

Gender differences in the mental health of single parents: New Zealand evidence from a household panel survey

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Abstract

Background In many countries single parents report poorer mental health than partnered parents. This study investigates whether there are gender differences in the mental health of single parents in New Zealand (and whether any gender difference varies with that among partnered parents), and examines key social and demographic mediators that may account for this difference.

Methods We used data on 905 single parents and 4,860 partnered parents from a New Zealand household panel survey that included the Kessler-10 measure of psychological distress. Linear regression analyses were used to investigate both interactions of gender and parental status, and confounding or mediation by other covariates.

Results High/very high levels of psychological distress were reported by 15.7 % of single mothers and 9.1 % of single fathers, and 6.1 % of partnered mothers and 4.1 % of

partnered fathers. In an Ordinary Least Squares regression of continuous K10 scores on gender, parental status and the interaction of both (plus adjustment for ethnicity, number of children and age), female single parents had a 1.46 higher K10 score than male single parents (95 % CI 0.48–2.44; 1.46). This difference was 0.98 (95 % CI –0.04 to 1.99) points greater than the gender difference among partnered parents. After controlling for further confounding or mediating covariates (educational level, labour force status and socioeconomic deprivation) both the gender difference among single parents (0.38, –0.56 to 1.31) and the interaction of gender and parental status (0.28 greater gender difference among single parents, –0.69 to 1.65) greatly reduced in magnitude and became non-significant, mainly due to adjustment for individual socioeconomic deprivation.

Conclusion The poorer mental health of single parents remains an important epidemiological phenomenon. Although research has produced mixed findings of the nature of gender differences in the mental health of single parents, our research adds to the increasing evidence that it is single mothers who have worse mental health. Our findings on the potential explanations of the gender difference in sole parent mental health suggest that socioeconomic deprivation is a key contributor.

Statistics New Zealand security statement Access to the data used in this study was provided by Statistics New Zealand in a secure environment designed to give effect to the confidentiality provisions of the Statistics Act, 1975. The results in this study and any errors contained therein are those of the authors, not Statistics New Zealand.

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Introduction

Mental health of single parents

In 2007, single parent families constituted over 20 % of all households with children in Australia, Canada, Iceland,

Ireland, the United Kingdom (UK), the United States (US) and Canada [1]. In New Zealand (NZ), according to the latest Census data, 28.1 % of families with dependent children were headed by a single parent [2]. There is an extensive evidence documenting the higher prevalence of social and economic hardship among single parent families in NZ [3–8] and in other high-income countries [9–11]. These poor social and economic circumstances in turn, have been linked to numerous adverse health outcomes for single parents [5, 7, 12], especially single mothers, and include poorer physical health [10, 12–15] and higher rates of criminal victimisation [16, 17]. In this context, it is perhaps unsurprising that single parents fare poorly in regard to their mental health status. There is extensive international [11–13, 18–23] and some local evidence [13, 15, 18] confirming the poor mental health status of single parents. Although there are some exceptions [18, 23], the majority of this research focuses on the mental health of single mothers often in comparison with partnered mothers (as opposed to comparison with single fathers). While most single parents in NZ and other similarly developed countries are women, a significant proportion (16 % in NZ) are men [4] and in a number of countries the proportion of families headed by a single father is increasing [23]. Yet, we know little about the mental health status of these single fathers and whether they suffer from poor mental health to the same extent as that typically reported by their female single parent counterparts. As men are less likely than women to seek mental health care [24] addressing this information gap is particularly important as single fathers may be an underserved population. It is also important to know if the single parent family structure itself has adverse mental health effects for both sexes, because if it does this might indicate a generic policy-based approach rather than gender specific or clinical interventions. Moreover, understanding the mental health status of single parents is important because of the strong evidence that poor parental mental health has negative impacts on the health and development of children [25–27] and the evidence that children living in single parent families have poorer mental health than children living in two parent families [28].

