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ORIGINAL PAPER

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# Mental health problems and marital disruption: is it the combination of husbands and wives' mental health problems that predicts later divorce?

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**Abstract** *Background* Divorce has been established as an adverse social consequence of mental illness. There is, however, little research that has considered how the mental health of both spouses may interact to predict relationship disruption. The aim of the current study was to use data from a large population-based survey to examine whether the combination of spouses' mental health problems predicts subsequent marital dissolution. *Methods* Prospective analysis of data from a longitudinal national household survey. 3,230 couples were tracked over 36 months, with logistic regression models used to determine whether the mental health problems of both spouses at wave 1 (determined by the SF36 mental health subscale) predicted subsequent relationship dissolution. *Results* Couples in which either men or women reported mental health problems had higher rates of marital disruption than couples in which neither spouse experienced mental health problems. For couples in which both spouses reported mental health problems, rates of marital disruption reflected the additive combination of each spouse's separate risk. Importantly, these couples showed no evidence of a multiplicative effect of mental illness on rates of subsequent divorce or separation. *Conclusions* The results do not support the notion that a combination of mental health problems in both spouses uniquely predicts marital dissolution. Rather, there is an additive effect of individual mental health problems on the risk of dissolution.

**Key words** social psychiatry – mental disorders – divorce – marriage – epidemiology

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## Introduction

Efforts to describe and estimate the overall burden of psychiatric disorders have included a focus on their adverse social consequences. One such social outcome that has received research consideration is divorce or marital disruption. Studies examining the association between psychiatric disorders and divorce have used a variety of research methodologies, including comparing retrospective data on onset of disorder and timing of divorce [16] and prospective and longitudinal data following respondents through marital transitions [14, 31], and have employed different measures of mental health, including diagnostic schedules [16], symptom scales and measures of psychological distress [14, 31], and clinical samples [22]. Across these methodologies, studies have consistently shown that mental illness is often a precursor to, and potentially a cause of, marital dissolution. Despite a temporal order in which mental illness precedes divorce, mental illness may be a consequence of the conflict and relationship dissatisfaction that precedes the actual timing of divorce [1, 14]. In fact, much of the research concludes that there is evidence of both social causation and social selection [14, 31]. An additional possible causal pathway is that the association between mental illness and marital instability reflects common underlying factors such as adversity in childhood [16].

One major limitation is that most of the existing research literature in this area has focused on individuals. Although divorce is a couple-level outcome, research has rarely considered data from both

members of a couple. In other research areas there has been increased consideration of data from both members of a couple to examine the joint effects of characteristics, traits and behaviours on relationship stability (e.g., [25]). There is one notable exception of couple-level analysis in the psychiatric research literature. Using a small clinical sample, Merikangas [23] reported that married couples in which both spouses had experienced mental disorders had divorce rates eight times greater than the general population. Couples in which only one spouse was ill did not have elevated divorce rates. Thus, the findings of this study suggested that it may be the consistency of mental illness at the couple level that determines the likelihood of an adverse social outcome and not necessarily mental illness at the individual level. This has significant implications for how the social consequences of psychiatric illness are understood. However, this issue cannot be investigated by research methodologies which use the individual as the sampling unit and the focus of analysis. The aim of this report, therefore, is to attempt to replicate and examine the generalisability of the findings reported by Merikangas. We examine the association between mental health problems and divorce/relationship disruption using couple-level data from a large, nationally representative longitudinal community survey.

## Subjects and methods

Data are from the first four waves (2001–2004) of the Household, Income and Labour Dynamics in Australia (HILDA) survey (release 4.1). This is a nationally representative household panel survey conducted annually since 2001. The HILDA Project was initiated and funded by the Australian Government and is managed by the Melbourne Institute of Applied Economic and Social Research. The survey was conducted in accordance with the University of Melbourne's Ethics Guidelines. The survey used a multi-stage sampling approach, sampling households within dwellings within Census Collection Districts (a small administrative spatial unit comprising approximately 220 households in urban areas). As a result of this complex sampling frame, data were collected from multiple household members, including spouses. In this analysis, the couple is the unit of analysis. For more detail on the HILDA Survey see Watson [34, 35].

