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Conscientiousness mediates the relation between perceived parental socialisation and self-rated health

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Abstract

The pathways between parenting behaviours, personality and physical health have all been separately studied. Prior research has paid little attention to the indirect effects of personality in the path between parenting behaviours and better health. The purpose of this study was to explore the mediational effects of conscientiousness on the relationships between parental socialisation of responsibility and self-rated health, and to examine potential age differences in this mediational pathway. In total, 736 female and 749 male members across Japan participated in this study. They were divided into three groups by age category: younger-, middle-aged and older-aged. Conscientiousness and health were concurrently rated, while parental socialisation of responsibility was retrospectively assessed. Our analyses revealed that parental socialisation of responsibility is positively associated with conscientiousness and self-rated health, that conscientiousness is positively associated with self-rated health, and that conscientiousness fully mediated the effect of parental socialisation of responsibility on self-rated health. The mediational links were consistent across younger, middle-aged and older-aged cohorts. Our findings suggest that greater parental socialisation of responsibility relates to higher conscientiousness, and consequently healthier adults. These findings imply that parental behaviours could be a plausible target for intervention to foster the development of conscientiousness and better health.

Keywords

conscientiousness; parental socialisation of responsibility; self-rated health; moderated mediation

Introduction

It is now clear that personality traits play a significant role in the maintenance and improvement of psychological and physical health. For example, conscientiousness, one of Big Five personality dimensions, has shown consistent relations both cross-sectionally and prospectively to multiple health factors (Roberts, Walton, & Bogg, 2005).

Conscientiousness refers to the propensity to be more controlled, task- and goal-directed, planful, rule following and responsible to others (Roberts, Jackson, Fayard, Edmonds, & Meints, 2009). Numerous empirical studies have found conscientiousness to be associated with health-related behaviours (Bogg & Roberts, 2004; Hampson, Goldberg, Vogt, & Dubanoski, 2006), physical health (Goodwin & Friedman, 2006; Lodi-Smith et al., 2010)

and longevity (Kern & Friedman, 2008). These findings suggest that conscientious people tend to avoid risky health behaviours, participate in more health promoting behaviours and, in turn, are healthier, and live longer.

Additionally, changes in conscientiousness-related traits are also associated with both changes in health-related behaviours and physical health. Specifically, Roberts and Bogg (2004) showed that the health-related behaviours of quitting smoking and diminishing one's drug consumption were associated with increases in conscientiousness found across the life course. Similarly, increases in conscientiousness-related traits (i.e. constraint) between age 18 and 26 were associated with decreases in smoking behaviours (Welch & Poulton, 2009). Moreover, Takahashi, Edmonds, Jackson, and Roberts (2011) illustrated that changes in conscientiousness were correlated with changes in preventative health-related behaviours and changes in physical health.

These findings suggest that interventions fostering changes in conscientiousness presumably would be effective in maintaining and improving physical health, and indicate that changes in conscientiousness may be appropriate targets for health promoting interventions (Moffitt et al., 2011). Indeed, Bogg and Roberts (2004) argued that changes in the health-related behaviours could contribute to changes in conscientiousness (see also Roberts, 2006). This invites the question of what one could do to increase conscientiousness. Although previous research has identified experiential factors linked to changes in conscientiousness, these factors may not be optimal targets for intervention. For example, occupational success is associated with increases in conscientiousness (Roberts, Caspi, & Moffitt, 2003), as well as relationship commitment (Lehnart, Neyer, & Eccles, 2010) and stability (Roberts & Bogg, 2004; Robins, Caspi, & Moffitt, 2002). However, intervening to change a person's work or marital situation would be relatively difficult.

One of the most sensible candidates for intervention would be parenting practices. In fact, analogous research on delinquency has shown that very simple interventions to train young parents to be more consistent and effective in their disciplinary techniques resulted in reduced delinquency in their children years later (Hill, Roberts, Grogger, Guryan, & Sixkiller, 2011). Of course, the assumption driving this type of intervention would be based on a known relation between parenting behaviours, personality traits and health. Jackson and Dickinson (2009) indicated that in public health research, there is broad interest in understanding the role parenting behaviours play in determining children's health risk behaviours, and suggested that developing public health programs to modify parenting behaviours could lead to multiple beneficial health outcomes for children (e.g. Chassin et al., 2005; Hartos, Eitel, Haynie, & Simons-Morton, 2000).

