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WHAT'S IN A NAME: MORTALITY AND THE POWER OF SYMBOLS

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Abstract—One's attitude about oneself, and the treatment one receives from others, might be affected, in some small but measurable way, by stigmatic or salutary labeling due to one's name. If names affect attitudes and attitudes affect longevity, then individuals with "positive" initials (e.g., A.C.E., V.I.P.) might live longer than those with "negative" initials (e.g., P.I.G., D.I.E.). Using California death certificates, 1969–1995, we isolated 2287 male decedents with "negative" initials and 1200 with "positive" initials. Males with positive initials live 4.48 years longer ($p<0.0001$), whereas males with negative initials die 2.80 years younger ($p<0.0001$) than matched controls. The longevity effects are smaller for females, with an increase of 3.36 years for the positive group ($p<0.0001$) and no decrease for the negative. Positive initials are associated with shifts away from causes of death with obvious psychological components (such as suicides and accidents), whereas negative initials are associated with shifts toward these causes. However, nearly all disease categories display an increase in longevity for the positive group and a decrease for the negative group. These findings cannot be explained by the effects of death cohort artifacts, gender, race, year of death, socioeconomic status, or parental neglect. © 1999 Elsevier Science Inc.

Keywords: Attitudes; Labeling; Mortality; Names; Symbols.

INTRODUCTION

Symbolic aspects of the environment appear to affect health. For example, fewer people die just before their birthdays [1–3] and major holidays [1, 4, 5], and more die just after these symbolic occasions. In addition, suicides peak at ages 21, 30, and 40 years, presumably because of the symbolic significance of these ages [6]. There is also evidence suggesting that people's attitudes about their prospects can influence their health. In the extreme, some strongly superstitious people may sicken if they believe they are fated to do so, either by a voodoo curse [7, 8] or by a Chinese astrological prediction [9]. More generally, optimistic and pessimistic attitudes have been linked to longevity [10–13].

One personal and enduring aspect of the symbolic environment is one's name and all its meanings and connotations [14]. The name a person bears has been found to affect self-esteem [15–20] and people's names can also affect the treatment they receive in educational [21], legal [22], political [23], psychiatric [24], and other [25] settings. Of course, the importance of names is documented not only in the scientific press, but in the lay press as well. There are many popular books on what to name

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a baby [26–28] They typically note that "every name is wreathed with a cluster of associations" [26], rendering the naming of a child both difficult and important. Baby books routinely advise particular care in selecting a child's initials, because parents might fail to notice that the initials they are about to give a child could have negative connotations [26, 27]. This oversight by parents suggests that there may be many offspring who have been inadvertently assigned initials with negative connotations.

Stigmatic or salutary labeling due to one's initials might affect, in some small but measurable way, how one is viewed by others or oneself. Initials like "A.P.E." or "B.U.M." may cause individuals not to think well of themselves, and the bearers of these initials may have to endure teasing and other negative reactions from those around them. Conversely, people whose initials have positive connotations (e.g., "A.C.E." or "J.O.Y.") may form a more positive self-image that is supported by the reactions of those around them. These considerations are consistent with labeling theory, which indicates that "labels" can shape self-images directly, or indirectly from the reactions of others [29–31].

Because attitudes can affect morbidity and mortality [10–13, 32–34] it is conceivable that "positive" and "negative" initials may do so as well, if these initials influence self-regard. Of course, some will not attribute significance to their initials, but others will probably do so. If so, and if attitudes influence longevity, then individuals with "positive" initials should live detectably longer than those with "neutral" initials, whereas individuals with "negative" initials should die sooner.

We use death certificates to examine the mortality of positive, negative, and control groups to determine whether those in the positive group live longer, and those in the negative group die sooner, than expected. Our research design also enables us to look for particular diseases with mortality patterns showing unusually strong effects of the symbolic environment. In addition, our approach allows us to determine whether those diseases most affected by membership in the positive group are also most affected, in the opposite direction, by membership in the negative group. In contrast to our approach, previous research designs have typically examined only a few diseases [12, 13, 32, 33] and small or specialized samples [9, 34].

METHOD

To create a list of positive and negative initials, we generated (by means of the Unix electronic dictionary) an exhaustive list of three-letter English words, ranging from "ace" to "zoo." We then searched this list for all the words that suggest positive self-regard or positive prospects. Words with alternate non-positive meanings (e.g., "top") were not included. This list was supplemented with three-letter "near words" (e.g., "luv") with the same type of positive connotation. Disagreements between the investigators were resolved by discussion. The positive list then consisted of the initials: ACE, GOD, HUG, JOY, LIF, LIV, LOV, LUV, VIP, WEL, WIN, WOW. By a parallel process, we defined a list of negative initials: APE, ASS, BAD, BUG, BUM, DED, DIE, DTH, DUD, HOG, ILL, MAD, PIG, RAT, ROT, SAD, SIC, SIK, UGH. Again, all three investigators had to agree on the negative connotations of the words, and words with two meanings were only included if both were negative (e.g., "ass" or "bum").

