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Self-rated health among U.S. adolescents

Jason D. Boardman, Ph.D.*

Department of Sociology, Population Program, Institute of Behavioral Science, University of Colorado at Boulder, Boulder, Colorado

Abstract

Purpose—This article investigates the meaning of subjective health assessments for younger respondents by examining the temporal stability of self-rated health (SRH) among adolescents. Two competing understandings of SRH are tested: SRH as a spontaneous health assessment or as an enduring self-concept.

Methods—Using data from two waves of the National Longitudinal Study of Adolescent Health ($n = 13,511$), an intra-class correlation coefficient and a weighted Kappa estimate are calculated to assess the test-retest reliability for SRH. Self-rated health (T2) is then modeled as a function of SRH (T1), physical health (T1), and mental health (T1), and changes in physical and mental health (T2–T1).

Results—SRH is found to be moderately stable over repeated observations ($K = .40$; $\rho = .55$) among adolescents. Findings from multivariate analyses suggest that SRH (T2) is largely determined by SRH (T1) and less so by changes in physical or psychological health status (T2–T1).

Conclusions—SRH among adolescents is in part a spontaneous health assessment but it is best understood as an enduring self-concept.

Keywords

Self-rated health; Adolescents; National Longitudinal Study of Adolescent Health

Researchers concerned with social processes related to health outcomes often rely on data obtained from large nationally representative social surveys. These surveys are important mechanisms through which prevalence rates for specific illnesses are established and they enable researchers to test a number of important hypotheses regarding the social determinants of physical and mental health. Compared with clinical studies in which health is assessed by trained medical examiners, social surveys rely heavily on self-reported data [1]. Moreover, because health status is just one of many aspects of respondents' lives that are assessed in national surveys, investigators are often limited with respect to the number of health-related questions that they are able to pose to respondents. As a result, researchers frequently use single items such as self-rated health (SRH) to assess respondents' overall health status. To illustrate, the General Social Survey (GSS) has collected yearly cross-sectional data on a nationally representative sample of adults in the United States since 1972. The GSS is the most widely cited national data set available to social scientists;

however, the only consistent measure of health status asked of respondents across 24 waves of data collection is SRH.

In large part, the reliance on this single item to assess the health of adults is not considered to be a problem, because SRH is consistently evidenced as a valid measure of current physical health status. For example, in two comprehensive reviews that covered 46 studies, the researchers found that adults who reported “poor” health were more likely to die in 40 of the 46 studies [2,3]. Even after controlling for morbidity, health-related behaviors, and access to health services, SRH predicted mortality over short (i.e., 2 years) and long (i.e., 10 years) periods of time [4,5]. This strong evidence for convergent validity has led some to claim that “an individual’s health status cannot be assessed without” SRH and that this single item captures “an irreplaceable dimension of health status” ([2], p. 34).

Despite the impressive body of empirical work examining SRH among adults [6,7], only a limited amount of work has examined the stability and reliability of survey items administered to adolescents [8], and no existing research has specifically evaluated SRH. Using data from the National Longitudinal Study of Adolescent Health, the goals of this article are to document the stability of SRH over repeated observations among a nationally representative sample of U.S. adolescents and to examine the extent to which changes in SRH are predicated on changes in health. In doing so, this article elaborates on similar work among adults [9] by identifying SRH as either a *spontaneous health assessment* or an *enduring self-concept* among respondents aged 11–19 years.

The perception of health among adolescents

In a recent article, Bailis and colleagues [9] describe two distinct understandings of SRH. When asked to assess his or her overall health status, an individual may take stock of relatively immediate physical cues such as energy levels, the presence or absence of pain, or recent changes in health status (improvements or declines). In this case, SRH can be understood as a *spontaneous assessment* of overall health that is intimately related to current health status. Alternatively, changes in physical well-being such as the onset of a disease or the transition away from a particular illness may not have any measurable impact on an individual’s perceptions of his or her overall health. This second interpretation understands SRH to be an *enduring self-concept*. The authors note that “the critical distinction between these views lies in the construct that each takes SRH to represent: health status, or the self-concept of health, respectively” ([9], p. 203).

