3 to 4 years between data collections and therefore measure social support and mental health some years after the marital loss.

Adjusting for mental health in the previous wave and a range of other covariates we find that a marital loss is associated with a significant decline in mental health for both men and women. This is consistent with previous longitudinal research, which finds a large increase in common mental disorders such as depression and anxiety and decline in mental well being as being relatively temporary related to the occurrence of a major life stress event (6, 9, 14). While the decline in mental health was slightly larger for women, the gender differences were not significant, which is also consistent with many other longitudinal studies.

While social support is important for mental health (20, 24) few studies have taken into account changes in social support with a marital loss when examining the association between marital loss and mental health. We assessed the role of social support in two ways. First, we investigated whether social support explained some or all of the differences in mental health between stably married and those who separated or became widowed. Second we examined whether this varied depending on the level of social support.

We find that social support ameliorated the negative effects of a marital loss on mental health, which is consistent with previous research into the role of social support in explaining health differences between people of varying marital status (9, 20). Differences in social support explained about 37% of the differences in mental health for men who separated, and about 21% for men who became widowed compared to stably married men. For women, differences in social support explained about 13% of the differences in mental health for women who separated and about 15% for women who became widowed compared to those who were stably married. Clearly for men who separate changes in the level of social support explain a large part of the change in mental health, but overall the findings indicated that social support is part of the story but not all of it.

We also investigated whether the association between marital loss and mental health varied depending on levels of social support. This analysis addressed the question of whether or not variations in levels of social support provide an additional buffer for mental health with separation or widowhood. Interestingly, for women different levels of social support do not change the gap between the stably married and those who separated become widowed. In contrast for men, we found a strong significant interaction between social support and becoming widowed. The interaction indicates that high levels of social support provided protection against

the negative mental health consequences of a transition to widowhood and low levels of social support may magnify the negative consequences of the transition.

### Limitations

As with most studies ours had a number of limitations. First, even in a large national population sample we only observe a relatively small number of transitions from married to separated or widowed. In addition, those who transition out of marriage have higher rates of attrition in the HILDA survey than those who are stably married (35). These two factors increase the standard error and therefore increase the risk of making a type II error. The impact of the small number of transitions and the disproportionate loss of separated and widowed to follow up is therefore likely to make our results more conservative.

The relationship between marital dissolution, social support and mental health is complex. While our models take into account levels of social support prior to the transition as well as after, the direction of the association is still not clear. In additional analysis (results not shown) we found that the level of social support was different for stably married compared to those who transitioned to separation or widowhood. We found that married men had significantly higher levels of social support than men who transitioned to separation, there were no significant differences between married and widowed men's social support. For women we found the opposite, married women did not have significantly higher levels of social support than women who transitioned to separation, but widowed women had significantly lower social support than married women. This dimension of the relationship between marital loss, mental health and social support could be better captured by multi-process models that simultaneously model the association between marital transitions and social support and the effect of marital

transitions on mental health. Finally our study only examines the relationship between mental health and social support in the year of the marital loss, we do not consider the medium and longer term affects of being separated or widowed over multiple waves and the role of social support in the longer term mental health consequences of a marital loss. Previous studies that have looked at longer term mental health consequences find that the negative effects of marital loss on mental health tend to reduce with time (19). It is possible that changes in social support may explain some of this improvement in mental health.

Another limitation of the current study is that we only use one indicator of mental health. Recent studies have argued for a more comprehensive investigation of mental health behaviours, encompassing both internalising (i.e. depression, anxiety, distress) and externalising behaviours (i.e drug and alcohol consumption) (5, 8).

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**Table 1: Descriptive statistics for model covariates pooled over all waves, for men and women**

	Men			Women		
	Mean	SD	Range	Mean	SD	Range
Mental Health	76.53	16.04	0 - 100	74.85	16.35	0 - 100
Social Support	53.1	9.46	13 – 70	55.53	9.58	10 – 70
Controls:						
Age	48.9	14.3	20 - 93	48.85	14.3	19 - 93
Education:						
Yr 12 or less	36 %			57%		
Trade/cert	32 %			13 %		
Diploma	10 %			10 %		
Bachelor degree or higher	22 %			20 %		
Child < 18	45 %			48 %		
Ethnic background:						
Australia born	72 %			75 %		
Overseas born – English speaking	12 %			09 %		
Overseas born – non-English speaking	16 %			16 %		
Household income (annual, \$AUS)	62 889	45 039		63 053	46 023	
Employment status						
Full time	64 %			25 %		
Part time	07 %			31 %		
Unemployed	01 %			01 %		
Not In Labour Force	28 %			43 %		
N of participants	3023			3225		