To study the longevity of persons with these initials, we examined computerized death certificates from the state of California [35], which, in contrast to national computerized records, list the decedent's name. The period studied begins in 1969, with the introduction of the eighth revision of the International Classification of Diseases, and ends in 1995, the most recent year for which records were available. Because we wished to avoid the confounding effects of race and Hispanic status, and because most California decedents are white non-Hispanics, we restricted our analysis to white non-Hispanic males and females. These demographic groups accounted for 89% of California deaths in 1983, the midpoint of our

study period [36]. We identified 1200 males with positive initials, and 2287 males with negative initials. We also identified 533 females with positive initials, and 3512 females with negative initials.

We examined in two ways whether the initials in our positive or negative sets are in fact generally regarded as positive or negative. First, we asked 39 undergraduates to rate each of a list of 40 possible initials as being positive, negative, or neutral. The list was composed of our 9 "positive" initials, our 12 "negative" initials, and 9 "neutral" initials chosen from the control group. The average scores showed absolutely no overlap between groups: every one of the "positive" initials received a more positive score than every one of the "neutral" initials. In addition, every one of the "negative" initials received a more negative score than every one of the "neutral" initials.

For the second way of checking our classification of initials, we took advantage of the fact that women's initials change upon marriage in unpredictable ways. Because men's initials at death tend to be the ones they were given at birth, but women's can be altered at marriage, the initials of male decedents should reflect their parents' preferences; this should be much less so for females. Thus, if negative initials are shunned, they should be underrepresented among males compared with females (since females with neutral initials may acquire negative ones when they change their last name upon marriage). Conversely, if positive initials are embraced, they should be overrepresented among males compared with females (since females may lose their positive initials when they change their last name). If parents do not generally regard the initials in our positive set as desirable, the number of men and women with these initials should be roughly the same—people should be just as likely to get them deliberately from their parents as to get them randomly at marriage. Similarly, if parents do not regard the initials in our negative set as undesirable, then they should be just as common in males as in females. The data strongly support our categorization of positive and negative initials: there are 2.25 times as many male as female decedents with positive initials, whereas there are only 0.65 times as many male as female decedents with negative initials. The ratio of positive to negative initials among male decedents is significantly different from the ratio for females ($\chi^2=482.25$; 1 *df*, $p<0.0001$). Hence, two separate lines of inquiry suggest that our assessment of positive and negative initials is generally shared.

Because we expected any effects of initials to be stronger for men than for women (who do not typically retain the same set of initials throughout their lives), we performed separate analyses by gender, with the most detailed analyses for males.

To determine whether membership in the male positive group was associated with increased longevity, we compared the age at death of members of this group with the age at death of all male, white, non-Hispanic California decedents with "neutral" initials (n=1,917,771). We regressed age at death on membership/nonmembership in the positive group and on year of death. By examining the size and statistical significance of the coefficient associated with membership in the group, we estimated whether members of the positive group lived longer than controls.

The analysis of the negative group exactly paralleled that of the positive group, with one exception: the selection of controls. The need for a specialized control group arose because a shift in the popularity of initials can distort estimates of longevity [37, 38]. To illustrate the effects of a shift in popularity, suppose that children were given the initials "A.B.C." in the last 20 years only. Thus, the only people with these initials included in our mortality file, 1969–1995, would be those who died young. Consequently, a steep, upward trend in the popularity of the initials "A.B.C." could give the false impression that people with these initials tend to die early. To determine whether people with these initials actually tend to die early, one needs to compare them with a control group that shows the same steep, upward trend in popularity.

The ratio of male decedents with positive initials to all decedents showed no trend during the time period under study (with an annual increase of 0.03%, 1969–1995); thus, the full control group of all white, non-Hispanic males is appropriate for analyses of the male positive group. However, the ratio of decedents with negative initials to all decedents did increase over the study period (by 1.3% annually), thus necessitating a specialized control group. Accordingly, we identified all three-letter initials for males that showed the same 1.3% trend that was found for our set of negative initials. We used the 75,994 white, non-Hispanic males with these initials as the control group. Thus, any effect of a popularity trend would affect both the negative group and the new control group equally, allowing us to obtain an unbiased estimate of the association between longevity and membership in the negative group. Using all white, non-Hispanic males as the control group would have exaggerated the longevity difference between the negative and control groups.

A similar procedure was followed to create the control groups for the female analyses. As with males, there was no trend in the popularity of positive initials, and an increasing trend in popularity of negative initials (a 0.98% annual increase, 1969–1995). Accordingly, we used all white, non-Hispanic females as controls in the analysis of positive initials (n=1,890,317). To generate the unbiased control group for the negative initials, we identified all three-letter initials showing the same 0.98% trend for white non-Hispanic females. We then used the 86,218 white non-Hispanic females with these initials as controls.