If SRH is a spontaneous assessment then we would expect SRH to be somewhat unstable; a significant number of persons should change their SRH over repeated observations. And, more importantly, the direction of these changes should correspond to changes in more objective measures of current health status. On the other hand, if SRH denotes a more enduring aspect of an individual’s self-concept, then responses to SRH questions should be relatively stable over repeated observations despite improvements or declines in objective health status over the same period of time. Using data from the National Population Health Survey in Canada ($n = 7505$), Bailis et al [9] find that SRH is shaped both by recent changes in objective health status *and* initial levels of SRH; both sets of variables explained similar amounts of variation in SRH at Time 2. In other words, among adults, SRH is deemed to be both a spontaneous assessment *and* an enduring self-concept. Moreover, when comparing the standardized regression coefficients for the two sets of predictors, the effect of baseline SRH ($\beta = .41$) is nearly twice as great as the effect associated with either baseline physical health ($\beta = .20$) or changes in physical health ($\beta = .24$). This finding provides further evidence that SRH, although a relatively simple measure of health, may tap into stable and enduring aspects of adults’ health-related identities.

In the work of Bailis et al, physical health status is ascertained by summarizing “up to 22 chronic conditions in which respondents had been diagnosed by a health professional” ([9], p. 208). Clearly, physician-assessed morbidity and the sum of chronic conditions may not be the most appropriate measure of physical health status among adolescents, as the prevalence of chronic conditions among younger persons is relatively low for most illnesses and virtually nonexistent for others. Accordingly, physical health status among younger respondents is typically assessed with a summary measure tapping the frequency and severity of less serious health problems such as fatigue, stomachaches, and headaches. As there is significantly more variability in these health problems over relatively short periods of time compared with serious (e.g., cancer or diabetes) or chronic (e.g., asthma or arthritis) illnesses, there are good reasons to believe that the spontaneous assessment view more adequately captures the meaning of SRH among adolescents. In other words, the perception of dramatic health improvements or health declines may be more pronounced among adolescents simply because the scope of health is more limited. As a result, adolescents may be more likely than adults to hold a more spontaneous assessment view of their general health.

Alternatively, there are also reasons to believe that SRH may be described as an enduring aspect of self-concept, more so among adolescents than among adults. Children view themselves almost exclusively in terms of their day-to-day activities and are likely to draw on immediate cues in their surrounding contexts when responding to inquiries regarding self-definition [10]. However, with the transition to adolescence, children begin to see themselves in more generalized terms. As a result of increased reliance on formal operational thinking [11], adolescents’ identities begin to take on enduring aspects. In some ways adolescents adhere more rigidly than do adults to the idea that they have certain personality traits that are relevant regardless of the temporal or contextual setting [12]. The need for coherency in self-concept at this stage is a consequence of the rapid biological, psychological, and social changes that are occurring in their lives [13,14]. Therefore, it is possible that the developmental timing of adolescence is one in which the enduring self-concept model more adequately captures the meaning of SRH items among adolescents. Here, health-related self-concept may be established relatively early, and it may factor importantly into a relatively static identity formation process [15].

Finally, it is also important to consider the possibility that the relationship between objective and subjective health changes over different periods of adolescence. Specifically, the discussion thus far has argued that the enduring self-concept understanding will become either more or less salient with increasing age; however, it is also possible that important developmental transitions will cause a nonlinear relationship between age and health-related self-concept. For example, Harter ([14], p. 59) argues, during early and middle adolescence “self-structure of these periods is not coherently organized, nor are the postulates of the self-portrait internally consistent.” Importantly, the transition from early to middle adolescence is marked by a notable spike in self-concept instability where 14-year-olds demonstrate the lowest level of certitude [16]. The transition to late adolescence [17–20] is accompanied by a return in perceived certitude, but certitude levels do not return to the prior level of stability evident among younger adolescents. Therefore, it is also possible that the enduring self-concept understanding of self-rated health will be particularly weak among youth ages 14–17 years when compared with the youngest and oldest adolescents.