There is accumulating evidence that the family relationships, including parenting behaviours, do contribute to conscientiousness and physical health in adulthood. According to Gottfredson and Hirschi (1990), parental socialisation of responsibility is the most salient factor in the development of conscientiousness-like trait, self-control. Indeed, several studies supported this perspective (e.g. Gibbs, Giever, & Higgins, 2003; Pratt, Turner, & Piquero, 2004; Vazsonyi & Belliston, 2007). Similarly, Roberts, Jackson, Burger, and Trautwein (2009) reported that parental socialisation (e.g. parental care, positive parenting and parental involvement) was positively associated with higher levels of conscientiousness in late adolescence. Additionally, parenting behaviours have been linked to better health in adulthood (e.g. Repetti, Taylor, & Seeman, 2002; Russek & Schwartz, 1997; Stewart-Brown, Fletcher, & Wadsworth, 2005).

The pathways between parenting behaviours, personality and physical health have all been separately studied, but no study to our knowledge has included all three constructs.

Although Roberts, Jackson, Burger, et al. (2009) revealed the positive links between parental socialisation of responsibility and conscientiousness, they did not link parental socialisation of responsibility to health. The possibility remains that experiencing better parenting in childhood leads to the development of more adaptive personality traits that in turn impact physical health status. That is, one unaddressed research question involves the mediational role of conscientiousness in the associations between parental socialisation of responsibility and health. Given the fact that better parental socialisation of responsibility was associated with higher conscientiousness (Roberts, Jackson, Burger, et al., 2009), and that higher conscientiousness was associated with better health (e.g. Goodwin & Friedman, 2006; Roberts, Walton, et al., 2005), we hypothesise that parental socialisation of responsibility should have an indirect effect on health through its effect on conscientiousness.

Therefore, in this study, we sought to test the role of parental socialisation of responsibility on conscientiousness and health. To test these ideas, we used cross-sectional data from an online survey of an age-stratified sample of people in Japan. Conscientiousness and health were concurrently rated, while parental socialisation of responsibility was retrospectively assessed. Of course, a cross-sectional, retrospective design is not the ideal approach to testing the mediating role of conscientiousness. Nonetheless, given the complete lack of data on this topic, we believe that as a first step, it is appropriate to show evidence of whether retrospectively rated parenting behaviours are indirectly related to self-rated health through conscientiousness.

Moreover, this study fulfils a second aim, which was to examine the patterns of associations between parental socialisation of responsibility, conscientiousness, and health in a non-Western culture. Because Japan has a different culture than most Western countries, it is worthwhile to examine the patterns of associations between variables of interest. Because the general social structure is influenced by culture, the parenting behaviours are also based on the salient cultural value of the society (Gjerde, & Shimizu, 1995; Xiao, 1999). However, Xiao (1999) showed that some aspects of parental socialisation of responsibility do not have cultural boundaries, indicating that Western country and Asian country may have similar parental socialisation practices. Based on the above, by using a Japanese sample, we test whether or not we can obtain a similar result about the parenting-personality and parenting-health links shown using samples drawn from US and European countries.

In addition to the basic mediational analyses, we sought to examine the age differences in the above-mentioned mediation links. Previous research has shown that age moderates the relation between conscientiousness and certain aspects of health (Bogg & Roberts, 2004; Hill & Roberts, 2011). Therefore, we tested whether there are differences in the mediational pathways among younger, middle age and older age groups.

Method

Participants and procedures

In total, 736 female and 749 male members ($N=1485$) across Japan participated in this study. The participants' selection for the online survey was carried out applying the quota sampling method in which the observed joint distribution of sex, age category and living area classification follows the demographics obtained from the last population census conducted by the Japanese government. Participants were divided into three groups by age category: younger-aged ($N=474$, $M=25.33$ years old, $SD=3.34$, age range=18–30), middle-aged ($N=555$, $M=43.95$ years old, $SD=4.06$, age range=38–50) and older-aged ($N=456$, $M=62.37$ years old, $SD=3.04$, age range=58–70). Participants were asked to complete the survey online in return for online shopping points.

