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Social class in childhood and general health in adulthood: questionnaire study of contribution of psychological attributes

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Abstract

Objective To determine the contribution of psychological attributes (personality characteristics and coping styles) to the association between social class in childhood and adult health among men and women.

Design Partly retrospective, partly cross sectional study conducted in the framework of the Dutch GLOBE study.

Subjects Sample of general population from south east Netherlands consisting of 2174 men and women aged 25-74 years. Baseline self reported data from 1991 provided information on childhood and adult social class, psychological attributes, and general health.

Main outcome measure Self rated poor health.

Results Independent of adult social class, low childhood social class was related to self rated poor health (odds ratio 1.67 (95% confidence interval 1.02 to 2.75) for subjects whose fathers were unskilled manual workers versus subjects whose fathers were higher grade professionals). Subjects whose fathers were manual workers generally had more unfavourable personality profiles and more negative coping styles. External locus of control, neuroticism, and the absence of active problem focused coping explained about half of the association between childhood social class and self rated poor health. The findings were independent of adult social class and height.

Conclusions A higher prevalence of negative personality profiles and adverse coping styles in subjects who grew up in lower social classes explains part of the association between social class in childhood and adult health. This finding underlines the importance of psychological mechanisms in the examination of the negative effects of adverse socioeconomic conditions in childhood.

Introduction

There is now increasing evidence that differences in adult health are partly caused by socioeconomic factors during early life and upbringing.¹⁻⁵ The causal mechanisms relating adverse socioeconomic conditions in childhood and poor health in adulthood have not yet been examined extensively. Biological mechanisms, such as hypertension and hypercholesterolemia, have been suggested,⁶⁻⁸ and there is some evidence for mechanisms related to lifestyle, such as smoking and physical activity.^{3, 9-12} With few exceptions the contribution of psychological attributes, such as personality factors and coping styles, has hardly been examined.^{10, 13, 14} Psychological attributes are partially rooted in environmental conditions in childhood, (learning) experiences, and rearing styles.¹⁴⁻¹⁶ There is now also increasing evidence that psychological attributes influence health through behavioural mechanisms (for example, smoking) or direct physiological mechanisms, or both.¹⁷ Unhealthy personality factors and coping strategies may, therefore, be

mechanisms through which adverse socioeconomic conditions in childhood contribute to poor health in adulthood. Baseline data from the Dutch GLOBE study (a Dutch study on health and living conditions of the population of Eindhoven and its surroundings) allowed us to examine whether childhood social class is related to psychological attributes and whether psychological attributes are mediating factors in the association between social class in childhood and adult health. To obtain the direct effects, we accounted for adult social class separately.¹⁸

Subjects and methods

Study population

Data were collected within the framework of the GLOBE study. A postal survey was conducted in 1991 among 27 070 non-institutionalised inhabitants (aged 15-74 years) of Eindhoven and a number of surrounding municipalities, all in the south eastern part of the Netherlands. Stratified by age and post code, the sample was randomly drawn from the municipal population registries. People aged 45-70 years old and people from the highest and lowest social classes were overrepresented to allow specific analyses for middle aged subjects and to increase socioeconomic contrasts. The response rate was 70.1%, which resulted in a study population of 18 973. The response rates were not substantially different for age, sex, marital status, level of urbanisation, or social class.¹⁹ A few months later a subsample of those who responded to the postal questionnaire was approached for a more extensive oral interview. This subsample consisted of 3529 randomly chosen respondents to the postal questionnaire, of whom 2802 agreed to be interviewed (79.4%). The response rates hardly differed for relevant demographic characteristics. More details on the study design can be found elsewhere.¹⁹ To allow for a more valid measurement of adult social class the analyses were restricted to men and women older than 24 years ($n=2462$). The analyses were based on subjects who reported both their father's and their own adult occupational level ($n=2174$).