Methods

Data and measures

All data used in these analyses come from Waves I and II of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based study of youth

originally in grades 7 through 12 [21]. All high schools that included an 11th grade (and their respective feeder schools) with an enrollment of at least 30 students were included in the population of schools. These schools were then stratified by region (Northeast, Midwest, South, West), urbanicity (urban, suburban, rural), school size (< 126 students, 126–350 students, 351–775 students, or > 775 students), school type (public, private, parochial), percentage of Whites (0, 1–66, 67–93, 94–100), percentage of blacks (0, 1–6, 7–33, 34–100), grade span (K–12, 7–12, 9–12, 10–12), and curriculum (general, vocational/technical, alternative, special education). In total, 90,118 students from 80 high schools and 52 middle schools were interviewed in their schools between September 1994 and April of 1995. More detailed information was then collected from 20,745 adolescents (Wave 1) during in-home interviews from April to December of 1995. Researchers returned to adolescents' homes from April to August of 1996 to collect follow-up data, using the same measures for 14,738 adolescents (Wave 2). On average, the duration between the interviews was roughly 12 months.

After restricting the sample to those with full information in both waves of the study, a total of 13,511 respondents are used in these analyses. All data are weighted using the grand sample weights for Wave 2 to reflect the complex sampling design employed in the Add Health study [22]. Sampling weights, which describe the inverse of the probability that a particular observation is included owing to the sampling design, are recalculated for the reduced sub-sample considered here as well as separately for each of the three age groups considered.

This study examines three aspects of adolescents' health status: *Self-Rated Health*, *Physical Health*, and *Psychological Health*. First, all youth were asked to respond to the question, "In general, how would you rate your health?" Response options ranged from 1 "Poor" to 5 "Excellent." Second, physical health status was obtained from a list of questions regarding the frequency of the following six minor health problems in the past year: (a) a headache, (b) a stomachache or an upset stomach, (c) feeling physically weak for no reason, (d) a sore throat or a cough, (e) feeling really sick, (f) aches, pains, or soreness in your muscles or joints. Respondent's psychological health is examined by response to questions regarding the frequency with which they perceived the following six conditions: (a) poor appetite, (b) trouble falling asleep or staying asleep, (c) trouble relaxing, (d) moodiness, (e) frequent crying, and (f) fearfulness. Response alternatives for physical and psychological health ranged from 1 "Every day" to 5 "Never." All measures of health are coded such that higher numerical values correspond with better health. Finally, all multivariate models control for the respondent's age and race/ethnicity, their mother's education and parents' marital status, as well as the duration (months) between interviews.

Age of adolescents is recorded at the time of the in-school survey and is measured in years. Years of education taps the number of years of formal education received by adolescents' primary caregivers. Marital status of the primary caregiver is measured with a binary variable differentiated between those who are currently married from those who are not currently married. Racial and ethnic identification is measured by adolescents' self-reports. As with recent changes in the decennial census, the Add Health study does not place any limits on the number of racial categories that respondents are able to report. Moreover, racial identification is obtained in the at-school and in-home settings. Accordingly, not only are there a number of multiracial respondents, there are also a number of adolescents who change their racial identification across survey settings. Similar to results reported by others [17], the bulk of respondents listed only one racial identity and reported the same racial identity across the two contexts; however, nearly 13% of the adolescents used in this sample reported inconsistent racial identities across the study settings. Accordingly, adolescents are classified into eight racial and ethnic categories.

