

Katja Kokko

Antecedents and Consequences
of Long-term Unemployment

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Antecedents and Consequences of Long-term Unemployment

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ABSTRACT

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Antecedents and Consequences of Long-Term Unemployment

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Diss.

The aims of the present study were to examine, first, whether long-term unemployment in late early adulthood was related to a higher level of concurrent psychological distress, and if so, whether the enhanced level of distress should be interpreted as a consequence of unemployment or - since it might plausibly be supposed to select people for unemployment - as a reason for it; second, whether low self-control of emotions, and behavioral inhibition in childhood preceded long-term unemployment before age 27, and between the ages of 27 and 36; and third, whether low self-control of emotions, and in particular, aggressive behavior in childhood initiated a cycle of maladaptation resulting in long-term unemployment; and whether there were any protective factors buffering aggressive children against later unemployment. The present analyses were based on the ongoing Finnish Jyväskylä Longitudinal Study of Personality and Social Development (JYLS) in which the originally 8-year-old children ($N = 369$) have been followed at ages 14, 27, and 36. For comparative purposes, data from the Swedish longitudinal study, Individual Development and Adaptation (IDA), were also used. The main methods of data collection were teacher ratings in childhood and interviews in adulthood. It was shown that the long-term-unemployed at age 36 were more psychologically distressed than the employed. Both the so-called selection and causation hypotheses were supported. Childhood personality characteristics, particularly aggressive behavior as an indicator of low self-control, explained selection into long-term unemployment, but long-term employment further increased the level of distress via financial problems and low self-esteem. As confirmed by the IDA sample, low self-control and behavioral inhibition in childhood explained selection into education; which was further linked to long-term unemployment by age 27. During subsequent years, when the period of formal education had been passed, childhood personality characteristics explained the selection into long-term unemployment more strongly than had been the case at a younger age. Aggressive behavior seemed to begin a cycle of maladaptation, in that it accounted for school maladjustment at age 14 which was directly and indirectly (via problem drinking and lack of occupational alternatives at age 27) linked to subsequent long-term unemployment. However, prosocial behavior at age 8, and child-centered parents at age 14 significantly reduced the probability that an aggressive child would become long-term unemployed.

Keywords: long-term unemployment, psychological distress, aggressive behavior, prosocial behavior, child-centered parenting, longitudinal study

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1 INTRODUCTION

Unemployment has been a serious individual and societal problem in Finland during the last decade due to the economic recession which the country has suffered. In the beginning of the 1990s, the unemployment rate was roughly 5% in Finland; but then it rose suddenly during the first half of the 1990s, reaching a level of approximately 18% in 1995 (Kiander, 1999). At the individual level, unemployment caused a lot of uncertainty and worry; and at the societal level it became very expensive in the form of, for example, unemployment benefits paid to the unemployed. The detrimental effects of unemployment have been studied in terms of, for instance, psychological well-being (e.g., Murphy & Athanasou, 1999); physical health (e.g., Wilson & Walker, 1993); alcohol abuse (e.g., Dooley, Catalano, & Hough, 1992); and criminality (e.g., Fergusson, Lynskey, & Horwood, 1997). In addition to the unemployed person himself or herself, unemployment may exert its effects on, for instance, his or her spouse and children (e.g., Barling, 1990; Dew, Penkower, & Bromet, 1991; Liem & Liem, 1990; Winefield, 1995). In the present study, I focused on the detrimental effects of unemployment on the individual's psychological well-being.

1.1 Unemployment and psychological distress

1.1.1 Psychological distress as a consequence of unemployment

Webster's New Collegiate Dictionary (1981; see Hanisch, 1999) defines unemployment as "the state of being unemployed or not engaged in a gainful occupation". In the present study, unemployment was defined as the state of being a registered unemployed applicant at the employment office. In most of the studies which have focused on the relation between unemployment and psychological distress, there is at least an implicit assumption that job loss has occurred involuntarily and that the ultimate goal for an unemployed individual, in terms of his or her psychological well-being, is to become re-employed (e.g., Murphy & Athanasou, 1999). This assumption might be justified by traditional developmental theories

as proposed by, for instance, Havighurst (1948/1982, 1953) and Levinson (1986, 1996; Levinson, Darrow, Klein, Levinson, & McKee, 1978), which claim that establishing a stable position in the domain of work is one of the most important developmental tasks of adulthood.