Social class, psychological attributes, and health outcome

Adult social class was measured by the respondent's current or last occupational level. Childhood social class was measured retrospectively by the father's occupational level when the respondent was 12 years old. If the father was not in paid employment the father's last occupation in paid employment was used. The occupations of both the respondent and the father were classified according to the scheme of Erikson, Goldthorpe, and Portocarero.²⁰ The psychological attributes were assessed by questionnaires on personality characteristics and coping styles. The personality characteristics were external locus of control (low perceived control),^{21 22} neuroticism (emotional distress),²³ parochialism (a narrow, local, and non-scientific attitude),²⁴⁻²⁶ and orientation towards the future.^{25 26} Seven typical styles of coping were distinguished: active problem focusing, avoidance behaviour, depressive reaction pattern, social support seeking, palliative reaction pattern, disclosure of emotions, and optimism.²⁷

The items were summed for the separate scales and then divided into thirds.

A perception of "less than good" general health was used as a general measure of health ($n=621$; 29%). This was based on the subject's answer to the question: "How do you rate your health in general?" (very good; good; fair; sometimes good and sometimes poor; poor). Perceived general health has been shown to be strongly related to physical health and to survival.^{28 29} A "less than good" perceived general health is hereafter referred to as poor general health.

Statistical analysis

Childhood social class and the psychological attributes were related by logistic regression analysis with adjustment for age and sex. For this analysis the psychological attributes were divided into two categories by combining the lowest two thirds. This analysis provided adjusted estimated percentages. Childhood social class and adult health were also related by logistic regression analysis controlled for age, sex, marital status (married, single, widowed/divorced), religious affiliation (none, Catholic, Protestant/other), and level of urbanisation (four levels). To examine the contribution of psychological attributes to the association of childhood social class and adult health, the psychological attributes (in thirds) were separately introduced into a model with childhood social class and confounders. As we were primarily interested in the direct effects of childhood social class on adult health, all analyses were separately adjusted for adult social class. Self reported height as a proxy for factors in early life was also separately controlled for. As the findings for men and women were similar, we combined data for both and controlled for sex.

Results

Table 1 shows that childhood social class was related to personality. External locus of control (42% *v* 15%), parochialism (35% *v* 12%), neuroticism (34% *v* 23%), and lack of future orientation (41% *v* 27%) were more prevalent in the lowest compared with the highest social classes in childhood. The prevalence decreased almost linearly from lowest to highest class but was somewhat less clear for neuroticism. Low childhood social class was also related to particular coping styles—that is, a lower prevalence of active problem focused coping (20% *v* 40%), a somewhat more frequent depressive reaction pattern (26% *v* 18%), avoidance (28% *v* 22%), less often seeking social support (21% *v* 36%), and less often expressing emotions (26% *v* 35%). Except for active problem focused coping, these associations were not linear. When we controlled for adult social class the associations were weaker, but most remained.

Table 2 shows that childhood social class was related to poor general health. Subjects with a low childhood social class were 2.1 times as likely to rate their health as poor than subjects with a high childhood social class. Adjustment of this odds ratio for adult social class decreased the odds ratio to 1.67, which was still significant.

Two personality factors and one coping style contributed to the association between childhood social class and adult health: external locus of control,

Table 1 Numbers (percentages) of subjects with psychological attributes adjusted for age and sex by social class in childhood†