At baseline, there were 7,682 responding households (a response rate of 66%). All household members aged 15 years and over were in-scope for a personal interview. Within households, 13,969 people (92% of eligible population) completed a personal interview and 94% of these (13,159) returned a self-completion questionnaire. Many of the data items used in this analysis, including the measure of mental health, were drawn from the self-completion questionnaire. At wave 1, there were 3,866 mixed-sex couples (in either a legal marriage or de facto relationship) in which both spouses completed personal interviews and self-completion questionnaires. Of these, 630 couples were excluded from the analysis. This included 30 couples in which a spouse died during the follow-up period and 600 couples in which neither spouse was followed across the three subsequent waves or to the point of separation/divorce and, therefore, dissolution was undetermined.

The data used in analyses represented either wave 1 characteristics of each member of a couple (e.g., men and women's mental health or age) or couple-level characteristics (e.g., relationship duration). The HILDA Survey does not include a clinical assessment of psychiatric disorders and the key predictor for this analysis is the Mental Health Inventory (MHI). The MHI is one of eight subscales of the SF-36 general health survey and comprises five items which assess symptoms of depression, anxiety and positive aspects of mental health in the past 4 weeks [3, 32, 33]. The 5-item MHI was developed from a longer instrument (38 items) which assessed four dimensions of mental health: depression, anxiety, behavioural/emotional control, and psychological wellbeing [38]. The psychometric properties of the short scale are comparable to those of the longer instrument [3]. The shorter instrument was developed for use in primary care settings and epidemiological and clinical research [3, 26, 28, 32, 33, 38]. Numerous studies have shown that the MHI has good validity and clinical utility, and is an effective screening instrument for depression and anxiety (e.g., [5, 20, 24, 32, 43]). The MHI performs as effectively or better than established instruments such as the GHQ in identifying mood and anxiety disorders, with comparable or superior levels of specificity and sensitivity [3, 13, 20, 26, 42].

Our use of the MHI as an indication of likely psychiatric morbidity related to common mental disorders is consistent with other's use of the GHQ (e.g., [36, 37]) and the MHI (e.g., [10, 27]). The approach reflects the content of the scale (symptoms of anxiety and depression), the pattern of predictive validity evident in previous research, the commonality evident amongst internalising disorders and the comorbidity evident between anxiety and depression [17, 18, 30]. Scores on the MHI range from 0 to 100, with lower scores representing poorer mental health. Consistent with our previous research using the HILDA Survey (e.g., [12]), respondents with a score less than 50 were categorised as having mental health problems (10.5% of total adult population). We also repeated the analysis reported in this paper using the Mental Health Component Summary (MCS) rather than the MHI. The MCS is an aggregate of the eight subscale scores and represents severity of psychological symptoms, and social and role disability due to poor mental health [32]. The use of this scale produced an identical pattern of results to the MHI.

Several wave 1 covariates demonstrated by previous research to be associated with both mental health and marital instability were included: age; marital status (legally married or in common-law, de facto relationship); relationship duration; presence of dependent children aged under 16 years; physical disability (using the physical functioning scale from the SF-36); relationship dissatisfaction (a categorised measure of each respondents dissatisfaction with their relationship with their partner); educational attainment (categorised as tertiary degree, diploma or certificate, completed high school, not completed high school); employment status (employed, unemployed, not in labour force); experience of parental divorce; previous marriage-like relationships; and having left the parental home before age 16 years.

### Statistical analysis

The dependent measure for this analysis was relationship status in subsequent waves. Couples who remained in their relationship for the duration of follow-up were coded 0, while those who separated or divorced were coded as 1. Relationship status in the subsequent waves was based on each individual's reported marital status, interviewer coding of household membership and relationships in the household, and continued residence in the same household.

The couple was the unit of analysis. Initially, descriptive statistics were obtained on baseline (wave 1) characteristics. We examined baseline similarity between spouses on a range of measures using logistic regression models and correlations. In terms of assessing the relationship between baseline mental health and subsequent relationship dissolution, prospective logistic regression models examined whether wave 1 characteristics of both spouses predicted later marital disruption. The modelling approach began with a simple model and progressively added variables (including the term representing the interaction between spouses' mental health). Analysis used the *svy* procedures of STATA version 9 to

account for the complex survey design. Data were weighted to reflect probability of selection and response at wave 1. Across the variables examined, rates of missing data ranged from 0 to 2.2%. Cases with missing data were excluded on an analysis-by-analysis basis.

