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Early indicators of self-esteem in teenagers: Findings from a nationally representative sample

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Abstract

This study explored a longitudinal data set of 3,096 British sixteen year olds with data collected in 1970, 1980, and 1986. It examined how parental social status at birth; intelligence, locus of control and behavioural problems all measured at aged 10 years influenced teenage self-esteem measured at aged 16 years. There were two related measures of self-esteem: General and School setting. Correlational analysis showed locus of control beliefs, childhood intelligence scores, behavioural problems and parental social status were all significantly related to the self-esteem measures. Structural Equation Modelling showed that childhood locus of control, childhood intelligence and behavioural problems were significant and independent predictors of self-esteem at age 16 years. Females had higher academic but lower general self-esteem compared to males. Limitations and implications of this study are considered.

Key Words: Self-esteem; Parental Social Status; Intelligence; Locus of Control; Behavioural Problems, Longitudinal

Introduction

There is a vast academic literature on self-esteem, particularly self-esteem in children and adolescence because it is assumed to be an important marker of many psychological variables particularly physical health (Marmot, 2003) but also psychological health and adaptation (Furnham & Cheng, 2000). Rosenberg defines self-esteem as a person's feeling of self-worth (1965, 1986), though it has been recognised to have distinct but related facets (Cheng & Furnham, 2003).

There are also many issues of debate in this area such as whether it is important to differentiate between different types of self-esteem, and more importantly whether it is essentially a cause or consequence of other factors (Emler, 2005; Kinnunen, Feldt, Kinnunen, & Pulkkinen, 2008). There are two issues here: the first is the conceptual overlap between some of the variables examined and the second is commonly recognised problem of correlational data being unable to speak to issues of causation. The latter is particularly important because of the debates about intervention; namely if low self-esteem in some way causes problems like anti-social behaviour or poor academic performance, then attempts to raise self-esteem should have many and significant beneficial consequences. On the other hand, if self-esteem is the consequence of other issues (like low intelligence or poor parenting) other forms of treatment may be sought.

Many studies look at the consequences of self-esteem, particularly in adolescence (Bolognini, Plancherel, Bettschart, & Halfon, 1996), while this study examines its causes. Emler (2005) in a comprehensive and critical paper concluded that there is little evidence for the *causal power* of

low self-esteem influencing social problems,or indeed of the efficacy of programmes that attempted to raise it. The review suggested that relatively low self-esteem is *not* a risk factor for delinquency, violence toward others (including child and partner abuse), drug use, alcohol abuse, educational under-attainment or racism. It is, however, a risk factor for suicide, suicide attempts, depression, teenage pregnancy and victimisation by bullies.

The most important influences on young people's levels of self-esteem are their parents. This is partly as a result of genetic inheritance and partly through the degree of love, concern, acceptance and interest that they show their children. Physical and sexual abuse are especially damaging for children's feelings of self-worth (Emler, 2005). Personal successes and failures also influence self-esteem. Children's self-esteem can be raised by parenting programmes and other planned interventions, but knowledge of why particular interventions are effective is limited.

Self-esteem has been acknowledged as one of the key variables that influence depression (Beck, 1979) and well-being (Argyle, 2001; Campbell, 1981; Cheng & Furnham, 2003; Diener, 1984). Whilst self-esteem may in part cause depression, depression may hamper and sustain one's low self-esteem which, as a result, may delay the recovery process. Thus the association between self-esteem and depression is more likely to be bidirectional. However, most studies in the area used clinical samples or convenience samples and findings from those studies are not generalizable. Moreover, most studies used self-esteem as a predictor, and few studies used it as an outcome variable, which is the focus of this longitudinal study.

The present study set out to explore the effects of early socio-economic, psychological, and behavioural factors on self-esteem in teenagers drawn data from a large, nationally representative birth cohort in the UK using structural equation modelling. Various researchers have suggested that self-confidence, self-esteem or self-evaluation can be divided into related but distinct categories such as academic performance, athletics, and social interactions (Shrauger, 1990). In this study we examine both academic and general self-esteem, as well as a combined measure.