For the male groups, where we expected a larger effect of initials, we examined each major cause of death separately. This allowed us to determine whether any difference in longevity between groups was

particularly large for some diseases. For example, one might find no longevity difference for heart disease, but might find that, of those who died of cancer, individuals with positive initials died older than controls. In addition, we compared the distribution of diseases for the groups, to determine whether some diseases were less prevalent in the positive group than in controls. For example, one might find that persons with positive initials were less likely than controls to have died from cancer. Similar analyses were performed for the negative group. Analyses of particular causes of death studied were restricted to 1979–1995, the years covered by the ninth revision of the International Classification of Diseases. We examined the top ten causes of death, according to their nationwide frequency in 1990. The causes of death (and ICD-9 codes) were: (1) heart diseases (ICD-9 390–398, 402, 404–429); (2) malignant neoplasms (ICD-9 140–208); (3) cerebrovascular diseases (ICD-9 430–438); (4) accidents (ICD-9 E800–949); (5) chronic obstructive pulmonary diseases (ICD-9 490–496); (6) pneumonia and influenza (ICD-9 480–487); (7) diabetes mellitus (ICD-9 250); (8) suicide (ICD-9 E950–959); (9) chronic liver disease and cirrhosis (ICD-9 571); (10) human immunodeficiency virus infection (ICD-9 042–044); and (11) all other causes of death.

We supplemented the aforementioned retrospective analyses with a prospective study of a subsample of persons whose birth and death dates occurred during our study period, 1969–1995.

RESULTS

Male positive group compared with controls

As shown in Figure 1, the longevity benefit of belonging to the male positive group is evident for 26 of the 27 years under study ($p<0.0001$, binomial test). Members of the positive group lived an average of 4.48 years longer than matched controls ($p<0.0001$, two-tailed *t*-test, se of estimate=0.58, $t=7.71$). This finding remains significant when the analysis is restricted to autopsied decedents ($p<0.0001$; two-tailed *t*-test, se of estimate=1.35; $t=4.17$). The distribution of age at death for the entire positive group differs significantly from the equivalent distribution for the controls ($p<0.001$, Kolmogorov–Smirnov test) with the maximum difference between the positive and control groups occurring at age 62.

Figure 2A shows, for each cause of death, the difference between the average age at death for the male positive group and average age at death for the controls. For example, of those dying from heart disease, members of the positive group outlived controls by 2.3 years. Membership in the positive group was associated with increased longevity for 10 of the 11 causes of death. Thus, the benefit of membership in the positive group appeared to extend to nearly all causes of death.

Consistent with the hypothesis that longevity is affected by the symbolic significance of initials, the two causes of death with the most obvious behavioral components (suicide and accidents) display especially large longevity effects. A two-factor analysis of covariance (with year of death as the covariate) revealed that the effect of positive versus neutral initials was greater for suicide and accidents than for the eight leading natural causes of death [$F(1, 995{,}422)=6.04$, $p=0.01$]. In addition, Figure 2A also reveals an unexpected finding: The residual category, which comprises minor and ill-defined causes of death, shows a particularly large effect compared with the ten other causes examined [$F(1, 1{,}171{,}714)=10.67$, $p<0.01$, after Bonferroni adjustment for post hoc comparisons].

Figure 2B shows the relative prevalence of each major cause of death in the positive group compared with controls. Thus, for example, there were 33.7% fewer accidental deaths in the positive group than would be expected from matched controls. The two causes of death with the most obvious behavioral component (accidents and suicide) were markedly underrepresented in the positive group. (The 11 cause categories are exhaustive—people must die of one of these—and so it is not possible

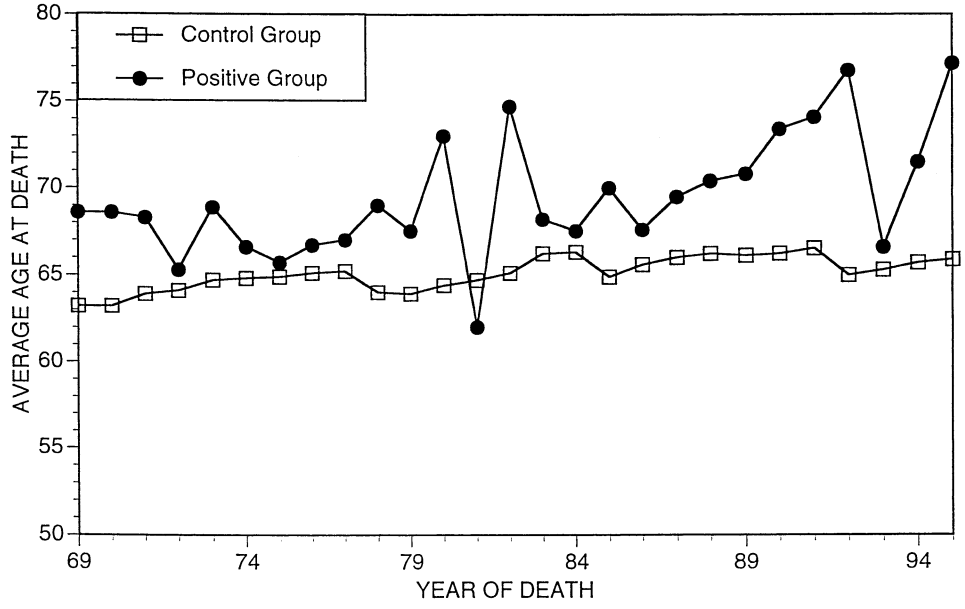

Fig. 1. Average age at death for white non-Hispanic males in the positive group and for matched controls, 1969–1995. The positive group consists of persons whose initials (e.g., A.C.E. or V.I.P.) are likely to have positive connotations.

for members of the positive group to have been underrepresented in all causes.) Overall, the disease distribution of the positive group differed significantly from the disease distribution of the controls: $\chi^2=44.29$, 10 *df*, $p<0.001$.

