



Article

Adverse outcomes in bereaved mothers: The importance of household income and education



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ABSTRACT

Intense and enduring psychological distress has been well-documented in numerous studies on bereaved parents including anxious, depressive, and traumatic stress symptoms. A state of poverty is also known to increase the risk of psychological distress in the general population, yet this variable has not yet been sufficiently evaluated in outcomes specifically for bereaved parents. This study is the first to investigate poverty, education, and parental bereavement while examining the relative risk of other variables as informed by the literature. The findings reveal that poverty was the strongest predictor of psychological distress when compared to others factors which have traditionally been considered significant in parental bereavement. Bereaved parents living in poverty may be less likely to seek support and have fewer available resources. Practice and policy implications are discussed.

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Introduction

Intense and enduring psychological distress in bereaved parents is a well-documented phenomenon in the literature (Sanders, 1980; Thieleman & Cacciatore, 2014; Stroebe, Schut, & Stroebe, 2007). As many as four years after the child's death, nearly one-half of grieving parents report significant anxiety, traumatic stress, and grief-related depressive symptoms (Cacciatore, Lacasse, Lietz, & McPherson, 2014). In one study, bereaved mothers who reported increased health problems were 4.6 times more likely to also report traumatic stress (Murphy et al., 1999). These negative psychological effects can also impair interpersonal relationships. The death of a child family member seemed to increase the risk of marital dissolution (Shreffler, Hill, & Cacciatore, 2012) and higher rates of marital disruption (30.4%) than a comparison group (23.8%) (Rogers, Floyd, Seltzer, Greenberg, & Hong, 2008).

Methodological advances in bereavement research in recent years have improved the quality of research outputs, not least through the introduction of the Integrated Risk Factor Framework (IRFF) (Stroebe, Folkman, Hansson, & Schut, 2006). A key feature of this framework is that variables from a number of domains interact to influence outcomes following bereavement. These

variables may include the circumstances of the death (e.g. whether the death was sudden or anticipated, violent, or as a result of the actions of another individual), interpersonal risk factors for the individual (e.g. social support, relationship status), intrapersonal risk factors (e.g. gender, age), nature of the relationship with decedent (e.g. child, young partner, elder parent), and coping mechanisms (e.g. avoidance, rumination). Stroebe et al. (2006) noted that the IRFF is derived largely from bereavement literature relating to the most common types of bereavement such as partner or parent loss and that the factors associated with different types of bereavement, including following the death of a child, merit specific investigation. Yet, to date, socioeconomic status and literacy level and their association with bereavement outcomes in parents have received little research interest.

While being a bereaved parent is considered to increase vulnerability to poor psychological outcomes for individuals and families (Cacciatore et al., 2014), so does low socioeconomic status and education. Clinical depression, anxiety (WHO, 2007) and posttraumatic stress (Parto, Evans, & Zonderman, 2011) are believed to be twice as common in people living in poverty. Lower levels of education have also been associated with all three of these distress states (CDC, 2012; Brewin, Andrews, & Valentine, 2000) in general, non-bereaved populations. Despite this, many studies which have considered the risk factors for psychological distress following bereavement have struggled to recruit participants from poorer backgrounds or with lower levels of education

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(Sanders, 1988). Socioeconomic status has not been researched widely in general bereavement and is mentioned even less often in the specific experience of parental bereavement. The socio-economic cost of bereavement is a new area of research (e.g. *Socio-Economic Costs of Bereavement in Scotland Project Research Group, 2013*) and this in turn is likely to lead to research in the area of poverty as a potential risk factor for socioeconomic impact, as well as health.

Bereavement research findings, therefore, often include a caveat that the results may be different for people who are not represented in the research, including those with low socioeconomic status or lower literacy levels. The importance of these factors in the adaptation to loss following bereavement therefore merits further investigation.

The present study is the first to specifically investigate poverty and parental bereavement while examining the relative risk of variables informed specifically by parental bereavement literature.

Method

This study is a retrospective, cross-sectional analyses of factors associated with clinical symptoms in an online support forum for bereaved parents. Ethical approval was granted by the Institutional Review Board of the principal investigator's academic institution and by the ethics committee of the non-profit organization which facilitated the online forum where email addresses were registered. All participants gave their informed consent to take part in the beginning of the survey. Details of the methods used are presented here in summary form, in compliance with the the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration guidelines recommended for improving observational research (Vandenbroucke et al., 2007). This type of study predominates in bereavement research when identifying risk factors for bereavement outcomes. The guidelines strengthen such research outputs by providing checklists of information required in reports to give reviewers and readers of research the optimum information to appraise and evaluate research findings.

