Parental Death and Educational Attainment Across Socioeconomic Groups

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Sociology 693 – Concentration in Research & Analysis Practicum

University of Wisconsin - Madison

May 9, 2025

<u>Introduction</u>

Early parental death has been associated with a change in the educational path of the offspring, but does this differ across socioeconomic groups? Prior research has documented associations between parental loss and adverse outcomes such as education, mental health, and socioeconomic attainment (Berg et al. 2014; Kailaheimo-Lönnqvist and Kotimäki 2020). While socioeconomic status (SES) is already recognized as a robust predictor of educational attainment and broader life outcomes (Bourdieu 1986), limited empirical work has interrogated whether the educational consequences of parental death differ based on SES.

The mechanisms connecting parental death to educational outcomes may include loss of financial stability, decreased emotional support, and increased household responsibilities. For children from low-SES backgrounds, these challenges may be compounded by pre-existing structural disadvantages such as food insecurity, limited access to educational materials, and constrained opportunities for academic engagement. In contrast, children from financially stable households may experience fewer educational setbacks following parental death due to access to compensatory resources. Children from higher-SES families may benefit from greater access to resources, support systems, and institutional buffers—factors that can mitigate the negative impacts of parental loss (Kailaheimo-Lönnqvist and Kotimäki 2020).

Socioeconomic status is known to be a predictor of various life outcomes including education (Conger & Martin 2010), therefore the combined effect of something life altering such as a parent dying could have compounding effects on those of lower socioeconomic status. This study hypothesizes that (1) children who experience the death of a parent will be less likely to attain a bachelor's degree compared to their non-bereaved peers, and (2) this negative association will be more pronounced among children from lower-SES households. In other words, higher

income may partially offset the detrimental effects of bereavement on educational attainment. Alternatively speaking, because socioeconomic status is a predictor of educational attainment already, it is possible this effect is greater than or minimizes the effect parental death may have. It is possible that because parental death is traumatizing and emotionally difficult, educational outcomes of the bereaved –regardless of income– are negatively impacted.

Methods

Data & Sample

This research paper uses data from the General Social Surveys (GSS), a nationally representative, publicly available dataset that surveys adults in the United States on a wide range of demographic, behavioral, and attitudinal variables. The analytic sample includes respondents from 1972-2022. Only respondents aged 22 to 89 were included to ensure that bachelor's degree attainment reflected completed or nearly completed educational trajectories. Respondents under the age of 22 (n ≈ 3,178) were excluded on the basis that many individuals in this age group have not yet had the opportunity to complete a four-year college degree. The initial dataset contained approximately 70,000 respondents; 55,000 observations were dropped for those who did not have information about their parents. While initially unexpected, this limitation was attributed to the survey design, only specific GSS waves included questions pertaining to parental death. Less than 100 respondents were dropped because of missing values in their income, degree, race, or sex question. The sample examined in this research is 6,220.

Measures

The primary dependent variable in this study is educational attainment, measured using the degree variable from the GSS. This variable has been recoded into a binary outcome

indicating whether the respondent has earned at least a bachelor's degree (coded as 1) or has not (coded as 0). The key independent variable is parental death during childhood, measured when the respondent was age 16. The GSS provided this information on parental death in terms of mother death and father death *madeath* and *pardeath* respectivuely, the *pardeath* variable was generated from these two. The *pardeath* variable is also a binary variable, where a 1 represents a respondent who had either or both parents die before the age of 16. The respondent gets a 0 if there was no death reported of either parent.

An additional variable of interest that is important to note is *incom16*, which is a measure of income when the respondent was 16 years old. The question specifically asks "Thinking about the time when you were 16 years old, compared with American families in general then, would you say your family income was--far below average, below average, average, above average, or far above average?" For the purpose of this research the *incom16* variable was transformed into a binary variable where a 1 will be if the respondent felt their income was above average or far above average. And a 0 if their income was far below average, below average, or average. At first, there was a concern that this was more of a feelings question than an accurate measure of income. However, about 80% of the data falls into the below or at average income level and 20% is above average income level which is inline with income distributions in the United States according to the PEW Center for Research. Roughly 81% of Americans are either in the lower income or middle income group, whereas 21% are in the upper income group (2024). This provides support for the construct validity of the income variable in the research that accurately represents the distribution of income levels in the American population. Other control variables used in this research are race, sex, and age as seen on Table 1.