Current evidence

There are mixed findings from the small body of research that has examined either the mental health of single fathers (exclusively) or the mental health of single parents by gender. A US study [29] examining the mental health impacts of changes in family structure amongst fathers showed that continuously single fathers had significantly more mental health problems than continuously married fathers. That single fathers report worse mental health than partnered fathers was also confirmed in a UK study based

on the National Psychiatric Morbidity Survey [30]. It reported higher rates of common mental disorders (measured by the Clinical Interview Schedule) amongst single parents and showed that while lone mothers were almost twice as likely (28.4 %) to have a common mental disorder as partnered mothers (16 %); lone fathers had even higher rates at 33.6 % compared to 13.3 % for partnered fathers [30].

On the other hand, data from a nationally representative mental health survey in NZ showed that, although there were some differences in the types of disorders reported by gender, male and female single parents were equally likely to report having a mental disorder as defined by items in version 3.0 of the Composite International Diagnostic Interview which yields DSM-IV or ICD-10 diagnoses, including (lifetime, 1 month and 12 month prevalence of) anxiety, mood, substance use disorders (SUDs), eating disorders and suicidality [18]. Using the same mental health measure, but with data from a Canadian population-based health survey, Wade et al. [41] reported similar findings. The study found no significant gender differences in overall psychiatric morbidity amongst single parents (once SUDs were included), although single mothers reported higher rates of any anxiety or any mood disorder. This contrasts with findings from an earlier Canadian study where elevated rates of psychological distress were found amongst single mothers alongside elevated alcohol use amongst younger single mothers [31].

Whether these discrepant findings reflect real differences in mental health status or are an artefact of the various study designs, measures or reference groups from which comparisons in mental health status have been made, is unclear. As inconsistent as this evidence is, taken together it suggests, at the very least, that single fathers, like single mothers, have poorer mental health than their partnered counterparts.

The research questions informing the current New Zealand-based study are: (1) are there gender differences in the mental health status of single parents? And if so, how do these gender differences compare with those seen amongst partnered parents? And (2) what social and demographic mediators account for this difference?

Methods

The association between mental health, gender and single/partnered parent status was investigated using a cross-sectional analysis of data from Wave 3 (2004/05) of the longitudinal Survey of Families, Income and Employment (SoFIE). SoFIE is a household panel survey of (a random sample of) the usually resident population living in 'private households' in NZ (this definition includes those living in

public housing but excludes those living in institutions such as rest homes and prisons, hotels, hostels and boarding houses), containing annual data, obtained via face-to-face interviews, on individual, family, demographic, economic and socioeconomic factors [32]. Wave 3 of the study included a detailed health module with data on mental health status.

The initial sample comprised approximately 11,500 responding private households (response rate of 77 %) with 22,270 adults responding in Wave 1. This reduced to 19,225 adults in Wave 3 (85 % of Wave 1 responders). Our analysis was restricted to original sample members still responding in Wave 3, who were parents (of at least one child under age 18).

Exposure and main outcome measures

The exposure of interest was gender (of parent) and the main outcome measure was psychological distress as measured by the Kessler-10 (K10). This measure of global psychological distress uses a standard 10-item self-report questionnaire based on questions about the level of anxiety and depressive symptoms in the preceding 4 weeks. The psychometric properties of the K10 have been well described and it is a good predictor of DSM-IV criteria for anxiety and mood disorders [33, 34], and critically, for the current analysis, the predictive validity of the K10 has been shown to be consistent by gender and socioeconomic status [35]. For the initial bivariate descriptive analyses, the K10 scores were classified into “low” (scores of 10–15), “moderate” (16–21), and “high/very high” (22–50) [33, 36]. For regression analyses, the K10 was modelled as linear (due to small numbers of particularly male single parents).