Instruments

The HSCL-25 (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; Derogatis, 1992) is a 25-item self-report instrument that contains both anxiety and depression subscales. Respondents were asked to identify the degree to which they had experienced each symptom on a 4-point scale ranging from "not at all" (1) to "extremely" (4). In order to classify clinical cases, we used a cut-off of > 1.75 (average score). This has performed well in identifying depression; research with women found a sensitivity of 0.81 and a specificity of 0.70, and for panic and generalized anxiety disorder, a sensitivity of 0.67 and specificity of 0.73 (Sandanger et al., 1998). The IES-R is a self-report measure which asks respondents to rate 22 difficulties (for example "I felt irritable and angry") to gauge how distressing each particular area has been over the past seven days. Answers are recorded on a 5-point scale ranging from "not at all" (0) to "extremely" (4), and the IES-R is scored by averaging item responses. While there is no agreed upon clinical threshold for the IES-R (Weiss, 2004), it is still used to identify clinical cases (e.g., Samuelson, Lundberg, & Fridlund, 2007). The commonly recognized total sum of 33 (average score of 1.5) had "...a sensitivity of 0.91, a specificity of 0.82, positive predictive power of 0.9, and negative predictive power of 0.84" (Creamer, Bell, & Failla, 2003, p. 1494).

The percentage of the sample who met probable clinical diagnostic criteria for depression was more than one-half (58.0%,

$n=253$) scoring > 1.75 on the overall HSCL-25, while 64.7% ($n=282$) scored > 1.75 on the depression subscale, and 37.8% ($n=165$) scored > 1.75 on the anxiety subscale. For the IES-R, the mean average score was 1.49 ($SD=.88$) for the overall instrument; for the subscales measuring intrusion, avoidance, and hyperarousal, subscale means were, respectively, 1.95 ($SD=1.00$), 1.09 ($SD=0.85$), and 1.40 ($SD=1.16$). Less than half of respondents (44.3%, $n=193$) scored above the clinical cut-off of 1.5. The relationship between prior mental health was assessed using an influence analysis, removing respondents diagnosed with a mental disorder ($n=76$) prior to loss and then reanalyzing data, finding no clinically significant change in any of the results (Cacciatore et al., 2014). Internal consistency was confirmed for the HSCL with Cronbach's $\alpha=0.961$ and for the IESR-R scale with Cronbach's $\alpha=0.945$.

Predictive variables

The characteristics of the sample were measured by collecting information about the loss as well as demographic information relating to the respondents. Demographic factors included age, gender, race/ethnicity, relationship status, religion, education level (options ranging from "did not complete high school" to "graduate degree"), current level of household income including all spousal or partner contributions (options ranging from under \$14,000 per year to more than \$125,000) and level of household income at the time of the child's death. Participants were asked whether they had a mental health diagnosis prior to the death and if so, what treatment they had received. Relating to the loss, participants were asked if the death was expected, whether they witnessed or were present at the death, whether they saw or held the child after death, the age of the child at the time of their death (gestation if less than full-term), cause of death (open text) and time since the death occurred. The cause of death being violent or non-violent was extrapolated from the parent's textual description of the cause of death. A dummy variable were created for education level higher (some college or technical, bachelor's degree, graduate degree) or lower (did not complete high school diploma or equivalent or completed high school diploma or equivalent).

Procedure

Statistical analysis

Bivariate correlation analyses compared all continuous predictor variables with each outcome variable. Independent *t*-tests compared the mean anxiety, depressive and PTS symptoms for each categorical predictor variable. Factors found to be univariately significant at $p < 0.05$ were then included in a regression with forward entry method, the recommended method to use with large numbers of predictor variables in an exploratory analysis (Field, 2009). This process tests each factor in the model, selecting the one which explains the greatest variation in outcome scores. The factor which explains the greatest variation is added to the model and then the process is repeated until no more factors can improve the model. The final model demonstrated the relative importance of each factor and how much variance in outcome scores each factor explains. There was a low proportion of missing data (5% for HSCL-25 and IES-R and 10% for PTGI). Only seven respondents failed to answer every item (16 respondents missed one item on the IES-R scale). Missing values were replaced using mean imputation to generate scale-subscale totals. In the overwhelming majority of cases, only one item was replaced. No other missing data were replaced, and available-case analyses were presented. The 'years-since-loss' variable was highly positively skewed and thus was normalized through logarithmic transformation.

