THE GERONTOLOGICAL SOCIETY OF AMERICA®

OXFORD

Brief report

Feeling Old, Body and Soul: The Effect of Aging Body Reminders on Age Identity

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Abstract

Objectives: Although changes in body functioning and appearance signal the aging process to ourselves and others, studies give limited attention to the effect of bodily experiences of aging on age identity. Our study examines the effect on age identity of 3 categories of aging body reminders: everyday body problems, body repairs, and body aids.

Methods: Hierarchical linear models are run using 5 waves of the National Health and Aging Trends Study (2011–2015). Models predict the effect on age identity of change in the count of everyday body problems (e.g., pain), body repairs (i.e., surgeries and medications), and body aids (e.g., hearing aids).

Results: Increases in everyday body problems and body repairs (in particular, medications) predict older identities, with the strongest average effect found for everyday body problems. These results are observed in models controlling on health, suggesting that body reminders exert independent effects.

Discussion: Our study reveals a realm of aging experiences—bodily experiences—that influence age identity. Avenues for further research include examinations of other aging body reminders, as well as variation across individuals.

Keywords: Aging bodies, Subjective age, Subjective aging

"Youth, it occurs to me, has to do with not being aware of one's body, whereas old age is often a matter of consciously overcoming some misery or other inside the body. One is acutely aware of it." May Sarton (1988, p. 35) *After the Stroke: A Journal*

The body is central to aging experiences, as changes in its functioning and appearance signal to ourselves and others that we are growing older. Bodily experiences more common in later life, like reduced balance and energy, can serve as "body reminders" (Karp, 1988) of aging that shift our age identities, making us feel older. Efforts to address such issues—for example, through surgeries, medication, or assistive devices—also could produce older identities, given their cultural connection with "old age." Everyday experiences may be especially impactful, as they provide frequent

opportunities for comparisons (often downward) with the "retrospective self" (Sherman, 1994). These predictions are consistent with research revealing that worse health and greater impairment are among the strongest predictors of older identities (e.g., Barrett, 2003, 2005; Hubley & Russell, 2009; Kleinspehn-Ammerlahn, Kotter-Grühn, & Smith, 2008; Rozario & Derienzis, 2009); however, few studies examine the influence of aging body experiences on age identity.

We draw the aging body into focus in our study of "aging body reminders"—a term deriving from Karp's (1988) study of the fifties as a decade of aging reminders. In interviews with 72 white professionals, he finds four categories of age reminders—one of which is body reminders. Reported by all participants, they included age-related

illnesses and surgeries, though most were the everyday experiences of "otherwise healthy people living in bodies that are discernibly slowing down" (Karp, 1988, p. 730).

More recent studies provide further support (e.g., Barrett, 2003; Hubley & Russell, 2009; Kotter-Grühn, Neupert, & Stephan, 2015; Sherman, 1994; Stephan, Sutin, & Terrracciano, 2015). For example, Kotter-Grühn and colleagues' (2015) daily dairy study found that respondents reported older identities on days they experienced more pain. Similarly, Hubley and Russell's (2009) cross-sectional survey of older Canadians found that reporting more pain and less vitality predicted older identities. Further, of nine health measures examined, the highest proportion of variance in age identity was explained by vitality. Other everyday body problems have not been examined as predictors of age identity, though they are more common at older ages. As an illustration, deep sleep's duration declines with age, contributing to insomnia's high prevalence among older adults, estimated at 50% (Vitiello, 2012). Another example is falling—especially the fear of it. Approximately a third of older adults fall at least once a year, but over twice as many fear it (Kenny, 2005; Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008).

Although fewer studies address them, efforts to remedy or manage everyday body problems or more serious conditions—"body repairs"—also are likely to shape age identity. They include major events, like surgeries often associated with aging bodies (e.g., hip), as well as less involved—but more frequent—reminders, like taking medication. Providing support, Sherman's (1994) study found that surgeries' long-term negative effects on physical functioning led participants to feel older. Similarly, a quantitative study by Knoll, Rieckmann, Scholz, and Schwarzer (2004) found that people having cataract surgery tended to feel older (or less young) postsurgery. Less is known about medication use as a determinant of age identity. However, age patterns in prescription drug use point to this possibility, as only 35% of 20 to 39 year olds take prescription drugs, compared with 90% of those 65 and older (Kantor, Rehm, Haas, Chan, & Giovannucci, 2015).