Demographic and socioeconomic measures

The choice of demographic and socioeconomic variables for this investigation was determined by evidence from the literature. The four demographic confounders (known to be associated with the exposure and the outcome and not in the causal pathway) were age; ethnicity (NZ European, Māori, Pacific, Asian or other); [37] legal marital status (single or couple parents could be legally married or divorced, separated, widowed or never married); and having a pre-school age child (in NZ a child under the age of five). The five potential explanatory socioeconomic mediators considered were: household composition (‘one’ or ‘two or more’ families living in the same house)—as a proxy for adult social support (we believe this to be a poor proxy measure but it was the only measure available in SoFIE); labour force status (‘not employed and looking for work’, ‘not employed and not looking for work’, or

‘employed’); highest educational qualification (‘degree’, ‘post-school qualification’, ‘school qualification’, ‘no qualification’); housing tenure (private house ‘owned’ or ‘not owned’)—as a measure of wealth; and the NZ Individual Deprivation Index (NZiDep)—as a measure of individual deprivation [38]. The NZiDep is a composite score derived from eight items where the respondent reported any of the following in the past 12 months: (1) forced to buy cheaper food to afford other necessities; (2) been unemployed for 4 or more weeks; (3) feeling cold to save on heating costs; (4) receiving help in the form of clothes or money from a community organisation; (5) going without fresh fruit and vegetables to afford other necessities; (6) having to wear shoes with holes; (7) receiving an income-tested benefit; (8) obtaining special food grants or using food banks due to lack of money. For the bivariate and regression analyses, the NZiDep was coded into three levels of deprivation: no deprivation (reporting 0 deprivation items), some deprivation (1–2 items) and high deprivation (3 or more items).

Statistical analysis

Linear regression was used to investigate the association of gender, family status and psychological distress, including the main effects for gender and family status and an interaction between gender and family status. The model building was informed by the literature on the mental health of sole parents, theoretically plausible causal pathways and knowledge of the survey data. Models were developed adjusting for individual demographic confounders and socioeconomic mediators separately to investigate their impact on the association between gender and psychological distress. After examining the descriptive results, household composition, marital status and housing tenure were excluded from the regression models. Household composition was excluded because gender differences were minimal (see Table 1) and further, compared with other research in this area, it is a poor measure of social support. Housing tenure, our indicator of wealth, was excluded because its likely impact on mental health would be via its association with socioeconomic circumstances, which is captured by the NZiDep. Marital status was excluded because it is highly correlated with single or couple parent status (all single parents are by definition not living in a defacto partnership—although they may still be technically married as is evident from the data in Table 1).

The confounders included in the regression models were age, ethnicity (dichotomised as Māori or non-Māori) and having a pre-school age child (or not). The key socioeconomic mediators included were highest educational qualification (dichotomised as ‘secondary or less’ or ‘post-school’), labour force status (dichotomised as ‘working’ or

Table 1 Psychological distress and demographic and socioeconomic characteristics of male and female single and partnered parents

All	Couple parent			Single parent		
	Total ^b 4,860	Male (%) ^a 2,335	Female (%) ^a 2,525	Total ^b 905	Male (%) ^a 110	Female (%) ^a 795
Kessler-10						
Mean (Std Dev)	13.2 (4.3)	12.9 (3.9)	13.5 (4.7)	15.4 (6.5)	14.0 (4.9)	15.6 (6.7)
Low (10–15)	3,920	82.4	79.0	590	68.2	64.8
Moderate (16–21)	685	13.5	14.7	175	18.2	19.5
High (22–50)	250	4.1	6.1	135	9.1	15.7
Age						
15–24	100	1.3	2.8	70	4.5	8.2
25–34	1,150	19.9	27.1	260	13.6	30.8
35–44	2,230	43.9	47.7	370	40.9	40.9
45–54	1,210	29.3	20.8	170	27.3	17.6
55–64	150	4.9	1.4	25	9.1	1.9
65+	20	0.6	0.2	10	4.5	0.6
Ethnicity						
NZ European	3,440	71.1	70.5	505	50.0	56.6
Māori	645	12.6	13.9	280	31.8	30.8
Pacific	275	5.8	5.5	70	4.5	8.2
Asian	355	7.1	7.5	30	4.5	3.1
Other	145	3.4	2.6	10	0.0	1.3
Marital status						
Married	4,005	83.7	81.2	30	4.5	3.1
Divorced	165	3.2	3.6	190	22.7	20.8
Widowed	10	0.2	0.2	40	4.5	4.4
Separated	55	1.1	1.2	215	31.8	22.6
Never married	630	12.0	13.9	425	31.8	49.1
Pre-school age child						
No	2,975	61.5	61.0	635	81.8	68.6
Yes	1,885	38.5	39.0	260	9.1	31.4
Household composition						
One family	4,650	95.9	95.4	770	81.8	85.5
Two or more families	110	2.1	2.4	85	9.1	9.4
Labour						
Not employed, looking	70	1.5	1.4	50	4.5	5.7
Not employed, not looking	770	5.6	25.3	325	18.2	38.4
Working	4,025	93.1	73.3	520	68.2	56.0
Highest qualification						
Degree	1,020	21.6	20.4	100	9.1	11.1
Post-school	1,850	41.3	35.0	370	45.5	39.5
School qualification	1,255	20.8	30.5	215	13.6	24.7
No qualification	740	16.5	14.1	230	27.3	24.7
Housing tenure						
Not owned (renting)	1,290	25.9	27.1	555	45.5	62.3
Owned	3,570	74.1	72.9	355	45.5	37.7
NZiDep 8-item measure						
No deprivation	3,490	76.9	67.1	170	36.4	16
Some deprivation	1,080	18.6	25.5	360	31.8	40.1

