

Selection into long-term unemployment and its psychological consequences

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The factors which predict a person's long-term unemployment were studied within the framework of an emotional and behavioural regulation model consisting of two orthogonal dimensions: behavioural inhibition versus expression, and low versus high self-control of emotions (Pulkkinen, 1995, 1996). The participants were drawn from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development, in which the same individuals have been followed up from age 8 ($n = 369$) to 36 ($n = 311$). In the present study, data collected at ages 8, 14, 27, and 36 were used. The findings showed that low self-control of emotions, especially aggression, at age 8 directly predicted long-term unemployment in adulthood, whereas behavioural inhibition (passive and anxious behaviour) predicted long-term unemployment indirectly (via poor educational attainment). Long-term unemployment in adulthood was related to an increased level of current psychological distress as measured by the presence of depressive symptoms and anxiety. Thus, the present study confirmed both the hypothesis concerning selection into unemployment, and the hypothesis concerning the psychological consequences of unemployment.

Introduction

The literature on the psychological effects of unemployment has shown that the unemployed are more distressed than their employed counterparts. This applies to both women (e.g. Dew, Bromet, & Penkower, 1992; Ensminger & Celentano, 1990), and men (e.g. Leeflang, Klein-Hesselink, & Spruit, 1992). Middle-aged men (e.g. Broomhall & Winefield, 1990; Rowley & Feather, 1987; Warr & Jackson, 1984) and the long-term unemployed (e.g. Warr & Jackson, 1985) have proved to be especially vulnerable to the negative effects of job loss. Distress has usually been defined as the presence of depressive symptoms (e.g. King & Emmons, 1990), anxiety (e.g. Kessler, Turner, & House, 1989), or low self-esteem (e.g. Schaufeli & VanYperen, 1993).

There is, however, a wide range of theories about the causal effects between unemployment and distress. It has been generally accepted that unemployment is the agent causing distress, but this view has recently been challenged, and the following question has been posed: Is it unemployment that causes psychological distress, or do people who are already distressed get selected into unemployment? For instance, Rutter (1994b; Rutter & Rutter, 1993) has argued that the unemployed may include an unusually high number of people who already have problems, even before they suffer job loss.

Cross-sectional studies, which outnumber the longitudinal ones, cannot answer the question of causation. In order to test the causal hypothesis, certain specific requirements must be met. The most frequently cited of these is the requirement that the data should be longitudinal (e.g. Bergman, Eklund, & Magnusson, 1991; Dew, Penkower, & Bromet, 1991). Moreover, the stricter criteria necessary for the establishment of

causality involve, in addition to a preference for the longitudinal-experimental research method (Farrington, 1992), for example, the requirement of multiple replications in markedly different samples and the need for specification of the risk mechanism (Rutter 1994a,b, 1995).

Most longitudinal studies of unemployment can be classified into three categories, based on the nature of the initial sample, that is, those involving youths of school-leaving age, those consisting of adults in employment, and those involving unemployed adults (Mortimer, 1994). In studies beginning with school-leavers, the main aim has been to predict, on the basis of information gathered at school age, who will later end up unemployed and who will succeed in finding employment. These studies have indicated that as far as the relationship between unemployment and psychological distress is concerned, both selection effects, and the consequences of unemployment are plausible hypotheses (Feather & O'Brien, 1986; Hammarström, 1990; Hammarström, Janlert, & Theorell, 1988; Hammar, 1993; O'Brien & Feather, 1990; Winefield & Tiggemann, 1985, 1990a,b). Thus, prior psychological disorder appears to predispose some youngsters to poor success in the labour market, and the experience of unemployment, in turn, is likely to further increase the level of distress. Schaufeli and VanYperen (1992, 1993) have gone as far as to propose a "reverse causation interpretation" of unemployment and psychological distress. According to them, the level of psychological distress is quite stable across the lifespan (i.e. it is more dependent on personal vulnerability than on environmental factors such as unemployment).

In studies involving adult participants, researchers have typically selected a representative sample of employed adults living in a certain community, or working in certain industries

or firms. The goal of the follow-up investigations has been to identify alterations in personal well-being following changes in employment status. One possibility has been to study the unemployed over a long period, and ascertain the psychological factors that differentiate the re-employed from the continuously unemployed. The adult studies which have been carried out so far have been very contradictory in their results concerning the relationship between unemployment and psychological distress. Dew et al. (1992), for example, found that depression at baseline failed to predict subsequent job loss, with unemployment being related to increased depression even after controlling for it at baseline. Hamilton, Hoffman, Broman, and Rauma (1993) obtained similar results concerning the relationship between job loss and increased depression, but found that a heightened level of depression also predicted continuous unemployment. Claussen (1994) observed that unemployment was related to increased anxiety, with a low level of anxiety predicting re-employment. In contrast, in Kessler and colleagues' (1989) study, depression was related to improved chances of re-employment in the unemployed.

In studies beginning with samples of unemployed adults, the aim has been to predict changes in the employment status, or to investigate factors related to the length of unemployment already experienced. For example, Warr and Jackson (1985) found that commitment to employment as measured at the initial assessment was related to subsequent psychological distress in the unemployed, with pre-existing chronic health problems predicting further deterioration of physical health. Shamir (1986), on the other hand, found that job loss did not cause a lowering of self-esteem. Instead, the unemployed with high self-esteem suffered less from the loss of a job than did individuals with low self-esteem.

The above-cited studies share one major shortcoming, which is that they ignore the possible existence (and possible influence) of prior experience of the labour market. Even school-leavers may have had summer jobs, which could have given them some idea of their abilities as workers. This, in turn, may well have influenced their psychological well-being and self-esteem. Another observation is that unemployment studies are typically lacking in an adequate theoretical framework (e.g. Feather & O'Brien, 1986; Hammarström, 1994; Layton & Eysenck, 1985). There are exceptions, such as Jahoda's (1982, 1988) functional model and Warr's (1987) vitamin model, which are concerned with the effects of unemployment.

Two prospective longitudinal studies have been conducted in New Zealand, in which selection into unemployment has been investigated. Caspi, Wright, Moffitt, and Silva (1998) have recently shown, by studying the subjects involved in the Dunedin Multidisciplinary Health and Development Study, that youth unemployment was predicted by a lack of the skills and qualifications required in school, disadvantageous family background, and antisocial behaviour in childhood. Prior characteristics affected unemployment in two ways: indirectly and directly. In addition to the direct effects, certain personal and family characteristics were indirectly related to unemployment via lack of educational qualifications. In agreement with these findings, Fergusson, Horwood, and Lynskey (1997) found, in a cohort belonging to the Christchurch Health and Development Study, that both the duration of youth unemployment and most of the elevated risk of disorder among the unemployed were accounted for by pre-existing family and personal factors, such as disadvantaged social background and

a dysfunctional family, personal adjustment problems and psychiatric disorders; as well as by delinquent peers. Fergusson et al. (1997) conclude that unemployment may not have particularly deleterious effects on the psychological well-being of young people. Instead, the main risk for psychiatric disorder is related to the personal vulnerability which is already present before school-leaving age, with subsequent experiences such as unemployment adding little to the risk.