Measures

Conscientiousness—Conscientiousness was assessed by Japanese version of NEO-Five Factor Inventory (Costa & McCrae, 1992), which is widely used to measure the big five personality traits. Participants were asked to evaluate their levels of agreement to 12 items on a 5-point scale, from ‘strongly disagree’ (1) to ‘strongly agree’ (5). Cronbach’s alpha coefficients were 0.72 for younger, 0.80 for middle-aged and 0.81 for older adults.

Perceived parental socialisation of responsibility—We measured perceived parental socialisation of responsibility with a 10-item scale, which is based on the work of Tokuda, Shimobane, Goto, and Matsumaru (1991). Participants were asked how often their parents told them to be more conscientious and polite as a child. Example items were: ‘follow the rules,’ ‘be on time,’ and ‘keep their room neat.’ (See also Appendix for a complete list of items). The response scale for these items ranged from ‘never’ (1) to ‘always’ (5). Higher scores on this measure are indicative of a parent who dedicated more effort to socialising their children to be responsible. Exploratory factor analysis extracted a single factor, and also confirmatory factor analysis also indicated reasonably good model fit for a one-factor solution (comparative fit index; CFI=0.96, root-mean square error of approximation; RESEA=0.05). Cronbach’s alpha coefficients were 0.91 for younger, 0.92 for middle-aged and 0.94 for older adults.

Self-rated health—Self-rated health status was assessed with the Japanese version of Medical Outcomes Study 36-Item Short Form Health Survey Version 2 (SF-36v2, Fukuhara & Suzukamo, 2004; Ware & Sherbourne, 1992), which has been translated into multiple languages (Ware & Gandek, 2001). The SF-36v2 includes eight subscales dealing with general physical health status and mental health status: physical functioning (10 items), role limitations due to physical problems (4 items), role limitations due to mental problems (3 items), bodily pain (2 items), general health perceptions (5 items), energy (4 items), social functioning (2 items) and emotional well-being (5 items). To focus on physical health rather than mental health, two subscales of role limitations due to mental problems and emotional well-being were not used in this study. Individual items were answered in a variety of formats ranging from 3- to 6-point Likert scales. Each subscale score was then standardised into T-scores by using Japanese norm-based scoring (Fukuhara & Suzukamo, 2004).

Other variables—Demographic variables were gathered, including age and gender. Age and gender were used to create age groups and to control for any effect of gender on the results. Socioeconomic status (SES) was assessed by two indicators: annual income and education. Participants were asked to report their income level on a 16-point scale from ‘unwaged’ to ‘more than 30 million yen (=350,000 dollars),’ and to report their education level on a 4-point scale from ‘junior high school graduates’ to ‘university graduates.’

Analysis plan—All models were tested using Amos 18 (Arbuckle, 2009). In order to optimise model fit, the perceived parental socialisation of responsibility, conscientiousness and self-rated health measures were parcelled. Variables within each parcel were averaged together to form the manifest variables used to construct the latent variables in the model. Higher scores on these constructs reflected greater socialisation of responsibility by parents, more conscientiousness and better health, respectively. We used multiple group structural equation modelling to test the degree to which perceived parental socialisation of responsibility and conscientiousness predicted self-rated health similarly across the three age groups. We also tested whether conscientiousness mediated the relation between perceived parental socialisation of responsibility and health. In testing for mediational links, two sets of analyses were conducted for both partial and full mediation. For evidence of mediational links, one would expect a decrease in the magnitude of the direct effect of perceived parental

socialisation of responsibility on self-rated health, in addition to demonstrating significant links between perceived parental socialisation of responsibility and conscientiousness as well as between conscientiousness and self-rated health. To test for full mediation, we fit these mediation models without the direct link between perceived parental socialisation of responsibility and self-rated health. Using a chi-square difference test and Sobel's z test (Sobel, 1982), we evaluated the partial and the full mediation models, to examine whether removing the direct effect significantly decreased model fit. Model fit was assessed with the CFI and the RMSEA.

Results

Descriptive statistics and partial correlations after controlling for gender and SES for all the variables by age category are presented in Table 1. Statistically significant correlations between the outcome variable and both the predictor and potential mediator variables are a necessary precondition for mediational links. As given in Table 1, for all three age groups, we found the positive and significant partial correlations between conscientiousness, perceived parental socialisation of responsibility, and self-rated health, after controlling for gender and SES. Better self-rated health was associated with both higher perceived parental socialisation of responsibility and higher conscientiousness, indicating these results satisfied the precondition for mediation analysis. Additionally, perceived parental socialisation of responsibility was positively associated with conscientiousness.