Table 1 continued

All	Couple parent			Single parent		
	Total ^b	Male (%) ^a	Female (%) ^a	Total ^b	Male (%) ^a	Female (%) ^a
	4,860	2,335	2,525	905	110	795
High deprivation	295	4.7	7.3	370	22.7	42.6

^a Some percentages do not add up to 100 % in some cases where there was missing data on a variable

^b The numbers of respondents are random rounded to the nearest multiple of five with a minimum value of 10, as per Statistics New Zealand confidentiality protocol

‘not working’) and the three-category NZiDep. Model 1 included the main effects for gender and family status and an interaction between gender and family status. Model 2 (baseline) controlled for the socio-demographic confounders. The socioeconomic explanatory variables were then individually added (Models 3, 4 and 5) to examine their contribution to the gender differences in psychological distress. All confounders and explanatory variables were adjusted for in the final Model 6. The Hausman test for mediation was used to test for a significant change in the beta estimates once the mediating factors were added to the baseline model controlling for demographic confounding [39, 40]. All analyses were conducted using individual unit data (SoFIE Wave 1 to 7 data Version 2) in SAS 8.2 in the Statistics NZ data laboratory. All numbers are rounded to a multiple of five in concordance with the Statistics NZ confidentiality protocol.

Results

Descriptive findings

There were 4,860 partnered parents and 905 single parents with dependent children in Wave 3 of SoFIE. Of single parent families, 12.2 % ($n = 110$) were headed by fathers. Table 1 shows the psychological distress and demographic and socioeconomic characteristics of male and female single and partnered parents.

Psychological distress

In mental health terms, single mothers fared considerably worse than single fathers, with 15.7 % of single mothers reporting high/very high levels of psychological distress (K10 mean = 15.6, standard deviation = 6.7), compared to 9.1 % of single fathers (K10 mean = 14.0, standard deviation = 4.9). Conversely, male single parents were more likely than single female parents to report low levels of psychological distress. Comparatively, for partnered parents, the gender difference in high/very high levels of psychological distress was small, at 6.1 % for partnered

mothers (K10 mean = 13.5, standard deviation = 4.7) compared to 4.1 % for partnered fathers (K10 mean = 12.9, standard deviation = 3.9).