Male negative group compared with controls

Members of the male negative group died earlier than did controls for 22 of the 27 years under study (Fig. 3; $p=0.0008$, binomial test). On average, members of the negative group lived 2.80 fewer years than matched controls ($p<0.0001$, two-tailed *t*-test, se of estimate=0.45, $t=6.28$). This finding remains significant when the analysis is restricted to autopsied decedents ($p<0.0001$; two-tailed *t*-test, se of estimate=0.94, $t=5.22$). The distribution of age at death for the entire male negative group differed significantly from the equivalent distribution for the controls (Kolmogorov–Smirnov test, $p<0.001$), with the maximum difference between the negative and control groups occurring at age 43.

Figure 4A shows, for each cause of death, the difference between the average age at death for the negative group and the average age at death for the controls. Membership in the negative group was associated with decreased longevity for 9 of the 11 causes of death. Thus, the cost of membership in the negative group appears to extend to nearly all causes of death.

Consistent with our expectations, suicides and accidents again display especially large longevity effects. A two-factor analysis of covariance (with year of death as the covariate) reveals that the effect of negative versus neutral initials was greater for suicide and accidents than for the eight leading natural causes of death [F(1,

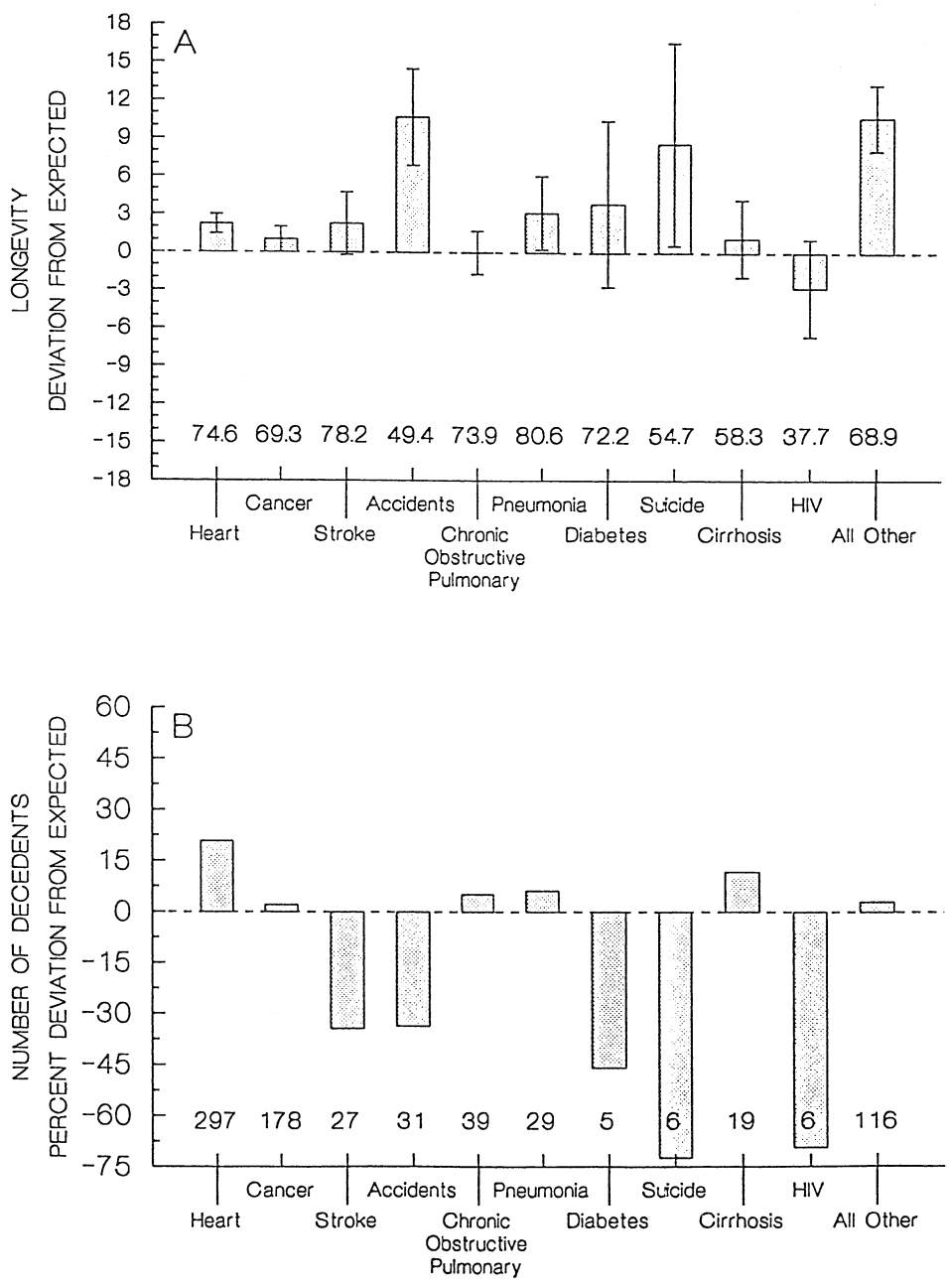

Fig. 2. Two measures of mortality for white non-Hispanic males in the positive group versus matched controls, for ten leading causes of death and a residual category. (A) The difference, for each cause of death, between the average age at death for the positive group and average age at death for the controls (95% CI). The number above each cause label indicates the average age at death for decedents in the positive group dying from that cause. (B) The degree to which each cause of death is over- or underrepresented in the positive group compared with controls. The number above each cause label indicates the number of decedents in the positive group dying from that cause.