Analytic strategy

After presenting a cross-tabulation of SRH at T1 and T2 (Table 1), test-retest reliability of SRH is then assessed with a weighted Kappa statistic [18–20] and an intra-class correlation coefficient (Rho). The Kappa and Rho coefficients are calculated using SAS PROC FREQ and PROC MIXED, respectively [23]. These results are presented in Table 2. To compare the extent to which Time 2 SRH is more strongly associated with SRH at Time 1 (enduring self-concept understanding) or changes in health status over time (spontaneous assessment), a regression model including the full array of control variables is estimated in which the dependent variable is SRH (T2) and the primary independent variable is baseline SRH (T1). Parameter estimates and standard errors are adjusted for the study design using the SVY commands in STATA 8.0. Identifiers for respondent's sampling strata (region of the country) and the primary sampling units (schools) are used in conjunction with a linear regression model using the SVYREG commands in STATA 8.0 to estimate the effects of baseline SRH (T1) on SRH at the follow-up (T2). By comparing the magnitude of the parameter estimates (standardized regression coefficients) and the model fit statistics, these models will indicate the relative explanatory power of the spontaneous health assessment as compared with the enduring self-concept understanding. These results are presented in Table 3. To examine the extent to which these relationships change over time, the presentation of full-model estimates is followed by age-specific models for adolescents and young adults in the following three age groups: (a) 11–13 years; (b) 14–17 years; and (c) 18 years and older. These results are presented in Table 4.

Results

Table 1 presents a cross-tabulation of SRH responses across the two interviews. An examination of the main diagonal of this simple matrix reveals that more than one-half (7018 of 13,551) of adolescents interviewed reported consistent SRH. An additional 40% reported either 1 point better ($n = 2799$) or 1 point worse ($n = 2545$). However, roughly 9% of adolescents reported SRH levels that differed by at least two values. For example, 209 of the 913 (nearly one in four) adolescents who reported “Fair” health at Time 1 later reported that their health was either “Very Good” or “Excellent.” Likewise, 63 adolescents who reported that their health was “Excellent” at Time 1 reported “Fair” or “Poor” health when asked about their health a year later. These relationships are summarized with the weighted Kappa ($K = .40$) and intra-class correlation coefficient ($\rho = .55$) presented in Table 2, which suggest that SRH among adolescents is only moderately stable over repeated observations; a similar number of adolescents revised their SRH as compared with those who reported the same levels over the two observations. Ancillary analyses (results not shown) calculated weighted Kappa and intra-class correlation coefficients over different survey lag periods and these models suggested that these findings are consistent, despite differences among adolescents with respect to the lag time between surveys.

Table 2 also presents means and standard deviations for SRH and self-reported physical and psychological health obtained over both waves of data collection, and the final three columns summarize the three stability estimates. According to the Kappa and Rho coefficients, the physical health and psychological health characteristics are slightly less stable when compared with the self-rated health measure. Interestingly, however, apart from two psychological health measures (sleep problems and moodiness), SRH has the lowest-observed level of consistency. In other words, although adolescents revise their self-rated health more frequently than other measures of physical or psychological well-being, the magnitude of these changes appears to be smaller. The opposite of this relationship is evident when examining symptoms of cold or flu such as a sore throat or cough. Specifically, nearly two-thirds of the sample reported the same level of flu-like symptoms from Time 1 to Time 2 (one of the highest levels of consistency), but the Kappa and Rho

estimates for sore throat and cough were the lowest of the 12 items, suggesting that changes in the reported level of illness are less common, however, they are large in magnitude when they occur.

Table 3 presents standardized parameter estimates obtained from two multivariate regression models. The dependent variable in both models is Time 2 SRH. Controlling for sociodemographic characteristics and difference in the duration between the surveys, Model 1 estimates the effect of SRH at Time 1 on SRH at Time 2. As expected, SRH at Time 1 is strongly associated with SRH at Time 2 and the inclusion of this single variable significantly improves the model fit where the r^2 estimate without the SRH T1 estimate improved from .03 (not shown) to .26. Model 2 enters controls for health and suggests that SRH is most strongly associated with their perceived levels of weakness. Both initial weakness levels ($\beta = .122, p < .001$) and changes in weakness ($\beta = .101, p < .001$) are the two largest effects on changes in adolescent's self-rated health. Fatigue is followed by headaches and stomachaches as the primary physical health characteristic associated with adolescents' perceptions of their health. Sore throat, aches and pains, and feeling really sick are not independently associated with changes in self-rated health. Two of the psychological well-being measures (poor appetite and trouble sleeping) are associated with self-rated health in the expected direction, although the magnitude of these effects is considerably smaller when compared with the effects of perceived weakness. Likewise, for three of the six measures (poor appetite, sleep troubles, and moodiness), changes in psychological well-being are positively associated with changes in self-rated health. However, the relative size of these effects is considerably smaller than the effects associated with changes in physical well-being.