Although selection into unemployment has been a key interest in only a few longitudinal studies extending from childhood to adulthood, personality factors which predispose some individuals to unstable career lines can be identified in several studies. These personality factors include anxiety and passivity for women (Pulkkinen, Ohanen, & Tolvanen, 1999), and emotional lability (Caspi, Bem, & Elder, 1989; Caspi, Elder & Bem, 1987; Pulkkinen et al., 1999; Rönkä & Pulkkinen, 1995) as well as shyness for men (Caspi et al., 1988, 1989).

In the present study selection into unemployment was studied on the basis of those individuals' childhood and adolescent characteristics which reflect psychological distress and poor emotional regulation. In addition, we investigated the question of whether unemployment further increases psychological distress. Our study of these problems was based on the Jyväskylä Longitudinal Study of Personality and Social Development (Pulkkinen, 1982) which began in 1968. The theoretical framework of the present study was a model of emotional and behavioural regulation (Pulkkinen, 1995, 1996, previously referred to as a model of impulse control, Pulkkinen, 1982), consisting of two orthogonal dimensions: behavioural inhibition versus expression, and low versus high self-control of emotions (Figure 1). These two dimensions, resulting from inhibitory and enhancing processes in the regulation of emotions and behaviour, form four behavioural types (A-D), which differ from each other in the degree of self-control and social activity (see Pulkkinen, 1995, 1996).

Our first hypothesis was a selection hypothesis, according to which individuals who have increased levels of distress get selected into unemployment (e.g. Fergusson et al., 1997). We assumed that children's low self-control of emotions, covering both anxiety (Type D behaviour) and aggression (Type A behaviour) and indicating the children's emotional distress, explains selection into unemployment. Previous studies have shown that low self-control in childhood predicts low career orientation (Pulkkinen et al., 1999) as well as drinking problems (Pulkkinen & Pitkänen, 1994) and criminality (Pulkkinen & Hämäläinen, 1995); all of which are related to an unstable career line (Rönkä & Pulkkinen, 1995). In earlier research, conflict over emotional expression has been related to psychological distress as measured, for example, by depression and anxiety (King & Emmons, 1990, 1991). Kopp (1989) has even considered distress and weak regulation of negative emotions to be synonymous.

Our second hypothesis was that there are direct and indirect links between individual's childhood and adolescent characteristics, and subsequent unemployment. Direct and indirect links were expected to occur between low self-control of emotions and unemployment. Research has shown that, for example, disadvantaged social background (Caspi et al., 1998; Fergusson et al., 1997; Sanford et al., 1994; Tiggemann & Winefield, 1989) and poor educational attainment (Caspi et al., 1998; O'Brien & Feather, 1990) are indirectly related to selection into unemployment.

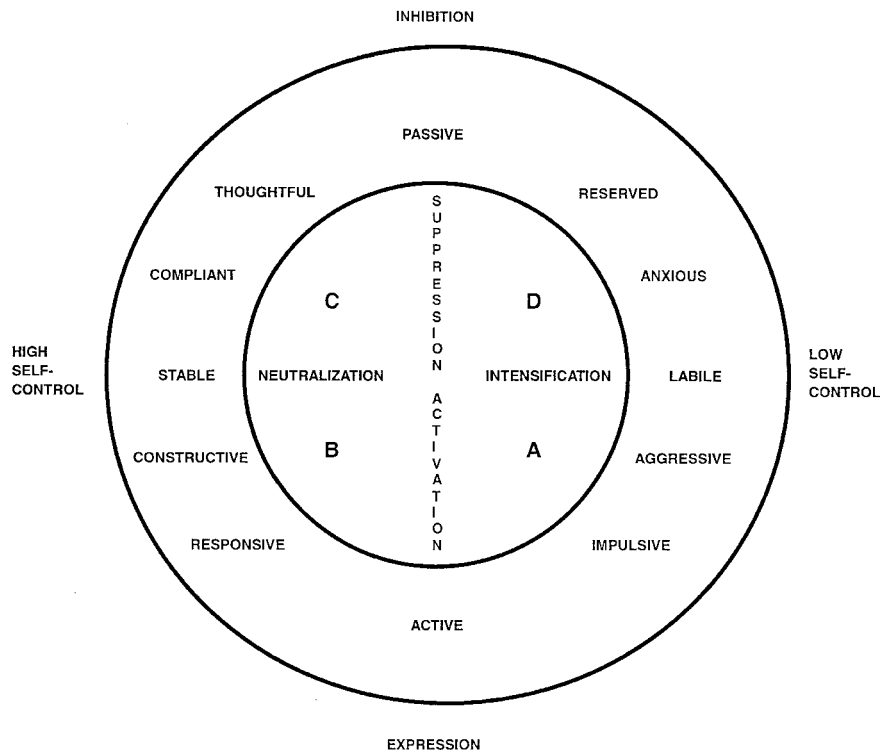


Figure 1. Model of emotional and behavioural regulation (Pulkkinen, 1995, 1996). (Reproduced with kind permission of the Society for Research in Child Development. © 1995 *Child Development*, 66, 1660–1679.)

Our third hypothesis concerned the psychological consequences of unemployment. On the basis of previous studies (e.g. Feather & O'Brien, 1986; Hammarström, 1990; Hammer, 1993) we hypothesised that the length of people's unemployment explains the level of their current distress, after taking into account the baseline level of distress. Consequently, considering the first and the third hypothesis together, we assumed that not only do the more distressed individuals get selected into long-term unemployment, but also that long-term unemployment further increases distress.

Method

Participants

The participants were drawn from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development, in which the same individuals have been followed up for almost 30 years. The study began in 1968, when 12 school classes of second grade pupils, from both urban and suburban areas of the medium-sized town of Jyväskylä in Central Finland, were randomly selected. The original sample consisted of 173 girls and 196 boys, aged 8 years, most of whom were born in 1959. After age 8, data were gathered at ages 14, 20, 27, 33, and 36 years. Data gathered at ages 20 and 33 were not used in the present analyses.