Demographic and socioeconomic characteristics

There were no major gender differences in the ethnic composition of the single parents (71.1 % European single fathers compared to 70.5 % single mothers) or couple parent populations (50.0 % for single fathers compared to 56.6 % for single mothers), although there were important ethnic differences by family type with partnered parents much more likely than single parents to be of NZ European descent. There were some age differences also, with single fathers generally older (40.8 % over age 45) than single mothers (20.1 % over age 45). The key differences in marital status are between the male and female single parents, where it is evident that a higher proportion of single mothers were classified as ‘never married’ (49.1 % compared to 31.8 % for single fathers). Home ownership was more common amongst partnered parents (72.9–74.1 %) than single parents (37.7–45.4 %), and gender differences in housing tenure, with male single parents reporting higher home ownership (45.5 %) than female single parents (37.7 %) are evident. Differences in household composition (our proxy for social support) between single and couple parent families are apparent with single parents more likely (81.8–85.5 %) than couple parents (95.4–95.9 %) to be living in a house with two or more families, although the gender differences in household composition for single parents are negligible (81.8–85.5 %). There are no real gender differences in the highest educational qualification; however, there are important differences between couple and single parents with single parents more likely to have no qualification (24.7–27.3 % compared to 14.1–16.5 % couple parents).

Amongst single parents, the most striking gender differences potentially relevant in explaining the poorer mental health of single mothers were having a pre-school age child (31.4 % for single mothers; 9.1 % for single fathers), labour force status (44.1 % single mothers not employed compared to 22.7 % single fathers) and

Table 2 OLS linear regression results for K10 score in adjusted and unadjusted models

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	β	95 % CI	β	95 % CI	β	95 % CI	β	95 % CI	β	95 % CI	β	95 % CI
Intercept	14.04		13.67		13.52		13.00		11.91		11.65	
Female	1.58	(0.60 to 2.56)	1.46	(0.48 to 2.44)	1.43	(0.45 to 2.41)	1.18	(0.21 to 2.15)	0.46	(-0.48 to 1.40)	0.38	(-0.56 to 1.31)
Male	0.00		0.00		0.00		0.00		0.00		0.00	
Couple parent	-1.13	(-2.08 to -0.19)	-1.05	(-1.99 to -0.10)	-1.04	(-1.98 to -0.09)	-0.67	(-1.61 to 0.26)	0.17	(-0.73 to 1.08)	0.28	(-0.63 to 1.18)
Single parent	0.00		0.00		0.00		0.00		0.00		0.00	
Couple parent \times female	-1.03	(-2.04 to -0.01)	-0.98	(-1.99 to 0.04)	-0.98	(-1.99 to 0.03)	-1.05	(-2.06 to -0.05)	-0.19	(-1.16 to 0.78)	-0.28	(-1.25 to 0.69)
Couple parent \times Male	0.00		0.00		0.00		0.00		0.00		0.00	
Māori	0.53	(0.19 to 0.87)	0.53	(0.19 to 0.87)	0.49	(0.15 to 0.83)	0.39	(0.05 to 0.72)	0.09	(-0.23 to 0.42)	0.03	(-0.30 to 0.35)
Non-Māori	0.00		0.00		0.00		0.00		0.00		0.00	
Age 15–24	1.39	(0.58 to 2.20)	1.39	(0.58 to 2.20)	1.25	(0.44 to 2.06)	1.22	(0.42 to 2.01)	0.62	(-0.15 to 1.39)	0.53	(-0.25 to 1.30)
Age 25–44	0.39	(0.09 to 0.69)	0.39	(0.09 to 0.69)	0.37	(0.07 to 0.67)	0.44	(0.15 to 0.74)	0.27	(-0.02 to 0.56)	0.30	(0.01 to 0.58)
Age 45+	0.00		0.00		0.00		0.00		0.00		0.00	
No child aged <4	-0.10	(-0.37 to 0.18)	-0.10	(-0.37 to 0.18)	-0.12	(-0.40 to 0.16)	0.16	(-0.12 to 0.44)	0.17	(-0.10 to 0.44)	0.27	(0.00 to 0.54)
Child aged <4	0.00		0.00		0.00		0.00		0.00		0.00	
No post-school education	0.49	(0.24 to 0.74)	0.49	(0.24 to 0.74)	0.00		0.00		0.00		0.20	(-0.04 to 0.44)
Post-school education	0.00		0.00		0.00		0.00		0.00		0.00	
Not working	1.80	(1.48–2.12)	1.80	(1.48–2.12)	0.00		0.00		0.00		0.89	(0.58–1.21)
Working	0.00		0.00		0.00		0.00		0.00		0.00	
3 + Deprivation measures	5.18	(4.75–5.60)	5.18	(4.75–5.60)	5.18	(4.75–5.60)	5.18	(4.75–5.60)	5.18	(4.75–5.60)	4.85	(4.42–5.29)
1–2 Deprivation measures	1.51	(1.23–1.80)	1.51	(1.23–1.80)	1.51	(1.23–1.80)	1.51	(1.23–1.80)	1.51	(1.23–1.80)	1.38	(1.09–1.67)
No deprivation	0.00		0.00		0.00		0.00		0.00		0.00	

