

Global Self-Esteem Across the Life Span

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This study provides a comprehensive picture of age differences in self-esteem from age 9 to 90 years using cross-sectional data collected from 326,641 individuals over the Internet. Self-esteem levels were high in childhood, dropped during adolescence, rose gradually throughout adulthood, and declined sharply in old age. This trajectory generally held across gender, socioeconomic status, ethnicity, and nationality (U.S. citizens vs. non-U.S. citizens). Overall, these findings support previous research, help clarify inconsistencies in the literature, and document new trends that require further investigation.

Over the past century, hundreds of studies have examined the development of self-esteem, but this research has failed to produce a consensual portrait of age differences in self-esteem across the entire life span. Two decades ago, Wylie (1979) conducted an extensive review of the self-esteem literature and concluded that there are no systematic age differences in self-esteem. Although researchers have questioned Wylie's conclusion (e.g., McCarthy & Hoge, 1982; O'Malley & Bachman, 1983; Rosenberg, 1986), the debates surrounding this issue have not led to any agreement about the trajectory of self-esteem from childhood to old age.

There are several reasons for the lack of consensus in the field. First, the most recent comprehensive reviews of the existing literature were conducted at least a decade ago (e.g., Demo, 1992; Wylie, 1979). Second, the vast majority of existing studies have focused on age differences in self-esteem during childhood and adolescence, and only a handful of studies have examined the development of self-esteem during adulthood or old age. As Demo (1992) noted, "the research to date is extremely lopsided, with 12- and 13-year-olds forming the floor and 18- to 22-year-olds representing the ceiling of our convenience samples" (p. 323). These gaps in the research literature make any conclusions about change across much of the life span highly tenuous.

Third, research on self-esteem development has produced inconsistent findings, making it difficult to reach unequivocal con-

clusions even within specific stages of life. For example, some studies show a rise in self-esteem during adolescence (Marsh, 1989; McCarthy & Hoge, 1982; Mullis, Mullis, & Normandin, 1992; O'Malley & Bachman, 1983), whereas others do not (Block & Robins, 1993; Chubb, Fertman, & Ross, 1997; Zimmerman, Copeland, Shope, & Dielman, 1997). Moreover, if self-esteem does drop in adolescence, researchers have yet to determine the age at which the drop begins, when it reaches its lowest level, and when (if ever) it begins to rise. The literature on self-esteem in old age has also produced equivocal findings, with some studies showing a decline (e.g., Ranzijn, Keeves, Luszcz, & Feather, 1998) and others showing an increase or no change (e.g., Erdwins, Mellinger, & Tyer, 1981; Gove, Ortega, & Style, 1989).

Fourth, many studies of self-esteem development have used relatively small and homogeneous samples, and their findings may not generalize to more diverse populations. Given sample size limitations, these studies often group together participants within broad age ranges (e.g., age 20–40 years), making it difficult to pinpoint year-by-year (or even decade-by-decade) changes in self-esteem.

Fifth, most studies have examined age differences within a specific developmental period or during a particular developmental transition. Comparing the findings from these studies can be problematic because age differences may be confounded by differences in sample composition and self-esteem measures. Thus, the research literature indicates the need for a single study in which participants from all age groups complete the same self-esteem measure.

In summary, the field has not yet reached consensus on the trajectory of self-esteem across the life span. To help redress this gap in the literature, we examined age differences in self-esteem using cross-sectional data on a large sample of participants ranging in age from 9 to 90 years. We also examined whether any observed age differences held for both men and women and held across socioeconomic status, ethnicity, and nationality. Below, we briefly summarize what is currently known about self-esteem develop-

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ment during each phase of life (childhood, adolescence, adulthood, and old age).

Self-Esteem and Age

Childhood

Researchers have studied self-esteem in children as young as 6 years of age. Most of these studies have focused on domain-specific self-evaluations (e.g., self-perceived math ability) rather than abstract beliefs about global self-worth. In general, young children rate themselves well above the scale midpoint and substantially higher than they rate other children, suggesting that their views of themselves are positively inflated. However, as children move through elementary school, their self-evaluations tend to decline (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Ruble, Boggiano, Feldman, & Loebel, 1980; Stipek & Tannatt, 1984). The few studies that have assessed global self-esteem in this age group also point to decreases over the course of childhood (Marsh, 1989; Marsh, Barnes, Cairns, & Tidman, 1984; Trowbridge, 1972).

Adolescence

Most research on self-esteem development has focused on the transition from childhood to adolescence (Demo, 1992). Several studies have found declines in self-esteem during this transition (Eccles et al., 1989; Engel, 1959; Marsh, Parker, & Barnes, 1985; Piers & Harris, 1964; Rosenberg, 1986; Savin-Williams & Demo, 1984; Simmons, Rosenberg, & Rosenberg, 1973). Although this decline is frequently cited in summaries of the research literature (e.g., Brown, 1998; Harter, 1993, 1998), a few studies have failed to replicate this finding (e.g., Blyth, Simmons, & Bush, 1978; Hirsch & Rapkin, 1987; Nottelmann, 1987).

Research on self-esteem development following the adolescent transition provides an even more confusing picture. Some studies report a rise in self-esteem during adolescence (Marsh, 1989; McCarthy & Hoge, 1982; Mullis et al., 1992; O'Malley & Bachman, 1983; Prawat, Jones, & Hampton, 1979; Roeser & Eccles, 1998), others report no change (Chubb et al., 1997), and still others report declines (Keltikangas-Jarvinen, 1990; Zimmerman et al., 1997). Some of these inconsistencies may be due to gender differences that are believed to emerge at this age, specifically the tendency for boys to have higher self-esteem than girls (Block & Robins, 1993; Kling, Hyde, Showers, & Buswell, 1999; Major, Barr, Zubek, & Babey, 1999).

Adulthood

Compared with the adolescent literature, there are few studies of self-esteem development during adulthood. Generally, these studies show small, gradual increases in global self-esteem (Gove et al., 1989; Helson & Wink, 1992; Jaquish & Ripple, 1981; Lall, Jain, & Johnson, 1996; R. E. Roberts & Bengtson, 1996). However, these studies typically examined age differences across very large intervals of time (e.g., comparing self-esteem levels in samples of young adults, middle-aged adults, and older adults) and thus provide only a very rough map of the shifts in self-esteem that might occur over each decade of adulthood.