Unemployment and the attendant psychological distress have engaged researchers' interest from the 1930s. The classic studies carried out by Jahoda and Lazarsfeld (Jahoda, Lazarsfeld, & Zeisl, 1972; first published in German in 1933) in Marienthal, and by Bakke (1933) in Greenwich already indicated that there was a link between unemployment and increased psychological symptoms. These studies are exceptional in that the researchers were themselves active participants in the communities of the unemployed. These classic studies have resulted in valuable insight being gained into the consequences of unemployment.

Different theories have been advanced about the relation between unemployment and psychological distress, as reviewed by Winefield (1995). One of the most commonly cited theories is Jahoda's (1981, 1982) deprivation theory, according to which employment offers certain broad categories of experience which can be either manifest (such as livelihood) or latent (such as the structuring of time, social activities outside the family, participation in a collective purpose, social status and identity, and regular activity). Jahoda's model was further developed by Warr (1987) who in his "vitamin" model identifies nine environmental features (opportunity for control, opportunity for the exercise of learned skills, externally generated goals, variety, environmental clarity, availability of money, physical security, opportunity for interpersonal control, and valued social position) which are limited in the unemployed person's life. These theories propose that unemployment is harmful to an individual's psychological well-being because it deprives the unemployed of the functions or "vitamins" offered by employment. Furthermore, Jahoda in particular assumes no qualitative differences between different types of employment. In other words, having any job whatsoever is better than having no job. However, this assumption can be criticized on the basis of recent findings which show that unsatisfying employment may be even more distressing than unemployment (e.g., Graetz, 1993; Winefield, Tiggemann, & Winefield, 1990).

Research conducted in the 1980s and 1990s confirms the earlier findings on unemployment and distress. Recent reviews on the effects of unemployment convincingly demonstrate that unemployment is associated with an increased level of psychological distress (Hanisch, 1999; Murphy & Athanasou, 1999). This finding has held for both women (e.g., Dew, Bromet, & Penkower, 1992; Ensminger & Celentano, 1990) and men (e.g., Leeflang, Klein-Hesselink, & Spruit, 1992b) as well as for the young (e.g., Hammer, 1993) and the mature-age unemployed (e.g., Mallinckrodt & Fretz, 1988). Unemployment has been shown to have its most detrimental effects on middle-aged men (e.g., Broomhall & Winefield, 1990; Rowley & Feather, 1987; Warr & Jackson, 1984) and the long-term unemployed (e.g., Warr & Jackson, 1985). The relation between unemployment and distress has also been confirmed using Finnish samples (e.g., Kortteinen & Tuomikoski, 1998; Lahelma, 1992; Viinamäki, Niskanen, Koskela, & Kontula, 1995; Vuori & Tervahartiala, 1995).

In statistical analyses of the relation between unemployment and psychological distress, the psychological distress of the unemployed has usually been indexed by measures of psychological ill-health (e.g., Banks et al., 1980; Ensminger

& Celentano, 1990; Graetz, 1993; Jackson, Stafford, Banks, & Warr, 1983); depressive symptoms (e.g., Dew et al., 1992; Hamilton, Hoffman, Broman, & Rauma, 1993; Kessler, Turner, & House, 1988; Liem & Liem, 1988; Winefield & Tiggemann, 1990a); and/or anxiety (e.g., Hamilton et al., 1993; Kessler et al., 1988; Liem & Liem, 1988). It should be noted that most of these studies focus on the degree of the psychological symptoms experienced. That is to say, they indicate that the unemployed have more symptoms than the employed, as suggested by Jahoda (1988, p. 20), not that the level of psychological distress among the unemployed necessarily reaches a certain cut-off point which makes it clinically significant. An exception is Bolton and Oatley's (1987) study, which showed that about one-quarter of the continuously unemployed men studied became clinically depressed during the 6 - 8 months' follow-up period.

1.1.2 Mediators and moderators

Research on the psychological effects of unemployment has established that it is not the experience of unemployment as such which is related to a heightened level of psychological distress, but that there are different mediators and moderators which affect this relation. In the field, however, the terms "mediator" and "moderator" have often been used interchangeably. Baron and Kenny (1986) argue that it is essential to differentiate between mediators and moderators, because this differentiation influences the choice of study design, research operations, and statistical analyses. They define a mediator as a variable that explains how and why an independent and a dependent variable are related to each other, and a moderator as a variable that modifies either the strength or the direction of the relation between an independent and a dependent variable.

