

Child Death in the United States:

Productivity and the Economic Burden of Parental Grief

[in-press at *Death Studies*]

Melanie Fox, PhD

Austin College

mfox@austincollege.edu

1-903-819-2755

900 N. Grand Ave, Ste. 61577

Sherman, TX 75090

Joanne Cacciatore, PhD

Arizona State University

jcaccia@me.com

1-602-574-1000

411 N. Central Avenue, 822K

Phoenix, AZ 85003

and

Jeffrey R. Lacasse

Florida State University

Jeffreylacasse@gmail.com

296 Champions Way

Tallahassee, FL, 32306-2570

Key Words: Child death, economic costs of bereavement, grief, productivity, stillbirth

Abstract

This paper examines the economic consequences associated with the death of a child. Economic costs of child death during the first six months were estimated using the Traumatic Experiences and Resiliency Study (TEARS) dataset. Costs considered include funeral expenses, medical expenses borne by the family, and productivity losses. The findings suggest that productivity losses associated with child death comprise the majority of costs. The findings suggest that the costs associated with grief are substantial – and the costs associated with on-the-job productivity losses (sometimes referred to as “presenteeism”) outweigh the costs associated with absenteeism.

Key Words: Child death, economic costs of bereavement, grief, productivity, stillbirth

Introduction

There is a substantial body of literature on the impact of bereavement on health outcomes and psychological well-being. Grief, particularly when traumatic, is associated with increased mortality risk and excess medical intervention (Stroebe, Schut, & Stroebe, 2007). To date, the majority of work on the impact of bereavement focuses on the psychological, psychosocial, and physiological impact of grief and its effects on interpersonal relationships. Parents whose children die are typically in their peak earning and productivity years. Thus, the economic role that bereavement plays, especially in regard to productivity losses, is of particular importance when considering the impact of child death, as some interruption in employment is common (Corden, Sainsbury, & Sloper, 2001). In the immediate aftermath of a death, individuals may take employment leave time; however, even after returning to work the individual may experience significant challenges in their ability to perform day-to-day tasks (Cacciatore, Lacasse, Lietz, & McPherson, in press; Shalev, 2000). Such productivity losses impact households experiencing grief, but employers and society also incur costs associated with impaired cognitive functioning in the bereaved.

Still, the economic consequences of grief remain largely unexplored. This is a critical shortcoming in understanding the impact of bereavement on individuals, families, and employers. Very few published studies have examined the economic impact of a loved one's death on the surviving friends and family, and those have focused on the impact on conjugal death (Corden, Hirst, & Nice, 2008). Methodological issues involved in estimating the economic burden of child death are substantial, and perhaps as a result few researchers have attempted to quantify them. Only two studies do so and with very different approaches. One study using quantitative and qualitative data from Australia measured direct costs to families through surveys and interviews (Stebbins & Batrouney, 2007). Another more recent discussion paper uses a unique data set from Sweden to estimate the long term employment impact of child death (van den Berg, Lundborg & Viktröm, 2012).

One of the challenges in assessing productivity losses associated with grief is monetizing costs. In economic theory, the output of a firm is a function of the stock of labor, capital, and technology. Inputs, such as the labor of an employee, are theorized to be compensated based on the value of that output as long as labor markets are sufficiently competitive. For instance, the human capital approach method of calculating productivity losses uses this fact to estimate the value of productivity losses due to illness or impairment using wages or income as a value of an employee's time. In this approach, an employee's wage effectively represents the additional revenue generated by the work of that employee.

Labor input has two components: *quantity* worked (the raw number of hours) and *quality* of work. Productivity losses due to bereavement can occur due to *absenteeism* (reduction in quantity of work) or *presenteeism* (reduction in quality of work while on the job) (Johns, 2009). Quantifying such reduction in productivity can be done in a variety of ways. One review of productivity loss measures identified at least 17 different scales and questionnaires that attempt to quantify these losses (Mattke et al., 2007). Moreover, productivity losses associated with unpaid work, such as household production, should also be considered (Zhang et al., 2011).

This study estimates the economic costs during the first six months following the death of a baby or child in the United States. This is the first attempt at creating such an estimate for the impact of bereavement which incorporates more immediate productivity losses, both explicit absenteeism costs and implicit presenteeism costs, associated with grief.