individual socioeconomic deprivation (42.6 % of single mothers reporting high deprivation compared to 22.7 % of single fathers). Having a pre-school age child was twice as common amongst single mothers than single fathers and single fathers were more likely than single mothers to be in paid employment—although the comparative gender differences amongst couple parents in employment is larger). There were also key differences in individual socioeconomic deprivation between single and partnered parents, with a much higher proportion of single parents experiencing high deprivation, especially single mothers (with 42.6 % experiencing high deprivation compared to 22.7 % for single fathers).

Analytical findings

To understand better why single mothers in the SoFIE study reported higher levels of psychological distress than their male counterparts, we examined the impact of key demographic and socioeconomic measures on the association between gender and psychological distress. A summary of the key results of the regression models are presented in Table 2.

The crude unadjusted estimate in Model 1 shows that single mothers had significantly higher psychological distress than their male counterparts, scoring on average 1.58 (95 % CI = 0.60–2.56) K10 points higher than single fathers and the gender \times family structure interaction was significant. After adjustment (Model 2) for confounders (age; ethnicity; and age of youngest child) the gender difference in K10 reduced to 1.46 (0.48–2.41), but remained significant. This difference was 0.98 (95 % CI –0.04 to 1.99) points greater than the gender difference among partnered parents.

After adjusting for education (Model 3), the estimate for gender did not change significantly. However, after adjusting labour force status (Model 4) the gender effect reduced considerably to 1.18 K10 points higher, indicating that labour force status plays an important part in explaining the difference in psychological distress between male and female single parents. However, the addition of socioeconomic deprivation (as measured by NZiDep: Model 5) reduced the difference in average K10 scores by 1.00–0.46 (CI of –0.48 to 1.40). In the final fully adjusted (demographic, family and socioeconomic characteristics) Model 6, the difference in psychological distress between male and female single parents reduced further to 0.38 (–0.56 to 1.31) and individual socioeconomic deprivation remained significantly associated with psychological distress.

To summarise, the confounder adjusted gender difference in K10 scores reduced by 2 % after adjustment for education (Model 2 vs Model 3), by 17 % for labour force

status and by 61 % for socioeconomic deprivation, or 74 % when adjusting for all three explanatory variables simultaneously (Model 2 vs Model 6). Apart from education, all the socioeconomic explanatory variables made a statistically significant contribution to mediation according to the Hausman test.

Discussion

We found significant gender differences in the mental health of New Zealand single parents in the SoFIE study, with single mothers scoring on average 1.58 Kessler-10 points higher than single fathers (95 % CI = 0.60–2.56). This gender difference was 0.98 (95 % CI –0.04 to 1.99) points greater than the gender difference among partnered parents.

The gender difference amongst single parents reduced to 1.46 Kessler-10 points after controlling for confounders (age, ethnicity, having a pre-school aged child) although it was still statistically significant (95 % CI = –0.48 to 2.44). Adjustment for mediating variables (educational level, labour force status and socioeconomic deprivation) accounted for 74 % of the excess psychological distress amongst single mothers with socioeconomic deprivation accounting for the greatest proportion of the excess.

As we have noted, research examining gender differences in the mental health of single parents has produced mixed results. Our finding of the higher rates of psychological distress amongst single mothers is consistent with the findings of Avison and Davies [31] from the Canadian population health survey and inconsistent with those reported by Cooper et al. [30] in their UK study, which found higher psychiatric morbidity amongst single fathers. Our results are not directly comparable with those reported by Tobias et al. [18] for NZ, and Wade et al. [41] for Canada, where no gender differences in the overall mental health of single parents were observed, as our measurement of mental health does not identify SUDs.