Old Age

Only a handful of studies have examined age differences in global self-esteem in old age. Jaquish and Ripple (1981) found that adults report somewhat lower self-esteem in late adulthood (age 61–81 years) than in middle adulthood (age 40–60 years). Tigge-mann and Lynch (2001) found that women age 70–85 years had slightly lower self-esteem than women in their 60s. Ranzijn et al. (1998) found that those age 85–103 years had lower self-esteem than those in their 70s. Consistent with these three studies, Ward (1977) found a weak negative correlation ($r = -.14$) between age and self-esteem in a sample of individuals age 60–92 years. In contrast, Gove et al. (1989) found the highest levels of self-esteem in the oldest cohort (age 75 years and older). Moreover, several studies have failed to find significant age differences, including Trimakas and Nicolay's (1974) study of individuals age 66–88 years, Erdwins et al. (1981) study of four cohorts ranging in age from 18 to 75 years, and Ryff's (1989) study comparing middle-aged adults (mean age = 50 years) and older adults (mean age = 75 years). Reflecting the lack of consistency in previous findings, researchers reviewing the literature on self-esteem and aging have failed to reach consensus on whether self-esteem increases, decreases, or remains stable in old age (Bengtson, Reedy, & Gordon, 1985; Brandtstaedter & Greve, 1994; Demo, 1992).¹ Thus, further research is needed before any strong conclusions can be made about self-esteem change in adulthood and old age.

The literature on subjective well-being and aging might provide some insight into the expected trajectory of self-esteem for older adults. Well-being and self-esteem are empirically related, but conceptually distinct, constructs (DeNeve & Cooper, 1998; Robins, Hendin, & Trzesniewski, 2001). A number of life changes that tend to occur in old age might have a negative impact on well-being, including health problems, declining socioeconomic status, spousal loss and bereavement, loss of social support, and a decline in achievement experiences following retirement. However, some researchers have theorized that aging entails improved coping and emotion regulation that may protect against declining feelings of well-being (Baltes & Baltes, 1990; Brandtstaedter & Greve, 1994; Carstensen, Isaacowitz, & Charles, 1999). Consistent with these divergent theoretical views, there appear to be few replicable age differences in well-being for samples over 60 years of age, with some studies showing improvements and others showing declines (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Charles, Reynolds, & Gatz, 2001; Diener & Suh, 1998; Smith & Baltes, 1999). Moreover, when age-related declines in adjustment are found, they tend to be quite small (Smith & Baltes, 1999). Consequently, self-esteem may also remain intact in old age, despite the many profound physical and emotional changes associated with aging.

One possible reason for the inconsistencies in the literature on age differences in self-esteem is that many of the existing studies base their findings on single-gender samples or fail to report

¹ Bengtson et al. (1985) reviewed several other studies of self-concept and aging, but most of these studies are not relevant because they (a) did not include a measure of global self-esteem, (b) did not include participants older than 60, (c) were never published in journals, or (d) did not report age differences in self-esteem.

results separately for men and women. The tendency for men to have higher self-esteem than women is now a well-replicated finding, as documented by two recent meta-analyses (Kling et al., 1999; Major et al., 1999). Both meta-analyses also found that the magnitude of the gender difference varied across the life span. However, they diverged somewhat in their findings. Kling et al. found a gender difference in childhood whereas Major et al. did not. Both meta-analyses found a small but reliable gender gap in adolescence and adulthood. Kling et al. failed to find a gender difference in studies of individuals age 60 years and older. However, because both meta-analyses grouped together individuals from broad age ranges (e.g., Major et al., 1999, grouped together all studies of individuals age 19 years and older), it is impossible to know how large the gender disparity is within particular decades of adulthood. In short, although previous research shows that men tend to have higher self-esteem than women, the precise magnitude of this gender difference and the way that it may vary across the life span remain unclear.

Other demographic variables may also contribute to inconsistencies in the literature on self-esteem development. Many relevant studies were based on small, homogeneous samples, with little variation in ethnicity, socioeconomic status (SES), or nationality. Two recent meta-analyses have identified replicable ethnic differences in self-esteem (Gray-Little & Hafdahl, 2000; Twenge & Crocker, 2002). Specifically, on average, Blacks have higher self-esteem than Whites, followed by Latinos and then Asians. However, these ethnic differences vary considerable over the life span. For example, the Black-White difference does not emerge until early adolescence, and by late adulthood (age 61-70 years) the direction of the difference reverses, such that Whites have higher self-esteem than Blacks (Twenge & Crocker, 2002). Thus, based on previous research, we can expect general ethnic differences in self-esteem, as well as ethnic differences in the self-esteem age trends.

Research on SES and self-esteem suggests that high-SES individuals' have slightly higher levels of self-esteem than low-SES individuals (e.g., Demo & Savin-Williams, 1983; Rosenberg & Pearlin, 1978; but see Trowbridge, 1972). These studies also suggest that the strength of the relation between SES and self-esteem may increase from childhood to adulthood.

There is virtually no research on the relation between global self-esteem and nationality. Using a large cross-national dataset, Diener and Diener (1995) found that mean levels of "satisfaction with self" were slightly higher for the United States than for other countries (Diener & Diener, 1995, Tables 5 and 6). Consistent with this finding, U.S. participants report higher levels of subjective well-being than participants from most other nations (Diener, Diener, & Diener, 1995, Table 1). It is not clear how these nationality differences might vary across age groups. Diener and Suh (1998) reviewed several international studies of the relation between subjective well-being and age but did not find any large or consistent nationality differences in the age trajectories of self-esteem. Thus, based on these few studies and extrapolating from subjective well-being to self-esteem, we expect participants from the U.S. to show slightly higher overall self-esteem than participants from other nations, but we do not expect nationality to moderate the age trends.

In summary, the field has not yet reached consensus on the overall trajectory of self-esteem across the life span or how this

trajectory may differ by gender and other demographic variables. As this brief review suggests, there are inconsistencies and gaps in the literature that limit the conclusions we can reach about self-esteem development.