Results

Participants

This study was a cross-sectional online survey of self-selected bereaved parents who participated in an online bereavement support forum. Informed consent was provided at the beginning of the questionnaire. At the time of the data collection, this online forum had been in existence for approximately 14 years and included 27 topic boards that were carefully moderated by trained volunteers of the nonprofit agency. Authenticity of respondents was assured through the recruitment method. Ensuring authenticity of respondents, the bereavement support online forum requires complete registration of members and follow up by facilitators of each member. The number of total registered users was 5955. At the time of the survey launch, 1120 bereaved parents had been active on the forums within the past 12 months, and 972 valid retained email addresses. An email invitation to participate was sent resulting in 313 responses. In order to encourage further participation, we sent several other invitations spaced several weeks apart, and finally offered a \$20 gift card incentive for participating. In total, the follow-up efforts generated an additional 190 responses for a total of 503 responses (response rate of 51.75%).

The response rate was 52% ($n=503$). Consistent with previous research on bereaved parents, the number of mothers agreeing to take part ($n=478$) was greater than the number of fathers ($n=23$) (e.g. [Murphy, Johnson, & Lohan, 2003](#); [Woodgate, 2006](#)). Two

participants did not indicate their gender. Time since loss ranged from eight months to 41 years and was controlled for in the multivariate analyses. Considering the relatively low-number of fathers responding to the survey and the range in time since loss, the sample was restricted to only mothers (95.4%, $n=478$) and those respondents who reported less than 10 years since loss (89.9%, $n=452$). The final sample for the analysis was then $n=436$ excluding a total of 67 cases (13.3% of $n=503$).

The median child's age at time of death was zero months (representing death at birth or in the first month of life) and ranged from birth (third trimester onward) to 39 years. Geographically, respondents were primarily from the United States ($n=340$, 78%), United Kingdom, Australia, or Canada ($n=38$, 8.7%). Most respondents lived in suburban areas ($n=206$, 47.2%), with 24.5% ($n=107$) living in rural areas, and 18.8% ($n=82$) living in urban areas. The full-demographic characteristics of the bereaved parents are shown in [Table 1](#).

Factors associated with increased anxious symptoms

In univariate testing, the categorical factors found to be associated with anxious symptoms were: (1) low-education (pre high school or high school versus college or university) $t(396)=3.720$, $p<0.001$; a violent cause of death $t(434)=2.120$, $p=.035$; and live-birth $t(422)=3.124$, $p=0.002$. The continuous factors were lower current income ($r=0.162$, $p=0.001$), lower income at the time of death ($r=0.177$, $p<0.001$), the child's age at death ($r=0.099$, $p=0.045$), and time since death ($r=-0.109$, $p=0.027$).

Table 1
Participant demographics.

Demographic variable		
Age of participant at time of loss, <i>M (SD)</i> (years)	33.34 (8.14)	Median = 32, range 17–67
Age of child at death, <i>M (SD)</i> (months)	34.68 (86.63)	Median = 0 (death in first month of life), range birth (3rd trimester) – 473 months
Time since death, <i>M (SD)</i> (years)	3.21 (2.42)	Median = 2.5, range 0–9.98
Race/ethnicity, <i>n (%)</i>		
White	375 (86.0%)	
Latino	16 (3.7%)	
Asian	10 (2.3%)	
Mixed	7 (1.6%)	
African	5 (1.1%)	
Other/no response	23 (5.3%)	
Suddenness of death, <i>n (%)</i>		
Unexpected	334 (76.6%)	
Expected	54 (12.4%)	
Other/no response	48 (11.0%)	
Violent cause of death (yes), <i>n (%)</i>	42 (9.6%)	
Stillborn (yes), <i>n (%)</i>	185 (42.4%)	
Attended support group, <i>n (%)</i>		
Yes	189 (43.3%)	
No	92 (21.2%)	
No response	155 (35.6%)	
Income at time of loss, <i>n (%)</i>		
Lower than median USA income ^a	125 (28.7%)	
Higher than median USA income	264 (60.6%)	
No response	47 (10.8%)	
Income at time of survey, <i>n (%)</i>		
Lower than median USA income ^a	124 (28.4%)	
Higher than median USA income	268 (61.5%)	
No response	44 (10.1%)	
Changes in income over time, <i>n (%)</i>		
Less income than at time of loss	71 (16.3%)	
No change in income over time	210 (48.2%)	
More income than at time of loss	106 (24.3%)	
Levels of Education, <i>n (%)</i>		
High school diploma or lower	47 (10.8%)	
Some college/technical school	135 (31.0%)	
Bachelor degree	127 (29.1%)	
Graduate degree	89 (20.4%)	

^a According to [Kaplan, Violante and Weidner \(2014\)](#), median USA income in 2014 was \$47,000.

Table 2

Model: factors multivariately associated with higher levels of anxiety.