At age 14, in 1974, 167 girls (97% of the original sample) and 189 boys (96%) participated in a follow-up. In 1986, when the participants were 27 years of age, 155 women (90%) and 166 men (85%) filled in a mailed questionnaire, and 142 women (82%) and 150 men (77%) were personally interviewed. The last data collection took place at age 36, in 1995, when all the participants from the original sample were again

traced for a follow-up. A mailed questionnaire was returned by 150 women (87%) and 161 men (83%; two men had died); and 137 women (79%) and 146 men (75%) participated in the interview. The participants and nonparticipants did not differ from each other in respect of the social-behavioural characteristics measured at age 8, nor in school success at age 14. Thus, the participants unbiasedly represented the original sample. They were also representative (in terms of the number of children, level of education, and unemployment rate) of the whole age cohort of Finnish 36-year-old adults. Between the 1986 and 1995 data collections, Finland experienced a radical change in its unemployment rate: Unemployment rate rose from 3% to 18% (*Employment in Europe*, 1996), both in the whole age cohort born in 1959 and in the present sample.

Procedure

At ages 8 and 14, data were gathered by means of peer nominations and teacher ratings of social behaviour. In 1986, at age 27, the participants were mailed a Life Situation Questionnaire, followed by a personal semistructured interview, during which the subjects were presented with two personality inventories. The procedures used in earlier data collections have been previously reported in detail (Pulkkinen, 1982, 1995, 1996).

The latest data collection, in 1995, was carried out by means of a mailed Life Situation Questionnaire and a semistructured interview. The questionnaire included 217 items yielding information on the following topics: family circumstances, livelihood, and education and work. In connection with the interview the subjects completed 20 self-administered questionnaires including, for example, Rosenberg's (1965) Self-Esteem Scale and General Behavior

Inventory (Depue, 1987). In addition, the Karolinska Scales of Personality test (Af Klinteberg, Schalling, & Magnusson, 1990) was left with the participants at the end of the interview to be returned in a prepaid envelope.

Measures

Age 8

Psychological distress in childhood was estimated in terms of *behavioural characteristics* indicating low self-control of emotions and covering lability, anxiety, and aggressiveness (see Figure 1). Other variables represented high self-control of emotions. Altogether, eight variables from the teacher ratings were chosen on the basis of the emotional and behavioural regulation model (Pulkkinen, 1995, 1996; see Figure 1). These consisted of the following (1) *Lability*, which was assessed by one item: "Is sometimes very touchy and other times really nice". (2) *Anxiety* (Type D behaviour) was a summed score of three items (e.g. "Easily starts crying if others treat him/her nastily"). Cronbach's alpha was .69. (3) *Aggression* (Type A behaviour) was a summed score of four items (e.g. "Hurts another child when angry, e.g. by hitting, kicking, or throwing something"). Cronbach's alpha was .86. (4) *Stability* was a summed score of two items ("Reliable classmate" and "Friendly to others"). Cronbach's alpha was .78. (5) *Compliance* (Type C behaviour) was a summed score of three items (e.g. "Is he/she peaceable and patient?"). Cronbach's alpha was .84. (6) *Constructiveness* (Type B behaviour) was a summed score of three items (e.g. "Acts reasonably even in annoying situations"). Cronbach's alpha was .84. (7) *Passivity* was a summed score of two items ("Always silent and does not like being busy" and "Too withdrawn and timid"). Cronbach's alpha was .67. (8) *Activity* was measured by one item: "Always busy and plays eagerly with other children". Teacher ratings were made for each pupil on a scale from 3 to 0. Number 3 was to be given to those pupils in whom the characteristic in question was very prominent, and 0 to those pupils in whom the teacher had never observed the characteristic in question.

Age 14

Behavioural characteristics. The same eight variables as at age 8 representing Pulkkinen's (1995, 1996) model of emotional and behavioural regulation were drawn from the teacher ratings. (1) *Lability*: "Is impulsive, lacks concentration, changes moods". (2) *Anxiety* (Type D behaviour): "Is fearful, helpless in others' company, a target of teasing, unable to defend himself/herself". (3) *Aggression* (Type A behaviour): "Attacks without reason, teases others, says naughty things". (4) *Stability*: "Is reliable, keeps promises, does not get excited". (5) *Compliance* (Type C behaviour): "Is peaceable, patient, adjustable". (6) *Constructiveness* (Type B behaviour): "Tries to solve annoying situations reasonably, negotiates, conciliates, strives for justice". (7) *Passivity*: "Does not move much, stands alone, is silent". (8) *Activity*: "Is energetic, always on the go, often has contact with others".

In addition, *school success* was measured as a grade point average collected from school archives. *Parental socioeconomic status* (SES) was determined on the basis of both the father's and mother's occupational status, ranging from 1 = *the lowest SES* to 5 = *the highest SES*.

Age 27

Length of unemployment prior to age 27. The following categories were formed on the basis of the lifelong duration of unemployment: 1 = *at most one month*, 2 = *1–5 months*, 3 = *6–11 months*, 4 = *12–23 months*, 5 = *24–35 months*, 6 = *36–47 months*, 7 = *more than 48 months unemployed*.

Education. In the Life Situation Questionnaire the participants were asked about their education. Five categories were formed: 1 = *compulsory education*, 2 = *compulsory education and labour market training*, 3 = *vocational school*, 4 = *senior secondary school and secondary level vocational education*, 5 = *senior secondary school and higher education*.

Age 36

Length of unemployment between ages 27 and 36. The participants were asked in the Life Situation Questionnaire: "How would you describe your work situation since age 26 (i.e. during the past 9 years)? Mark the following statements as true or false in terms of your own employment situation, and then give the duration of the relevant periods in the blank space following". In addition to other alternatives (e.g. a full-time job, a full-time student), the duration of unemployment in years and months during this nine-year period was investigated. On the basis of the duration of unemployment, the participants were classified into five categories: 1 = *employed*, 2 = *less than 6 months*, 3 = *6–12 months*, 4 = *13–24 months*, and 5 = *more than 24 months unemployed*.

Psychological distress at age 36. Psychological distress was measured by means of three indices. *Anxiety* was assessed by three subscales drawn from the Karolinska Scales of Personality test (Af Klinteberg et al., 1990). These subscales consist of 10 items each and are referred to as: somatic anxiety, psychic anxiety, and muscular tension. The composite score, for which Cronbach's alpha was .91, was calculated from the 30 items. *Depressive symptoms* were a composite score of 16 items from the shortened version of Depue's (1987) General Behavior Inventory, calculated as averaged scores (Cronbach's alpha .89). In the assessment of *self-esteem*, Rosenberg's (1965) Self-Esteem Scale (RSE) was used. The RSE consists of 10 items measuring the individual's attitude of approval or disapproval towards him/herself. The Cronbach's alpha of the composite score was .79. The above-mentioned measures have been previously reported in greater detail (Kokko & Pulkkinen, 1998).