The Present Study

The present study examined age differences in self-esteem across eight decades of life. Using data on a very large and diverse sample of individuals collected over the Internet, we addressed two basic questions: (a) What is the trajectory of self-esteem from age 9 to 90 years? and (b) To what extent does this trajectory vary across gender, SES, ethnicity, and nationality? The findings from this study will provide a more accurate and precise picture of self-esteem development across the life span.

There are a number of benefits to using the Internet for data collection. First, the Internet provides an efficient way to collect data on a very large number of participants. The large sample size in our study provided substantial statistical power and allowed us to compare findings across different age ranges and demographic groups. This is particularly critical in the present study because we needed enough participants at each age to reliably track year-by-year differences in self-esteem and to pinpoint more precisely when shifts in self-esteem levels occur. Although Internet users are more likely to be young adults, individuals of all ages use the Internet, and our participants ranged in age from 9 to 90 years.

Second, whereas most previous studies were relatively homogeneous in terms of SES, ethnicity, and nationality, the present sample includes participants from a wide range of social classes and ethnic groups from all over the world. Although Internet users are more likely to be higher in SES and be European American (U.S. General Accounting Office, 2001), there is nonetheless considerable demographic heterogeneity in the sample. Combined with the large sample size, the heterogeneity of the sample allowed us to examine age differences within each demographic subgroup. Previous research on gender and self-esteem suggests that men and women follow distinct developmental trajectories. Thus, we expected to find a relatively large gender difference emerging during adolescence and persisting throughout adulthood. The possible effects of SES, ethnicity, and nationality are less clear. We expected to find a weak positive relation between self-esteem and SES, but there is no basis for predicting whether SES differences are associated with differences in the self-esteem trajectories. After reviewing previous research, we expected to find main effects of ethnicity, as well as ethnic differences in the age trajectories. Finally, we expected U.S. participants to report slightly higher self-esteem than non-U.S. participants, but it is unclear how nationality might affect the self-esteem trajectories. Aside from the substantive interest of examining demographic effects, the replication of findings across demographic groups helps address concerns about the potential nonrepresentativeness of Internet-based samples.

Finally, there is accumulating evidence that Internet-based studies typically replicate studies using traditional methods of data collection (e.g., Buchanan & Smith, 1999; McGraw, Tew, & Williams, 2000). Moreover, in some cases we were able to compare our findings with those from studies using non-Internet samples. To the extent that our findings converge with those from previous studies, this would support the validity of the Internet

method of data collection while at the same time providing confirmatory evidence for the developmental trends we report.

Method

Participants and Procedure

Participants were 326,641 individuals (57% female) who completed an on-line questionnaire by visiting an interactive World Wide Web site.² Participants accessed the site through a search engine (46%), directly at its address (27%), or through a link from another site (27%). Links to the Web site were available on Web portals such as Yahoo!, and information about the Web site was available on Usenet newsgroups and probably also spread by word of mouth. Participants logged onto the Internet using public Internet service providers (ISPs; 87%), university ISPs (10%), nonprofit organization ISPs (2%), or government and military ISPs (1%). Internet users who accessed the site were presented with a consent form and a questionnaire that included questions about self-esteem, sex, age, ethnicity, national origin, and (for a subsample) income and education level. All questions were presented on the same Web page. Participants did not provide any personally identifying information and complete anonymity was assured. The data used in the present study were drawn from the Gosling and Potter Internet Personality Data Set, which was collected from 1999 to 2000.

The sample was diverse in terms of age ($M = 24$ years, $SD = 9.7$; range = 9–90 years), ethnicity (7% Asian, 2% Black/African descent, 78% Caucasian, 2% Latino/Chicano/Hispanic, 2% Middle Eastern, 8% Missing/Multiracial/Other), and nationality (67% from the U.S., 33% from over 100 other countries). A subsample of 49,746 participants reported their personal income in U.S. dollars (5% “below \$12,000,” 3% “\$12–20,000,” 12% “\$20–30,000,” 26% “\$30–50,000,” 20% “\$50–70,000,” 18% “\$70–100,000,” 9% “\$100–150,000,” 3% “\$150–200,000,” 4% “over \$200,000”) and their education level (30% “some high school,” 12% “high school diploma,” 31% “some college,” 20% “college degree,” 7% “graduate degree”).³ To assess SES, we standardized and then composited income and education level. To simplify presentation of the findings, we report results separately for high- (above the median) and low- (below the median) SES groups.

Self-Esteem Measure

Self-esteem was measured using the Single-Item Self-Esteem scale (SISE; Robins, Hendin, & Trzesniewski, 2001). Participants rated the item (“I see myself as someone who has high self-esteem”) on a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Using longitudinal data, Robins, Hendin, et al. (2001) estimated the reliability of the SISE to be .75 (Heise, 1969).

Robins, Hendin, et al. (2001) provided extensive validation data for the SISE. In three studies, the correlation between the SISE and the Rosenberg (1965) Self-Esteem (RSE) scale ranged from .74 to .80. Disattenuated correlations were near unity (range = .91–.99), indicating that the SISE and the RSE share almost all of their reliable variance. This strong convergent validity held for men and women, for different ethnic groups, for different occupational statuses, for college students and community members, and for individuals ranging in age from 21 to 61 years. The SISE also had moderate convergent validity in childhood; in one sample (age 10 to 13 years), the SISE correlated .51 with the RSE, and in another sample (age 9 to 13 years), the SISE correlated .52 with the Global Self-Worth subscale of the Self-Perception Profile for Children (Harter, 1985). Moreover, the SISE and the RSE had nearly identical correlations with 37 different criteria, including domain-specific self-evaluations, self-evaluative biases, social desirability, the Big Five personality dimensions, psychological and physical health, peer ratings of group behavior, demo-

graphic characteristics, and several academic outcomes. Robins, Hendin, et al. (2001, Study 2) also found that the SISE had weaker correlations with the two subscales of the Balanced Inventory of Desirable Responding (Paulhus, 1994), suggesting that it is less confounded by socially desirable responding than the RSE.