Preliminary logistic regression models (findings not reported) demonstrated that neither partner's mental health was associated with non-response and exclusion from the analysis. Further, the same pattern of results was obtained when the 600 couples who were not followed for all three subsequent waves were either (1) excluded from analysis, (2) were incorporated within the group of separating spouses (though the strength of effect was reduced and the effect of women's mental health problems was non-significant in model B3), or (3) were incorporated into the group with intact relationships. We also statistically corrected for possible selective attrition, using the range of variables from this analysis to predict the probability of couple response. The baseline weights supplied with the HILDA Survey data were re-weighted by the inverse of the probability of response, effectively adjusting the sample for the characteristics associated with attrition. The analyses reported in this manuscript use these adjusted weights, though the results did not differ from those obtained using the standard survey weights.

## Results

Data on the baseline characteristics of the couples are presented in Table 1. Most couples were legally married, and over a third had a dependent child or children. On average, men were slightly older than women. Levels of employment were relatively high for both men and women, though women were much more likely to be not in the workforce than men. Women were also more likely to have not completed high school, to report relationship dissatisfaction, and to be identified with mental health problems. Compared to women, men were more likely to have left home before the age of 16.

A series of logistic regression models demonstrated strong evidence of spouse similarity across a variety of characteristics. Crude odds ratios representing the association between spouses' baseline characteristics were: mental health problems (OR = 3.89, 95% CI 2.67–5.98); severe physical health limitations (4.65, 3.62–5.97); not completing high school (2.89, 2.42–3.42); tertiary degree (7.36. 6.07–8.94); current employment (11.14, 8.93–13.89); leaving home before the age of 16 (2.26, 1.26–4.05); previous marriage-like relationship (16.16, 12.82–20.39); and relationship dissatisfaction (11.09, 6.04–20.36). The correlation between spouses' age was 97.

Overall, 9.7% of couples separated during the study period. Couples were classified into four groups based on the combination of spouses' wave 1 mental health status (Table 2: Model A). Couples in which either men or women experienced mental health problems were significantly more likely (odds >2) to divorce/separate in the following 3 years than those couples in which neither spouse reported mental health problems. Couples in which both spouses reported mental health problems had much higher odds of marital disruption (OR = 4.71).

Examined a different way, Model B1 confirmed that both men and women's mental health problems

**Table 1** Baseline (wave 1) characteristics of couples

| | Couple-level characteristics | |
|---|---|---|
| Relationship status (%) | | |
| Married | 86.6 | |
| De facto | 13.4 | |
| Relationship duration in years | | |
| Mean (SE) | 21.1 (33) | |
| Presence of dependent children (%) | 38.9 | |
| | Individual-level characteristics | |
| | Men | Women |
| Mental health problems (%) | 7.9 | 8.7 |
| Age in years | | |
| Mean (SE) | 48.4 (0.34) | 45.8 (0.35) |
| Labour force status (%) | | |
| Employed | 72.6 | 56.6 |
| Unemployed | 2.8 | 2.4 |
| Not in labour force | 24.6 | 41.1 |
| Severe physical health limitations (%) | 17.0 | 15.3 |
| Educational attainment (%) | | |
| Tertiary degree | 21.0 | 19.8 |
| Diploma or certificate | 40.9 | 20.9 |
| Completed high school | 9.6 | 14.2 |
| Not completed high school | 28.6 | 45.2 |
| Experienced parental divorce (%) | 10.2 | 11.8 |
| Left home before age 16(%) | 6.7 | 4.1 |
| Previous marriage-like relationship (%) | 16.6 | 15.9 |
| Dissatisfaction with relationship (%) | 2.0 | 3.7 |