Detail	No of subjects	Personality factors*				Coping styles						
		External locus of control	Parochialism	Neuroticism	Lack of future orientation	Active problem focusing	Depressive reaction	Avoidance	Social support seeking	Palliative reaction	Expression of emotions	Optimism
Model 1 (unadjusted)‡												
Childhood social class:												
1 (high)	137	21 (15)	16 (12)	32 (23)	37 (27)	55 (40)	25 (18)	30 (22)	49 (36)	37 (27)	48 (35)	36 (26)
2	447	98 (22)	67 (15)	134 (30)	152 (34)	125 (28)	125 (28)	85 (19)	134 (30)	107 (24)	125 (28)	103 (23)
3	456	128 (28)	146 (32)	114 (25)	151 (33)	119 (26)	105 (23)	105 (23)	100 (22)	96 (21)	96 (21)	109 (24)
4	649	221 (34)	182 (28)	175 (27)	240 (37)	149 (23)	136 (21)	143 (22)	149 (23)	143 (22)	162 (25)	169 (26)
5 (low)	485	204 (42)	170 (35)	165 (34)	199 (41)	97 (20)	126 (26)	136 (28)	102 (21)	112 (23)	126 (26)	107 (22)
Model 2 (adjusted for adult social class)§												
Childhood social class:												
1 (high)	137	23 (17)	30 (22)	36 (26)	29 (21)	53 (39)	22 (16)	40 (29)	51 (37)	30 (22)	45 (33)	45 (33)
2	447	107 (24)	103 (23)	152 (34)	121 (27)	130 (29)	112 (25)	112 (25)	139 (31)	89 (20)	121 (27)	130 (29)
3	456	114 (25)	192 (42)	119 (26)	109 (24)	132 (29)	91 (20)	123 (27)	109 (24)	78 (17)	91 (20)	132 (29)
4	649	182 (28)	227 (35)	182 (28)	169 (26)	175 (27)	117 (18)	169 (26)	169 (26)	117 (18)	162 (25)	201 (31)
5 (low)	485	165 (34)	194 (40)	170 (35)	136 (28)	121 (25)	107 (22)	155 (32)	116 (24)	87 (18)	126 (26)	126 (26)

*Proportion of subjects in highest third of distribution of psychological attributes.
 †Childhood social class: (1) higher grade professionals, (2) lower grade professionals or routine non-manual workers, (3) self employed workers, (4) skilled manual workers, and (5) unskilled manual workers. Homemakers added as separate, sixth category for adult social class.
 ‡P≤0.05 for all except palliative reaction and optimism (based on overall effect of childhood social class).
 §P≤0.05 for all except lack of future orientation, avoidance, palliative reaction, and optimism (based on overall effect of childhood social class).

Table 2 Odds ratios* (95% confidence intervals) for poor general health by social class in childhood‡; separately and simultaneously adjusted for external locus of control, neuroticism, and active problem focused coping

Detail	Model A: adjusted for confounders only*	Model B: adjusted for confounders and following variable							
		External locus of control		Neuroticism		Active problem focused coping		All three variables	
		Odds ratio (95% CI)	% Reduction‡	Odds ratio (95% CI)	% Reduction‡	Odds ratio (95% CI)	% Reduction‡	Odds ratio (95% CI)	% Reduction‡
Model 1 (unadjusted)									
Childhood social class:									
1 (high)	1.00	1.00		1.00		1.00		1.00	
2	1.39 (0.85 to 2.28)	1.28 (0.77 to 2.14)	0.28	1.20 (0.72 to 2.01)	0.49	1.35 (0.81 to 2.24)	0.10	1.18 (0.69 to 2.01)	0.54
3	1.50 (0.92 to 2.45)	1.30 (0.78 to 2.16)	0.40	1.37 (0.82 to 2.28)	0.26	1.44 (0.87 to 2.38)	0.12	1.28 (0.75 to 2.17)	0.44
4	1.84 (1.15 to 2.96)	1.50 (0.92 to 2.45)	0.41	1.68 (1.02 to 2.74)	0.19	1.67 (1.02 to 2.71)	0.20	1.49 (0.89 to 2.49)	0.42
5 (low)	2.10 (1.29 to 3.41)	1.60 (0.97 to 2.65)	0.46	1.75 (1.06 to 2.90)	0.32	1.90 (1.16 to 3.13)	0.18	1.49 (0.88 to 2.52)	0.56
Model 2 (adjusted for adult social class)									
Childhood social class:									
1 (high)	1.00	1.00		1.00		1.00		1.00	
2	1.36 (0.83 to 2.24)	1.29 (0.77 to 2.15)	0.19	1.19 (0.71 to 2.00)	0.47	1.35 (0.81 to 2.25)	0.30	1.18 (0.69 to 2.02)	0.50
3	1.32 (0.80 to 2.18)	1.23 (0.74 to 2.05)	0.28	1.23 (0.74 to 2.06)	0.28	1.33 (0.80 to 2.21)	0	1.23 (0.72 to 2.10)	0.28
4	1.50 (0.92 to 2.43)	1.36 (0.82 to 2.23)	0.28	1.39 (0.84 to 2.29)	0.22	1.43 (0.87 to 2.36)	0.14	1.37 (0.81 to 2.30)	0.26
5 (low)	1.67 (1.02 to 2.75)	1.45 (0.87 to 2.43)	0.33	1.44 (0.86 to 2.41)	0.34	1.62 (0.98 to 2.70)	0.80	1.37 (0.81 to 2.35)	0.45