Results

Descriptive Statistics

Table 1 shows self-esteem means and standard deviations by SES, ethnicity, and nationality, separately for the total sample, males, and females. The SISE had a mean of 3.39 ($SD = 1.31$), a median of 4, and a mode of 4; the frequency distribution was 1 = 11%, 2 = 16%, 3 = 20%, 4 = 29%, 5 = 24%. These values are very similar to those reported by Robins, Hendin, et al. (2001) for a sample of college students who completed a traditional paper-and-pencil version of the SISE.

On average across all ages, males had higher self-esteem than females (Cohen's $d = .22$, $p < .01$), high-SES individuals had higher self-esteem than low-SES individuals ($d = .17$, $p < .01$), and U.S. participants had higher self-esteem than non-U.S. participants ($d = .10$, $p < .01$). Blacks had the highest self-esteem, followed by Latinos, Middle Easterners, Asians, and Whites. The magnitude of these effects is comparable to that reported in previous research on gender (Kling et al., 1999; Major et al., 1999; Robins, Hendin, et al., 2001) and ethnicity (Gray-Little & Hafdahl, 2000; Twenge & Crocker, 2002).

Age Differences in Self-Esteem

To examine age differences in self-esteem, we divided individuals into 10 age groups. The preadult years of the life course were divided into middle childhood (ages 9–12) and adolescence (ages 13–17). Given the many studies of college students, we created a college-age group (18–22) and a postcollege age group (23–29). Most reviews of adulthood use decades (30s, 40s, 50s, etc.) as important transitional periods (e.g., B.W. Roberts & DelVecchio, 2000), a practice that was followed here for examination of self-esteem beyond age 29. (In some analyses, the two oldest age groups were collapsed into a single category because the sample sizes for individuals in their 70s

² The questionnaire was completed by 22,038 additional individuals who were excluded from the study because they did not report their age and/or sex.

³ SES was only available for a subsample of participants because questions about income and education level were included on the Web site for a limited period of time. Unfortunately, the Web site did not include an option that specified an education level less than “some high school,” and many participants in the youngest age groups left this question blank. Of the younger participants who did respond, most appear to have decided to simply click on the option with the lowest education level (the vast majority of responses were “some high school”). Likewise, many of the younger participants probably responded to the question about income by reporting on their parents' income. Given these considerations, the meaning of the SES variable is ambiguous for the participants in the three youngest age groups (9–12, 13–17, 18–21), and the findings should be interpreted cautiously.

Table 1
Self-Esteem Means and Standard Deviations by Socioeconomic Status, Ethnicity, and Nationality

Sample characteristic (<i>n</i>)	Total (<i>N</i> = 326,641)		Males (<i>n</i> = 140,249)		Females (<i>n</i> = 186,392)		<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Whole sample	3.39	1.31	3.55	1.29	3.26	1.32	.22*
Socioeconomic status							
High: Above median (24,873)	3.49	1.30	3.64	1.27	3.37	1.31	.21*
Low: Below median (24,873)	3.26	1.36	3.42	1.35	3.18	1.37	.18*
Ethnicity							
Asian (24,310)	3.43	1.27	3.56	1.26	3.35	1.27	.17*
Black (7,958)	3.71	1.30	3.84	1.30	3.65	1.30	.15*
White (255,724)	3.36	1.32	3.53	1.29	3.23	1.32	.23*
Latino (7,947)	3.56	1.32	3.75	1.28	3.42	1.33	.25*
Middle Eastern (5,761)	3.52	1.31	3.70	1.30	3.38	1.31	.25*
Nationality							
United States (218,262)	3.43	1.32	3.60	1.29	3.31	1.32	.22*
Non-United States (108,379)	3.30	1.30	3.46	1.28	3.16	1.31	.23*

* $p < .01$.

and 80s were very small when the age groups were broken down by demographic subgroup.)

Figure 1 shows mean levels of self-esteem as a function of age group, separately for the total sample, males, and females (To provide a more precise picture of the trajectory, Figure 1 also shows year-by-year means for males and females.) In this section, we report the age trends for the whole sample, and, in the following sections, we discuss the findings by gender, SES, ethnicity, and nationality. Table 2 shows means, standard deviations, and sample sizes by age and demographic subgroups.

Overall, self-esteem was at its highest level during childhood, far above the midpoint of the scale. This replicates previous research showing that children on average report highly positive (and possibly inflated) self-evaluations (Eccles et al., 1993; Harter, 1998; Marsh et al., 1984). Self-esteem declined sharply from childhood (ages 9–12) to adolescence (ages 13–17; the standardized mean difference, or Cohen's d , between the two age groups was $-.30$, $p < .01$), and continued to decline from adolescence to the college period (ages 18–22; $d = -.05$, $p < .01$). After reaching a nadir in late adolescence and young adulthood, self-esteem levels rose from the college period to the postcollege period (ages 23–29; $d = .07$, $p < .01$) and then reached a plateau in the 30s ($d = .02$, ns) and 40s ($d = -.01$, ns). Self-esteem levels increased again from the 40s to the 50s ($d = .11$, $p < .01$) and from the 50s to the 60s ($d = .11$, $p < .01$), suggesting a gradual increase in self-esteem throughout adulthood.

Finally, self-esteem declined markedly from the 60s to the 80s ($d = -.18$, $p < .01$). The majority of the decline occurred between the 70s and 80s ($d = -.29$, $p < .01$) rather than between the 60s and 70s ($d = -.08$, ns). By the 80s, self-esteem levels were as low as those found during adolescence. Nonetheless, self-esteem levels in the oldest age groups still averaged above the midpoint of the scale, and only 26% of the 70–90-year-olds in our sample reported low self-esteem (either a 1 or a 2). In summary, self-esteem levels were high in childhood, dropped during adolescence, rose gradually throughout adulthood, and declined in old age.

