

Death and the time of your life: experiences of close bereavement are associated with steeper financial future discounting and earlier reproduction

Gillian Pepper & Daniel Nettle, Centre for Behaviour & Evolution, Institute of Neuroscience, Newcastle University, 2013

Problem

Evolutionarily-based theories predict that people should adopt a faster life history strategy when their mortality risk is high. However, this raises the question of what cues evolved psychological mechanisms rely on when forming their estimates of personal mortality risk.

Hypotheses

We tested associations between exposure to death, close bereavements and ideal and actual ages at first birth, as well as future discounting.

We predicted:

1. That both exposure to death and close bereavement would be associated with lower ideal and actual ages at first birth and steeper future discounting, and;
2. That the effect of close bereavements would be greater than the effect of overall exposure to death.

Variables

Controlled variables

- Age.
- Sex.
- Income (\$USD).
- Socioeconomic status (SES).

Predictor variables

- Exposure to deaths (number of acquaintances who died in past 5 years).
- Bereavements (number of close friends or family members who died in 5 years).

Outcome variables

- Age at first birth (in parents).
- Ideal age at first birth (in childless respondents).
- Future discounting score.

Future discounting measure

Which would you prefer?

In a year's time



Today



Respondents were offered 20 hypothetical choices between a larger monetary reward "in a year's time" (the delayed reward) and a smaller monetary reward "today" (the immediate reward). The delayed reward was always \$100. The immediate rewards ranged from \$1 to \$99. The k parameters (k is the point of indifference between the immediate and delayed rewards) ranged between 0.271232 and 0.000027 (where $k = (A-V)/(VD)$, A = amount of delayed reward, V = present subjective value of the delayed reward, D = delay).

Results – future discounting

	F ratio	p	B	Standard error [B]	Lower bound (95% CI)	Upper Bound (95% CI)
Age	0.17	0.68	0.01	0.03	-0.04	0.06
Sex	0.02	0.90	0.06	0.45	-0.83	0.94
Income	0.04	0.83	0.00	0.00	-0.01	0.00
SES	10.16	0.00*	-0.15	0.05	-0.24	-0.06
Death exposure	3.02	0.08	-0.18	0.10	-0.38	0.02
Bereavement	6.63	0.01*	0.45	0.18	0.11	0.79

Table 1. SES and reported number of bereavements were significant predictors of future discounting score. A greater number of reported bereavements were associated with a greater tendency to choose an immediate reward over a larger delayed one. A lower SES score was also associated with a greater tendency to choose an immediate reward over a larger delayed one. $df=1$, $error=571$, $p = \text{significance}$ ($*p \leq 0.05$).

Results – ideal age at first birth

	F ratio	p	B	Standard error [B]	Lower bound (95% CI)	Upper Bound (95% CI)
Age	15.35	0.00*	0.12	0.03	0.06	0.17
Sex	4.48	0.03*	0.82	0.39	0.06	1.58
Income	0.22	0.64	0.00	0.00	-0.01	0.00
SES	1.40	0.24	-0.05	0.04	-0.13	0.03
Death exposure	0.05	0.82	-0.02	0.10	-0.21	0.17
Bereavement	4.28	0.04*	-0.46	0.22	-0.89	-0.02

Table 2. Being female and having reported a greater number of bereavements were associated with earlier ideal ages at first birth. $df=1$, $error=452$, $p = \text{significance}$ ($*p \leq 0.05$).



Conclusions

Our results suggest that close bereavements act as a cue to mortality risk, triggering an accelerated life history strategy. The sheer number of deaths a person reported did not show significant effects. This may be because the deaths of a person with whom one is close are a better reflection of one's own mortality risk due to shared genes and or environment. We found that the number of close bereavements reported was associated with financial future discounting. This indicates that cues to personal mortality risk may provoke a more general shortening of time horizons. Thus, the response may not be unique to the reproductive domain.

The publication

Pepper, G. V., & Nettle, D. (2013). Death and the time of your life: experiences of close bereavement are associated with steeper financial future discounting and earlier reproduction. *Evolution and Human Behavior*, 34, 433–439.

Link to the publication using this barcode:



Results – actual age at first birth

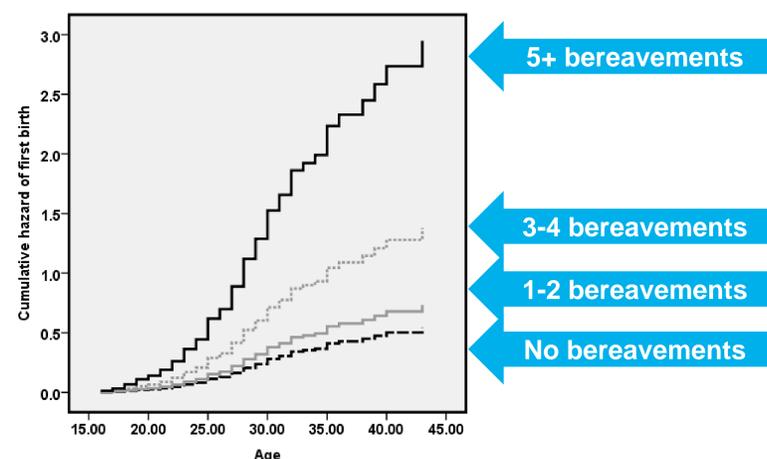


Fig. 1. Cumulative hazards of having a first child at a given age for four levels of close bereavement. Sex, income, SES and more general death exposure are controlled. Hazard ratio for 1-2 bereavements versus none was 1.451 ($p > 0.05$). Hazard ratio for 3-4 bereavements versus none was 2.546 ($p < 0.05$). Hazard ratio for 5+ bereavements versus none was 5.442 ($p < 0.01$).