Substance use disorders are reportedly more common amongst men generally [42], which raises the issue of potential gender bias in our assessment of psychological distress. Post hoc, as we had data on alcohol consumption in SoFIE, we examined whether there were in fact gender differences in hazardous levels of alcohol consumption (binge drinking and high average weekly consumption). On both measures, hazardous alcohol consumption was higher amongst single fathers than single mothers. However, due to the low number of single fathers in our sample and a high proportion of missing data on alcohol consumption (particularly from the single mothers), we could not make a meaningful comparison from which to draw a conclusion. Therefore, our results may overstate the case of gender

differences in psychological distress. Further research on this matter (and other SUDs) is indicated.

Socioeconomic deprivation and psychological distress

The key explanation for the observed gender difference in psychological distress in our analysis of the SoFIE data was individual socioeconomic deprivation. As an explanation of gender differences in the mental health status of single parents, this is a new finding. However, that socioeconomic deprivation is linked to poorer mental health has been widely documented for the general population [24] and for the single parent population in particular [11, 22].

That single mothers are exposed to greater levels of socioeconomic deprivation than single fathers has important policy implications. To understand these, we need to consider why it is that single mothers have greater exposure to material deprivation than single fathers. Data from our study provide a few clues as to why this is the case.

First, single mothers were less likely than single fathers to be in employment (and employment had a marginal significant effect in the final model). How men manage to remain in employment while parenting alone in greater numbers than women is an area worthy of further investigation. Perhaps single fathers receive greater levels of social support (e.g. more informal help with child care) than single mothers. In any case, the greater financial returns (higher salaries) for paid employment that are typically enjoyed by men will act as an important buffer against socioeconomic deprivation amongst working single fathers. Working single mothers by comparison are likely to earn less on average due to the gender pay gap and the impacts of downward occupational mobility often experienced by mothers re-entering the workforce after child rearing. Further, in our sample the younger age of the female single parents is likely to be linked to lower wage levels.

Differences in legal marital status also hold another clue. Women were more likely than the men in the sample to have never married. This may have impacted negatively on their ability to accrue wealth, for instance, via home ownership. It is difficult to purchase a home on one income and the data on gender differences in housing tenure (Table 1) shows that the women in the sample were less likely to own their own home than the men. Such a difference may contribute to gender differences in financial strain or debt, both factors also identified as contributing to poorer mental health amongst single mothers [11, 22]. Levels of child support from the non-custodial spouse are another area worthy of investigation, although this information is difficult to obtain in NZ due to lack of published data. All of these potential explanations for single mothers' greater exposure to material deprivation should be considered when

formulating a policy response to address gender differences in the psychological distress of single parents.

Strengths and limitations

With a sample of just under 1,000 single parents and a unique combination of an established measure of mental health with social, economic and demographic variables, this dataset provides one of the few opportunities to investigate our research question. A further strength lies in use of the extant literature in combination with a theoretically plausible statistical model of pathways examining the potential impact of gender of the association between single parent status and mental health. This has enabled us to provide a unique conceptualisation of social and structural disadvantage as potential explanatory variables for the correlation between single parent status and poorer mental health. Finally, unlike many previous studies, ours is not limited to more vulnerable single parent population groups such as those on low incomes or on welfare.

One important limitation of this study concerns the potential underrepresentation of single parent families in SoFIE study which is difficult to quantify. There are definitional differences of single parent family in SoFIE (single parents with dependent children under 18) and in the general population (single parents with children dependent or not). This means that the proportion of single parents in the SoFIE dataset is 15 % cannot be directly compared to the general population at 28 %. The actual underrepresentation compared to the general population will lie between these two figures.