Previous correlational and longitudinal studies have shown the associations between socio-economic conditions and low self-esteem and greater prevalence in depression (Brown & Harris, 1978), between childhood intelligence and mortality (Batty, Deary, & Gottfredson, 2007), and between children's emotional and behavioural problems and low sense of self-worth (Rosenberg, 1965). They suggest that parental social class is associated with many outcome variables such as school success and adaptation (such as behavioural problems) which should in turn be related to self-esteem.

Major focus on this study is on the extent to which childhood locus of control (measured at aged 10 years) could predict self-esteem aged 14 years. Whilst there have been many cross-sectional correlational studies looking at the relationship between these two variables (Hosseini, Alavijeh, Matin et. a. 2016) there have been very few longitudinal studies. One exception was that of Lonnqvist, Verkasalo, Makinen and Henriksson (2009) who used Finnish military data to show that self-evaluation (r=.33) and verbal intelligence (r=,34) measured at aged 21 was correlated with self-esteem aged 35 years.

It should be recognised that locus of control and self-esteem are significantly related. Indeed Judge and Bono (2001) combined them along with generalised self-efficiency and emotional stability (Neuroticism) as part of one central concept namely Core Self-Evaluations (or positive self-concept). Whilst these two concepts are nearly always measured by questionnaire it is not clear as to whether the one predominantly influences the other. Certainly it would seem variously life experiences shape both.

This study explored the effects of parental social status, childhood intelligence, childhood locus of control and behavioural problems on self-esteem at age 16. The current study has three strengths: it examined a set of inter-correlated social *and* psychological factors together determining to what extent each factor influenced the outcome variable; it used a large, nationally representative longitudinal dataset; and it used a combined and robust measure of self-esteem, thus covering more than one components of the concept.

Based on the previous literature, we hypothesised that:

H1) Parental social status at birth is significantly and positively associated with self-esteem at age 16; H2) Childhood behavioural problem is significantly and negatively associated with self-esteem at age 16; H3) Childhood intelligence (measured at pre-adolescence) is significantly and positively associated with self-esteem at age 16; H4) Childhood locus of control (measured in pre-adolescence) is significantly and positively associated with self-esteem at age 16; H5) Parental social status, childhood intelligence, childhood behavioural problems and locus of control would be independent predictors of the self-esteem at age 16.

Method

Participants

The study draws on a nationally representative cohort study: the 1970 British Cohort Study (BCS70). The study participants were recruited as part of a perinatal mortality survey. BCS70 comprises 16,571 individuals who were born in Great Britain in a week in April 1970 (Elliott & Shepherd, 2006). The following analysis is based on data collected at birth, age 10, and age 16. The sub-sample used in this study comprised 3,096 cohort members (56 per cent females), for whom complete data were collected at birth and the follow-ups at age 16. Analysis of sampling bias in the cohort data showed that the achieved adult samples did not differ from their target sample across a number of critical variables (social class, parental education and gender), despite a slight under-representation of the most disadvantaged groups (Plewis, Calderwood, Hawkes & Nathan, 2004).

Measures

1. *Family social background* includes information on parental social class and parental education. Parental social class at birth was measured by the Registrar General's measure of social class (RGSC). RGSC is defined according to occupational status (Marsh, 1986). Where the father was absent, the social class (RGSC) of the mother's father was used. RGSC was coded on a 6-point scale: I professional; II managerial/technical; IIIN skilled non-manual; IIIM skilled manual; IV semi-skilled; and V unskilled occupations (Leete, 1977). Scores were reversed. Parental education is measured by the age parents had left their full-time education.

2. *Childhood Intelligence* was assessed at age 10 in school using assessed in school, using a modified version of the British Ability Scales (BAS) which can serve as a measure for childhood IQ (Elliott, Murray and Pearson, 1978). The assessment involved the ==administration of four sub-scales: word definitions (alpha……)and word similarities (alpha…….) which were used to measure verbal ability, and recall of digits (alpha…….) and matrices (alpha……..which were used to measure non-verbal ability. The alpha for the four measures combined into a total scale was .92.==

3. *Behavioural problems* at age 10 only, the parent was asked to complete the items of the Rutter A scale (Rutter, Tizard, & Whitmore, 1970) on an analogous scale which, using an automated marking system, yielded a score between 0 (does not apply) and 100 (certainly applies) for each item.