*Adjusted for age, sex, marital status, level of urbanisation, and religious affiliation.
 †Childhood social class: (1) higher grade professionals, (2) lower grade professionals or routine non-manual workers, (3) self employed workers, (4) skilled manual workers, and (5) unskilled manual workers. Homemakers added as separate, sixth category for adult social class.
 ‡Only percentage reduction in odds ratios computed: ((OR_(model A) - OR_(model B)) / (OR_(model A) - 1)) × 100.

neuroticism, and the absence of active problem focused coping. The other personality and coping factors individually explained less than 10% of the gradient (data not shown). External locus of control had the strongest contribution to the socioeconomic gradient in poor general health. When external locus of control was taken into account, the odds ratio for subjects whose fathers were unskilled manual workers decreased by 46% in the model without adult social class controlled for (odds ratio 1.60 in model 1) and by 33% in the model with adult social class controlled for (1.45 in model 2). This was closely followed by neuroticism (32% and 34%, respectively). Active problem focused coping explained a smaller part of the increased risk—namely, 18% and 8%, respectively. When the three psychological attributes were considered simultaneously, about half of the association of low childhood social class with poor general health could be explained by a higher prevalence of external

locus of control and neuroticism and a lower prevalence of active coping styles in subjects with a low childhood social class.

Height hardly affected any of our findings (data not shown). Less than 7% of the association between childhood social class and adult health was explained by height. Further adjustment for external locus of control, neuroticism, and active coping explained an additional 50% of the association. This is similar to the results of analyses without adjustment for height. Furthermore, we found no evidence for interactions between childhood and adult social class or between childhood or adult social class and personality or coping styles (data not shown).

Discussion

We have shown that particular personality factors and coping styles substantially contribute to the direct

association between social class in childhood and adult health. Subjects whose fathers were unskilled manual workers generally had more unfavourable personality profiles and negative coping styles. External locus of control, neuroticism, and the absence of active problem focused coping explained half of the association between low social class in childhood and poor general health. The lack of influence of height may suggest a contributing role of psychological attributes and not just of fetal development and early growth.⁷ Given the finding that childhood social class may be particularly related to cardiovascular diseases,¹ it is worth mentioning that we found similar results for reporting a severe heart condition or stroke (not shown). These findings, however, were not significant because of small numbers. Our findings suggest that psychological attributes are worth examining when the associations between social class in childhood and adult health are studied.^{10 13 14}

These findings indicate that personality is partially rooted in childhood social class. Rearing styles differ among social classes, resulting in long term effects on behaviour, emotion, and cognition.^{15 16} Children from high class backgrounds may more easily experience and learn a sense of mastery and control because their parents have more resources (for example, money and knowledge).³⁰⁻³² This may underlie our findings with locus of control and active problem focused coping. Similarly, neuroticism may also reflect or be the consequence of a perceived lack of control over outcomes and events.³³ Neurotic people may more easily internalise emotions instead of taking problem oriented approaches. Our findings emphasise the importance of control related psychological factors for the development of socioeconomic inequalities in health.³⁴ Further research should examine whether perceived control is related to physical health through its impact on health behaviours or physiological mechanisms, or both. Our findings also suggest that intervention programmes should take account of relevant psychological pathways—for example, through emphasising and increasing control beliefs in people from lower socioeconomic backgrounds—as advocated by the empowerment approach.³⁵ Increasing control beliefs in those without real control may be futile, however, because intervention on control beliefs per se may do little to the structural determinants which generate these beliefs.^{10 35}