Model and predictors	Unstandardized beta	Standardized beta	t-value	P-value	VIF
$R^2=0.076$, adjusted $R^2=0.066$					< 1.066
Lower education	0.367	0.166	3.266	0.001	
Lower current household income	0.186	0.121	2.374	0.018	
Years since death	-0.035	-0.116	2.339	0.020	
Violent death	0.237	0.099	1.981	0.048	

Table 3

Model: factors multivariately associated with higher levels of depression.

Model and predictors	Unstandardized beta	Standardized beta	t-value	P-value	VIF
$R^2=0.158$. Adjusted $R^2=0.149$.					< 1.066
Lower current household income	0.413	0.254	5.220	< 0.001	
Years since death	-0.068	-0.215	4.547	< 0.001	
Lower education	0.304	0.130	2.686	0.008	
Violent death	0.289	0.114	2.393	0.017	

Multivariate testing was carried out using a linear regression, with preliminary analysis revealing no violation of the assumptions of normality, linearity or multicollinearity. The final model accounted for 7.6% of the variance and is shown in Table 2.

Factors associated with increased depressive symptoms

In univariate testing, the categorical factors found to be associated with depressive symptoms were: a low-level of education $t(396)=3.624$, $p < 0.001$) and a violent cause of death $t(434)=2.778$, $p=0.007$). The continuous factors were having a low-current income ($r=0.279$, $p < 0.001$), having a low-income at time of death ($r=0.240$, $p < 0.001$), time since death ($r=-0.202$, $p < 0.001$), and the child's age at death ($r=0.176$, $p < 0.001$).

Multivariate testing was again carried out using a linear regression, with preliminary analysis revealing no violation of the assumptions of normality, linearity or multicollinearity. The final model again accounted for 39.8% of the variance and is shown in Table 3.

Factors associated with increased posttraumatic stress symptoms

Finally, univariate testing identified the following factors to be associated with posttraumatic stress symptoms were: basic education $t(396)=3.810$, $p < 0.001$) and a violent death $t(434)=3.097$, $p=0.002$). The continuous factors were: low-current income ($r=0.255$, $p < 0.001$), time since death ($r=-0.225$, $p < 0.001$), low-income at time of death ($r=0.232$, $p < 0.001$), and child's age ($r=0.156$, $p=0.002$).

As before, multivariate testing was again carried out using a linear regression, with preliminary analysis revealing no violation of the assumptions of normality, linearity or multicollinearity. The final model accounted for 15.7% of the variance and is shown in Table 4.

Discussion

Across all three clinical outcomes, a low-level of post-bereavement current income was the strongest predictor of psychological distress. The review of bereavement-related outcomes by Stroebe et al. (2007) indicated that low-income may be a potential risk factor for distress, but the present study is believed to be the first that quantifies this risk in comparison to others factors which have previously been considered significant in bereavement.

Despite being at higher risk of psychological distress and stress generally, people who are living in poverty have fewer available resources and are less likely to seek support for their suffering (Doornbos, Zandee, DeGroot, & Warpinski, 2003). Numerous barriers exist to the access and utilization of support resources. For people with low-incomes in the United States, these may include lack of or insufficient insurance coverage for counseling services. More broadly they may include a need for additional childcare or associated transport expenses (O'Mahen & Flynn, 2008). Support seeking following bereavement is likely to be similarly affected and may therefore hinder successful adaptation to loss.

Many people who experience bereavement adopt self-care practices which are seen as having therapeutic benefit. The elements of such self-care include eating well and taking time to rest, taking time to grieve (away from daily pressures such as employment or family care) and to seek practical help from friends, family and employers. For people who are living in poverty, the ability to engage in these self-care practices is likely to be diminished and they may not then be able to manage their own well-being as effectively as people who have greater resources available. Insufficient income restricts access to therapeutic resources such as help with childcare or practical household support. Earning a low hourly rate means long work hours to achieve the level of income required for basic subsistence. This, in turn, further reduces the ability of low-earners to access low-cost, potentially therapeutic activities such as exercise, meditation, support groups, or leisure and relaxation. The typical self-care strategies proposed for bereavement are therefore unlikely to be inaccessible for people living in poverty. The advice given to bereaved individuals therefore needs to be appropriate to their level of access to support and other resources to avoid the potential of further victimization and increased likelihood of discrimination.

Implications for practice

Low-income bereaved mothers may not be able to access social support for symptoms of psychological distress and are, therefore, potentially at risk for poorer outcomes following the death of a child. Opportunities for self-care may be reduced and access to resources for support may be limited. Individuals who are living with lower levels of household income or with lower levels of education are also at greater risk of comorbid problems, which in turn are likely to present at a more serious level than those who have higher incomes (Spector, 2000). This may result, over time, in an increasing likelihood and severity of emotional and mental

Table 4
Model: factors multivariately associated with higher levels of post-traumatic stress.