Even fewer studies examine whether use of assistive devices—"body aids"—generate older identities by signaling one's illness or disability to others (Cahill & Eggleston, 1994; Charmaz & Rosenfeld, 2006). Consistent with this possibility, their prevalence increases sharply across later life. For example, less than 5% of 50–59 year olds use hearing aids, compared with 22% of those 80 and older (Chien & Lin, 2012).

Although research points to a connection between aging body reminders and age identity, some reminders receive little or no attention, and nearly all the studies we found use cross-sectional data. Our study fills these gaps by using panel data spanning 5 years to examine the effect on age identity of three types of aging body reminders—everyday body problems, body repairs, and body aids. By examining the causal relationship between aging body reminders and age identity, our study clarifies processes shaping older adults' well-being, as youthful age identities predict better health and greater longevity (Barrett & Toothman, 2014; Stephan, Sutin, Luchetti, & Terracciano, 2017; Westerhof et al., 2014).

Method

Data

We use data from the National Health and Aging Trends Study (NHATS), an annual panel survey begun in 2011 and aimed at examining late-life disability trends and their social and economic consequences (Kasper & Freedman, 2016; NHATS Public Use Data, 2011–2015). Sponsored by the National Institute on Aging (grant number NIA U01AG032947) and conducted by Johns Hopkins Bloomberg School of Public Health, NHATS is a nationally representative sample of Medicare enrollees aged 65 and older and includes oversamples of black, non-Hispanic persons and those of more advanced age. Of the 12,411 individuals selected for possible participation in NHATS, 979 were ineligible for further study (e.g., deceased, unable to be located), with another 3,187 identified as nonrespondents—yielding an initial sample of 8,245 older adults.

Our study uses data from Wave 1 (2011) to Wave 5 (2015), omitting respondents completing only one of the five waves, using proxies, or completing the facility or nursing home (as opposed to sample-person) survey ($n = 3,732$). We also omitted respondents with missing values on age identity or the independent variables ($n = 140$). Compared with those included in the analytic sample, those omitted were older and less educated, more likely to be female, nonwhite, and unmarried, and less likely to be homeowners. They also reported worse self-rated health, lower physical capacity, more everyday body problems, and use of more assistive devices (but fewer total surgeries). Our analytic sample consists of 17,539 observations distributed across 4,373 respondents. Analyses are weighted to adjust for NHATS sampling design.

Table 1 summarizes our variables, including items used in their construction. *Age identity* (also referred to in the literature as subjective age) is measured as the discrepancy between felt and chronological age, with higher values indicating older identities (e.g., Barrett, 2003, 2005; Schafer & Shippee, 2010). We examine the following four measures of body reminders: *everyday body problems, body repairs (surgeries), body repairs (medications), and body aids*. The following control variables are included: *age, female, nonwhite, married, homeowner, education, self-rated health, and physical capacity*.

Analytic Strategy

We used a hierarchical linear model with an unstructured covariance matrix and a maximum likelihood estimator (Singer & Willett, 2003). We fit a two-level model