Data analysis

A multiple correspondence analysis (Addad; Association pour le Développement et la Diffusion de l'Analyse des Données, 22 rue Charcot, 75013 Paris, France) was performed in order to describe the associations between the variables drawn from the emotional and behavioural regulation model (Pulkkinen, 1995, 1996), and between these variables and length of unemployment. The correspondence analysis provides a low-dimensional graphic representation of relationships between the categories of categorical variables. It was chosen because the original variables representing the emotional and behavioural regulation model were not normally distributed, and because it made it possible to observe nonlinear associations between the variables. A further advantage of the method is that it allows

the addition of supplementary variables to the analysis. Supplementary variables do not account for the variance of the axes yielded by the correspondence analysis; nevertheless, the method permits the observation of the associations between the axes and the categories of the supplementary variables. A detailed description of the method can be found in, for example, Benzécri (1992) and Everitt (1997).

The correspondence analysis consisted of several steps. First, the original data were transformed into an indicator matrix form (Everitt, 1997; Robin, Corroyer, & Casati, 1996). Eight continuous variables representing the model of emotional and behavioural regulation (Pulkkinen, 1995, 1996) at ages 8 and 14 were classified into either three (e.g. not aggressive, sometimes aggressive, aggressive) or four categories (e.g. not constructive, sometimes constructive, rather constructive, constructive) based on the distributions of the variables. Each category was then dichotomised to obtain as many binary variables (0 = *the category was not observed*, 1 = *the category was observed*) as there were categories observed. A total of 28 binary variables was created for the 8-year-olds, and 32 for the 14-year-olds. Second, using the binary variables the correspondence analysis was separately conducted for the two age groups. Third, the axes of the correspondence analysis were correlated with one supplementary variable: length of unemployment, which consisted of five categories (employed, less than 6 months unemployed, 6–12 months unemployed, 13–24 months unemployed, and more than 24 months unemployed).

Selection into unemployment was studied by means of hierarchical logistic regression analysis (Spss for Windows; Norušis, 1992). The direct and indirect links between individual's childhood and adolescent characteristics and subsequent unemployment were studied by means of the LISREL path model (LISREL 8.14; Jöreskog & Sörbom, 1996a). Finally, the dependence of the current level of psychological distress on the length of unemployment, after controlling for the earlier characteristics, was assessed using MANOVA (Spss for Windows).

In the LISREL analysis the fit of the hypothetical model with the observed variables can be estimated using various goodness-of-fit measures. In this study the following measures were used: chi-square (χ^2), root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean square residual (RMR). The method of estimation used was general least squares, and the input to LISREL was in the form of correlation matrices produced by PRELIS (2.14; Jöreskog & Sörbom, 1996b). Missing values were treated pairwise in calculating correlations. The number of participants involved in different statistical analyses varied depending on the data available.

Results

Descriptive statistics

As shown in Table 1, of the 311 participants for whom there was information on the duration of unemployment, 111 (36%) had experienced unemployment between ages 27 and 36. Women were outnumbered in the category for 6–12 months of unemployment, and men outnumbered women in the category for more than 24 months of unemployment. There was a general tendency for the groups with more than 12 months of unemployment between ages 27 and 36 to have experienced longer unemployment prior to age 27, and to have had a shorter education than the other groups. On the other hand, 50% of the participants who had already been unemployed for 12 months or longer before reaching the age of 27 were unemployed for more than 12 months between ages 27 and 36.

Dimensions of the emotional and behavioural regulation model

At ages 8 and 14, the correspondence analysis yielded two main axes, which accounted for 26.4% and 24.1% of the total variance, respectively. Only those binary variables which

Table 1

Descriptive data for the groups of the unemployed classified on the basis of unemployment duration between ages 27 and 36

<i>Unemployment between Ages 27 and 36</i>	<i>Employed (%) (n = 200)</i>	<i>< 6 mths Unemployed (%) (n = 25)</i>	<i>6–12 mths Unemployed (%) (n = 31)</i>	<i>13–24 mths Unemployed (%) (n = 30)</i>	<i>> 24 mths Unemployed (%) (n = 25)</i>
<i>Sex</i>					
Female	46.5	48.0	64.5	56.7	36.0
Male	53.5	52.0	35.5	43.3	64.0
<i>Unemployment prior to age 27 (months)</i>					
< 1	54.3	34.8	37.0	25.9	21.7
1–5	28.0	47.8	37.0	29.6	30.4
6–11	12.9	13.0	18.5	25.9	17.4
12–23	2.7	4.3	7.4	11.1	26.1
24–35	1.6	–	–	3.7	–
36–47	–	–	–	3.7	–
> 48	0.5	–	–	–	4.3
<i>Occupational education</i>					
Compulsory education (CE)	16.6	8.7	17.2	20.7	43.5
CE + employment course	9.3	4.3	17.2	6.9	17.4
Vocational school	42.0	30.4	27.6	41.4	21.7
Senior secondary school (SSS) + vocational education	17.6	39.1	20.7	24.1	13.0
SSS + higher education				6.9	4.3

contributed to the variance of the axes were utilised in their interpretation (see Benzécri, 1992). These are indicated in Figures 2 and 3.

The analysis of the binary variables contributing to the first axis at ages 8 and 14 (axis 1 in Figures 2 and 3; eigenvalue = 15.5% and 13.7%, respectively) showed that, at both ages, the first axis was formed by variables for low versus high self-control of emotions. The right-hand pole of this axis (Figures 2 and 3) was, in particular, characterised by the following variables: labile, not stable, aggressive, not compliant, and not constructive. At the left-hand pole of the first axis (Figures 2 and 3), at both ages, were located variables showing high self-control (i.e. compliant, stable, constructive, not aggressive, and not labile).

The second axis (axis 2 in Figures 2 and 3; eigenvalue = 10.9% for the 8-year-olds and 10.4% for the 14-year-olds) described behavioural inhibition versus expression. At both ages, the upper pole of the second axis (Figures 2 and 3) was characterised by the following binary variables indicating behavioural inhibition (i.e. passive, anxious, and not active). The lower pole of the second axis (Figures 2 and 3) was characterised by the variables active, not passive, constructive, and not anxious. Compared to the model of emotional and behavioural regulation (see Figure 1), the first axis for low self-control of emotions was related to aggression rather than anxiety, and the second axis for behavioural inhibition was related to anxiety rather than compliance.