Different types of mediator and moderator have been widely studied in the context of unemployment and its psychological symptoms, but their joint effects have seldom been included in a single study (exceptions are studies by Kessler et al., 1987, 1988). The most apparent mediator seems to be financial strain. It has been shown - and it is also evident from the practical point of view - that prolonged unemployment is related to a weakening of the economic situation of the unemployed which is further linked to an increased level of depressive symptoms and anxiety (e.g., Kessler et al., 1987, 1988). There has been speculation as to whether the association between unemployment and distress can be explained merely by the financial strain caused by job loss (e.g., Jacobson, 1987; Winefield, 1995); that is, whether the effects of unemployment can be distinguished from the accompanying economic worries.

As regards Finnish unemployment benefits, they are at an average European level, but they are unusual in covering a longer time period compared to most of the other European countries, such as Sweden. In Finland, the basic unemployment allowance is 54% of the minimum salary in most occupational fields, and it is unlimited as to its duration. For 500 days (after which it is possible to refresh the entitlement by being employed for a certain period of time) it is possible to receive unemployment insurance equal to the basic allowance plus prior earnings-related benefit. It seems that in Finland unemployment is likely to have serious economic consequences only after a prolonged period of continuous unemployment, at least for those who are eligible for unemployment insurance. It is possible that in some

cases it is the anticipation of future financial worries, rather than any current financial strain, which causes psychological distress; as has been shown by Kinnunen and Pulkkinen (1998).

Before it gives rise to any actual financial strain, job loss may affect the unemployed's self-esteem. It can be particularly harmful for the middle-aged, for whom stable employment has traditionally been considered as an important developmental task (e.g., Havighurst, 1948/1982, 1953; Levinson, 1986, 1996; Levinson et al., 1978). Self-esteem has been previously investigated both as a mediator and as a moderator. For example, Pearlin, Lieberman, Menaghan, and Mullan (1981) observed in their longitudinal study that disruptive job events preceded the lowering of self-esteem which, in turn, was linked to depressive symptoms. In contrast, Shamir (1986) found that unemployment did not lower self-esteem. Rather, those unemployed individuals who had high self-esteem before job loss did not suffer from psychological distress. In line with Shamir's findings, several other researchers (Hartley, 1980; Winefield & Tiggemann, 1990a, 1990b) have noticed that unemployment does not affect self-esteem. However, Dooley and Payne (1997) have shown that in the case of youngsters, employment enhances self-esteem whereas unemployment does not do this; and consequently, a difference in self-esteem between employed and unemployed youngsters emerges. Nurmi, Salmela-Aro, and Ruotsalainen (1994) have suggested that low self-esteem can be maintained by the failure-trap strategy applied by the unemployed young adults in their study.

One of the most commonly studied moderators of the effects of unemployment is social support. It has been shown to protect against the negative psychological effects created by unemployment in the young (Hammer, 1993) and the middle-aged (Broomhall & Winefield, 1990), and in both women (Dew et al., 1992) and men (Ensminger & Celentano, 1990). It might be that social support buffers the unemployed against the distress which may be caused by the financial problems which have resulted from job loss (Turner, Kessler, & House, 1991). It has also been found that the unemployed's occupational status moderates the effects of job loss. A study by Hepworth (1980) indicated that semi-skilled and unskilled men suffered more psychological distress during unemployment compared to men with higher occupational status.

The unemployed person's gender can also be considered as a moderator, that is, it is possible that the relation between unemployment and psychological distress varies as a function of gender. Findings concerning potential gender-differences are, however, contradictory; indicating that 1) unemployed men experience more symptoms than unemployed women (Shamir, 1985), 2) that unemployed women are more distressed than unemployed men (Feather & O'Brien, 1986), or that 3) no gender-differences in the psychological effects of unemployment exist (Ensminger & Celentano, 1990; Leana & Feldman, 1991; Leeftang et al., 1992b). Women and men have been shown to cope differently with the unemployment experience. According to Leana and Feldman (1991), women resort to symptom-focused activities when unemployed, whereas men are inclined to use problem-focused activities. Concerning the role of gender in the research on unemployment, I would like to make the final point that compared to the other European Union countries, employment rates for women and men are much more nearly equal in Finland: In 1995, the employment rate in Finland was 59.9% for

women and 63.5% for men; while in the other European Union countries the figures were 50.1% and 70.9%, respectively (Employment in Europe, 1996). It has been claimed that Finnish women have adopted the norm that it is desirable for women to work full-time outside the home (Haavio-Mannila & Kelam, 1996) and that they view work as an important part of life (Lehto & Sutela, 1998).