To quantify these findings, we conducted a hierarchical multiple regression analysis predicting year-by-year mean self-esteem scores from age modeled as a linear, quadratic (age²), and cubic (age³) function.⁴ Consistent with the shape of the trajectory shown in Figure 1, we found that cubic age accounted for 19% ($p < .01$) of the variance in self-esteem, whereas linear age accounted for 0.01% (ns) of the variance and quadratic age accounted for 1.1% (ns) of the variance. Thus, the self-esteem trajectory essentially followed a cubic function.⁵

Demographic Differences in the Self-Esteem Trajectory

To test whether any of the demographic variables moderated the self-esteem trajectory, we conducted a series of hierarchical multiple regression analyses predicting self-esteem from the interaction between cubic age and gender, nationality, ethnicity (dummy coded to represent each ethnic group), and SES. None of the interaction effects was significant, and none produced an R^2 change greater than 1%. We also tested for three-, four-, and five-way interactions between the cubic function and the demographic variables (e.g., Age³ × Gender × Nationality), and none of the interactions with age accounted for more than 0.5% of the variance in self-esteem. Thus, across the demographic groups,

⁴ We analyzed means rather than individual scores following the procedure outlined in Rosnow, Rosenthal, and Rubin (2000, pp. 449–450). In the present study, such an analysis has 82 “observations,” one mean for each age from 9 to 90 years. Rosnow et al. recommend analyzing mean data when researchers are interested in overall or aggregate trends as a function of age or grade level. Analyses computed in this manner are called “alerting” correlations because they alert the researcher to overall trends of interest that might otherwise be missed by analyses that focus on differences among individual scores within age groups.

⁵ We also tested additional higher order age functions (age⁴, age⁵, age⁶), and none accounted for more than 1.4% of the variance in self-esteem.

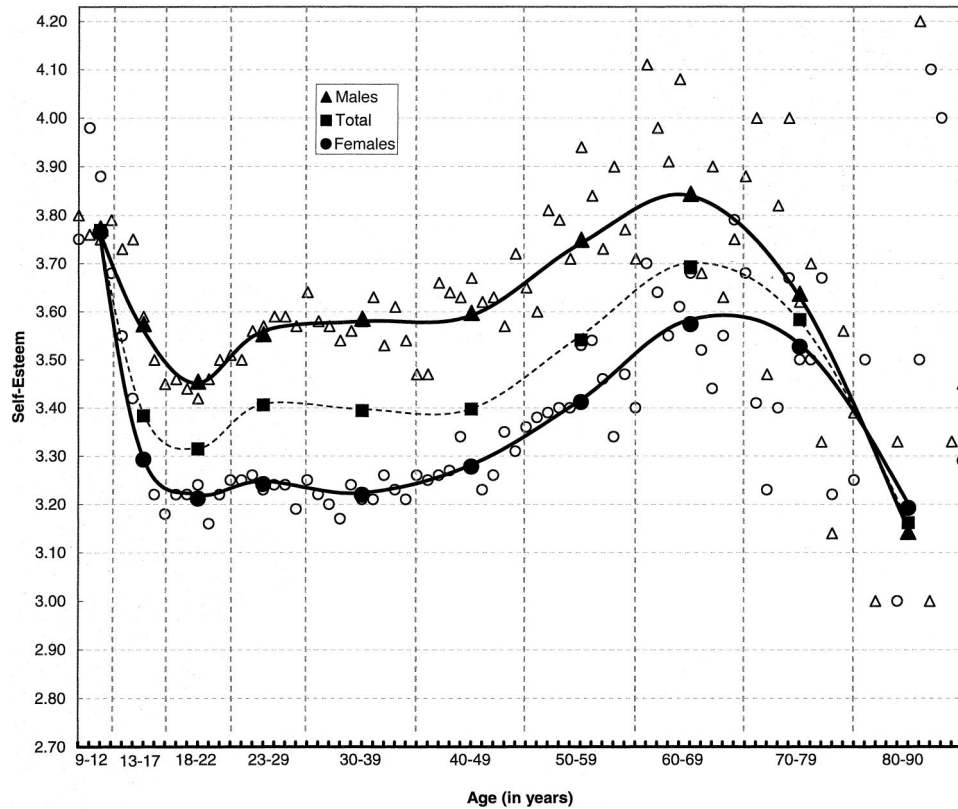


Figure 1. Mean level of self-esteem as a function of developmental period, separately for the total sample, males, and females. Also plotted are year-by-year means, separately for males (open triangles) and females (open circles).

there were no significant differences in the fit of the cubic function.⁶

Although these analyses suggest that the self-esteem trajectories were similar across the demographic groups, these results are difficult to interpret because the actual trajectories do not exactly follow a cubic function. Consequently, a cubic function might fit the self-esteem trajectory of two demographic groups equally well, but the two groups could still differ meaningfully in the precise shape of the trajectory; for example, Figure 1 suggests that this may be the case for males and females (e.g., although both genders drop in self-esteem during adolescence, females do so to a much greater extent). To better understand how the self-esteem trajectory varied across demographic groups, we adopted a more descriptive approach to exploring the moderating effect of the demographic variables. Specifically, we describe below the extent to which different demographic groups showed each of the general trends observed in the total sample (e.g., the adolescent drop, the increase in adulthood, and the old-age drop), based on the means reported in Table 2. To supplement this approach, Table 2 also shows how the magnitude of the demographic differences in self-esteem (represented by Cohen's d) varies across age groups; to the extent that, for example, the magnitude of the gender difference in self-esteem varies across the life span, this would suggest that males and females follow a somewhat different self-esteem trajectory.

Gender differences in the age trajectory. Both males and females had high self-esteem in childhood, which dropped in

adolescence, gradually increased over the course of adulthood, and then dropped in old age. Despite these similarities, several interesting gender differences emerged. Most notably, the gender difference did not hold in childhood; 9- to 12-year-old boys and girls had almost identical self-esteem levels in childhood ($d = .01$). The absence of a gender difference in childhood is consistent with Major et al.'s (1999) meta-analysis but not with Kling et al.'s (1999) meta-analysis, which did find a gender difference in the youngest age group.