The two axes were correlated with the supplementary variable (i.e. the length of unemployment). Both at ages 8 and 14 the length of unemployment accounted for the variance of the first axis only ($\eta^2 = .06$ for the 8-year-olds and $\eta^2 = .02$ for

the 14-year-olds; η^2 indicates the proportion of the variance of the numerical variable accounted for by a categorical variable; see Corroyer & Rouanet, 1994). Of the five categories of the supplementary variable, that of more than 24 months unemployed was the best represented on the first axis (Figures 2 and 3). Those unemployed for more than 24 months showed significantly lower self-control than the others [$t(309) = -4.25$, $p < .001$ for the 8-year-olds and $t(309) = -2.58$, $p < .05$ for the 14-year-olds]. At age 14, those unemployed for less than 6 months showed significantly higher self-control than the others [$t(309) = 2.28$, $p < .05$].

Selection into long-term unemployment on the basis of low self-control of emotions

For the study of selection into unemployment on the basis of individual's childhood and adolescent characteristics, and their educational attainment, the distribution of the variable for length of unemployment was too skewed to be used for correlational analyses (e.g. regression analysis and LISREL analysis). There was no transformation available to make the variable normally distributed. The variable had to be classified, and we decided to classify it into five categories on the basis of the frequencies of cases in each category (they were all of the same size except for the category for the employed, which included 64% of the 36-year-old participants).

The correspondence analysis had indicated that the relation between individual's childhood and adolescent characteristics, and the duration of their unemployment was not linear, and that it was the group with more than 24 months of unemployment which significantly differed from the others

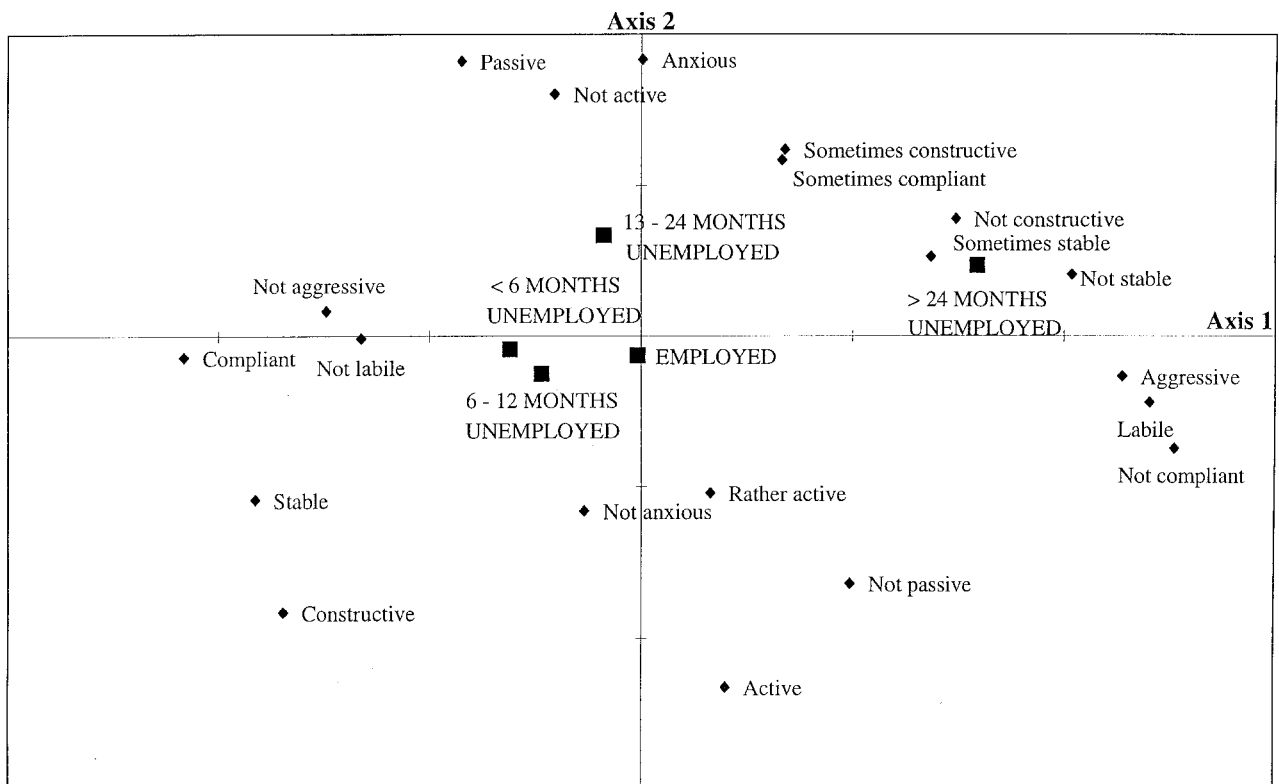


Figure 2. Correspondence analysis of the teacher ratings obtained at age 8.

(Figures 2 and 3). Therefore, we used a dummy variable *more than 24 months unemployed* ($n = 25$) versus the rest ($n = 286$; cf. Table 1) in logistic regression analyses. In addition, in order to get a more general picture of long-term unemployment, we used also a dummy variable *more than 12 months unemployed* ($n = 55$) versus the rest ($n = 256$).

The predictor variables included participants' sex, parental SES, the two factors yielded by the correspondence analyses—one for low self-control of emotions and the other for behavioural inhibition—school success at age 14, and occupational education at age 27. As can be seen in Table 2, the dummy variable for long-term unemployment (more than 24 months unemployed vs. the rest) correlated more highly with the predictor variables. This finding was confirmed by logistic regression analyses, which were separately run for dummy variables, with each predictor entered into the equation one at a time. The analyses revealed that low self-control of emotions at age 8 was the strongest predictor of long-term unemployment.

Hierarchical logistic regression analyses were carried out separately for each dummy variable. In these analyses, the predictor variables were entered into the equation in four steps. (1) Low self-control of emotions (axis 1 in Figure 2) and behavioural inhibition (axis 2 in Figure 2) at age 8. (2) Low self-control of emotions (axis 1 in Figure 3) and behavioural inhibition (axis 2 in Figure 3) at age 14. (3) School success at age 14. (4) Occupational education at age 27. The participants' sex and parental SES were excluded from the analyses as correlational analyses revealed that they were not related to the dummy variables (Table 2), neither did the interaction calculated using sex and SES predict unemployment.