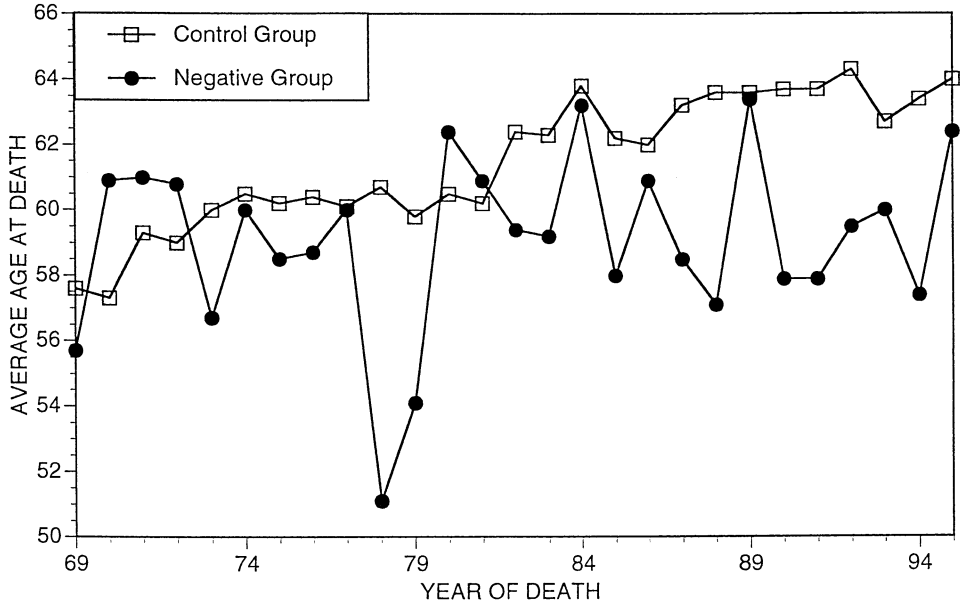

Fig. 3. Average age at death for white non-Hispanic males in the negative group and for matched controls, 1969–1995. The negative group consists of persons whose initials (e.g., P.I.G. or D.I.E.) are likely to have negative connotations.

45,262)=6.14, $p=0.01$]. Figure 4A also reveals that the residual category, as before, shows a particularly large effect, compared with the ten other causes examined [$F(1, 53{,}175)=31.57$, $p<0.001$, after Bonferroni adjustment].

Figure 4B shows the relative prevalence of each cause of death in the negative group compared with controls. The disease distribution of the negative group differs significantly from that of the controls ($\chi^2=30.37$, 10 *df*, $p<0.001$).

Results for females

We repeated the fundamental longevity analyses for white non-Hispanic females. Females in the positive group (n=533) lived 3.36 years longer than the control group of all white non-Hispanic females ($p<0.0001$, se of estimate=0.82, $t=4.11$). The longevity of females in the negative group (n=3,512) did not differ significantly from that of the control group matched for popularity trends ($p=0.24$, se of estimate=0.33, $t=1.18$). As predicted, females, who typically change initials during their lifetimes, display smaller longevity effects than their male counterparts: a three-factor analysis of covariance (with year of death as the covariate) reveals that the effect of positive or negative initials (versus neutral initials) was greater for males than for females [$F(1, 3{,}808{,}097)=13.63$, $p<0.001$].

For males and females, the longevity effects for the positive group were not produced solely by one set of initials in that group, but were instead present across the range of initials studied; the same is true for the negative group (see Table I; $p=0.006$, two-tailed Mann–Whitney *U*-test=41).