Methods

These analyses are part of a larger, mixed-methods study designed to investigate multiple components of the impact of child death. The focus of this paper is the economic impact of child death during the six months immediately following the death. There are a wide variety of expenses that potentially could be associated with the death of a child. This study does not attempt to inventory all of these, but rather focuses on quantifying the categories of expense that are likely to be the most costly: funeral expenses, medical expenses, and productivity costs. To determine these costs, respondents were asked to recall expenditures in three categories: 1) out of pocket spending on health care (specifically prescription drugs), 2) outside help received in the 30 days and six months following the death, and 3) funeral expenses.

Ideally, medical expenses would include a more robust set of expenditures. There are two major barriers to such an assessment. First, with child death these expenditures would be more difficult to directly attribute to the death – for instance, in the case of a stillborn child many of the expenses involved would be related to the infant’s birth even if the death had not occurred. Moreover, due to the wide variety of healthcare financing mechanisms, especially the prevalence of third-party payers, individuals are not always aware of actual healthcare costs.

There are two issues when constructing a measure of productivity loss related to a health event: measuring the loss and monetizing the loss. Measures that capture self-perceived impairment are appealing because they compare performance to a benchmark, particularly if a scaled performance measure is used. In addition, their tractability allows for the monetizing of losses. However, of the variety of such scales used, there have been no studies of the validity of such measures primarily because the productivity of workers is inherently difficult to quantify. Monetizing the losses presents its own challenges. A relatively straightforward

approach using salary or wages to calculate the value of productivity is not just computationally intuitive but, provided labor markets are sufficiently competitive, is likely to provide at least a lower bound of the estimates of value of productivity losses (Mattke, 2007).

A variety of approaches have been used to assess productivity losses due to a health event, however no single approach has been validated. Both Mattke (2007) and Zhang (2011) conclude that productivity metrics are guided largely by the available data rather than the superiority of one approach over the others. For the purposes of this study, we focus on a human-capital cost approach that views the household as a productive unit (Liljas, 1998). In such an approach, production occurs both inside the household (for instance child care, cooking, and cleaning) and outside the household (paid work). In this sense, productivity losses occur due to the inability to perform either.

While many studies of the impact of illness typically focus on employment production costs, household production is also a potentially significant expense. During periods of extreme duress, individuals may substitute the labor of family, friends, or hired assistance to aid in day-to-day household activities. To estimate these costs, respondents reported the hours per week they received outside help. This was then used to estimate the value of outside help using federal minimum wage, assuming that this is the minimum opportunity cost of hiring outside help. Loss of income to grieving households due to bereavement leave is a concern to both the household and the firm. Even if a firm provides an employee with paid leave, meaning there is no out of pocket expense involved to the grieving household, the firm loses the productivity of that individual while they are on leave.

Following the human capital approach, respondents indicated their household income at the time of the death within several categories of income. The median income in each band was used to represent the household income of the respondent. Using household income, rather than individual income, has a number of practical, as well as conceptual, advantages. Most notably, treating the household as a single productive unit alleviates the need to be concerned about differing value and contributions of household members, as there is no consensus on the most appropriate way to determine this (Chun & Lee, 2001). As an estimate of the daily value of time at work, the median value of the income category reported was adjusted to constant 2011 dollars using the CPI-U for the year of the death.

Costs associated with on the job productivity losses were estimated to be from two sources: formal leave and time away from work (absenteeism) and time at work that was unproductive (presenteeism). To determine the value of absenteeism, respondents were asked how many days of leave they took during the six months immediately following the death. This time was then used to calculate the value of absenteeism based on the daily household real wage. Presenteeism and other indirect costs are somewhat more complicated to determine than direct costs, and a single, universal approach to measuring such costs may not be ideal (Zhang et al., 2011).

Our instrument relied on self- assessed perception of impairment: respondents were asked to rate their ability to perform their jobs from 0% (not at all able to perform the job) to 100% (no impairment) at 30 days and at six months following the death of the child. The number of days worked during the six month period following the child's death was determined by considering only non-leave days. Then, for the remaining portion of the six month period, real daily household wage was weighted by the perceived impairment at six months to estimate productivity losses. To determine funeral expenses, respondents were asked about out of pocket costs incurred related to memorial and burial or cremation services. All expenses and costs included in the study were additionally adjusted using the consumer price index (CPI-U). All dollar amounts included in the study are adjusted and reported in constant 2011 dollars.