Statistical Methods

This study employs descriptive statistics and logistic regression analysis to assess the association between early parental death and bachelor's degree attainment across socioeconomic groups. A logistic regression model is used to estimate the likelihood of obtaining a bachelor's degree, with parental death, childhood income, and their interaction included to evaluate whether the impact of parental death varies across income levels. Control variables—age, sex, and race—are included to account for potential confounding factors. In addition, marginal effects are calculated to interpret the substantive differences in educational outcomes by income group and parental death status.

Descriptive statistics for all variables used in the analysis are presented in Table 1, including sample proportions or means. The sample is divided into two groups: respondents who experienced the death of a parent before age 16 and those who did not. The average age of individuals in the parental death group is approximately five years higher than those in the non-bereaved group. The sex distribution is similar across both groups, with a slightly higher proportion of women. While White respondents constitute the majority in both groups, the bereaved group includes a relatively higher proportion of Black and other racial and ethnic minority respondents. Educational attainment for the groups is different, with 17% of respondents who had a parent die hold a bachelor degree or higher, whereas those who have not had a parent die have 23% bachelors degrees. For respondents who had a parent die, 91% of them fall into having below or average income, whereas only 79% for the non-parental death group. These patterns underscore the importance of examining the intersection of socioeconomic background and early parental loss in shaping educational outcomes.

Table 1. Demographic Characteristics of Individuals With and Without Parent Death by Age 16

	Non Parental Death		Parental Death by Age 16	
	Mean or %	SD	Mean or %	SD
Age	34.2	10.1	39.3	13.2
Sex (%)				
Female	54.85		52.67	
Male	45.15		47.33	
Race/ethnicity (%)				
White	85.00		77.35	
Black	11.62		18.12	
Other	3.380		4.53	
Educational Attainment (%)				
Does Not Hold Bachelors	76.21		83.00	
Holds Bachelors or Above	23.79		17.00	
Household Income at 16 years old (%)				
Below or at Average	79.43		91.69	
Above Average	20.57		8.31	
N	5,698		522	

Note: Weighted means and proportions from GSS

Figure 1 visually illustrates the marginal differences in bachelor's attainment between bereaved and non-bereaved respondents within income groups. Of children in an above averager income group, 32% of those who've lost a parent went on to earn a bachelor's degree. However, 40.3% of those who did not experience parent death earn a bachelor's degree. For the children in a lower income group, 15.6.% of those who've lost a parent will go on to earn their bachelor's degree. But for those who did not lose a parent, 19.5% of them will earn their bachelors. The marginal effects model aims to understand the difference between the 32% and 40.3% bachelor attainment and the 15.6% and 19.5% bachelor attainment for the lower income group. The marginal differences between respondents who had a parent die before age 16 for those with average or below average income is 4%. Whereas for respondents who reported having above

average income, the group who had parent death on average has 8% less bachelor degrees than their non parental death counterpart.