Table 1. Summary of Variables

Variable	Description	% or Mean (*SD*)	
Age	In years; range = 65–98	77.36	(7.02)
Female	1 = *female*; 0 = *male*	58	
Nonwhite	1 = *nonwhite*; 0 = *white*	27	
Married	1 = *married*; 0 = *unmarried*	50	
Homeowner	1 = *homeowner*; 0 = *not a homeowner*	76	
Education	"What is the highest degree or level of school you completed?"; range = 0 (*no school*) to 18 (*master's, professional, or doctoral degree*)	(3.60)	12.59
Self-rated health	"Would you say that in general your health is excellent, very good, good, fair, or poor?"; range = 1 (*poor*) to 5 (*excellent*)	3.32	(1.03)
Physical capacity	Scale measuring self-assessed ability to complete six paired tasks: walking 3 or 6 blocks, climbing 10 or 20 stairs, lifting and carrying 10 or 20 pounds, being able to bend or kneel down, being able to reach overhead with or without a heavy object, and being able to grasp small objects or open sealed jars using just their hands (Kasper, Freedman, & Niefeld, 2012). Difficulty scores (from 0 to 2) are summed across the paired tasks; range = 0 (*low capacity*) to 12 (*high capacity*)	9.20	(3.30)
Everyday body problems	Number of the following experienced in the last month: balance problems, trouble breathing, sleep problems, bothered by pain, low energy, limited strength or movement, and fear of falling; e.g., "In the last month, did you have any breathing problems, including shortness of breath or difficulty breathing?" yes/no; range = 0–7	2.94	(1.90)
Body repairs (surgeries)	Cumulative number of the following surgeries experienced, beginning a year before Wave 1: heart, back, cataract, hip, and knee surgeries; range = 0–10	0.66	(1.04)
Body repairs (medications)	Frequency of using sleep or pain medications in the last month; e.g., "In the last month, how often did you take medication for pain? Would you say every day, most days, some days, rarely, or never?"; range = 0 (*never*) to 5 (*every day*); mean scale of two items	2.11	(1.12)
Body aids	Number of devices used in the last month to assist with the following: hearing, mobility (e.g., cane), vision (e.g., magnifying glass; excludes glasses or contacts), dressing (e.g., button hook), eating (e.g., easy-to-grip silverware), showering (e.g., shower seat), or toileting (e.g., toilet grabbar); e.g., "In the last month, have you used a hearing aid or other hearing device?" yes/no; range = 0–7	1.56	(1.29)
Age identity	Felt age-chronological age; felt age = response to following item: "Sometimes people feel older or younger than their age. During the last month, what age did you feel most of the time?"; responses in years; higher values = older identities	–12.73	(13.43)

Note. National Health and Aging Trends Study (2011–2015); *n* = 17,539 from 4,373 respondents.

(i.e., level 1 = within individuals; level 2 = between individuals). Parameter selection was guided by comparisons between models using likelihood-ratio tests, Akaike Information criteria (AIC), and Bayesian Information criteria (BIC). Fixed effects are examined, as well as random effects for health and aging body reminders (with the exception of total count of surgeries, constructed as time-invariant).

To determine parameter selection, we compared four models (Table 2): (1) a random intercept model, (2) a random coefficient model with the two health variables input as random-effects parameters, (3) a random coefficient model with three body reminder variables input as random-effects parameters, and (4) a random coefficient model including health and body reminders as random-effects parameters. Results from a likelihood-ratio test comparing Model 1 against a linear regression indicate a strong preference for the use of random effects over pooled OLS regression (χ^2 = 5119.44, *p* = .00). Results from likelihood-ratio tests comparing Model 1 to Model 2 (χ^2 = 216.87, *p* = .00) and

Table 2. Model Selection Criteria

	Model 1	Model 2	Model 3	Model 4
χ^2	5119.44	5336.32	5208.88	5402.68
df	15	20	24	35
AIC	134174.0	133967.1	134102.6	133930.8
BIC	134290.6	134122.6	134289.1	134202.8

Note. National Health and Aging Trends Study (2011–2015); *n* = 17,539 from 4,373 respondents.

Model 1 to Model 3 (χ^2 = 89.43, *p* = .00) indicate that model fit is improved by the inclusion of random-effects parameters for health or body reminders. In a final step, the two random coefficient models were each compared with a model including health and body reminders as random-effects parameters (Model 4). Results from the likelihood ratio tests favor the use of Model 4 over both Model 2 (χ^2 = 66.36, *p* = .00) and Model 3 (χ^2 = 193.80, *p* = .00). However, information

criteria reveal mixed support for the more complex model. The lowest BIC is observed for Model 2, while the lowest AIC is found for Model 4. We present results for Model 4, given its overall improvement in fit statistics.