The results of the economic calculations of out-of-pocket and productivity expenses were combined to create an estimate of the costs associated with the death of a child at any age. In order to extrapolate this to societal costs, these outcomes were then limited to only those in the data-set who lost a child under the age of 19, and then again split into those who were live born and those who were stillborn, as national mortality statistics for each group is combined separately.

The original TEARS survey contained data on 503 respondents, a 51.75% response rate, the characteristics of which are described comprehensively elsewhere (Cacciatore, et al., in press). To avoid difficulties in international comparisons of productivity, households that resided outside of the United States or for whom location variables were missing were removed (n=41). Additionally, only respondents reporting to be the mother or father of the deceased child were included, leading to the exclusion of eight additional cases. Since the estimates of costs are at 30 days and at six months, only households whose child died at least six months prior to the survey date were included; this eliminated nine cases. As we wished to integrate our findings with the existing literature and mortality data on pregnancy losses prior to 20 weeks gestational age are generally not available, we did not include any deaths occurring prior to 20 weeks gestational age (n=13). For the present paper, cases with incomplete data on the pertinent economic variables (n=180) were then excluded from the analysis. This left 253 cases for analysis.

Results

Characteristics of Respondents

Table 1 presents a summary of the characteristics of the respondents. As expected, the respondents were overwhelmingly mothers (94.4%). Parent's ages at the time of the child's death ranged from 18-59, with the majority of parents in their twenties and thirties. This is a time when one or both parents are likely to be employed and during their peak productivity years, supporting the notion that these costs are likely to be high

for such a group. Major causes of death in the survey were stillbirth, sudden or terminal illnesses, and accidental death.

Respondents reported marked decrease in their productivity. The mean duration of employment leave during the six months following the death is just over 40 days (SD=42.00), with the median leave time 30 days. In the initial 30 days, 45% of respondents were on unpaid leave during the entire period. There are no national standards for bereavement leave in the U.S., however, 73% of employers allow only one to three days of paid leave after the death of a child (Society for Human Resource Management, 2008). Additionally, bereavement is not a qualifying condition under Family Medical Leave Act (U.S. Department of Labor, 2012). Returning to work following a bereavement leave is likely to be driven as much by economic concerns as a readiness to return to workplace. However, returning to work does not necessarily imply a *readiness* to return or a return to full functioning.

Table 2 presents estimates for the costs associated with the death of a child. The findings on working ability in Table 2 suggest that presenteeism is also a major source of costs in this sample. The average level of functioning at 30 days was 31.43% and the median a mere 17%. For those who worked at all during the initial 30 day period, two thirds indicated that they were able to perform at less than half of their full capacity. Over time, respondents do report higher functional capacity: self-reported ability to perform the functions of their job increased to an average of roughly 62% by six months with a median value of 70%.

The total costs associated with parental bereavement are also shown in Table 2. Average funeral expenses cost \$2,419 with a median value of \$1,063. There is reason, however, to believe that this underestimates the economic burden of funeral expenses. It is not uncommon for funeral homes to offer discounted, below cost, or even free services to families in the event of infant or child death. Indeed, 14.7% of respondents indicated that they had paid nothing out of pocket at all, and the mean funeral expenses for stillborn infants was less than half of that for children, reflecting that services for infants, in particular, are likely to be heavily discounted. While free or discounted services do not reflect an expense to the household, the opportunity costs to the funeral home or service provider, and thus society at large, are not fully captured.

Similarly, out of pocket expenses on prescription drug costs are small – an average of \$106 in the six months following the death. Out-of-pocket spending here is likely to reflect the structure of the cost-sharing requirements of an individual or family's insurance coverage rather than the full purchasing price. The questionnaire additionally asked respondents about their insurance coverage, including deductibles, copayments, and co-insurance amounts. The majority (93.7%) indicated that they were covered by some form of insurance at the time of death (although 10% also reported that they lost insurance coverage as a direct result of the child's death); however, responses indicated that many respondents were unclear about the details of the coverage such as deductibles and co-pays. This suggests that further research on this issue may require more

direct measures of healthcare costs, such as chart review or claims data, to determine such costs more completely.