**Table 2** Prospective logistic regression models examining spousal mental health problems and subsequent marital dissolution

| Model | OR | 95% CI |
|---|---|---|
| Model A: classifying couples | | |
| Neither spouse with mental health problems | | |
| Men only with mental health problems | 2.57 | 1.68–3.93 |
| Women only with mental health problems | 2.16 | 1.44–3.23 |
| Both spouses with mental health problems | 4.71 | 2.31–9.61 |
| Model B1: main effects only | | |
| Men's mental health problem | 2.46 | 1.68–3.59 |
| Women's mental health problems | 2.07 | 1.43–2.99 |
| Model B2: main effects and interaction | | |
| Men's mental health problem | 2.57 | 1.68–3.93 |
| Women's mental health problems | 2.16 | 1.44–3.23 |
| Interaction: both mental health problems | 0.85 | 0.35–2.09 |
| Model B3: main effects and covariates[a] (all except relationship dissatisfaction) | | |
| Men's mental health problem | 2.48 | 1.67–3.69 |
| Women's mental health problems | 1.58 | 1.05–2.38 |
| Model B4: main effects and all covariates[b] (including relationship dissatisfaction) | | |
| Men's mental health problem | 2.33 | 1.57–3.48 |
| Women's mental health problems | 1.23 | 0.81–1.88 |

[a]Presence of dependent children under age of 16, marital status (legally married or de facto relationship), relationship duration, men and women's age, labour force status (employed, unemployed, not in labour force), physical health problems (derived from physical functioning scale of the SF 36), educational attainment (tertiary degree, diploma or certificate, completed high school, not completed high school), experience of parental divorce, left home prior to age of 16

[b]Model B3 + men and women's dissatisfaction with their relationship with partner

increased the risk of subsequent marital dissolution. However, the term representing the interaction between men and women's mental health (see Model B2) was not significant. Further, the inclusion of this interaction term (in an unweighted analysis to enable calculation of a log likelihood statistic) did not improve overall model fit (Wald $\chi^2(1) = 0.51$ ns). Thus, the increased rate of marital dissolution evident for couples in which both spouses reported mental health problems represented the additive effect of men and women's mental health problems.

Including the covariates in the main effects model (B3 and B4) had little effect on the relationship between men's mental health at wave 1 and subsequent marital disruption. The effect of women's mental health problems was reduced to non-significance following the inclusion of measures of both men and women's relationship dissatisfaction. Subsequent analysis (not presented) showed that this reflected the inclusion of women's own relationship dissatisfaction (rather than the measure of men's dissatisfaction).

Sensitivity analyses showed that the same pattern of results was obtained for different subgroups (couples with and without dependent children; couples in which spouses were aged 25 years or older; couples in which spouses were aged under 65 years; couples in their first marriage-like relationship; couples in legal marriages; couples in de facto relationships; couples with relationship duration of greater than 3 years) and using different measures of mental health (using categories from the MHI based on different cut-points, using the MHI as a continuous scale, and using the MCS score).

## Discussion

The results of this study showed that couples in which either men or women reported poor mental health at baseline had greater rates of marital dissolution than couples in which neither spouse experienced mental health problems. Those couples in which both spouses reported mental health problems had much higher rates of subsequent marital disruption, but this reflected the additive combination of each spouse's separate risk and there was no additional risk arising from the co-occurrence of mental health problems in both spouses. The inclusion of covariates did not explain the association between men's mental health and relationship disruption, though their inclusion and particularly the inclusion of relationship (dis)satisfaction in the model, accounted for much of the association between women's mental health and divorce.

The current results are consistent with previous evidence showing that psychiatric disorders and mental health problems predict later marital disruption [14, 16, 31]. However, our aim was to examine the effect of mental health problems at the couple level. There are a number of reasons to focus on couples in which both spouses have mental health problems. Merikangas [23] argued that the elevated rates of divorce amongst couples homogenous for psychiatric disorders reflected the lack of redundancy within the relationship. In couples in which only one partner is ill, the well spouse is able to compensate for the impairment experienced by the other. Such compensation is not possible for couples in which both partners experience mental illness. On the other hand, interpersonal theories of mental illness [2, 7, 8, 29] argue that the mental illness of one spouse may have adverse effects on patterns of communication or interactions, disrupting routines, generating stress and burden on the relationship, and may elicit marital conflict and reduce relationship quality [4, 40]. Whisman et al. [41] reported that own and spouse depression were independently associated with own ratings of marital quality. Thus, the interpersonal aspects of psychiatric disorders at the individual level may impact on relationship processes, relationship quality and, through this, increase the risk of relationship disruption [15].