Results

Two variables capturing the fixed effects of aging body reminders are significant predictors of age identity (Table 3). Experiencing more everyday body problems or body repairs (medications), predicted older (or less youthful) identities. The stronger effect was found for everyday body problems. An increase of one everyday body reminder predicted an average increase in age identity of over 8 months (i.e., 0.66). Taking medication more frequently also predicted older (or less youthful) identities. The coefficient for body aids suggested a similar effect, but it only approached significance ($p < .10$). These effects were independent of health, which also reached significance. Declines in self-rated health or physical capacity predicted older (or less youthful) identities. We note that analyses using an alternative age identity measure employed in some prior studies (e.g., Stephan et al., 2015), proportional discrepancy scores, yielded substantively equivalent results.

While the results suggest somewhat modest fixed effects of body reminders, the random effects parameters reveal considerable variation across individuals in the impact of body reminders, as well as health, on age identity. This conclusion is drawn from the observation of large random effects parameters relative to their standard errors, as well as the high intraclass correlation coefficient ($\rho = 0.82$).

Discussion

Our study is among the few to examine the influence of aging body reminders on age identity—and to do so using panel data. Two body reminders—everyday problems and repairs (medications)—predicted older identities. This pattern held with health controlled, revealing that body reminders have independent effects on age identity. Our results suggest that more frequent aging body experiences—that is, daily physical challenges, along with efforts to remedy them—are salient reminders of one's own aging. Drawing on Sherman's (1994) notion of the "retrospective self," we suggest that frequent aging body experiences may generate older identities through their provision of frequent comparisons with the "retrospective body." The results for body aids, which also tend to be used on a daily basis, are consistent with this logic, though they fall short of significance. In contrast, body repairs, particularly surgeries, may not affect age identity because they are more time-limited— or perhaps the biomedicalization of aging has normalized them, thus reducing their effect on age identity.

Our study points to directions for further research on the impact of aging body experiences on age identity. We find that body reminders affect age identity, but the reverse direction of causation also could operate. For example, feeling younger could postpone reporting body problems, using assistive devices, taking medications, or seeking surgical repairs—suggesting health implications that warrant examination. Studies also could employ measures that capture age identity's multiple dimensions, as well as the interactional processes and structural factors shaping them. Further, numerous body reminders have yet to be examined using panel data, including others related to physical functioning (e.g., sexual), as well as cognition. Reminders related to appearance, like wrinkles and weight gain, also shape age identity (e.g., Clarke, Griffin, & Maliha, 2009); however, less is known about the effect on age identity of efforts to appear more youthful. Another research direction is the examination of possible sources of variation in the relationship between body reminders and age identity, such as gender, race, or socioeconomic status—all of which connect with age identity and embodied aging experiences (e.g., Barrett, 2003, 2005; Clarke & Korotchenko, 2011).

Table 3. Hierarchical Linear Model Predicting Age Identity

Fixed effects[a]		
Age	−0.16	(0.03)***
Female	−0.48	(0.37)
Nonwhite	−1.63	(0.45)***
Married	0.44	(0.33)
Homeowner	0.76	(0.36)*
Education	0.03	(0.05)
Self-rated health[b]	−1.61	(0.13)***
Physical capacity[b]	−0.34	(0.05)***
Everyday body problems	0.66	(0.07)***
Body repairs (surgeries)	−0.02	(0.17)
Body repairs (medications)	0.24	(0.12)*
Body aids	0.21	(0.11)†
Random effects[c]		
Self-rated health	2.89	(0.30)
Physical capacity	1.02	(0.11)
Everyday body problems	1.12	(0.23)
Body repairs (medications)	2.02	(0.29)
Body aids	1.93	(0.36)

Note. National Health and Aging Trends Study (2011–2015); $n = 17,539$ from 4,373 respondents.
[a]Unstandardized coefficients (robust standard errors).
[b]Higher values = better health or functioning.
[c]Estimated standard deviations (robust standard errors).
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Funding

Acknowledgments

supervised the data analysis, and wrote the article. C. Gumber conducted data analysis and contributed to revising the article.

Conflict of Interest

None declared.

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