Figure 1: Percent Bachelors Attainment by Income and Parent Death
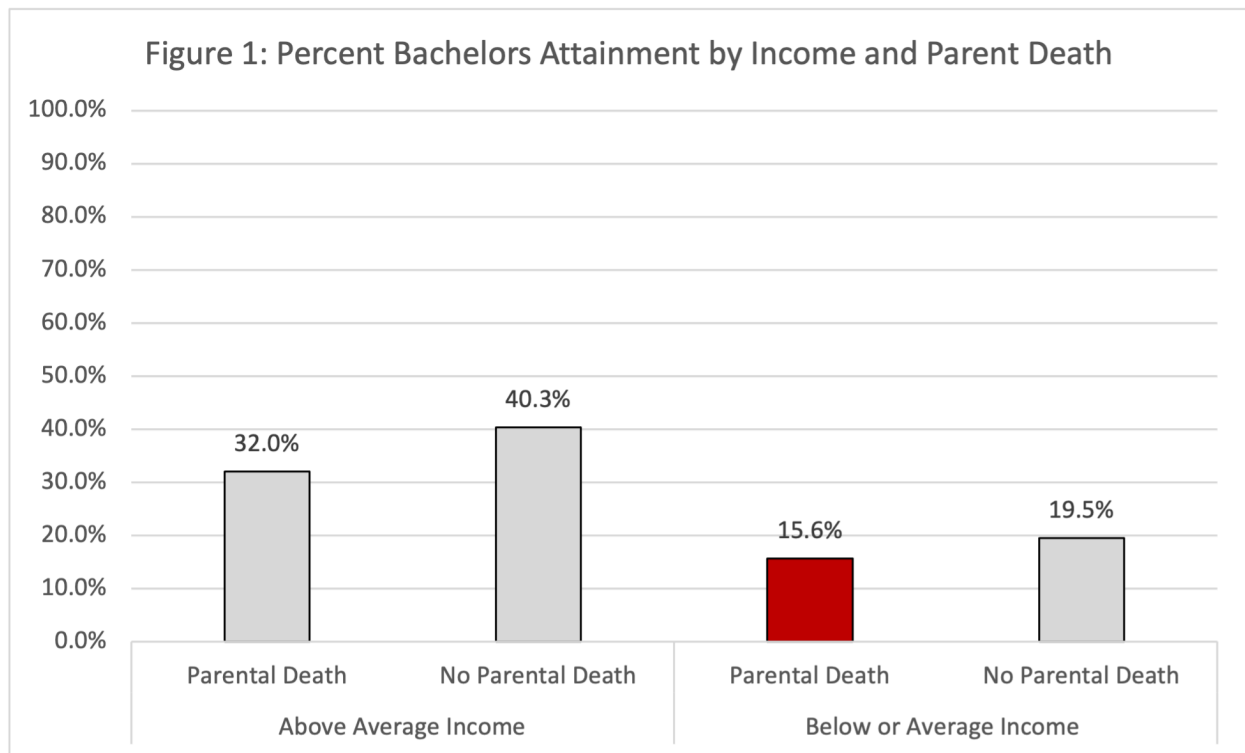
Finally, the logistic regression model was selected because the dependent variable is binary. The model is then transformed into an odds ratio for easier interpretation. A stepwise regression model was used, the first is a biavariate regression using just parental death on educational attainment to serve as a baseline model. Model two adds income into the model to verify that the effects of parental death on education are not explained by income. The third model adds in an interaction between parental death and income which is the crux of this research paper. The last model adds in all the control variables, to ensure no the educational outcome is not explained by other variables. The results can be seen in Table 2. A marginal effects model was conducted afterwards to examine the differences that income makes on bereaved childrens' bachelor's attainment; the results can be seen in Figure 2.

<u>Results</u>

Model 1 examines the baseline effect of parental death on educational outcomes. Individuals who experienced parental death before age 16 have 34% lower odds of obtaining a bachelor's degree compared to those who did not (OR = 0.66, p < 0.01). This finding indicates a strong, negative association between early parental loss and educational attainment. The purpose of this model is to demonstrate a baseline effect that parental death and obtaining a bachelor's degree are correlated; the results are consistent with previous research on parental death and education outcomes (Berg et al. 2014; Kailaheimo-Lönnqvist and Kotimäki 2020).

Model 2 adds household income at age 16. The odds ratio for parental death increases slightly to 0.75 (p < 0.01), indicating that part of the effect observed in Model 1 is explained by income differences. Above-average income is strongly associated with educational attainment; individuals from such households are 178% more likely to earn a bachelor's degree than those from average or below-average income backgrounds (OR = 2.78, p < 0.001). This suggests that family income partially mediates the relationship between parental death and education.

Model 3 introduces the interaction between parental death and income. Parental death remains negatively associated with degree attainment (OR = 0.76, p < 0.05), and the effect of above-average income remains strong (OR = 2.79, p < 0.001). However, the interaction term is not statistically significant (OR = 0.91), suggesting that higher income does not significantly buffer the negative impact of parental death. Although both parental death and income independently predict bachelor's attainment, their interaction is not statistically significant, indicating that the protective effect of income does not significantly moderate the impact of parental loss.