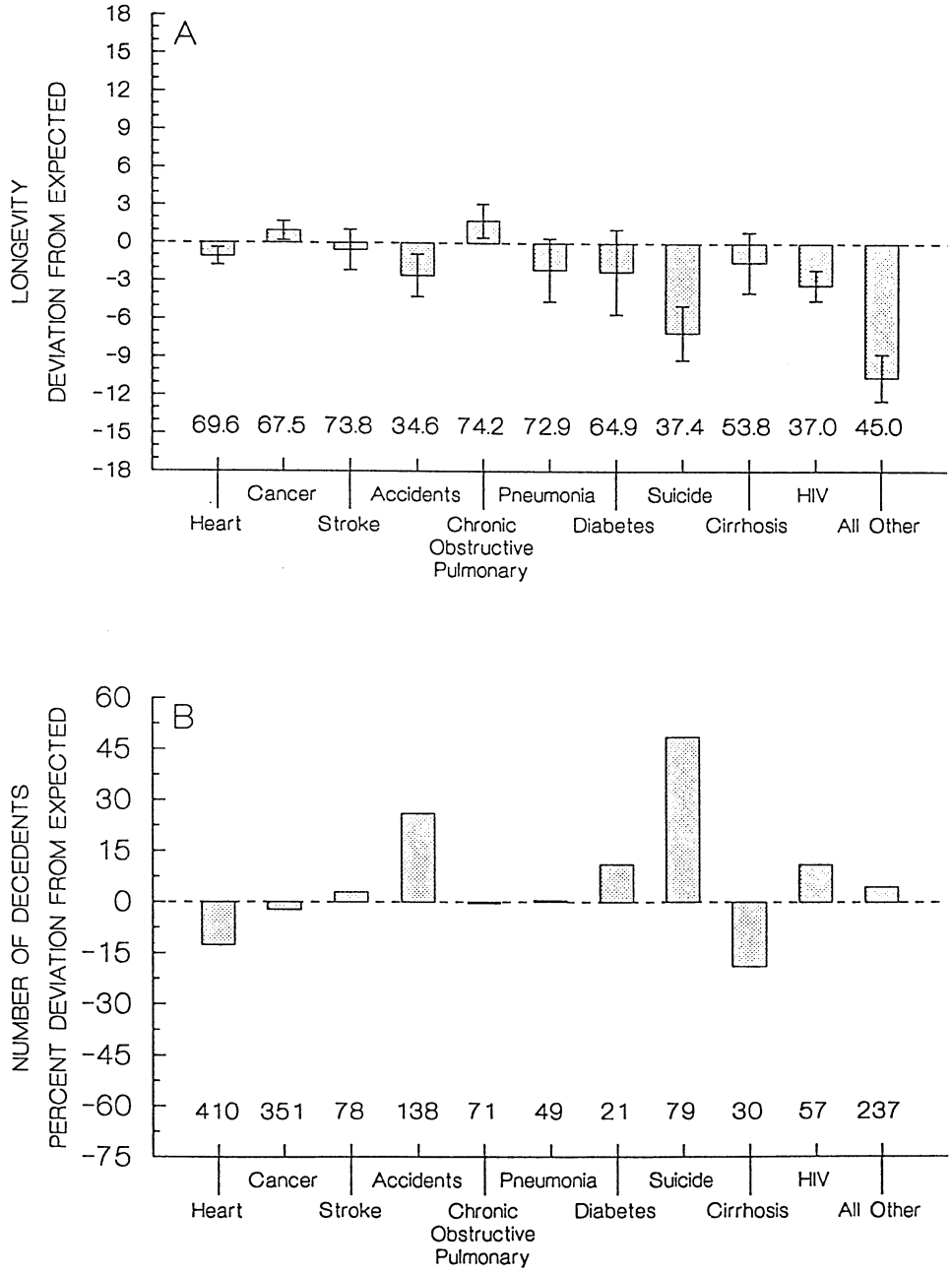

Fig. 4. Two measures of mortality for white, non-Hispanic males in the negative group versus matched controls, for ten leading causes of death and a residual category. (A) The difference, for each cause of death, between the average age at death for the negative group and average age at death for the controls (95% CI). The number above each cause label indicates the average age at death for decedents in the negative group dying from that cause. (B) The degree to which each cause of death is over- or underrepresented in the negative group compared with controls. The number above each cause label indicates the number of decedents in the negative group dying from that cause.

Table I.—Average age at death (sorted from low to high) for each of the positive and negative initials

Average age at death	Initials		Number of cases
	Positive	Negative	
58.90		D.T.H.	194
59.90		S.A.D.	470
62.89		R.A.T.	725
63.11		B.A.D.	539
63.12		D.E.D.	695
63.17		B.U.G.	6
63.33		D.U.D.	3
67.00		U.G.H.	10
67.48		S.I.C.	91
68.09		D.I.E.	45
68.94		M.A.D.	1826
69.02	J.O.Y.		40
69.48		S.I.K.	50
69.76	W.E.L.		659
69.87	W.O.W.		192
69.99		R.O.T.	97
71.36		A.P.E.	94
71.76		P.I.G.	50
72.15		A.S.S.	566
72.62	V.I.P.		97
72.77	H.U.G.		9
72.83	L.I.F.		116
73.06	A.C.E.		376
73.97	G.O.D.		132
74.17	W.I.N.		41
74.67		B.U.M.	12
74.83		I.L.L.	203
75.90	L.I.V.		43
76.03		H.O.G.	123
76.85	L.O.V.		28

Reasons for possible skepticism regarding the findings

There are two major reasons for doubting the validity of our findings. First, the use of a death cohort in retrospective studies can introduce artifacts [37, 38]. Second, the longevity shift associated with positive and negative initials is surprisingly large.