The explanatory power of these 24 items is notably less than the corresponding explanatory power of Time 1 SRH. The r^2 in Model 1 ($r^2 = .26$) only increases slightly with the inclusion of these controls ($r^2 = .30$) and the estimate for Time 1 SRH remains virtually unchanged; suggesting that effect of Time 1 SRH on Time 2 SRH does not operate through Time 1 health or changes in health. Furthermore, comparing the magnitude of the standardized regression coefficients suggests that the effect of Time 1 SRH is at least four times stronger than any of the health characteristics considered here. Taken together, these findings provide compelling evidence that self-rated health may be better understood as an enduring self-concept among adolescents and less so as a spontaneous assessment of current health status. It is important to note that the moderately sized weighted Kappa statistic and intra-class correlation coefficient for SRH presented in Table 2 may have called into question the reliability of this measure of health. However, because changes in health status are positively associated with changes in SRH, it suggests that these changes in SRH denote qualitative change in health status, rather than random variation that is associated with unreliable measures. In short, according to these results, SRH and physical health status operate in predictable ways and converge predictably over time, suggesting that health-related survey assessments administered to adolescents are valid assessments of health, broadly speaking.

Table 4 elaborates on these relationships by examining similar models across three periods of adolescence. As discussed above, there are reasons to believe that the relationship between objective and subjective health status among adolescents will change across early, middle, and late adolescence. The estimates provided describe the effect of SRH at Time 1 on SRH at Time 2. In addition, model-fit is described with r^2 estimates. If the spontaneous assessment explanation fully accounted for the relationship between Time 1 SRH and Time 2 SRH, then controls for physical and psychological health would cause the effect of Time 1 SRH to become statistically insignificant and the r^2 estimate would increase significantly. Instead, among 11–13-year-olds, only 6.6% of the relationship between Time 1 SRH and

Time 2 SRH is due to changes in physical and psychological well-being. This same relationship is evident among middle adolescents, where only 6.0% of the effect of Time 1 SRH is mediated by Time 1 physical and psychological health and changes in physical and psychological health from Time 1 to Time 2.

The comparison of these relationships among older adolescents reveals two interesting results. First, the effects of Time 1 SRH on Time 2 SRH in Models 1 and 2 ($\beta_1 = .437$; $\beta_2 = .394$) are significantly smaller than the effects among younger adolescents. The significance of this difference was assessed in a full model similar to the one presented in Table 3, with the inclusion of an interaction between age and Time 1 SRH. The interaction term indicated that the effect of Time 1 SRH on Time 2 SRH was significantly lower among older adolescents as compared with both middle and early adolescents. In other words, the evidence presented in Table 3 regarding the relevance of the enduring self-concept understanding may be particularly salient among younger adolescents and less so among older adolescents. Controls for baseline and changes in health status (both physical and psychological) explain a larger portion of the baseline SRH effect, and a larger portion of follow-up SRH is attributable to changes in objective health status among older compared with younger adolescents. To illustrate, the r^2 for middle and young adolescents increases by roughly 15%, but the r^2 for older adolescents increases by more than 50%. In other words, similar to the work of Bailis et al [9], there is a convergence toward the spontaneous assessment understanding of self-rated health status as adolescents enter young adulthood.

Discussion and conclusion

Using a large, nationally representative sample of adolescents interviewed at two points in time (roughly 1 year apart) this article finds that self-rated health reported by adolescent respondents is moderately stable. And, whereas SRH among adults is characterized as both an enduring self-concept and a spontaneous health assessment [9], SRH among adolescents, particularly among younger adolescents, appears to be more appropriately characterized as an enduring self-concept.