However, it is probable that there has been a degree of selective sample attrition. As one of the key reasons for sample attrition in SoFIE was inability to make contact with respondents, it is plausible, given that single parent families are typically more geographically mobile (they are more likely to rent and therefore move house more often), that the single parents in SoFIE are not representative of these more mobile single families. It is difficult to speculate, in the absence of further data on mobile sole parent families, on how this might have affected our findings. Because SoFIE was not designed to examine sole parent families or parenthood in general (it was designed to examine income and labour market dynamics), this issue is an unavoidable limitation to our study.

Another limitation of our study is the small number of single fathers ($n = 110$). This problem, which affects the statistical power when there are multiple variables in a model, is not unique, having been previously noted by researchers in this field. Yet, with the exception of the large study by Wade et al. [41], the number of males in our sample was comparative to that of similar studies [18, 30, 31].

Health service, social service and policy level implications

The high rates of psychological distress experienced by single mothers may indicate the need for tailored responses at the health service, social service and policy levels. At the health service level, there are some important implications especially for those working in the primary care setting. Given that, for the majority of the population and for mothers in particular, the first and sometimes only contact with the health system is via the primary care setting, there is an opportunity here for the improved identification and management of psychological distress in this vulnerable population group. GPs might do well to consider single parent status as a cue for inquiring about mental health, particularly if such women are also living in poor socioeconomic circumstances. Although GPs may not be in a position to address the socioeconomic factors contributing to higher rates of psychological distress, such factors should be taken into consideration when formulating clinical interventions. For instance, if money is so tight that there is no phone or internet access at home, or there is no access to a car, then referrals to Web-based mental health resources and helplines or health services some distance away may not be as appropriate as home visits or referral to local health services.

At the social service level, our results provide useful information for providers and designers of social services, especially welfare services, to families headed by single mothers. To date, the social welfare system in NZ has not prioritised the mental health of its client population, let alone single mothers living in poor socioeconomic circumstances. We would argue that policymakers in the area of social welfare need to include good mental health, alongside paid employment, as a desirable outcome for single parent families. This is especially important in light of the evidence of the link between poor parental and offspring mental health [25–27]. The inclusion of good mental health as a desirable outcome by social service organisations may require some assessment of the mental health status of clients of such organisations. The introduction of such an assessment would require a thorough consideration of the potential risks and benefits and consultation with those likely to be affected. For instance, from the client point of view, screening for psychological distress might only be acceptable if it was optional and undertaken by a trustworthy provider. Once assessed, those reporting higher levels of psychological distress could be offered additional social and economic support as appropriate.

To effectively address the wider socioeconomic issue, policymakers need to consider a range of mechanisms for improving the economic situation of families headed by

single mothers, both in and out of employment. This should be informed by a thorough investigation into the causes of single mothers' greater socioeconomic deprivation. An effective repertoire of policy options is likely to include an examination of the adequacy of welfare benefits and supplements, assistance with housing costs, childcare assistance, and an assessment of the adequacy of financial child support arrangements. In addition, any policy that potentially impacts on single parent families in the areas of employment, taxation and child support should also be assessed for any gendered impacts and for potential policy discrimination against the single parent family type.

Future research

Future research should consider other factors that are likely to contribute to the poorer mental health of single mothers. These factors include: previous exposure to family violence; [17] the stigma associated with single parent status [10, 13] which may be gendered; social support, social exclusion and loneliness or isolation [43].

Conclusion

Often when there are no data on a particular issue, it is easy to ignore a problem at the policy level. As our study documents a significant gender difference in the mental health of single parents is an issue that can no longer be ignored. While there is a need for specific responses at the health and social service levels, we suggest that a high-level public policy approach to address the socioeconomic deprivation experienced by female headed single parent families, both in and out of work, is required. An assessment of the mental health status of vulnerable single parents may also be indicated, first, to get mental health on the agenda of key social service agencies and then to provide greater social and economic assistance to vulnerable single parent families. However, we would caution that such an option needs careful consideration of the potential risks and benefits and discussion with those involved. Failure to improve the drivers of poor mental health in this vulnerable population group seems likely to sabotage single parents' efforts to seek and sustain employment and, given other evidence to date, continue to produce negative mental health outcomes for the children involved.

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