Next, after establishing these correlational relations, we proceeded to test the mediational models predicting self-rated health by age category. We prepared the initial model without a mediator variable to reconfirm the basic links between perceived parental socialisation of responsibility and self-rated health. This model revealed positive direct effects of perceived parental socialisation of responsibility on self-rated health for all age groups. In subsequent analyses, we examined conscientiousness as a mediator variable of the basic link between perceived parental socialisation of responsibility and self-rated health. These models are displayed in Figure 1 (Model fits well: CFI=0.94, RMSEA=0.04), indicating that conscientiousness mediated the association. Sobel's z test indicated that the indirect effect of the independent variable on the dependent variable via the mediator was significantly different from zero for all age groups (younger: $z=2.69$, $p<0.01$; middle: $z=3.12$, $p<0.01$; older: $z=2.80$, $p<0.01$). Additionally, the 95% confidence interval (CI) of the indirect effect was calculated: 0.07 (95% CI: 0.03–0.14) for younger age group, 0.06 (95% CI: 0.03–0.11) for middle-aged group and 0.05 (95% CI: 0.02–0.09) for older age group. For all three age groups, receiving more parental socialisation of responsibility was associated with higher conscientiousness, and also it was associated with better physical health. Moreover, the basic link between perceived parental socialisation of responsibility and self-rated health was eliminated by adding conscientiousness into models, indicating full mediation. Indeed, eliminating the direct effects for all of three age groups failed to significantly reduce model fit ($\Delta\chi^2(3)=5.58$, $p=0.13$). Model fits still well: CFI=0.94 and RMSEA=0.04. Additionally, in order to evaluate the extent of mediation in terms of explained variance, the percent increase was calculated. When adding the mediator into the model, the explained variances for the total model increase by more than 60% compared to the model without the mediator: 62% increase ($R^2=0.019 \rightarrow 0.050$), 70% increase ($R^2=0.019 \rightarrow 0.064$), and 83% increase ($R^2=0.011 \rightarrow 0.065$), for younger-, middle- and older-age group, respectively, suggesting that conscientiousness plays a significant mediational role in the relation between perceived parental socialisation of responsibility and self-rated health.

Finally, we examined whether the mediation links from perceived parental socialisation of responsibility over conscientiousness to self-rated health differed as a function of age group, and estimating models simultaneously using a multiple group analysis.¹ To test moderating

effect of age category, a critical ratio for differences statistic was calculated. The z values greater than the absolute value of 1.96 indicate significance at the 0.05 level. Comparison of the magnitude of the association between the two paths using the critical ratio for differences statistic revealed that the magnitude of indirect effects were not significantly different from each other ($|z|=0.04-1.47$, $p=0.14-0.97$). These results indicate that age did not moderate the mediation effect of conscientiousness. In summary, these analyses revealed that conscientiousness fully mediated the effect of perceived parental socialisation of responsibility on self-rated health, and that this mediational links were consistent across different age cohorts.

Discussion

Prior research has paid little attention to the mediational role of conscientiousness in the path between parental socialisation of responsibility and better health. In addition, little is known about age differences in the mediational associations between these three variables. Accordingly, in this study, we examined an integrated moderated mediation model to explore the mediational effects of conscientiousness on the relationships between perceived parental socialisation of responsibility and self-rated health by using Japanese nationwide sample.

Findings of our study contribute to existing knowledge in three ways. First, we found that perceived parental socialisation of responsibility was positively associated with conscientiousness and health among all age groups in a Japanese sample. In line with previous findings on the direct effect from parental socialisation of responsibility to conscientiousness (e.g. Gibbs et al., 2003; Roberts, Jackson, Burger, et al., 2009), and the direct effect from parental socialisation of responsibility to health (e.g. Repetti et al., 2002; Stewart-Brown et al., 2005), this result generally indicates that in Japan, perceived parental socialisation of responsibility is important to the process of developing conscientiousness. More specifically, this finding suggests that if people perceived their parents saying ‘follow the rules,’ ‘be on time,’ and ‘keep their room neat’ when they were a child (see also Appendix for more details), they reached adulthood with higher conscientiousness and better health. Moreover, consistent with prior research (e.g. Goodwin & Friedman, 2006; Lodi-Smith et al., 2010), we found that conscientiousness had a positive association with physical health. The findings from this study will be more significant if future research can provide evidence of a cross-national invariant pattern of associations among parental socialisation of responsibility, conscientiousness and health.