*Table 2: Transitions out of marriage HILDA wave 1 – 6 for men and women (Row %)*

		<b>Married</b>	<b>Separated</b>	<b>Divorced</b>	<b>Widowed</b>	<b>Repartnered</b>
<b>Married</b>	<b>N</b>	20 310	235	2	108	16
	<b>%</b>	98.25	1.14	0.01	0.52	0.08
<b>Separated</b>	<b>N</b>	0	194	73	3	57
	<b>%</b>	0.00	59.33	22.32	0.92	17.43
<b>Divorced</b>	<b>N</b>	0	0	68	0	14
	<b>%</b>	0.00	0.00	83.95	0.00	16.05
<b>Widowed</b>	<b>N</b>	0	0	0	218	3
	<b>%</b>	0.00	0.00	0.00	98.64	1.36
<b>Repartnered</b>	<b>N</b>	0	0	0	0	132
	<b>%</b>	0.00	0.00	0.00	0.00	100.00
<b>Total</b>	<b>N</b>	23 809	429	143	329	221
	<b>%</b>	94.25	2.00	0.67	1.54	1.03

Notes: This table presents the transitions out of marriage for the pooled sample across 6 waves. The N for each marital status refers to the number of person-year observations for each marital state across the 6 waves. For example, we observe 20 310 person years where people were stably married, we observe 235 transitions from married to separated, 2 from married to divorced etc. Of those people who became separated we observe 194 person years where they remained stably separated, but also 73 of them went on to divorce, 27 repartnered etc.

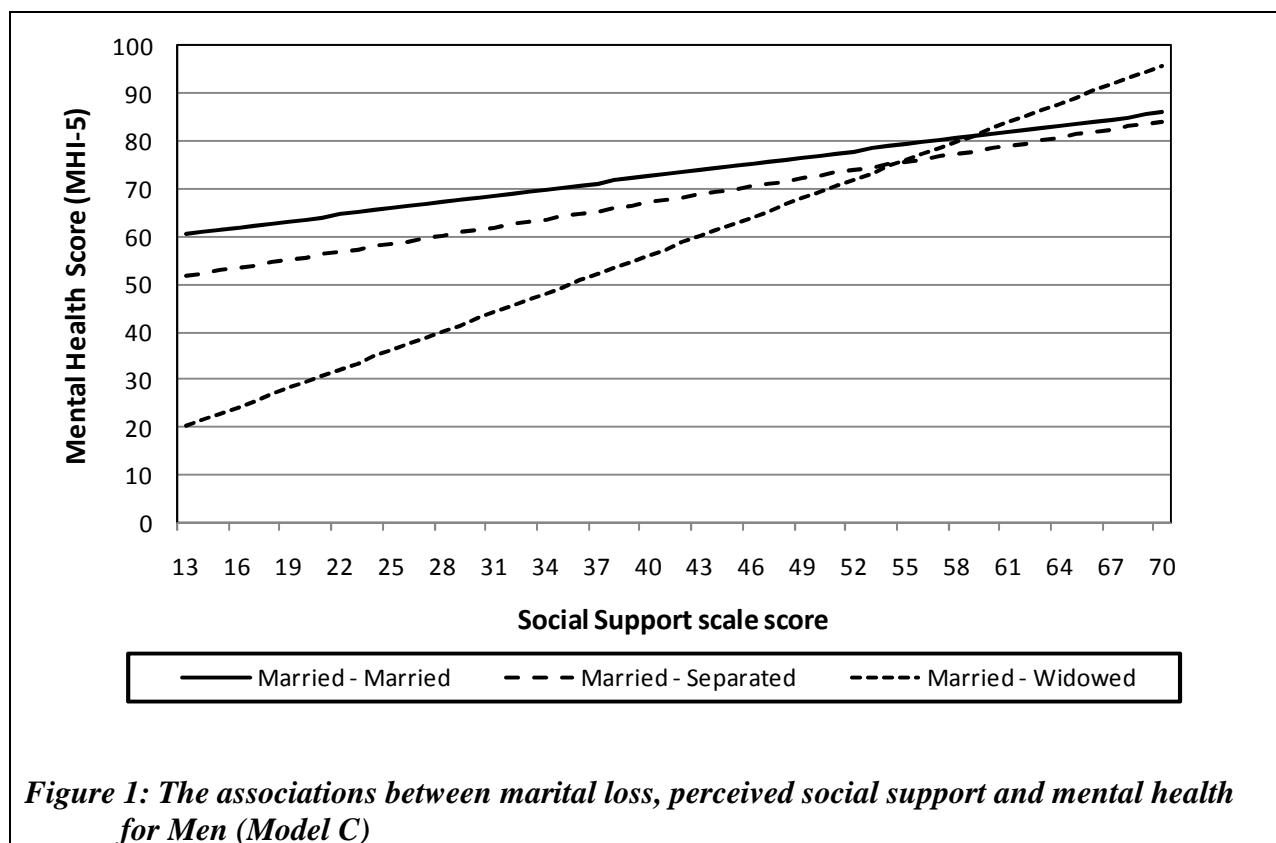
**Table 3: Random effect models of the association between marital loss, social support and mental health, for men and women**