Model 4 is the full model with sociodemographic controls. The negative association in parental death remains statistically significant (OR = 0.75, p < 0.01). Above average income has a strong positive effect. The interaction between death and income is still not significant (OR = 0.98) after adding in more control variables. This reinforces that income level does not significantly modify the impact of parental loss. This model also includes additional sociodemographic controls. Women have 22% lower odds of completing a bachelor's degree compared to men (OR = 0.78, p < 0.001), which contrasts with current educational trends showing women are now more likely to earn college degrees (Pew Research Center 2024). This discrepancy may be explained by the historical scope of the dataset, which includes respondents dating back to 1972. Black individuals have significantly lower odds of obtaining a degree than White individuals which is consistent with previous studies on race and educational attainment. Other races have somewhat higher odds than white people which is also consistent with previous research because Asian people have higher rates of bachelors degree attainment than white people (U.S. Census Bureau 2023). A very small positive effect (OR = 1.01, p < 0.01), suggesting older individuals in the sample may be slightly more likely to have earned a degree.

Table 2. Odds Ratios from Logit Regression of Bachelor Degree (1=Has, 0=Does not Have) on Selected Indepdent Variables

Independent Variables	Model 1			Model 2			Model 3			Model 4		
	Odds ratio	SE		Odds ratio	SE		Odds ratio	SE		Odds ratio	SE	
Parental Death	0.66	0.08	***	0.75	0.10	**	0.76	0.11	*	0.75	0.11	**
Income at Age 16												
Below Average or Average Income (Omitted)	--	--		--	--		--	--		--	--	
Above Average Income	--	--		2.78	0.20	***	2.79	0.21	***	2.73	0.21	***
Parental Death Interacted with Income												
Parental Death with Above Average Income	--	--					0.91	0.33		0.98	0.38	
Female	--	--		--	--		--	--	--	0.78	0.05	***
Race												
White (omitted)	--	--		--	--		--	--		--	--	
Black	--	--		--	--		--	--		0.42	0.05	***
Other	--	--		--	--		--	--		1.37	0.24	*
Age	--	--		--	--		--	--		1.01	0.00	**
Constant	0.31	0.01	***	0.26	0.01	***	0.24	0.01	***	0.30	0.04	***
N	6,220			6,220			6,220			6,220		

Notes: Results are weighted using probability weights. Data are from the General Social Survey. *** p < .01; ** p < .05; * p < .10.

Figure 2 displays the marginal effects. For both income groups, the probability of obtaining a bachelor's degree is lower among individuals who experienced parental death, as reflected in the negative slope of both lines. Children from higher-income households have higher predicted probabilities of attaining a degree across both bereaved and non-bereaved groups. The intercept, for above average income of roughly 40% indicates that 40% of children from an above average income group will go on to obtain their bacheloras. For the lower income group, without parental death they still are only around 20% educated with a bachelors degree. Interesting, the error bar for above average income in the parental death category is very large. This suggests large variability in educational outcomes where some individuals in this group

attain degrees at rates comparable to or exceeding those of non-bereaved peers. Some children of this group beat the odds so to speak and performed better than the average of a cold who did not experience parental death. There is a small amount of overlap between the above average and average income groups in the parental death category for obtaining a bachelors degree. This overlap indicates the lack of statistical significance that the interactyion between parental death and income have on education. In some cases, bereaved children from lower-income households may outperform those from higher-income households, reinforcing the nuanced nature of these relationships.