Second, we found support for our main hypothesis that conscientiousness mediates the links between perceived parental socialisation of responsibility and self-rated health. For all of three age groups, adding conscientiousness into the mediation models attenuated the direct effects from perceived parental socialisation of responsibility to self-rated health. The effect of perceived parental socialisation of responsibility on self-rated health was no longer statistically significant, suggesting that conscientiousness served as a full mediator of the effect. Though the variable of parental socialisation of responsibility was self-rated retrospectively, this finding may imply that poorer physical health could be indirectly

¹We also considered results for gender as the moderator variable after controlling age in the same basic mediation model. Comparing these coefficients for males (M) and females (F) showed that the path from parental socialisation of responsibility to conscientiousness (the first stage of the indirect effect) did not differ for males and females (M: 0.34, F: 0.27, $z=1.57$, $p>0.05$), the path from conscientiousness to self-rated health (the second stage of the indirect effect) also did not differ by gender (M: 0.28, F: 0.15, $z=1.84$, $p>0.05$). When multiplied, the first and second stages did not produce a significant difference in the indirect effect for men and women. Additionally, the direct effect did not differ for males and females (M: 0.08, F: 0.04, $z=0.92$, $p>0.05$). Taken together, gender did not moderate the direct and indirect effect of parental socialisation of responsibility on self-rated health mediated by conscientiousness.

prevented if parents actively socialise their children, which would have potential effects later in life through higher levels of conscientiousness. Gibbs et al. (2003) and Vazsonyi and Belliston (2007) have reported the findings of partial mediation by conscientiousness-like trait (i.e. self-control) of parenting effects on deviance. In addition to these previous findings, our study represents the possible presence of the mediational links from perceived parental socialisation of responsibility via conscientiousness to health. This finding addresses Smith's (2006) concern about the lack of understanding of the mediating process underlying the health process. However, because the models shown in this mediation analysis do not always reveal the entire complex mechanism of health process, future research also should be aimed at examining alternative pathways by which parental socialisation of responsibility is related to health (e.g. health-related behaviours, medical adherence and risk-taking behaviours).

Third, we tested whether age moderated the mediation links between perceived parental socialisation of responsibility, conscientiousness and health. Our results showed that age differences did not emerged in patterns of association from perceived parental socialisation of responsibility and conscientiousness to self-rated health. The impact of perceived parental socialisation of responsibility may be apt to deteriorate as we get older, but we found no moderation effect of age group. Conversely, our findings may indicate that perceived parental socialisation of responsibility could have a long-term influence on individual's health via the development of conscientiousness, and might imply that distal but salient factor of parenting behaviours have a long-term effect for physical health. Indeed, the parental socialisation of responsibility efforts explained a sizable amount of variance in children's outcome variables longitudinally (Hoeve et al., 2007). Similarly, Bywater et al. (2009) reported that the positive effects of an early parent-based intervention reduced child antisocial behaviours, and benefits were sustained over a long period of time.

In sum, in this study, we have illustrated that distal parental behaviour variable is related to one's physical health through proximal personality mediator variable of conscientiousness across three different age cohorts. We believe that the findings hold important implications for continued empirical research on parental socialisation of responsibility, conscientiousness and health. Clearly, future research could investigate these issues using prospective longitudinal studies that have concurrent assessments of parental socialisation of responsibility assessed in childhood linked with both conscientiousness and health later in adulthood. Moreover, it may be reasonable to conduct experimental studies to find some way to increase conscientiousness, which may then lead to better health outcomes.

Much of our research to date has focused on the longitudinal patterns of continuity and change in conscientiousness across the life course (Roberts & Mroczek, 2008). Our research has shown that conscientiousness is moderately stable over long periods of time and shows systematic increases largely in young adulthood but also in midlife and old age (e.g. Jackson et al., 2009; Roberts & DelVecchio, 2000; Roberts, Walton, & Viechtbauer, 2006). Moreover, a cognitive training intervention (for older adults) was also associated with changes in a personality trait. Across 16-weeks elder adults learned inductive reasoning skills and completed 10 h a week of crossword and Sudoku puzzles. Compared to a control condition, the intervention increased participant's levels of openness to experience (Jackson, Hill, Payne, Roberts, & Stine-Morrow, in press). This type of research has just begun, and for the future what we need is to find ways to experimentally increase conscientiousness.