4. *Locus of Control* was measured at age 10. Cohort members completed a 16-item Locus of Control Scale (Yes/No) (Gammage, 1975). High scores indicate Internal Locus of Control. The alpha was .73.

5. *Self-esteem* was measured at age 16. Cohort members completed a 10-item Self-esteem Scale (Yes/No) (Lawrence, 1973; 1978). The alpha was .72.

Results

First, a Principal Component Analysis on the 10 items of self-esteem was conducted, and two subscales were extracted with eigenvalues greater than one accounting for 43.5 percent of variance. Factor 1 self-esteem in school setting (7-item) and Factor 2 general self-esteem (3-items)..

==The first factor accounted for …………..of the variance and the second ………% of the variance.==

Correlational Analysis

Table 1 shows the correlations of means and SDs of all variables in the study. The two self-esteem measures were modestly inter-correlated ($r = .37$). Females had higher academic but lower overall self-esteem compared to males. Correlations of the two self-esteem measures with the other variables were similar with most correlations between the specific academic self-esteem being higher than general self-esteem. Self-esteem factors were significantly associated with parental social class, maternal and paternal education, childhood intelligence measures, childhood locus of control and behavioural problems ($p < .001$). Thus hypotheses 1-4 were supported. The strongest predictor of self-esteem was childhood locus of control. Gender was not significantly associated with the total scores of self-esteem measure.

Insert Table 1 about here

Structural Equation Modelling

Structural Equation Modelling (SEM) was used to assess the paths linking family social status, childhood intelligence, childhood locus of control and behavioural problems to the outcome variable general self-esteem at age 16. The SEM model testing was carried out using the structural equation modelling program IBM AMOS SPSS 22 (Arbuckle, 2013) using maximum likelihood estimation that can be based on incomplete data, known as the full information maximum likelihood (FIML) approach (Arbuckle, 1996).

Figure 1 show the standardised path coefficients of the structural equation model. The solid lines indicate that the corresponding path coefficients are statistically significant and the dashed line indicates that the path coefficient is non-significant. Error variance for each observable variables are included in the model (not shown in the diagrams).

Model Fit

The χ^2 statistic is overly sensitive when sample sizes are large or the observed variables are non-normally distributed. The root mean square error of approximation (RMSEA) gives a measure of the discrepancy in fit per degrees of freedom ($< .05$ indicates a good fit). The final index of choices are the Comparative Fit Index (CFI), and the Tucker Lewis Index (or Non-normed Fit Index) where values above .95 indicate a very good fit, and values $> .90$ are interpreted as good (Bentler, 1990).

Table 2 shows unstandardized estimate, standard error, and standardised estimate of each indicator of the latent variable and the predictors of self-esteem.

Insert Figure 1 & Table 2 about here

Figure 1 shows that childhood intelligence, childhood behavioural problems and locus of control were significant and direct predictors of self-esteem at age 16. Thus hypothesis was partially supported. Parental social status influenced self-esteem mainly through childhood locus of control and behavioural problems. The model showed a good fit. Chi-square was 149.7 ($df = 37, p < .001$), the CFI was .981, the TLI was .967, and the RMSEA was .031. The model explains 15 per cent of the total variance of self-esteem in teenagers.

Discussion

This study explored the early social, behavioural and psychological factors that influence self-esteem at age 16 using a large, nationally representative sample. The findings of the study show that childhood intelligence, behavioural problems and locus of control influenced self-esteem six years later. Children who came from higher family social background, who had higher scores on a set of verbal and non-verbal cognitive ability tests, and who had higher scores on internal locus of control and had lower behavioural problems tended to have higher self-esteem at age 16.

A possible explanation for the model shown in Figure 1 is this: Middle class parents with more money and better jobs pass on some of their ability genes so having brighter children (Deary, Taylor, Hart, Wilson, Smith, Blane & Starr, 2005). Both the middle class family environment and the child's intelligence act as protective factors against behavioural problems and also lead to the child having a stronger sense of self-efficacy which is reflected in their internal locus of control. Psychologically healthy children who are, by definition more likely to be instrumentalists, are more socially successful and adaptive and hence develop greater self-esteem.