During adolescence, girls' self-esteem dropped about twice as much as boys', resulting in a gender difference of .21 by age 13 to 17. This gender divergence is consistent with both recent meta-analyses (Kling et al., 1999; Major et al., 1999). The gender difference persisted throughout adulthood, but varied somewhat over time. Finally, the gender gap continued to narrow in old age. Men and women in their 70s barely differed in self-esteem ($d = .08$), and in the oldest age group the gender difference reversed, with women in their 80s reporting slightly higher self-esteem than men in their 80s ($d = -.08$). Kling et al. (1999) found a similar convergence between men and women in old age ($d = -.03$ for individuals age 60 and older).

⁶ We also tested for interactions between the demographic variables and linear and quadratic age. The only significant interaction was between Black ethnicity and linear age ($\Delta R^2 = 2\%$, $p < .01$).

Table 2
Self-Esteem Means and Standard Deviations by Gender, Socioeconomic Status, Ethnicity, and Nationality

Sample Characteristic	Age (years)									Total
	9–12	13–17	18–22	23–29	30–39	40–49	50–59	60–69	70–90	
Whole sample										
<i>M</i>	3.77	3.38	3.32	3.41	3.39	3.40	3.54	3.69	3.44	3.39
<i>SD</i>	1.28	1.35	1.32	1.28	1.28	1.31	1.31	1.30	1.44	1.31
<i>n</i>	7,670	83,188	84,754	80,982	43,371	18,049	6,905	1,322	400	326,641
Gender										
Male										
<i>M</i>	3.77	3.57	3.46	3.55	3.59	3.60	3.75	3.84	3.45	3.55
<i>SD</i>	1.29	1.34	1.31	1.26	1.24	1.26	1.25	1.29	1.46	1.29
<i>n</i>	3,788	26,841	35,960	42,759	20,709	6,742	2,648	583	219	140,249
Female										
<i>M</i>	3.76	3.29	3.21	3.24	3.22	3.28	3.41	3.57	3.43	3.26
<i>SD</i>	1.26	1.35	1.31	1.29	1.30	1.32	1.34	1.31	1.42	1.32
<i>n</i>	3,882	56,347	48,794	38,223	22,662	11,307	4,257	739	181	186,392
Cohen's <i>d</i>	.01	.21*	.19*	.24*	.29*	.25*	.26*	.21*	.01	.22*
Socioeconomic status										
High: Above median										
<i>M</i>	3.82	3.56	3.41	3.51	3.49	3.55	3.62	3.78	3.43	3.49
<i>SD</i>	1.30	1.35	1.32	1.28	1.30	1.28	1.27	1.25	1.57	1.30
<i>n</i>	104	2,625	7,287	7,618	4,418	1,987	709	104	21	24,873
Low: Below median										
<i>M</i>	3.64	3.33	3.22	3.20	3.08	3.24	3.43	3.70	4.00	3.26
<i>SD</i>	1.28	1.39	1.34	1.32	1.31	1.39	1.39	1.38	1.51	1.36
<i>n</i>	233	10,874	6,589	3,564	2,155	978	374	83	23	24,873
Cohen's <i>d</i>	.14	.17*	.14*	.24*	.31*	.23*	.14*	.06	-.37	.17*
Ethnicity										
Asian										
<i>M</i>	3.56	3.31	3.33	3.54	3.75	3.70	3.94	3.76	2.98	3.43
<i>SD</i>	1.28	1.29	1.28	1.25	1.18	1.23	1.17	1.45	1.69	1.27
<i>n</i>	551	6,762	8,108	6,333	1,966	369	126	49	46	24,310
Black/African descent										
<i>M</i>	3.76	3.68	3.61	3.73	3.83	3.89	3.92	3.70	2.69	3.71
<i>SD</i>	1.46	1.32	1.34	1.29	1.21	1.23	1.29	1.49	1.70	1.30
<i>n</i>	134	1,958	2,150	1,798	1,215	506	154	30	13	7,958
White										
<i>M</i>	3.79	3.37	3.29	3.37	3.34	3.36	3.51	3.72	3.64	3.36
<i>SD</i>	1.26	1.36	1.32	1.28	1.28	1.31	1.32	1.26	1.01	1.32
<i>n</i>	5,496	63,742	63,649	63,847	36,058	15,583	6,014	1,096	239	255,724
Latino										
<i>M</i>	3.65	3.51	3.50	3.59	3.67	3.72	3.82	3.41	3.14	3.56
<i>SD</i>	1.42	1.36	1.30	1.31	1.26	1.30	1.31	1.74	1.57	1.32
<i>n</i>	188	2,090	2,375	2,109	853	242	61	22	7	7,947
Middle Eastern										
<i>M</i>	3.72	3.35	3.35	3.72	3.73	3.79	3.67	3.90	3.14	3.52
<i>SD</i>	1.31	1.34	1.30	1.28	1.31	1.18	1.31	1.30	1.61	1.31
<i>n</i>	123	1,336	1,687	1,588	639	235	101	30	22	5,761
Eta-squared (%)	0.2*	0.2*	0.2*	0.5*	1*	0.8*	0.5*	0.5*	3.6*	0.3*
Nationality										
United States										
<i>M</i>	3.85	3.44	3.36	3.44	3.43	3.42	3.56	3.74	3.49	3.43
<i>SD</i>	1.27	1.36	1.32	1.29	1.28	1.30	1.31	1.29	1.42	1.32
<i>n</i>	4,970	58,350	54,575	50,850	29,546	13,444	5,250	1,023	254	218,262
Non-United States										
<i>M</i>	3.63	3.25	3.23	3.35	3.32	3.32	3.48	3.52	3.35	3.30
<i>SD</i>	1.28	1.33	1.31	1.27	1.29	1.31	1.31	1.34	1.48	1.30
<i>n</i>	2,700	24,838	30,179	30,132	13,825	4,605	1,655	299	146	108,379
Cohen's <i>d</i>	.17*	.14*	.10*	.07*	.09*	.08*	.06*	.17*	.10	.10*

* $p < .01$.

The present findings provide a more precise portrait of gender differences in self-esteem, and allow us to pinpoint changes in the magnitude of the difference within particular decades, and even years, of life.