To conclude, the research on different mediating and modifying effects indicates that the relation between unemployment and psychological distress varies as a function of factors related to the unemployed person's present life situation. Except for Kessler and his colleagues' studies (Kessler et al., 1987, 1988), different mediators and moderators have not been included in a single model; and their interactive effects have not been investigated (Ezzy, 1993; Winefield, 1995). Consequently, the goal of the present study was to gain additional information about these complex effects.

1.1.3 Selection or causation?

Recently, the question of the causal relationship between unemployment and psychological distress has been challenged. In other words, instead of assuming that unemployment gives rise, either directly or indirectly, to an increased level of psychological symptoms, one might argue that more distressed individuals get selected into unemployment (e.g., Rutter, 1994b; Rutter & Rutter, 1993). These two competing assumptions about the direction of the relation between unemployment and psychological distress have been known as the "exposure" or "social causation" hypothesis and the "selection" or "drift" hypothesis (Winefield, 1995, 1997). A minimum criterion for the establishment of causality is that the data should be longitudinal (e.g., Bergman, Eklund, & Magnusson, 1991). Longitudinal studies that have focused on the issue of causation have been classified by Mortimer (1994) into three categories: 1) studies that have predicted on the basis of school-leavers' mental health their later work-force status (e.g., Hammarström, 1994; Tiggemann & Winefield, 1989); 2) studies which have tried to recognize alterations in originally employed adults' well-being following changes in employment status (e.g., Dew et al., 1992; Hamilton et al., 1993); and 3) studies which have focused on the ability of initially unemployed adults to become re-employed, or else on factors that explain the continuation of unemployment (e.g., Warr & Jackson, 1985).

Winefield (1995) ended his extensive review of the psychological costs of unemployment with a still-unresolved fundamental question: Which of the two hypotheses, causation or drift, is more plausible in explaining the reliably-observed relation between unemployment and psychological distress? Despite an increased number of studies aimed at resolving this question, particularly in relation to youth unemployment (in 1997, the *Journal of Adolescence* devoted a whole issue to studies of youth unemployment and psychological distress), the answer seems unclear. The findings, both those based on school-leavers, and those based on the observation of adult subjects, vary greatly in this regard; with some supporting causation as an explanation (e.g., Dew et al., 1992; Schaufeli, 1997), other confirming both the selection and the causation hypothesis (e.g., Hamilton et al., 1993; Hammarström & Janlert, 1997), and yet others giving most support to the selection hypothesis (e.g., Patterson, 1997; Schaufeli & VanYperen, 1992, 1993). Nevertheless, Fryer and Winefield (1998) argue that social causation rather than individual drift

is the major factor explaining the relation between unemployment and psychological distress. In other words, it is, according to them, more likely that unemployment leads to an increased level of distress than that psychological symptoms prior to unemployment lead to job loss.

The existing studies have one major shortcoming: They do not consider the possibility that even school-leavers may have had experiences of the labor market, acquired from, for instance, summer jobs (Mortimer, 1994). These experiences may have given them some idea of their abilities as workers, and further, may have affected their psychological well-being and self-esteem. In this case, it is difficult to draw conclusions about the cause-and-effect relations between unemployment and psychological distress. In order to be able to draw more reliable conclusions, follow-up studies of future workers should begin early enough, before they have had any labor market experiences. An additional weakness of the use of school-leaver samples is that as a consequence of school dropout, they may under-represent those youngsters who are at greatest risk for unemployment (Caspi, Wright, Moffitt, & Silva, 1998). Therefore, the aim of this study was to investigate selection into unemployment on the basis of individuals' characteristics in middle childhood. Furthermore, the psychological effects of unemployment were studied after taking into account potential selection effects.

1.2 Antecedents of unemployment

1.2.1 Prospective longitudinal studies

There are only a few prospective longitudinal studies in which selection into unemployment has been investigated on the basis of individuals' early characteristics. In two such prospective New Zealand longitudinal studies, the Christchurch Health and Development Study (Fergusson, Horwood, & Lynskey, 1997) and the Dunedin Multidisciplinary Health and Development Study (Caspi et al., 1998), markers of later unemployment were identified in early childhood, at ages 8 and even 3, respectively. Fergusson and his colleagues found that childhood individual and family factors were related to a selection process into unemployment. In particular, a low intelligence score, and conduct problems at age 8; low self-esteem, and psychiatric disorders (e.g., mood disorders, conduct disorder, and alcohol abuse) as well as affiliations with antisocial peers at age 15, and low family socioeconomic status, low maternal education, and frequent parental conflicts significantly elevated the risk of an increased duration of unemployment from 16 to 18 years. After taking into account these selection effects, unemployment was further linked to a heightened level of psychiatric disorders, such as major depression, anxiety disorders, conduct disorder, and substance use, measured over a period from age 16 to age 18. However, Fergusson et al. conclude that psychiatric disorders are more dependent on personal vulnerabilities than on subsequent experiences, such as unemployment.

