How Fast you age that your Social Life may Leave a Mark on

Researchers investigated whether social experiences predict mortality.

Social experiences influence health and longevity, and their quality and quantity are suggested to predict morbidity and mortality risks. A landmark study found over a two-fold higher risk of death over nine years among people with fewer community and social ties compared to individuals with more extensive ties. Subsequent analyses (in the same cohort) revealed that contact with relatives/friends and marital status predicted survival.

Social experiences also influence epigenetic clocks, which serve as biomarkers of aging and are robust predictors of mortality. Evidence links positive social experiences to slower epigenetic aging and negative social experiences to accelerated aging.

Allostatic load, i.e., the cumulative physiological toll accrued with chronic or repeated activation of stress-responsive systems, is another biomarker relevant to the effects of social ties on health.

Study

In the present study, researchers examined the associations of social experiences with mortality risk. Study participants were from sub-samples of four Midlife in the United States (MIDUS) surveys conducted in 2004–05, 2005–06, 2011–14, and 2012–13. Respondents completed two-day clinic visits that included blood and urine sample collection, physical examination, and a psychophysiological protocol.

Deoxyribonucleic acid (DNA) was extracted from blood samples and subjected to methylation profiling to estimate epigenetic aging measures, such as PhenoAge, GrimAge2, and DunedinPACE.

The primary outcome was all-cause mortality. Mortality data were obtained through interviews with knowledgeable informants, the National Death Index Linkage, longitudinal fieldwork, and online tracing.

Allostatic load was measured as the cumulative index of physiological dysregulation across seven biological systems: Inflammation, cardiovascular system, lipid metabolism, glucose metabolism, sympathetic nervous system, parasympathetic nervous system, and hypothalamic-

pituitary-adrenal (HPA) axis. Three self-reported measures of health status were assessed: functional limitations, chronic conditions, and self-rated physical health.

Negative social experiences were assessed using 25 items on stressful life events, and composites for childhood and adulthood adversities were constructed.

Positive social experiences were assessed using events or activities that reflect increased social connection and relationship formation, such as marriage, parenting, volunteering, attending union, professional, sports, or other social group meetings, and offering unpaid assistance to others.

Regression analyses were used to examine associations of social experiences with epigenetic aging, health status, and allostatic load, while Cox proportional hazards models were used to assess associations with all-cause mortality.

The mediating roles of allostatic load, epigenetic aging, and health status were also investigated; attenuation of the association was interpreted as mediation. Sensitivity analyses tested interactions between social experiences and sex and examined the mediating role of individual allostatic load domains.

Results

The study included 1,309 respondents with a mean age of 51 years at the time of the survey. Most individuals were White (77%) and female (55%). Of these, 150 participants died over a mean follow-up of 14.7 years.

Deceased individuals were older, more likely Black, had higher allostatic load, more functional limitations and chronic conditions, worse physical health, fewer positive social experiences, and more negative social experiences compared to survivors.

GrimAge2 and DunedinPACE showed significant correlations with positive social experiences, while all three epigenetic measures were correlated with childhood and adult adversities. Positive social experiences were negatively correlated with allostatic load, whereas negative social experiences were positively correlated with it.

Furthermore, marriage was associated with a lower mortality risk. Attending meetings and marriage were both associated with slower epigenetic aging as measured by GrimAge2 and DunedinPACE.

Select childhood adversities, such as dropping out of school, were associated with higher mortality risk and epigenetic age acceleration, while parental drug problems were associated with GrimAge2 acceleration and greater allostatic load. Positive social experiences were largely not associated with individual domains of allostatic load.

Childhood and adulthood adversities were associated with inflammation; additionally, adulthood adversities were associated with greater cardiovascular, lipid, and glucose metabolic dysregulation. Adult adversities were not independently associated with mortality after covariate adjustment.

GrimAge2 and DunedinPACE measures of epigenetic aging were consistent with partial mediation of the associations observed between social experiences and mortality. Specifically,

GrimAge2 acceleration attenuated the associations of positive social experiences and childhood adversities with mortality by 59.8% and 42%, respectively.

DunedinPACE produced smaller attenuation, while PhenoAge produced little attenuation when examined individually. Health status measures and allostatic load accounted for smaller proportions of the associations between social experiences and mortality.

Further, inflammation attenuated the associations of positive and childhood negative experiences with mortality by 11.3% and 9%, respectively. Cardiovascular function and lipid metabolism showed modest attenuation of the association with positive social experiences.

The remaining allostatic load domains showed negligible attenuation. Tests for interactions between social experiences and sex were not significant, providing no evidence that the main associations differed between men and women.

Conclusion

Collectively, positive social experiences and childhood adversity were associated with survival. Childhood negative social experiences predicted shorter survival, whereas adult negative experiences were not independently associated with mortality after adjustment, while positive social experiences predicted longer survival.

Epigenetic aging, particularly GrimAge2, emerged as the strongest potential pathway, while health status and allostatic load accounted for smaller proportions of these associations.

The authors also noted that the biomarker sample was a healthier, more socioeconomically advantaged volunteer subgroup and was not representative of the wider U.S. population.

Overall, although the observational design precludes causal inference, the results suggest that interventions that mitigate early-life adversity and promote positive social experiences may offer potential long-term health and survival benefits.

Source:

https://www.news-medical.net/news/20260812/Your-social-life-may-leave-a-mark-on-how-fast-you-age.aspx