SES differences in the age trajectory. Only a subset of participants (15%) provided SES data, which posed problems for examining SES differences in the self-esteem trajectory because the sample sizes were relatively small in some age groups. For exam-

ple, there were only 23 low-SES participants in the combined 70–90 age group. Nonetheless, when we examined mean levels of self-esteem as a function of age and SES, in most cases the findings were similar to the total sample: Both high- and low-SES groups showed the adolescent decline and both showed an increase in self-esteem in adulthood. However, the high-SES group showed the old-age drop whereas the low-SES group showed a nonsignificant increase during old age. Given that there were only 23 participants in the low-SES group, this trend should be replicated before being interpreted substantively.

Ethnic differences in the age trajectory. All five ethnic groups had high self-esteem in childhood, which dropped in adolescence, increased in adulthood, and then dropped in old age. However, some differences emerged when we examined the age trends separately for males and females within each ethnic group. The self-esteem of girls and boys of all ethnicities declined during adolescence, except for Latino boys, whose self-esteem increased slightly during adolescence and then dropped during early adulthood. Women and men of all ethnicities increased in self-esteem during adulthood, although some ethnic groups did not continue to increase throughout adulthood and began to decline before old age (Latino and Middle Eastern women peaked in their 40s, and Asian, Black, and Latino men peaked in their 50s). All ethnic groups of both genders exhibited declines in self-esteem during old age, but the magnitude of the decline differed across groups (there were no Latino women in the oldest age group, and therefore we could not determine whether this subgroup declined in old age).

Nationality differences in the age trajectory. The age trajectories for U.S. and non-U.S. participants closely paralleled each other. This remained true when we examined the age trends separately for males and females, except that non-U.S. women did not decline in self-esteem during old age. The replication of the self-esteem age trends for U.S. and non-U.S. participants is consistent with McCrae et al.'s (1999) findings for the Big Five dimensions.

In summary, the self-esteem trajectory was robust and generally held across gender, SES, ethnicity, and U.S. versus non-U.S. nationalities. This conclusion is supported by the pattern of means in Table 2 and by the absence of interactions with cubic age.

Discussion

The present research sought to fill a fundamental gap in the literature on self-esteem: There is little consensus about the developmental trajectory of self-esteem across the life span. To redress this problem, we examined age differences in self-esteem from age 9 to 90 years using cross-sectional data collected from 326,641 individuals over the Internet. The findings provide a comprehensive picture of age differences in self-esteem across the entire life span. Moreover, the present research helps to clarify inconsistencies in previous findings and document new trends that require further investigation. Documenting the basic trajectory of self-esteem provides an important foundation for understanding and interpreting why self-esteem levels are high or low at different points in the life span. Below, we discuss some possible explanations for each age difference in self-esteem.

What Have We Learned About the Development of Self-Esteem?

The findings suggest several conclusions about the way self-esteem develops from childhood to old age.

Childhood: Inflated self-esteem gradually declines. We found a consistent trend of relatively high self-esteem in the youngest age group, followed by a gradual decline over the course of childhood. Some researchers have speculated that children have high self-esteem because it is artificially inflated and that the subsequent decline reflects an increasing reliance on more realistic information about the self (Harter, 1998). For example, as children develop cognitively, they begin to base their evaluations of self-worth on external feedback and social comparisons, which may produce more accurate judgments of where they stand in relation to others (Ruble et al., 1980). It is also possible that as children make the transition from preschool to elementary school they experience more negative feedback from teachers, parents, and peers, and their self-evaluations correspondingly become more negative (Eccles et al., 1993).

Adolescence: Continued decline. The decline in self-esteem that began during childhood continued into adolescence, producing a substantial cumulative drop. This drop held for every demographic subgroup and thus appears to be particularly robust. Researchers have attributed the adolescent decline in self-esteem to maturational changes associated with puberty, cognitive changes associated with the emergence of formal operational thinking, and sociocontextual changes associated with the transition from grade school to junior high school (Harter, 1998; Simmons, Blyth, Van Cleave, & Bush, 1979; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Although our findings do not point to any particular explanation for why self-esteem declines during adolescence, they do raise questions about the validity of certain theoretical explanations. For example, the claim that the decline represents the transition from grade school to junior high school needs to be reconciled with the fact that the decline also occurs for non-U.S. participants whose educational systems may not involve such transitions.

The gender disparity that emerged during adolescence provides another clue to the factors that might underlie the adolescent decline. Although boys and girls had similar self-esteem levels in childhood, by adolescence a gender gap emerged for every subgroup we examined. This implies that some aspect of the adolescent experience adversely affects self-esteem, but it does so more strongly for girls than for boys. For example, the maturational and socioemotional changes associated with puberty may lower the self-esteem of both boys and girls, but the physical changes that occur during puberty may have a more profound effect on girls (Rosenberg, 1986). However, pubertal changes alone cannot explain why the decline in self-esteem began before most children had experienced puberty and continued long afterward. Instead, this pattern suggests that there are multiple determinants of the developmental trends observed during childhood and adolescence.

Adulthood: Gradual increases peaking in late midlife. Self-esteem levels generally rose throughout adulthood. Most of the demographic subgroups reached a peak in self-esteem sometime during late adulthood. Thus, other than childhood, the mid-60s seem to represent the apex of self-esteem across the life course. These results replicate previous studies of adulthood (e.g., Gove et

al., 1989; Helson & Wink, 1992), but the present data allow us to determine that much of the increase in self-esteem occurs in late rather than early midlife.