These findings speak to the research practices of social epidemiologists relying on SRH to describe the health status of their respondents. In large part, those examining the measurement aspects of SRH items approach this measure almost exclusively from the spontaneous assessment perspective. Although what is meant by “health” may vary from study to study, the underlying principle is that SRH captures *current* health status; an understanding that is consistent with the spontaneous assessment perspective. For example, a number of qualitative studies have investigated the meaning that adults ascribe to SRH items by asking adults to explain why they chose a particular value from a five-point SRH item. The researchers find that adults’ primary reference is their physical health status, such as the absence or presence of disease [24], and functional health status [25], such as the ability to perform household chores or personal care. And although adults also reference health-related behaviors and social-psychological resources [26–28], the responses are similar in that they tap relatively proximate factors determining health perceptions. Likewise, some researchers use a gold standard such as mortality [29] or physician-assessed morbidity [1] to assess the criterion validity of SRH, but these conceptual linkages are meaningful only if SRH is a spontaneous health assessment rather than an enduring self-concept. This same approach can be seen in work focusing on adolescents that examines traditional measures of reliability and validity associated with parental [30,31] and adolescent self-reports [32,33] of current physical and psychological well-being.

In some ways, the findings presented here shift the focus away from stability as a measure of reliability toward an understanding that global health perceptions are comprised of both

dynamic (spontaneous) and static (enduring) aspects. In this article, the instability associated with SRH over repeated observations among adolescents was found to be similar to results reported elsewhere among adults [9]; however, the reasons for the observed instability are somewhat different. In other words, the finding that a fair number of adolescents revised their SRH within less than a year should be considered an important opportunity to examine the social-psychological processes related to healthy development that may be overlooked by placing undue emphasis on traditional psychometric measurement properties such as reliability. More importantly, as adolescents move into adulthood, the shift to health status as a spontaneous assessment may enable individuals, particularly those with coherently organized health-related goals, to accurately assess their health and make the requisite health-promoting changes in lifestyle [9].

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Table 1

The consistency of self-rated health status among U.S. adolescents

SRH (Wave 2)						
SRH (Wave 1)	Poor	Fair	Good	Very good	Excellent	Total
Poor	12	18	15	5	5	55
Fair	19	287	396	158	51	911
Good	13	334	1538	1155	384	3424
Very good	7	124	1093	2868	1230	5322
Excellent	4	59	324	1099	2313	3799
Total	55	822	3366	5285	3983	13,511

Note: All data come from Waves I–II of the National Longitudinal Study of Adolescent Health (Udry 1998). Cell entries represent unweighted frequencies.

Table 2

Stability of physical and psychological health among U.S. adolescents

	Wave 1 ^a	Wave 2 ^a	Consistent ^b	Kappa ^c	I.C.C. ^d
Self-rated health	3.87 (.91)	3.90 (.90)	52.11	0.40	0.55
Physical health					
Headache	3.71 (.75)	3.74 (.73)	61.57	0.37	0.53
Stomachache or an upset stomach	3.90 (.67)	3.91 (.65)	62.93	0.27	0.43
Feeling physically weak for no reason	4.44 (.74)	4.43 (.71)	57.31	0.29	0.43
A sore throat or a cough	4.05 (.62)	4.04 (.57)	63.08	0.17	0.34
Feeling really sick	4.43 (.61)	4.38 (.58)	58.97	0.24	0.37
Aches, pains, or soreness in your muscles or joints	3.83 (.88)	3.85 (.84)	50.59	0.29	0.45
Psychological health					
Poor appetite	3.35 (.86)	3.27 (.83)	55.26	0.33	0.48
Trouble falling asleep or staying asleep	3.02 (1.05)	3.02 (.97)	47.10	0.33	0.49
Trouble relaxing	3.31 (.91)	3.28 (.88)	53.71	0.32	0.47
Moodiness	2.67 (1.03)	2.66 (.95)	47.42	0.36	0.53
Frequent crying	3.59 (.69)	3.52 (.69)	66.59	0.39	0.52
Fearfulness	3.44 (.71)	3.38 (.69)	58.08	0.28	0.41

^aCell entries represent means and standard deviations in parentheses.