Among all factors examined, locus of control was the strongest predictor of self-esteem. Although these two variables are significantly correlated ($r = .263$, $p < .001$), they are two distinct constructs each links with different outcomes. For example, locus of control is more related to occupational prestige whereas self-esteem is more related to depression and mental well-being. It is possible that this relationship was inflated due to method invariance though there are a number of other papers which have documented this relationship (Judge & DeBono, 2001). Although many studies

have demonstrated the relationship on internal locus of control with high self-esteem they are nearly all cross-sectional studies on relatively small population groups (Watson, 1998).

Nearly all studies in the extensive locus of control literature suggests that high internal locus of control has numerous psychological benefits. People, even young children, who believe they are able to influence their many life outcomes (e.g., job and relationship success, health) act differently from those who are more fatalistic. Further, locus of control beliefs can be self-fulfilling such that they lead to more adaptive behaviours which reinforce the beliefs.

Like all studies this had limitations. Neither the locus of control nor the self-esteem measure were among those most commonly used in research. This meant it was difficult to compare means with other studies to look at norms. However the internal reliability and validity of these measures used in other studies suggest they are robust and valid measures of both variables.

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Table 1. Pearson correlations, means and standard deviations

	Variables	Mean SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Self-esteem at age 16	8.28 (1.91)	_												
2.	Factor 1 academic self-esteem	6.31 (1.20)	**.843**	_											
3.	Factor 2 general self-esteem	2.49 (1.34)	**.733**	**.336**	_										
4.	Gender	.56 (.50)	**-.026**	**.073**	**-.135**	_									
5.	Parental social class at birth	3.45 (1 .24)	**.070**	**.077**	**.047**	-.003	_								
6.	Paternal education at birth	15.61 (1.20)	**.055**	**.046**	**.036**	.015	.467	_							
7.	Maternal education at birth	15.59 (1.09)	**.055**	**.049**	**.031**	.001	.373	.472	_						
8.	Word Definition scores at age 10	11.41 (4.97)	**.136**	**.105**	**.122**	-.114	.307	.255	.264	_					
9.	Word Similarities scores at age 10	29.12 (4.05)	**.144**	**.115**	**.112**	-.087	.266	.235	.231	.619	_				
10.	Digits recall scores at age 10	22.91 (4.19)	**.091**	**.096**	**.060**	.020	.136	.121	.107	.316	.296	_			
11.	Matrices scores at age 10	16.77 (5.22)	**.123**	**.132**	**.068**	.051	.206	.184	.185	.434	.439	.295	_		
12.	Behavioural problems at age 10	409.78 (200.05)	**-.134**	**-.134**	**-.080**	-.071	-.129	-.106	-.130	-.151	-.138	-.098	-.132	_	
13.	Locus of control at age 10	10.54 (3.01)	**.263**	**.243**	**.197**	.001	.233	.224	.210	.423	.361	.271	.338	-.193	_

Note: Variables were scored such that a higher score indicated being female, a more professional occupation for the parent and higher age parents left school, higher verbal and non-verbal ability test scores in childhood, higher scores on childhood locus of control and behavioural problems, and higher scores on self-esteem in teenagers. Correlations of r>.07 are significant at p<.001.

Table 2. Measurement of the latent variables and SEM of self-esteem.

Variables	Unstandardized estimate	Standard error	Standardised estimate
Parental social status			
RGSC	1.000		.646
Father's education	1.101	.045***	.726
Mather's education	.865	.037***	.631
Childhood Intelligence			
Digits recall scores	1.000		.417
Matrices scores	1.723	.091***	.577
Word Definition scores	2.273	.108***	.756
Word Similarities scores	1.757	.083***	.798
Self-esteem factors			
Factor 1 self-esteem in school setting	1.000		.654
Factor 2 general self-esteem	.877	.089***	.514
Predicting self-esteem			
Parental social status	.155	.097	.046
Childhood Intelligence	.751	.056***	.084
Behavioural problems	-.021	-.001***	-.122
Locus of control	.132	.020***	.320

*Note: ***p < .001.*

Figure 1. SEM model early indicators associated with self-esteem at age 16 ($n = 3096$).

Chi-square=149.7
df=37
CFI=.981; TLI=.967
RMSEA=.031