While our selection of an appropriate control group was designed to eliminate the possibility that our findings result from birth trends, some hidden trend-related artifacts may remain. To assess this possibility, we reanalyzed a subset of our data, using a prospective, rather than retrospective, design. We restricted attention to those whose birthdates and deathdates fell within our study period (1969–1995), leaving us with 33 decedents with positive initials, and 314 decedents with negative initials. For each of these decedents, we constructed a control group that consisted of all those with neutral initials who matched the decedent on exact birthdate. They were also matched on gender, and were, like the study group, white non-Hispanics. In this prospective design, we followed the study group and matched controls born on the same date, from birth to death, and thus ensured that the findings did not result from birth-year trends. If negative initials are indeed associated with reduced lon-

gevity, then decedents with negative initials should tend to die earlier than their controls. This was the case, with 187 decedents dying earlier than the average age of their controls, and 127 decedents dying later ($p<0.0005$, binomial test). The number of decedents with positive initials was too small to allow a meaningful significance test, although the results were in the predicted direction, with 15 dying earlier than expected, and 18 later ($p=0.36$, binomial test). Thus, both retrospective and prospective research designs revealed the same association between initials and longevity.

Upon preliminary inspection, the longevity effects appeared too large to be genuine. However, persons carrying negative initials were particularly likely to die from "early-killing" causes of death, like suicide and accidents, which, on average, affect people in their thirties. Conversely, persons carrying negative initials were less likely to die from "late-killing" causes of death, like heart disease, which, on average, affects people at about age 70. This shift from "late-killing" to "early-killing" diseases would have a very large effect on longevity, even though the longevity effect within each particular disease was typically small; for instance, a longevity reduction of 1.5 years for those dying from cirrhosis of the liver (Fig. 4A). In addition, initials may have a relatively large effect because a person carries his initials, with their stigmatic or salutary effects, from childhood to the end of life.

Alternative explanations for the findings

Even if positive and negative initials are genuinely associated with shifts in longevity, the effect need not be due to the symbolic meaning of the initials. Several plausible alternative mechanisms are assessed in what follows.

Parental neglect. Perhaps cruel, careless parents favor negative initials for their children, whereas kind, careful parents favor positive initials. If so, offspring with negative initials might die young because of the poor parenting they received, not because of the symbolic significance of their initials. This explanation is implausible. First, given the "parental neglect explanation," the longevity difference between the positive and negative groups should be especially apparent for children, who are more vulnerable than adults to poor parental care. The data do not support this expectation: of children dying before age 10, the average age at death for the negative group (1.11 years) was actually slightly greater than that for the positive group (0.94 years).

Second, if the "parental neglect explanation" were correct, our findings should not exist among people who died in California, but were born in non–English-speaking countries (henceforth termed "foreign-born"). Kind foreign parents should not favor our positive initials, and unkind foreign parents should not favor our negative initials, because the English meanings of these initials should have no systematically positive, or negative, connotations for non-English speakers. Consider, for example, French parents, and suppose that the unkind among them are predisposed to give their children negative initials, while the kind were predisposed toward positive initials. The kind French parents might choose initials like "V.I.E." but would have no reason to favor the initials "L.I.F." or "L.I.V." in our positive initial set. Conversely, kind French parents might avoid the initials "M.A.L." but not the initials "B.A.D." in our negative initial set. In short, among the French, "M.A.L." might be a marker of parental neglect, but "B.A.D." should be just as

common among offspring of kind and unkind parents. Likewise, "V.I.E." might be a marker of parental kindness, but "L.I.F." should be just as common among offspring of kind and unkind French parents. Consequently, foreign-born California decedents with our negative initials should be no more likely to have unkind parents than should foreign-born California decedents with our positive initials. Thus, if the "parental neglect explanation" were correct, the longevity differences between positive and negative groups should disappear when we restrict attention to the foreign-born. This expectation is not supported by the data: On average, foreign-born members of the positive group die at 72.9 years, versus 63.3 for the negative group. Consequently, the "parental neglect explanation" is implausible.

Socioeconomic status (SES) of decedents' parents. Longevity tends to be lower for people of lower socioeconomic status [39, 40]. Perhaps low-SES parents are more likely than others to give negative initials and less likely than others to give positive initials to their children. If so, these child-naming conventions might explain some of our findings. Death certificates do not include data on the SES of the decedent's parents, making direct statistical control for this factor impossible. However, the plausibility of this hypothesis can still be evaluated with the existing data.

The two pieces of evidence that undermine the "parental neglect explanation" also render the "SES explanation" implausible. First, because the negative effects of low SES are particularly apparent for the young [41], the "SES explanation" implies that the longevity differences between negative and positive groups should be particularly evident for the young. As noted earlier, this was not so.