Although none of the major theories of self-esteem specifically address self-esteem development during adulthood, general theories of adult development may be invoked to explain the trends we observed. Erikson (1968), Jung (1958), Neugarten (1977), Levinson (1978), and others have theorized that midlife is characterized by a focus on activity, achievement, power, and control. For example, Erikson suggested that the maturity and superior functioning associated with midlife is linked to the "generativity" stage, during which individuals tend to be increasingly productive and creative at work, while at the same time promoting and guiding the next generation. Similarly, Mitchell and Helson (1990) described the latter part of midlife as a period characterized by higher levels of psychological maturity and adjustment and noted that during the postparental period "the energy that went to children is redirected to the partner, work, the community, or self-development" (p. 453). Role theories of aging suggest that over the course of adulthood individuals increasingly occupy positions of power and status, which might convey a sense of self-worth (Dannefer, 1984; Helson, Mitchell, & Moane, 1984; Hogan & Roberts, in press; Sarbin, 1964). As Gove et al. (1989) noted,

During the productive adult years, when persons are engaged in a full set of instrumental and social roles, their sense of self will reflect the fullness of this role repertoire . . . there will be high levels of instrumentality, competitiveness, and socioemotional support. Levels of life satisfaction and self-esteem will also be high. (p. 1122)

Consistent with these theoretical speculations, the personality changes that occur during adulthood tend to show movement toward higher levels of maturity and adjustment, as indicated by increases in traits such as emotional stability and conscientiousness (B. W. Roberts, Robins, Caspi, & Trzesniewski, in press; Robins, Fraley, Roberts, & Trzesniewski, 2001). Increased psychological maturity may also promote self-esteem through intrapsychic mechanisms. For example, Crocker and Wolfe (2001) recently argued that healthy adult development might contribute to improved self-esteem regulation skills. Specifically, these authors speculate that over the course of development, individuals learn to look inward for sources of positive self-esteem rather than requiring constant external reinforcement to maintain their self-esteem.

In this section, we have discussed two developmental factors (changes in social roles and self-esteem regulation) that might explain why self-esteem increases over the course of adulthood. However, although these factors are theoretically related to self-esteem development, further research is needed to test whether either factor actually predicts self-esteem change.

Old age: A sharp decline. Our review of the literature identified only a handful of studies that examined self-esteem development in old age and little consistency in the findings. The present study helped to fill this gap in the literature by providing a large-scale study of the development of self-esteem beyond midlife. We found a sharp drop in self-esteem beginning around age 70. This finding informs the debate about whether emotional health improves or deteriorates in old age. As we noted earlier, studies of older participants have produced mixed results with some showing increases and others showing decreases or no change in well-being. These results, along with the present find-

ings, make it difficult to discern a coherent picture. It is possible that psychological adjustment does not show systematic changes during old age and that the inconsistencies across findings reflect sampling error. Alternatively, it is possible that the inconsistencies reflect true sampling differences; that is, nonrepresentative samples might differ on variables that are potentially relevant to age differences in self-esteem among older individuals. Furthermore, there may exist subtle but important differences in the developmental trajectories of various indicators of adjustment (e.g., life satisfaction vs. emotional stability vs. self-esteem). If this is the case, then the profound physical and emotional changes associated with aging may have a more negative impact on self-esteem than on other aspects of psychological adjustment.

Which developmental factors might contribute to the old-age drop? Theories of self-esteem development provide little direction, and, again, more general theories of aging might provide insights. According to role theories, the role losses experienced during old age are stressful and difficult to cope with (Bush & Simmons, 1981), suggesting that life transitions such as retirement might contribute to deteriorating self-esteem (e.g., Gove et al., 1989). However, Reitzes, Mutran, and Fernandez (1996) failed to find that retirement produced a drop in self-esteem in their longitudinal data.

Old age involves a number of other changes that might contribute to declines in self-esteem, including spousal loss, decreased social support, declining physical health, cognitive impairments, and a downward shift in SES (Baltes & Mayer, 1999). Unfortunately, the present study does not allow us to identify which of these possible factors actually accounts for the observed age differences in self-esteem. Moreover, it is difficult to reconcile why any of these factors might lead to deteriorations in self-esteem but not in other aspects of psychological adjustment.

Several theories of aging suggest an alternative perspective. Jung (1958), Erikson (1968), Neugarten (1977), Levinson (1978), Baltes and Mayer (1999), and others hold that persons in old age tend to be wiser and more comfortable with themselves. According to Erikson (1968), the final stage of life is a time of "post-narcissistic love of the human ego—not of the self—as an experience which conveys some world order and spiritual sense" (p. 81). Erikson thus provides an alternative interpretation of the self-esteem drop: It is not that deep-seated feelings of self-worth are declining in old age, but rather that older persons increasingly accept their faults and limitations and correspondingly have a diminished need for self-promotion and self-aggrandizement, which might artificially boost reports of self-esteem earlier in life. During old age, defense mechanisms such as denial may no longer be used to inflate feelings of self-worth. Thus, the decline in self-esteem might not be part of a larger pattern of deteriorating emotional health in old age but rather a specific shift in self-conceptions that contributes to a more modest and balanced view of the self.

Limitations

Three methodological confounds also need to be considered. First, the present study is cross-sectional and therefore confounds age differences caused by developmental change and those caused by cohort effects. Thus, it is possible that the decline in self-esteem we found in our oldest participants is due to a cohort effect. For

this to be the case, participants in the oldest cohort must have experienced some distinctive event that was not experienced by other cohorts and that shaped the way their self-esteem developed. For example, Elder (1974) has documented lasting psychological effects of growing up during the Great Depression, and children of that generation may have developed a more negative self-image (Gove et al., 1989). However, to the extent that cohort effects are assumed to be minimal or nonexistent, the pattern of observed age differences may be a reasonable starting point for speculating about intraindividual age changes in self-esteem.

A second possible confound involves selective mortality. If individuals with high self-esteem are less likely to survive to old age, then this would produce an apparent drop in self-esteem in the oldest age group. However, there is no established link between self-esteem and mortality, and, if there were a link, it seems more likely that individuals with high self-esteem would live longer than those with low self-esteem (Coleman, Ivani-Chalian, & Robinson, 1993). Despite these concerns, the possibility of a substantial decline in self-esteem in old age has important theoretical and practical implications and merits further research.

Third, the method of Internet data collection raises concerns about sample selectivity. Most notably, the sample was necessarily limited to people who had access to and used the Internet and to those who chose to complete the questionnaire on-line. Although elderly individuals who participate in an Internet study may be no more select a sample than elderly individuals who participate in other forms of psychological research, some caution is warranted given the limited information about Internet-based studies (Buchanan & Smith, 1999).

In light of these methodological issues, future research should examine age differences in self-esteem using a representative sample of individuals. This would greatly strengthen the generalizability of our conclusions and alleviate concerns about the Internet sample. Finally, by following a representative sample longitudinally, we could tease apart aging and cohort effects and identify the factors that promote or diminish self-esteem across the life course.

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