The analysis for *more than 24 months unemployed versus the rest* revealed that entering low self-control of emotions (axis 1) and behavioural inhibition (axis 2) at age 8 improved the model [(Imp.) $\chi^2(2) = 11.78, p < .01$]. Low self-control of emotions (axis 1) at age 8 predicted very long-term unemployment ($R = .23, B = 1.43, Wald = 9.26, df = 1, p < .01$). None of the further steps increased the predictability. When all the variables were entered in the model in the final step, low self-control of emotions was still significantly related to very long-term unemployment. The results also showed that *more than 12 months unemployed versus the rest* was predicted by the variables measured at age 8 [(Imp.) $\chi^2(2) = 7.28, p < .05$]. Those unemployed for more than 12 months were more likely to show behavioural inhibition (axis 2) at age 8 than the rest ($R = .09, B = .65, Wald = 4.14, df = 1, p < .05$). In low self-control of emotions, the group of more than 12 months unemployed was more heterogeneous than in behavioural inhibition (cf. Figure 2). None of the independent variables entered into the equation in the next steps added to the prediction.

Direct and indirect links between childhood characteristics and subsequent unemployment

We set both direct and indirect connections between individuals' childhood and adolescent characteristics and subsequent long-term unemployment in the LISREL path model. Because the correspondence and the hierarchical regression analyses, as well as the correlation matrix, indicated that it was the group with more than 24 months of unemployment which most significantly differed from the rest, we included only this dummy variable in the path model. The direct connections

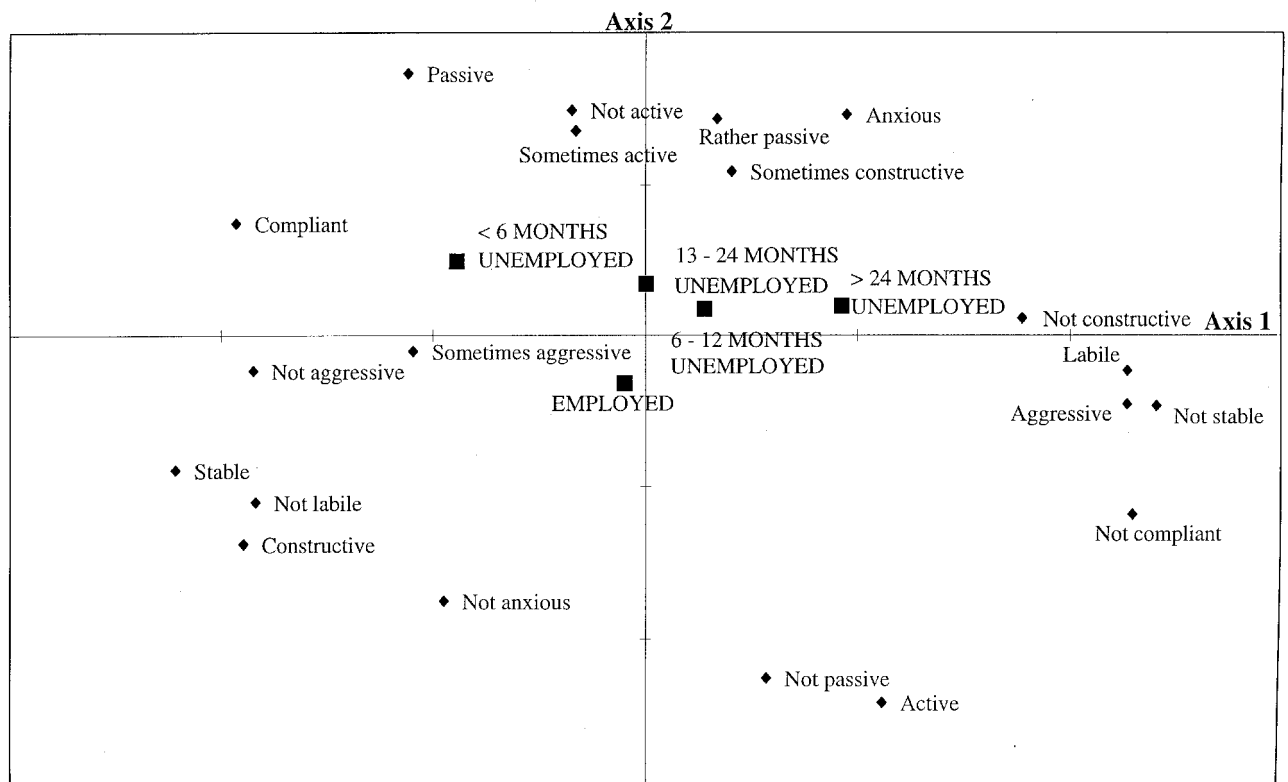


Figure 3. Correspondence analysis of the teacher ratings obtained at age 14.

Table 2
Pearson product-moment correlations for the study variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sex (1 = women, 2 = men)	-												
2. Parental SES	-.05	-											
3. Low self-control of emotions (axis 1 ^a ; 8)	.19***	.03	-										
4. Behavioural inhibition (axis 2; 8)	.00	-.24***	-.01	-									
5. Low self-control of emotions (axis 1; 14)	.24***	-.08	.34***	.02	-								
6. Behavioural inhibition (axis 2; 14)	.07	.01	-.12*	.29***	.02	-							
7. School success (14)	-.38***	.15**	-.23***	-.18**	-.49***	-.23***	-						
8. Occupational education (27)	-.17**	.43***	-.17**	-.25***	-.31***	-.08	.60***	-					
9. More than 12 months unemployed (27-36)	.01	-.09	.15*	.14*	.11	.09	-.08	-.16**	-				
10. More than 24 months unemployed (27-36)	.06	-.03	.24***	.07	.15*	.05	-.17**	-.20***	.64***	-			
11. Self-esteem (36)	.00	.25***	.00	-.01	-.01	-.07	.05	.10	-.15*	-.13*	-		
12. Depressive symptoms (36)	-.06	-.02	.13*	.01	.12	.01	-.09	-.14*	.22***	.23***	-.45***	-	
13. Anxiety (36)	-.02	-.17**	.05	.10	.05	.04	-.06	-.22***	.28***	.26***	-.53***	.54***	-

Note. Age in parentheses indicates time of measurement. ^a Axis drawn from the correspondence analysis (see Figures 2 and 3). * $p < .05$; ** $p < .01$; *** $p < .001$.

were expected to occur between individual's characteristics in childhood and long-term unemployment in adulthood. On the other hand, the indirect relationships were hypothesised to go from childhood characteristics via poor educational attainment (such as poor school success and lack of occupational education) to long-term unemployment in adulthood. In addition, we expected that long-term unemployment would be related to the level of current distress (i.e. depressive

symptoms, anxiety, and low self-esteem). Although neither the participants' sex nor parental SES correlated with duration of unemployment (see Table 2), they were related to other predictors and thus included in the model. All path connections captured in Figure 4 were statistically significant ($t > 2.0$). The model fitted the data well.