Second, if membership in the negative group is a marker for low SES, our findings should not hold for foreign-born California decedents. Just as negative initials cannot be a marker for parental neglect among the foreign-born, they cannot be a marker for low SES in that group. Low-SES foreign parents might favor particular sets of initials, but these would be initials with meanings in their own languages, not the initials in our negative set. As noted earlier, the longevity difference between positive and negative groups holds also for the foreign-born, and this finding undermines the "SES explanation."

In addition, a third piece of evidence renders the "SES explanation" implausible. The pattern of over- and underrepresentation of diseases is not consistent with what would be expected if the differences between the positive and negative groups resulted from differences between their SES levels. For example, mortality from cirrhosis of the liver is strongly and negatively associated with SES [39, 40]. Hence, this disease should be overrepresented in the negative group and underrepresented in the positive group, but it is not. Suicide shows the strongest overrepresentation in the negative group and the strongest underrepresentation in the positive group. This finding would not be expected if the "SES explanation" were correct, because suicide does not show a strong, linear, negative relationship with SES [39, 40].

Foreign-born decedents. Perhaps the negative group contains an overabundance of California decedents born in foreign countries, whereas the positive group contains a paucity of such decedents. This could be so because non-English speakers might be less likely to shun the particular negative initials in our set, and less likely to embrace the positive initials we have studied. This hypothesis might hold if immigrants tended to die young. However, although initially plausible, this hypothesis is not tenable, because our findings persist even when all foreign-born decedents are

excluded from analysis. (In the positive–control comparison, $p<0.0001$, two-tailed t-test, se of estimate=0.60, $t=8.51$; in the negative–control comparison, $p<0.0001$, two-tailed t-test, se of estimate=0.48, $t=7.02$.)

Association between initials and membership in a particular demographic group

Perhaps people in certain ethnic, racial, or religious groups favor certain names, and thus are more likely to bear certain initials, causing them to be overrepresented in either the positive or negative group. For example, it might be that people with the first initial "V" tend to be Catholic, and Catholics could have a different longevity or cause-of-death pattern from the general population of California. Such an explanation could be a plausible account for our data if all or most of the negative set of initials began with "V." Alternately, if all of our positive initials ended with "O," Irish-Americans might be overrepresented in that group, which could conceivably account for a longevity and cause-of-death difference between the positive group and controls. However, such a factor is unlikely to account for our data, because the initials in the negative group, and in the positive group, share nothing except their negative, or positive, connotations. That is, the negative initials do not share a starting letter, middle letter, or final letter. People in this group have first names that begin with D, S, R, B, and so on. Thus, while people with particular initials might tend to come from a particular demographic group, it is not likely that this could be the case for the negative group as a whole, because it comprises a wide range of possible initials.

DISCUSSION

Males with positive initials live 4.48 years longer, whereas males with negative initials die 2.80 years younger than their matched controls. As predicted, the longevity effects are smaller for females, with an increase of 3.36 years for the positive group and no decrease for the negative group. Positive initials are associated with shifts away from suicides and accidents, whereas negative initials are associated with shifts toward those causes. Nearly all disease categories display an increase in longevity for the positive group and a decrease in longevity for the negative group. The causes of death with the largest longevity gains for the positive group tend to be the ones with the largest losses for the negative group. Our basic findings appear in both prospective and retrospective analyses, minimizing the possibility that the findings result from a death-cohort artifact.

At present, the best available explanation for these findings is that they are due to the symbolic power of one's name. It seems unlikely that a person with initials like A.S.S. or J.O.Y. could fail to notice the negative or positive connotations. Apparently, such initials, when they carry strongly negative or positive connotations, can influence the cause and timing of death. Our interpretation of this finding is supported by examination of individual causes of death. Suicide and accidents, which have the strongest behavioral components of all causes of death studied, in fact show the strongest differences between the positive and negative groups. The "symbolic explanation" is also supported by the finding that effects are smaller for

women and absent for children: these groups are more weakly attached to their initials.

The research technique presented here is not well suited for explicating the detailed processes underlying our findings, and leaves several unanswered questions: (1) How much are the longevity effects mediated by behaviors like smoking, exercising, and seeking or avoiding medical care? Overt, health-related behaviors are clearly implicated, because suicides and accidents show large effects, but longevity effects are also evident for causes of death with a weaker behavioral component. (Incidentally, the large effect for "accidents" suggests that some of these are not fortuitous.) (2) How much of the effect results from the behavior of the bearers of the initials rather than the behavior of those around them (physicians, friends, relatives)? (3) How much does the increased longevity of the positive group result from delayed onset of disease, and how much from increased survival time, once the disease has been contracted?

Genes, health behaviors, and SES, which we get from our parents, can influence our longevity. It now appears, rather surprisingly, that the names our parents give us can also alter the cause and timing of death. This finding adds to the evidence that mortality can be markedly affected by the symbolic environment. A symbol as simple as one's initials can add 4 years to life, or subtract 3 years from it.

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