A different class of explanations focus on the causes of spouse similarity [6, 11, 21, 22]. Theories of assortative mating propose that spouse similarity is an indication of the factors that drive mate selection [21, 22]. Partner selection may be based upon consistency in mental health [11]. Alternatively, other social, cultural or interpersonal characteristics may underlie partner selection, and these may be responsible for the shared increased risk of mental health problems [19, 21, 22]. The critical point is that the factors that lead to partner selection and thereby differentiate couples concordant for mental illness from other couples (e.g., disadvantaged social background or childhood adversity, [21]) could also increase the couple's risk of marital disruption.

We found strong evidence of spouse similarity for a range of characteristics, including mental health. While our result showing that couples homogenous for mental health problems had increased rates of marital dissolution was similar to Merikangas [23], there was no evidence of a multiplicative effect of spouses' mental health. The absence of an interaction suggests that the factors associated with assortative mating for mental health do not predispose couples to greater marital instability. Thus, we cannot argue that the characteristics of couples homogenous for mental health problems differentiates them from other couples and increases their risk. The current results also do not support hypotheses that the increased burden or lack of available support within couples where both spouses experience mental health problems increases their risk of marital dissolution [22]. Rather, marital dissolution seemed related to mental health problems at the individual level.

While the initial strength of association between baseline mental health problems and subsequent

marital disruption was similar for men and women, we did find some evidence of gender differences once covariates were included. The effect of women's mental health on marital disruption was more strongly mediated by the range of covariates examined (including relationship satisfaction) than for men. There is some evidence (e.g., [39]) that the association between mental health and marital dissatisfaction is stronger for women than for men (though see [41]) which could explain the current results. The current finding could also be an artefact, indicating that the selected covariates were more relevant to women than men. Alternatively, the current results could reflect real gender differences in the nature of the association between marital disruption and mental health problems. A longitudinal study by Fincham and colleagues [9] reported that, for women, marital dissatisfaction was best conceptualised as a cause of depression, whereas for men the causal path was stronger leading from depression to marital dissatisfaction. Similarly, the current results could indicate that mental health problems (and the association with marital disruption) are more firmly embedded in the broader social context of women's lives and, therefore, more readily explained by the range of covariates. Whereas for men, the association between mental health problems and divorce is independent of these background and contextual factors. This finding of possible gender differences warrants further investigation, including greater consideration of gender differences in mediators of the association between mental health problems and divorce.

Despite the prospective methodology, we cannot exclude the social causation hypothesis. In the current study, the mental health problems observed up to three years prior to divorce/separation may be due to marital conflict and estrangement associated with the process of marital dissolution. The specific aim of the current study was to extend and replicate the analysis of Merikangas. While our findings differ from the previous results, there were some methodological differences which could have influenced our findings. Whereas Merikangas used a small clinical sample, we analysed data from a large population survey, controlled for a range of relevant covariates (including socio-demographic characteristics, relationship measures, physical health and measures of early adversity included in the HIDLA Survey such as parental divorce and leaving home at an early age), and defined mental health problems using a self-completion symptom scale. In other respects, we sought to remain consistent with the methodology of Merikangas. We followed couples over a similar time period, and utilised a prospective design. As such, we feel this study represents an important contribution to the research literature. However, we also acknowledge the limitations of our approach. Importantly, we did not consider the dynamic nature of the association between the mental health of spouses and relationship quality over time, nor is our period of investigation sufficient to disentangle competing explanations. When further data are available, we will attempt to differentiate social causation and social consequence, as well as exploring temporal differences in the onset of mental health problems within couples.

While the results of the current study did not provide evidence of couple-level mental health effects, we did show that the likelihood of couple separation reflects additive effects of men and women's mental health problems. We consider that further investigation of the social context of marriage is important to promote better understanding of the causes and social consequences of psychiatric illness. This requires the use of research methods that collects data from both spouses to study interactive effects and employs more robust diagnostic measures.

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