As can be seen in Figure 4, low self-control of emotions at age 8 was directly related, whereas behavioural inhibition at

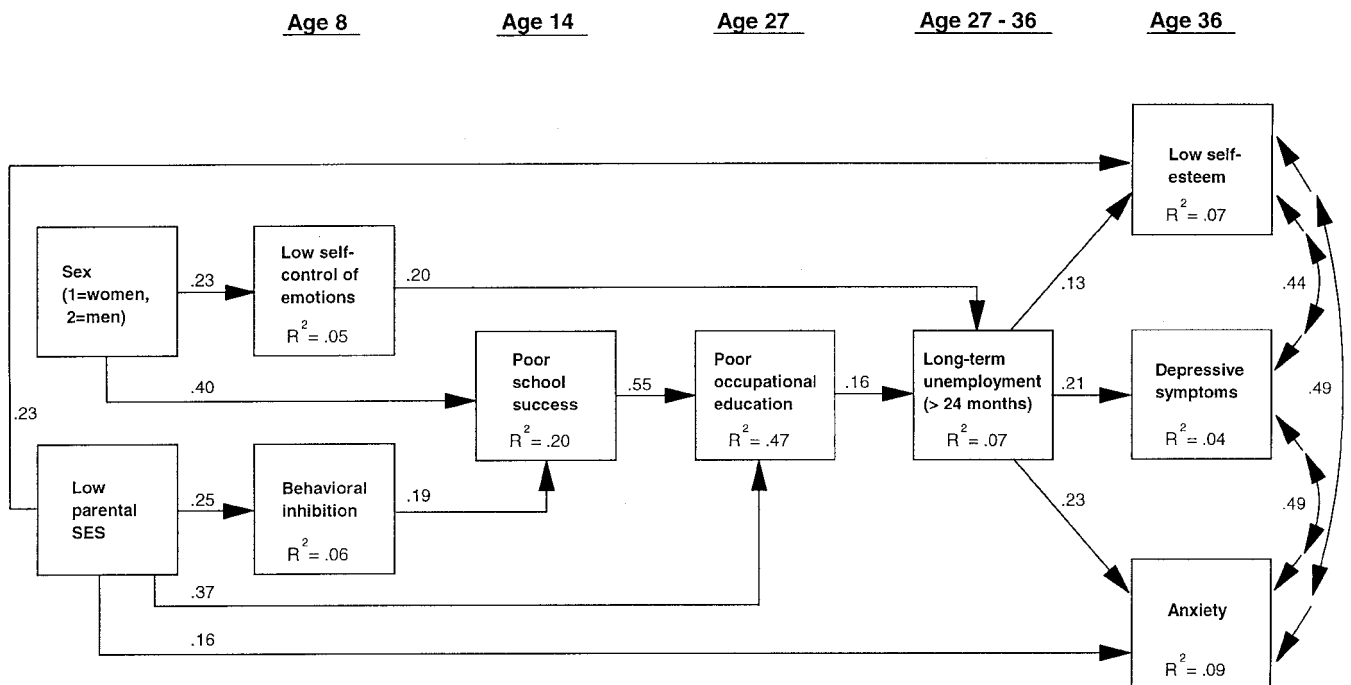


Figure 4. LISREL path diagram of direct and indirect connections between individuals' characteristics in childhood and adolescence and long-term unemployment in adulthood: [$\chi^2(28) = 37.27$, $p = .11$; RMSEA = .034; RMR = .055; GFI = .97; AGFI = .95].

age 8 was indirectly related to long-term unemployment in adulthood. In other words, low self-control of emotions *per se* predicted selection into long-term unemployment. On the other hand, behavioural inhibition at age 8 was linked to poor school success at age 14, which was further related to poor occupational education at age 27. Lack of occupational education was a risk factor for later long-term unemployment.

As Fig. 4 shows, several indirect links were observed between the participants' sex and parental SES, and long-term unemployment. As far as the participants' sex was concerned, the results indicated that men had lower self-control of emotions and poorer school success compared to women. Low parental SES was related to behavioural inhibition in childhood, poor occupational education at age 27, and low self-esteem as well as anxiety at age 36.

Effects of Long-term Unemployment on Current Psychological Distress

Figure 4 shows that long-term unemployment was related to increased current psychological distress as indicated by low self-esteem, depressive symptoms, and anxiety. In order to confirm these findings on the consequences of unemployment for current level of psychological distress we used MANOVA. The unemployment groups were compared to each other in respect of low self-esteem, depressive symptoms, and anxiety at age 36 after first controlling for individuals' prior characteristics—low self-control and behavioural inhibition at ages 8 and 14, school success at age 14, and occupational education at age 27, as well as participants' sex and parental SES—by setting them as covariates. In this analysis, we contrasted the unemployment categories as follows. (1) Participants less than 6 months unemployed were contrasted with the employed. (2) Participants 6–12 months unemployed were contrasted with those less than 6 months unemployed. (3) Participants 13–24 months unemployed were contrasted with those less than 12 months unemployed. (4) Participants more than 24 months unemployed were contrasted with those less than 24 months unemployed.

The analysis showed, in general, that the categories differed significantly from each other with regard to current overall psychological distress [$F(12,603) = 2.23, p < .01$]. When the indicators of distress were studied separately, it appeared that the differences were significant in depressive symptoms [$F(4,201) = 4.16, p < .01$] and anxiety [$F(4,201) = 4.07, p < .01$], but not in self-esteem. Finally, it was the contrast of more than 24 months unemployed versus the rest in which significant differences occurred: compared to the others, those who were more than 24 months unemployed had more depressive symptoms ($t = -2.86, p < .01$) and anxiety ($t = -3.09, p < .01$).¹

¹ We have made some further data analyses to confirm the interpretation of the consequences of unemployment. We selected three variables to measure psychological distress at age 27 (Low Self-Worth and Self-Confidence; see Kokko & Pulkkinen, 1998, and Neuroticism measured using the Eysenck Personality Questionnaire; see Pulkkinen, 1996) and at age 36 (self-esteem, depressive symptoms, and anxiety) and compared (ANOVA, Scheffé's test) four different unemployment groups in respect of these variables. At age 36, individuals who had been more than 12 months unemployed only after age 27 had more depressive symptoms [$F(3,245) = 6.05, p < .001$] and anxiety [$F(3,244) = 8.03, p < .001$] than individuals who had never been more than 12 months unemployed. The groups did not differ from each other in terms of their distress at age 27. This indicates that long-term unemployment between ages 27 and 36 increased the level of current psychological distress.