The results presented demonstrate that productivity costs are the largest component of the costs associated with child death. While the per-household costs associated with leave (absenteeism) are high at an average of \$8,774, the costs associated with presenteeism are yet higher at an average of \$9,638. For both of these measures, the median is substantially smaller than the mean, reflecting several large salary outliers. To give a more complete picture of the sample, the 10th, 25th, 50th, 75th, and 90th percentiles of costs are also given.

[Figure 1 about here]

Total costs associated with the death of a child are, on average, \$21,332 per household. If a more conservative estimate using the median value is used, costs are \$17,513 per household. There are several considerations when considering these numbers. First, the salaries in the sample are high relative to the general population, and this will lead to an overestimate in productivity costs, particularly in stillbirths which are typically higher in households with lower socioeconomic status. However, these estimates are essentially stochastic: these assume a one-time productivity shock to a household in the year that the death occurs, with no after effect on productivity or labor market outcomes. Recent research suggests that there are long-term implications on labor market outcomes for households that experience the death of a child (van den Berg, Lundborg & Viktröm 2012).

Discussion

This study examined the economic costs that are associated with the death of a child. The findings in this sample suggest that the costs associated with grief are substantial – and the costs associated with on-the-job productivity losses (sometimes referred to as “presenteeism”) outweigh the costs associated with absenteeism. Productivity costs associated with the parental bereavement are significant and comprise the bulk of the economic burden of grief. Because these costs, unlike funeral and other immediate expenses, are likely to have long-term labor market effects, particular attention needs to be given to these costs. Explicit costs such as funeral expenses and cost of leaves of absence are significant, but the opportunity costs associated with on-the-job productivity losses are a substantial and often overlooked aspect of grief and bereavement. While a variety of measures and instruments to determine productivity losses associated with illness exist, there is no consensus on a single, valid measure. In using a simplified approach, however, such estimates can more easily be included in surveys investigating broader issues, and contribute to a better understanding on both the private and societal impact of grief.

Limitations

We recruited respondents from an on-line support group for bereaved parents, and this group may be unique and may not be representative of the bereaved population at large. Relative to the national demographics of the United States, our sample is highly educated, white, and affluent. The data are retrospective, subjective self-reported, and participants may have under or over-evaluated the issue of presenteeism in particular. The use of a single-item indicator for use as a dependent variable is less than ideal, and could have impact on the accuracy of our estimates. Many respondents who participated in the broader TEARs survey did not answer questions related to productivity, resulting in a substantial missing data; our use of complete-case analyses could lead to biased estimates.

Conclusion

The results of this unique study, perhaps, lay the groundwork for further exploration into the economic burden of child death in society. This tragedy affects individuals, families (Cacciatore et al, in press), communities, and the economic system at large. There may exist an imperative for improved social support from the various systems such as the business community for mourning parents considering the acute and long-term ramifications of child death.

Table 1:
Characteristics of Respondents and Deceased Child (n=252)

Age of Respondent at Death	Mean = 33.02 Std. Dev.=8.10 Range 18-59
Sex of Respondent	
Male	13 (5.2%)
Female	234 (94.4%)
No response	1 (0.4%)
Race	
Caucasian	214 (86.3%)
African American	2 (0.8%)
Latino	11 (4.4%)
Asian	6 (2.0%)
Native American	1 (0.4%)
Mixed	6 (2.4%)
Not Given	9 (3.6%)
Level of Education	
Less than High School	3 (1.2%)
High school	15 (6.0%)
Some College or Technical School	92 (37.1%)
Bachelors	75 (30.2%)
Post-Graduate	63 (25.4%)
Characteristics of the Deceased	
Cause of Death	
Stillbirth	115 (46.4%)
Cancer	1 (0.4%)
Suicide	5 (2.0%)
Non-vehicular accident	16 (6.5%)
Vehicular Accident	13 (5.2%)
SIDS	10 (4.0%)
Illness	81 (32.7%)
Homicide	2 (0.8%)
Other/not given	5 (2.0%)
Child's death was	
Expected	35 (14.1%)
Unexpected	211 (85.1%)
Did not respond	2 (0.8%)
Years between child death and survey	Mean = 4.1996 Std. Dev. = 3.68 Range 0.56-32.17 years.
Child's Age at Death (of live births)	Mean = 5.615 years Median = 0.334 Std. Dev. = 8.761 Range 0-32.19 years