Figure 2. Predicted Probability of Obtaining a Bachelors Degree
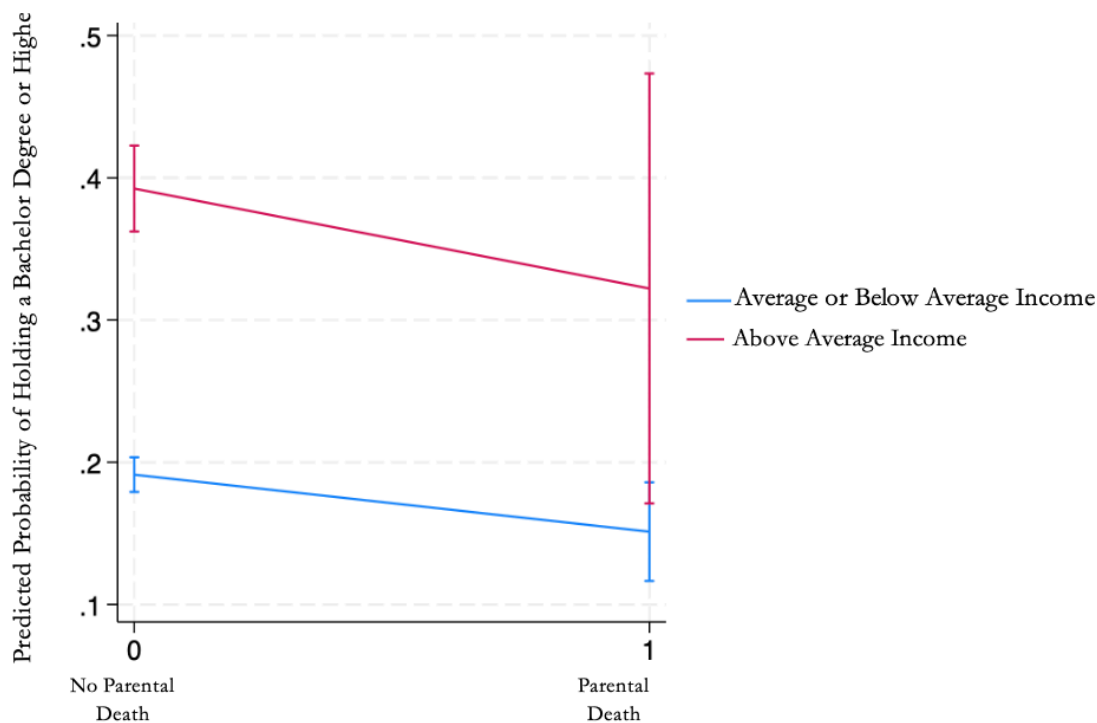
Discussion

The findings of this study demonstrate that both early parental death and family income levels have significant and independent effects on the educational attainment of offspring.

Specifically, experiencing the death of a parent before age 16 is associated with a 25% reduction in the odds of obtaining a bachelor's degree, even after adjusting for demographic controls (OR = 0.75, $p < 0.05$). This aligns with prior research highlighting the long-term educational disadvantages faced by bereaved children. Family income also emerges as a strong predictor of educational attainment; the odds of obtaining a bachelor's degree are 79% lower for individuals who experienced the death of a parent compared to those who did not (OR = 0.21, $p < 0.01$). Individuals from above-average income households are substantially more likely to earn a bachelor's degree than those from lower-income households. This underscores the persistent influence of socioeconomic status on higher education outcomes. This suggests that higher income does not significantly buffer the negative impact of parental loss on bachelor's degree attainment. In other words, while both parental death and lower income are independently associated with reduced educational outcomes, there is insufficient statistical evidence to conclude that the effect of parental death is compounded by socioeconomic disadvantage. This finding fails to reject the null hypothesis that income level moderates the relationship between bereavement and educational attainment.

Nonetheless, the individual effects of income and parental death remain robust. The absence of a statistically significant interaction effect may point to the complexity of how family resources, grief, and resilience intersect in shaping educational trajectories. It is also possible that other unmeasured factors—such as the availability of social support, mental health resources, or school engagement—may mediate or moderate the impact of parental loss across income groups.

Attachements

File	Source	Data
Table 1	Created in working.do, edited in Excel	Data-w.dta
Table 2	Created in working.do, edited in Excel	Data-w.dta
Figure 1	Created in working.do, edited in Excel	Data-w.dta
Figure 2	Created in working.do, edited in Excel	Data-w.dta

GSS.dat
1972-2022 GSS data downloaded from GSS on 0/1/15/2025

Old.do
Associated do file downloaded from GSS on 01/15/2025
Creates variables, labels variables
produces Data-W.dta

Working.do
Recode *degree* to binary from categorical
Recode *incom16* to binary from categorical
Drop where < 22
Dropped if missing on any of the above listed variables plus race, sex, age
Create *pardeath* variable from combining *padeath* & *madeath*
Run 4 logistic regression models
Construct marginal effects

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