Discussion

The results showed that selection into unemployment, but only long-term unemployment, occurred on the basis of the dimension of low versus high self-control of emotions. Compared to the model of emotional and behavioural regulation (Pulkkinen, 1995, 1996) low self-control was characterised by aggression (Type A behaviour) and not by anxiety (Type D behaviour). Measured at age 8, low self-control was directly related to long-term unemployment in adulthood. By contrast, the dimension of behavioural inhibition versus expression characterised by anxiety, also measured at age 8, had an indirect relation to long-term unemployment: Passive social behaviour in childhood was related to long-term unemployment in adulthood via poor educational attainment. Although the explained variance of long-term unemployment was low ($R^2 = .07$), the findings indicated that there was a statistically significant relation between individuals' characteristics measured in childhood and long-term unemployment in adulthood. Additionally, long-term unemployment was further related to an increased level of psychological distress, as indicated by depressive symptoms and anxiety. Consequently, regarding the relation between unemployment and psychological distress, support was found both for the hypothesis of selection effects, and for the hypothesis of the negative psychological effects of unemployment. This indicates that more distressed individuals get selected into long-term unemployment, with long unemployment further diminishing well-being. This finding is in line with previous research conducted on school-leavers (e.g. Feather & O'Brien, 1986; Hammarström, 1990; Winefield & Tiggemann, 1985, 1990a,b).

The starting-point of previous research has tended to be school-leavers who may already have had some labour market experiences influencing their psychological well-being (Mortimer, 1994). With the exception of the studies of Fergusson et al. (1997) and Caspi et al. (1998), in no earlier unemployment research has the follow-up begun with children. In this study, the first data collection took place with 8-year-olds, who had no prior experiences in the labour market. The identification of the cause-effect relations is stronger in this instance than in studies involving school-leavers or adult participants (e.g. Mortimer, 1994). The difficulties involved in making causal inferences are well-recognised in the literature (e.g. Farrington, 1988; Rutter, 1994a,b). The most powerful method available for the study of cause-effect relations is to carry out a longitudinal experimental study (Farrington, 1992). Randomised experimental studies are, however, from both an ethical and a practical point of view difficult to perform when studying human beings. Therefore, any causal inferences in the present study must be made on the basis of the prospective, longitudinal nature of the data and the time-ordering of the variables (see e.g. Bergman et al., 1991).

According to Rutter (1994a,b), the demonstration of causality requires, for example, multiple replications in different samples by independent researchers. In the present study, we replicated, in general terms, the recent findings of Caspi et al. (1998) and Fergusson et al. (1997) concerning selection into unemployment. Using samples drawn from different cultures (New Zealand vs. Finland) and of different ages (adolescents vs. adults), one of the childhood predictors of subsequent long-term unemployment was emotional lability; referred to as low self-control of emotions by the present

authors, antisocial behaviour by Caspi et al., and conduct disorder by Fergusson et al. Although our findings concerning the consequences of unemployment were similar to the results of Fergusson and his collaborators, they should be interpreted with some caution, as we did not have identical measures of psychological distress at different ages. A further limitation of our findings—especially those concerning the long-term unemployed—is that they were based on a rather small number of participants. On the other hand, the sample used in this study was originally random, and the study began when the participants were 8 years old. As suggested by Caspi et al. (1998), longitudinal studies beginning with school-leavers may under-represent the youngsters who are at greatest risk for unemployment. Furthermore, at age 36, the participants unbiasedly represented both the original sample and the whole age cohort of Finnish 36-year-old adults. These facts increase the generalisability of our findings.

Four major conclusions can be drawn from our study. First, the findings indicate that only selection into long-term unemployment is predictable. This result is in line with previous research, which has shown that the increased duration of unemployment in particular is predictable on the basis of childhood characteristics (Fergusson et al., 1997). In recent years, the unemployment rate has been very high (nearly 20%) in Finland. This explains the fact that the unemployed include individuals who have suddenly lost their jobs as a result of recession, and who might have had no problems in their personal development. It is notable, however, that these individuals may also experience an increase in their current level of psychological distress (Kokko & Pulkkinen, 1998).

Second, long-term unemployment is predictable from low self-control of emotions, especially aggression, at age 8. We assessed low self-control of emotions to indicate emotional distress, covering both anxiety and aggression. The correspondence analysis resulted in the axis for low self-control, which included aggression only. Anxiety, however, loaded on to the axis referred to as behavioural inhibition. When the individuals unemployed for more than 24 months were combined with those more than 12 months unemployed, a difference emerged in behavioural inhibition: The individuals who had been at least one year unemployed were socially more passive and anxious at age 8 than the others. This is an interesting finding, because it suggests that individuals unemployed for more than one year are characterised by internalising problems such as anxiety, and the effects on long-term unemployment are indirect rather than direct. Individuals unemployed for more than two years, however, are characterised by undercontrolled, aggressive behaviour.

Third, the indirect and direct links between individuals' childhood and adolescent characteristics and subsequent long-term unemployment have similarities to Caspi et al.'s (1998) findings. The indirect relation between behavioural inhibition in childhood and long-term unemployment in adulthood via poor educational attainment can be explained by the mechanism of cumulative continuity (Caspi et al., 1989). It might be that passive and anxious children lack the initiative needed for success at school. Poor school success and problems in adjustment to school are related to accumulated problems, including an unstable career line, in adulthood (Rönkä & Pulkkinen, 1995). Socially passive, highly anxious children have been observed to come from homes where the socio-economic status is low (Pulkkinen, 1982; Pulkkinen et al., 1999). The direct relation between low self-control of

emotions in childhood and subsequent long-term unemployment can be interpreted by means of the mechanism of interactional continuity (Caspi et al., 1989). This implies that individuals' labile and aggressive interactional styles are sustained by the reciprocal responses they evoke in other persons. In future studies, it would be important to address a specific risk mechanism by which different factors are related to unemployment, as suggested by Rutter (1994a,b).

Finally, long-term unemployment was related to a heightened level of depressive symptoms and anxiety, even after controlling for individuals' childhood and adolescent characteristics. Although long-term unemployment was also related to self-esteem in the LISREL path model, this link disappeared in the MANOVA analysis. This may be explained by the fairly high correlation between parental SES and self-esteem, that is, when the effect of parental SES was controlled for, unemployment had no effect on self-esteem. Our previous analyses with the same participants have shown that current long-term unemployment is strongly related to low self-esteem, which is further related to depressive symptoms and anxiety (Kokko & Pulkkinen, 1998). In the present study, we did not take into consideration the subjects' current employment status. Nevertheless, our findings indicated that unemployment measured as a total duration between ages 27 and 36 was also related to a heightened level of distress.

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