We have also identified several correlates of change in conscientiousness, such as occupational success, marital stability and counterproductive work behaviours. These findings suggest that the development of conscientiousness in midlife and old age can be explained by social investment processes (Lodi-Smith & Roberts, 2007; Roberts, Wood, &

Smith, 2005). Surprisingly, we now know more about the factors that lead to different developmental patterns of conscientiousness in adulthood than we do about the development of conscientiousness in childhood. This study highlights a much needed program of research, which is to fill in the details of how children arrive in adulthood possessing specific personality traits and how that then affects important outcomes, such as physical health. Our findings suggest that better parental socialisation of responsibility may lead to more conscientious children, and consequently healthier adults. These findings imply that parental behaviours could be a plausible target for intervention to foster children's conscientiousness development. Early childhood intervention, especially focused on parental socialisation of responsibility, may enhance conscientiousness, which would bring a greater return on children's future physical health.

Several limitations should be addressed. First, it is important to note that the analyses do not indicate causal pathways because the dataset we used in this study was only cross-sectional. Second, because this dataset was cross-sectional, we need to be careful to interpret our finding on age-group differences, or the lack thereof. Only with true, longitudinal prospective research will we be able to test definitively whether the effects of childhood experiences are maintained across the life course. Third, parental socialisation of responsibility was rated retrospectively. In this study, we observed positive correlations between parental socialisation of responsibility and conscientiousness, but we cannot eliminate the possibility of recall bias that individuals with higher conscientiousness evaluated their parents' parental behaviours differently, and the other possibilities of common method variance and social desirability biases since they were assessed the same method (e.g. self-rating) and at the same time. Fourth, although participants were drawn from the entire nation of Japan, they were more likely to be homogeneous given the demographic composition of the country of Japan. Therefore, the generalisability of our findings may be limited, and remains to be confirmed through research on more heterogeneous samples.

Despite the above limitations, this study is one of the first to examine the interplay between perceived parental socialisation of responsibility, conscientiousness and self-rated health. This study adds to the evidence that perceived parental socialisation of responsibility predisposes individual's higher levels of conscientiousness. Moreover, our results found that conscientiousness fully mediated associations between perceived parental socialisation of responsibility and self-rated health. It is also important to note that results for younger-, middle- and older-aged samples did not differ as a function of age. Hopefully, the results from this study will help to provide a foundation for future research investigating these issues in truly prospective designs and for potentially informing effective interventions for cultivating children's conscientiousness and therefore better health.

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Appendix: Parental socialisation of responsibility scale (10 items)

How often do your parents say the following things when you were a child?

1. Follow the rules
2. Be on time
3. Keep your life organised
4. Don't be late for school
5. Make sure to finish your homework
6. No talking during the class, and pay attention to the teacher
7. Keep your room neat
8. Greet guests and neighbours in a friendly fashion
9. Be the first to say sorry for a mistake
10. Tell where you go and what time you return home

Figure 1.

Results of testing perceived parental socialisation as a mediator variable of the effects of conscientiousness on self-rated health.

Notes: Initial standardised regression weights are given within parentheses. $^{*}p < 0.05$ and $^{**}p < 0.01$.

Table 1
Descriptive statistics and partial correlations between conscientiousness, parental socialisation and self-rated health, after controlling sex and SES, by age group.

	Younger age group (=474)			Middle age group (=555)			Older age group (=456)		
	Conscientiousness	Perceived parental socialisation	Self-rated health	Conscientiousness	Perceived parental socialisation	Self-rated health	Conscientiousness	Perceived parental socialisation	Self-rated health
Conscientiousness	—			—			—		
Perceived parental socialisation	0.20**	—		0.14**	—		0.18**	—	
Self-rated health	0.33**	0.14		0.24**	0.14**		0.21**	0.10*	
Mean	3.14	3.57	−0.24	3.27	3.56	−0.30	3.38	3.68	−0.33
SD	0.45	0.80	0.64	0.48	0.79	0.65	0.45	0.80	0.64

Note:

*
p<0.05 and
**
p<0.01.