	Men			Women		
	Model A Coefficient (SE)	Model B: + social support Coefficient (SE)	Model C: interaction Coefficient (SE)	Model A Coefficient (SE)	Model B: + social support Coefficient (SE)	Model C: interaction Coefficient (SE)
Separated <sup>a</sup>	-3.79* (1.88)	-3.09† (1.75)	-2.54 (1.74)	-4.43* (1.74)	-4.57** (1.67)	-4.41** (1.68)
Divorced <sup>a</sup>	-5.48† (3.29)	-5.09† (3.05)	-3.85 (2.78)	-2.56 (2.90)	-1.83 (2.69)	-1.41 (2.64)
Widowed <sup>a</sup>	-5.63† (2.98)	-5.72* (2.62)	-4.95* (2.45)	-7.06*** (2.01)	-6.93** (2.01)	-6.82** (2.06)
Repartnered <sup>a</sup>	-2.29 (2.79)	-3.99 (2.53)	-3.60 (2.47)	-3.14 (2.89)	-4.39 (2.72)	-4.83† (2.67)
Married (t <sub>1</sub> ) <sup>b</sup>	-2.00* (0.87)	-1.34 (0.87)	-1.31 (0.85)	-2.22** (0.73)	-2.14** (0.73)	-2.21** (0.76)
Separated (t <sub>1</sub> ) <sup>b</sup>	3.24 (2.27)	3.07 (2.14)	2.61 (2.13)	4.51* (2.04)	4.86* (1.93)	4.58* (1.93)
Divorced (t <sub>1</sub> ) <sup>b</sup>	4.58 (3.11)	5.05† (2.98)	4.14** (2.85)	2.52 (3.36)	2.76 (3.09)	2.19 (3.02)
Widowed (t <sub>1</sub> ) <sup>b</sup>	-4.43 (2.95)	5.45† (2.82)	5.34* (2.51)	7.24** (2.32)	7.47** (2.30)	7.38** (2.38)
Repartnered (t <sub>1</sub> ) <sup>b</sup>	3.19 (3.15)	5.50† (2.96)	4.59† (2.61)	-0.75 (3.17)	-0.60 (2.95)	-0.67 (2.97)
Mental Health (t <sub>1</sub> )	0.55*** (0.01)	0.45*** (0.01)	0.45*** (0.01)	0.58*** (0.01)	0.49*** (0.01)	0.49*** (0.01)
Social support (centred)		0.45*** (0.02)	0.45*** (0.02)		0.49*** (0.02)	0.48*** (0.02)
Social support (t <sub>1</sub> )		0.008 (0.02)	0.008 (0.02)		-0.06** (0.02)	-0.06** (0.02)
<b>Interactions:</b>						
Separated <sup>x</sup> social support			0.10 (0.14)			-0.07 (0.16)
Divorced <sup>x</sup> social support			0.24 (0.32)			-0.43† (0.24)
Widowed <sup>x</sup> social support			0.81** (0.31)			-0.02 (0.16)
Repartnered <sup>x</sup> social support			0.33 (0.31)			0.14 (0.25)
Married(t <sub>1</sub> ) <sup>x</sup> social support			0.03 (0.08)			0.06 (0.08)
Separated(t <sub>1</sub> ) <sup>x</sup> social support			-0.08 (0.21)			0.12 (0.19)
Divorced(t <sub>1</sub> ) <sup>x</sup> social support			-0.16 (0.32)			0.44 (0.37)
Widowed(t <sub>1</sub> ) <sup>x</sup> social support			-0.62† (0.35)			-0.03 (0.19)
Repartnered(t <sub>1</sub> ) <sup>x</sup> social support			-0.51 (0.45)			0.05 (0.36)
Constant	31.95*** (1.51)	37.52*** (1.36)	37.63*** (1.37)	31.02*** (1.41)	35.91*** (1.35)	36.00*** (1.36)