Table 2
Economic Costs Associated with Child Death
n=252

	Mean (C.I.)	10 th Percentile	25 th Percentile	50 th Percentile	75 th percentile	90 th Percentile
Funeral Expenses ¹	\$2,419 (\$2,016-\$2823)	\$0	\$288	\$1063	\$3113	\$7444
Hours of outside help (6 months)	46.869 (25.36-68.38)	0	0	0	0	100
Value of outside help ¹	\$444 (\$273-\$615)	\$0	\$0	\$0	\$138	\$1055
Value of out of pocket Prescription Costs ¹	\$106 (\$46-\$166)	\$0	\$0	\$0	\$71	\$292
Total Leave Days (at six months)	41.09 (35.72-46.45)	0	10	30	55	100
Absenteeism Value ¹	\$8774 (\$7,795-\$10,444)	\$0	\$1879	\$5699	\$11356	\$26855
Ability to Perform Job at 30 days	30.43% (26.11%-34.74%)	0%	0%	17.5%	50%	90%
Ability to Perform Job at 6 months	61.996% (58.07%-65.91%)	0%	50%	70%	85%	100%
Presenteeism Value ¹	\$9638 (\$8,335-\$10,941)	\$0	\$1815	\$6881	\$13828	\$22289
TOTAL COSTS¹ (all deaths)	\$21332 (\$19395,\$23268)	\$4352	\$9272	\$17513	\$31963	\$41034

¹ Rounded to the nearest whole dollar

References

- Cacciatore, J., Lacasse, J., Lietz, C., & McPherson, J. (in press). A Parents TEARS: Primary results from the Traumatic Experiences and Resiliency Study. *Omega Journal of Death and Dying*.
- Chun, H., & Injae, L. (2001). Why Do Married Men Earn More: Productivity or Marriage Selection? *Economic Inquiry*, 39(2), 307-319.
- Corden, A., Hirst, M., & Nice, K. (2008). *Financial Implications of Death of a Partner*. York: Social Policy Research Unit, University of York.
- Corden, A., Sainsbury, R., & Sloper, P. (2001). *Financial Implications of the Death of a Child*. London: Family Policy Studies Centre, London.
- U.S. Department of Labor. (2013). Family and Medical Leave Act: Overview. Available online: <http://www.dol.gov/whd/fmla/>
- Johns, G. (2009). Presenteeism in the Workplace: A Review and Research Agenda. *Journal of Organizational Behavior*, (31), 519-542.
- Liljas, B. (1998). The demand for health with uncertainty and insurance. *Journal of Health Economics*, 17, 153-170.
- Mattke, S., Balakrishnan, A., Bergamo, G., & Newberry, S. (2007). A Review of Methods to Measure Health-Related Productivity Loss. *American Journal of Managed Care*, 13(4), 211-217.
- Society for Human Resource Management. (2008). *Examining Paid Leave in the Workplace*. Available online: http://www.shrm.org/research/surveyfindings/articles/documents/09-0228_paid_leave_sr_fnl.pdf
- Shalev, A.Y. (2000). Biological responses to disasters. *Psychiatric Quarterly*, 71(3), 277.
- Stebbins, J., & Batrouney, T. (2007). *The Economic Costs and Social Impacts of the Death of a Child: Beyond the Death of a Child*. Victoria: Compassionate Friends Victoria Incorporated.
- Stroebe, M., Schut, H., & Stroebe, W. (2007). Health Outcomes of Bereavement. *Lancet*, (9603), 1960-73.
- United States Department of Labor. (2012). Family and Medical Leave Act, Wage and Labor Division. Available online: <http://www.dol.gov/whd/fmla/>.
- Van Den Berg, G., Lundborg, P., & Viktröm, J. (2012). The Economics of Grief. IZA Discussion Paper No. 7010. Bonn: Institute for the Study of Labor. Available online: http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp_id=7010
- Zhang, W., Bansback, N., & Anis, A.H., (2011). Measuring and Valuing Productivity Due to Poor Health: A review. *Social Science and Medicine*, 72(2), 185-192.