^bPercent of respondents with consistent reports of health at Time 1 and Time 2.

^cWeighted Kappa for each health measure.

^dIntra-class correlation coefficients (Rho) for each health measure. All data come from Waves I–II of the National Longitudinal Study of Adolescent Health (Udry 1998). Data are weighted to reflect the complex sampling design of the Add Health study.

Table 3

Standardized regression coefficients: self-rated health status as an enduring self-concept or spontaneous assessment among adolescents

	Model 1	Model 2
Self-rated health (T1)	0.488***	0.458***
Physical health (T1)		
Headache		0.069***
Stomachache or an upset stomach		0.040*
Feeling physically weak for no reason		0.122***
A sore throat or a cough		0.022
Feeling really sick		0.032
Aches, pains, or soreness in your muscles or joints		−0.023
Psychological health (T1)		
Poor appetite		0.035*
Trouble falling asleep or staying asleep		0.037*
Trouble relaxing		−0.001
Moodiness		0.020
Frequent crying		−0.022
Fearfulness		0.032
Change in physical health (T2–T1)		
Headache		0.061***
Stomachache or an upset stomach		0.075***
Feeling physically weak for no reason		0.101***
A sore throat or a cough		0.018
Feeling really sick		0.031
Aches, pains, or soreness in your muscles or joints		−0.015
Change in psychological health (T2–T1)		
Poor appetite		0.050***
Trouble falling asleep or staying asleep		0.038**
Trouble relaxing		0.005
Moodiness		0.037***
Frequent crying		0.000
Fearfulness		0.029
R ²	0.263	0.300

Note: Cell entries represent standardized regression coefficients obtained from an linear regression model in which the dependent variable is SRH (T2). All models control for sociodemographic (age, race/ethnicity, gender, marital status of mother) and socioeconomic (mother's education and receipt of public assistance) information for all respondents. Models also control for the lag (in months) between Waves 1 and 2 of the study. Estimates obtained from SVYREG procedure in STATA 8.0 to adjust for design effects and are weighted to reflect the oversampling of certain sociodemographic groups. N = 13,511.

All data come from Waves I–II of the National Longitudinal Study of Adolescent Health (Udry 1998).

*
p < .05

**
 $p < .01$

 $p < .001.$

Table 4

Standardized regression coefficients: age specific models

	Model 1		Model 2		Change (%) $(\beta_1 - \beta_2)/\beta_1^* \times 100$
	β	R ²	β	R ²	
Ages 11–13 years	.497***	0.265	.464***	0.304	6.640
Ages 14–17 years	.498***	0.281	.468***	0.322	6.024
Ages 18–21 years	.437***	0.231	.394***	0.350	9.840

*** $p < .01$

Note: Cell entries represent standardized regression coefficients obtained from an OLS regression model in which the dependent variable is SRH (T2). Model 1 controls for sociodemographic (age, race/ethnicity, gender, marital status of mother) and socioeconomic (mother's education and receipt of public assistance) information for all respondents. Models also control for the lag between Wave 1 and Wave 2. Model 2 includes the same controls as Model 1 but also controls for time 1 physical and psychological health and changes in physical and psychological health from time 1 to time 2 (similar to Model 2 of Table 3). Separate models were examined for adolescents ages 11–13 ($n = 2158$), 14–17 ($n = 10310$), and 18–21 ($n = 1043$). Estimates obtained from SVYREG procedure in STATA 8.0 to adjust for design effects and are weighted to reflect the oversampling of certain sociodemographic groups. All data come from Waves I–II of the National Longitudinal Study of Adolescent Health (Udry 1998).

* $p < .05$

*** $p < .001$.