Methodological considerations

A few methodological issues should be considered. Firstly, the design was cross sectional, whereas the ideal design would be to follow a cohort from birth into adulthood. This would allow a better examination of the causal pathways between childhood social class, psychological attributes, adult social class, and adult health. Our theoretical causal model was based on previous research that showed little effect of adult health on adult social class.^{36 37} Another assumption was that personality affects adult health and not vice versa. Although there is clear evidence of such a causal relation,¹⁷ reverse causation cannot be completely excluded.³⁸ Furthermore, we were primarily interested in the direct effects of childhood social class—that is, independent of adult social class. If specific personality traits affect occupational achievements, however, the

Key messages

- Regardless of adult social class, low social class in childhood is related to poor general health in adulthood
- Adverse personality profiles and negative coping styles are more common in people who grew up in lower social classes
- Psychological attributes, such as low perceived control, explain a substantial part of the direct association between childhood social class and adult health
- Psychological mechanisms may explain adverse health outcomes in adults who have a low socioeconomic background

contribution of personality and coping to any association will be underestimated when adult social class is adjusted for. On the other hand, adult socioeconomic conditions are likely to affect components of adult personality and coping styles. This suggests the importance of controlling for adult social class. Given this dilemma we presented findings both adjusted and unadjusted for adult social class.

Secondly, all measures were self reported, which may have resulted in overestimated associations because of negative affectivity.³⁹ This tendency to complain may have particularly affected the self reported general health outcome, but it is less likely to have affected findings with the more “objective” health outcome—that is, self reported cardiovascular diseases (mentioned above; data not shown). The role of neuroticism is relevant here as it is sometimes used as a proxy measure for negative affectivity, and it contributed strongly to the association (both general health and cardiovascular health). Given the association with the more “objective” health outcome (cardiovascular diseases) we prefer to interpret neuroticism as reflecting worry about lack of control³³ instead of negative affectivity. Worry about lack of control has recently been shown to be correlated with an increased risk of coronary heart disease.⁴⁰ To exclude the possibility of reporting bias as much as possible, further research should use alternative, more objective information on the health outcomes.

Thirdly, self reported height was an imperfect measure of early life factors related to prenatal and postnatal growth, and related biological consequences, because it was self reported and because adult height reflects more than just early growth.⁴¹ Fourthly, the inclusion of other psychological mechanisms, such as feelings of parental caring,⁴² childhood conscientiousness,⁴³ and attachment via hostility,⁴⁴ may have had an additional contribution to the association between childhood social class and adult health. Finally, the 288 people for whom data on social class in childhood or adulthood were missing had lower educational levels and poor general health than those who responded to both questions (not shown). This partial non-response is likely to have resulted in underestimated associations between childhood social class and adult health.

Conclusions

Adverse socioeconomic conditions in childhood are related to poor general health in adulthood. Unhealthy psychological attributes (personality factors and coping styles) are more common in people who reported low childhood social class. Specific psychological attributes contribute substantially to the association between childhood social class and adult health. Perceived control may be the underlying psychological characteristic. When the influence of childhood socioeconomic conditions on adult health is examined the role of specific psychological attributes is worth further exploration, in addition to factors related to fetal development, early growth, and biological and behavioural mechanisms.

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Contributors: HB was the main author and carried out the analyses, interpreted data, and responded to referees' comments. HDvdEM formulated the hypothesis, helped with writing and responding to referees' comments, carried out preliminary analyses, and was partly responsible for data collection. JPM was principal investigator, formulated the hypothesis, helped with writing and responding to referees' comments, was responsible for data collection and is guarantor for the study.

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Endpiece Gide's solution

There is no psychological truth unless it be particular; but on the other hand there is no art unless it be general. The whole problem lies in just that—how to express the general by the particular—how to make the particular express the general. (André Gide)

Alice Heim, *Intelligence and Personality* (1970)

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