Note: Models include controls for marriage duration, age, education, dependent children, ethnic background, household income, and employment status. <sup>a</sup>

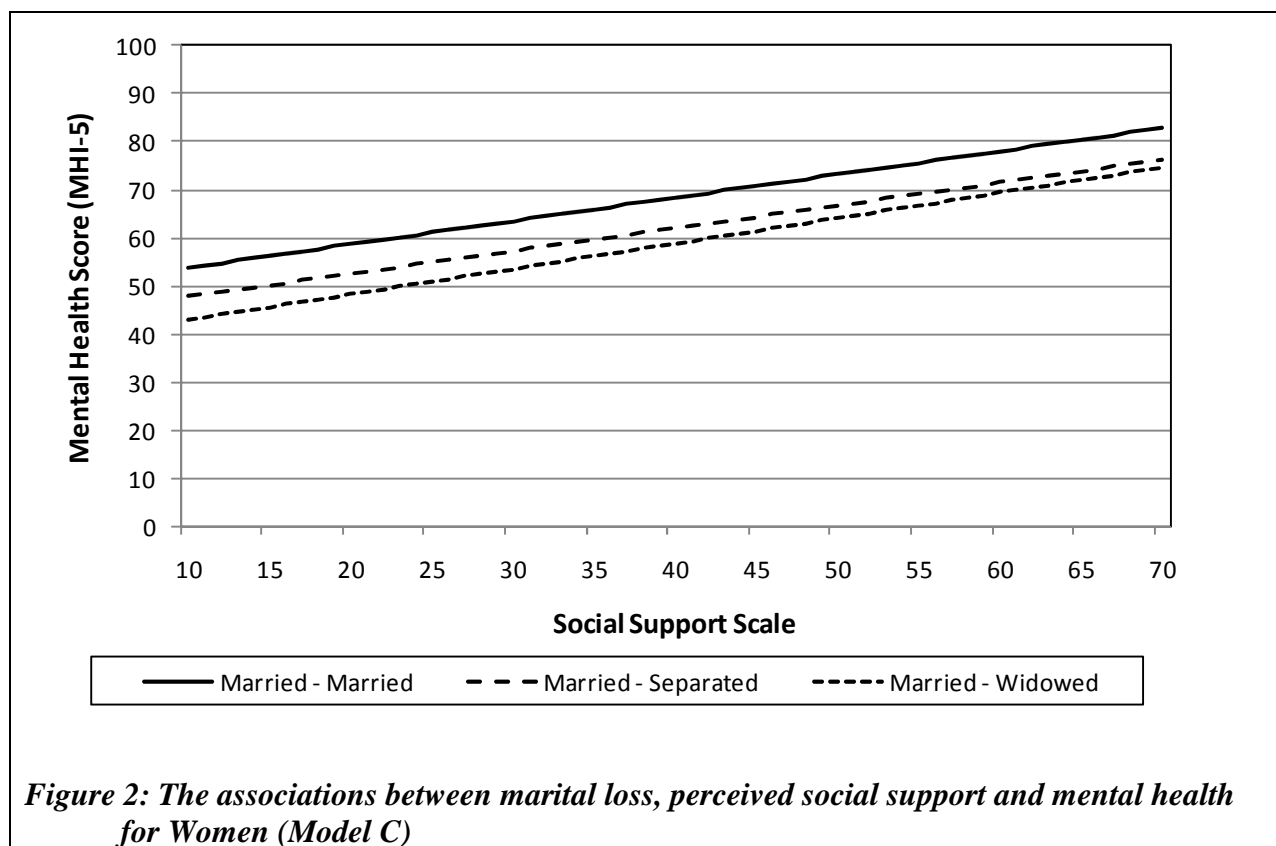
Reference is married <sup>b</sup> Reference is stably married

†P<.10 \*P<.05 \*\*P<.01 \*\*\*P<.001



**Figure 1: The associations between marital loss, perceived social support and mental health for Men (Model C)**

Note: Controls are held constant at mean or modal responses. Plot scores are for men with yr 12 or less Education, no children <18, Australian born, employed full time, aged 50.04, marriage duration of 21 years, and a mean household income of \$62,974 pa



**Figure 2: The associations between marital loss, perceived social support and mental health for Women (Model C)**

Note: Controls are held constant at mean or modal responses. Plot scores are for women with yr 12 or less Education, no children <18, Australian born, employed full time, aged 50.04, marriage duration of 21 years, and a mean household income of \$62,974 pa