Model and predictors	Unstandardized beta	Standardized beta	t-value	P-value	VIF
$R^2=0.157$. Adjusted $R^2=0.148$.					< 1.066
Years since death	−0.086	−0.230	4.857	< 0.001	
Lower current household income	0.434	0.226	4.643	< 0.001	
Lower education	0.404	0.146	3.015	0.003	
Violent death	0.366	0.122	2.568	0.011	

health symptoms as years of cumulative stress take their toll (Luke et al., 2009). If this results in presentation to services whilst in crisis, healthcare providers (HCPs) should ensure that their approach is trauma-informed and that every effort should be made to identify what has happened to bring this person to the attention of the service (Muskett, 2014). HCPs should aim to know the context of the crisis and to understand the person, not just seek out a diagnosis and medical treatment. Any aid for depressive, anxious and posttraumatic stress symptoms would then be addressed in the context of previous loss, with awareness of the likely impact of ongoing stress due to socioeconomic status and education. An appropriate compassionate response would then be shown which in turn may strengthen the effectiveness of the trauma-informed care.

Implications for policy

Support offered to bereaved mothers, and their families, must be culturally, linguistically and economically appropriate to avoid unintended discrimination against the most vulnerable members of society. Information about clinical symptoms which are present should be provided at an appropriate level and opportunities for therapeutic intervention and support should be offered in a location which is suitable for people from lower socioeconomic groups. Services must be accessible by people who may have inflexible work schedules and who lack the necessary support for childcare to allow regular attendance. Since people who are economically disadvantaged and who have lower levels of literacy appear to be at greater risk of developing symptoms of psychological distress, their needs must be prioritized when services are being planned.

Traditional risk factors for bereavement (e.g. age of bereaved person, age of child at time of death, suddenness of the death) were not found to be the most significant of the factors tested in the present study. This finding was supported in other research which analyzed the multivariate importance of risk factors in parental bereavement (Harper, O'Connor, & O'Carroll, 2014a, 2014b) suggesting that the experience of parental bereavement may have measurably different elements of risk compared to losses such as conjugal or parental. Multivariate testing of risk factors is rare in parental bereavement research, and previous studies have been limited by smaller sample sizes and relatively heterogeneous demographics (for instance, white, middle-income families with moderate to high levels of education). The present study is believed to be the first of its kind to multivariately explore the risk factors for psychological distress in a large diverse sample of bereaved parents.

Limitations

Limitations of the study should be considered and acknowledged. Firstly, the participants in the current study were recruited from an online bereavement support group which may affect the degree to which these results could be generalized to the broader population. The sample is larger than in many previous papers reporting bereavement research, however, with a reasonable range

of demographic variables (see Table 1). People who are not of white race, from poorer backgrounds and with lower education levels are still under-represented and warrant particular focus in future. Further research with non-support seeking participants would address some of the potential concerns over response biases, however bereaved parents are difficult to access without recourse to obituary notices or health care systems, both of which potentially bring their own limitations to recruitment. Secondly, the clinical symptoms and circumstances around the loss were self-reported. To further validate the study findings, it would be useful to obtain triangulation of results by consulting medical records and vital events data, specifically birth and death records. Access to these data was beyond the scope of the present study, however future research in this area would benefit from comparison of self-reported data with clinical or population records. Finally, the present study is cross-sectional and captured the participant's status at a single point in time. Longitudinal studies would be useful to determine the trajectory of adjustment, or maladjustment, to bereavement, following the death of a child.

Conclusion

The results of this study demonstrate more homogeneity than expected in this sample, with the risk variables from general bereavement research being statistically less important in the experiences of this group of bereaved mothers. Rather, the most vulnerable mothers in society, those from low socioeconomic families or with lower levels of education, appear to fare worst after the death of a child. These mothers have fewer resources available to them for support and are likely to face additional societal stressors than more affluent, well-educated counterparts. The present study is the first, to our knowledge, which has examined the risk factors for bereavement outcome in a large sample of bereaved mothers from a wide range of socioeconomic status and education levels. Future research should aim to recruit large diverse samples to add to knowledge on the relative impact of risk factors for specific types of loss such as that experienced by bereaved parents. Multivariate analysis of risk factors is essential in order to establish which of the posited factors contribute the most to the prediction of bereavement outcomes and identification of individuals who are ultimately most at risk of poorer outcomes.

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