In line with Fergusson et al.'s (1997) findings, Caspi et al. (1998) discovered that early adjustment problems predicted later unemployment. A difficult temperament and low intelligence, as well as low family occupational status,

measured as early as at ages 3 and 5, were significant antecedents of the increased duration of unemployment between ages 15 and 21. Furthermore, behavioral problems assessed at ages 7 and 9, and delinquency and poor school certificate measured at age 15 significantly predicted subsequent unemployment. The effects of these risk factors remained significant even when the duration of education and educational attainments were controlled for. Caspi and his colleagues argue that if early predictors of unemployment are not identified, the potential effects of unemployment may be inflated.

These two prospective longitudinal studies, which were begun well before the participants had any experience of the labor market, show that there may be other factors, in addition to psychological distress, which explain selection into long-term unemployment. Consequently, the claim that social causation, rather than drift or selection explains the connection between psychological distress and unemployment (Fryer & Winefield, 1998) seems warranted insofar as the predictors of unemployment include variables assessing psychological symptoms. Thus, it is possible that factors other than psychological distress explain both selection into unemployment and subsequent psychological symptoms.

In the present study, selection into unemployment was investigated on the basis of the childhood characteristics derived from the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998; previously known as the model of impulse control, see Pulkkinen, 1982). This model consists of two orthogonal dimensions, referred to as high versus low self-control of emotions, and behavioral expression versus inhibition. These two dimensions form, furthermore, four behavioral types, A - D. Type A and Type D - aggressive and anxious behavior, respectively - have in common the low self-control of emotions; but they differ from each other in terms of behavioral activity. Aggressive behavior is typified by activity, whereas anxious behavior is typified by passivity. Type B and Type C, constructive and compliant behavior, respectively, share high self-control of emotions. However, constructive behavior is characterized by behavioral activity, while compliant behavior is characterized by behavioral passivity.

It has been previously shown that low self-control of emotions in childhood, and aggressive behavior in particular, precedes later adjustment problems. It has been shown to be related to low career orientation (Pulkkinen, Ohranen, & Tolvanen, 1999), drinking problems (Pulkkinen & Pitkänen, 1994), criminal arrests (Pulkkinen & Hämäläinen, 1995), poor self-assessed health (Kokkonen, Kinnunen, & Pulkkinen, in press), and an unstable career line in men (Rönkä & Pulkkinen, 1995). Aggressive behavior in the present study, conduct problems in the Fergusson et al. (1997) study, and behavioral problems in the Caspi et al. (1998) study all include components of physically aggressive behavior which is intended to hurt other people and which reflects a lack of concern for other people's feelings (Loeber & Hay, 1997). Consequently, I was especially interested in the role of Type A, aggressive behavior, in selection into unemployment.

1.2.2 Mechanisms operating between risks and unemployment

There are at least two mechanisms which might explain aggressive children's increased risk of unemployment: cumulative and interactional continuity (Caspi, 1998; Caspi, Bem, & Elder, 1989; Caspi, Elder, & Bem, 1987). By cumulative

continuity Caspi and his colleagues refer to behaviors on the basis of which individuals select environments that further strengthen their behaviors. For example, aggressive behaviors “are sustained by the progressive accumulation of their own consequences” (Caspi et al., 1987, p. 308). Childhood aggressive behavior has been shown to be related to subsequent poor educational attainment (Brook & Newcomb, 1995; Caspi et al., 1987, 1989; Rönkä & Pulkkinen, 1995) which is further associated with unemployment (Caspi et al., 1998; Sanford et al., 1994) and low career orientation (Pulkkinen et al., 1999). Previous findings have also indicated that aggression in childhood precedes drinking problems in adulthood (Bardone, Moffitt, Caspi, Dickson, & Silva, 1996; Pulkkinen & Pitkänen, 1994), which are, in turn, linked to low work involvement (Brook & Newcomb, 1995), an unstable career line (Rönkä & Pulkkinen, 1995), and unemployment (Sanford et al., 1994).

According to Caspi et al. (1987, 1989), interactional continuity describes behaviors that are sustained by the reciprocal responses they evoke in others. Caspi (1998) has later used the term “contemporary consequences” for this kind of continuity. It is possible, for example, that individuals with aggressive tendencies are lacking in skills which would be essential for successful interactions with workmates. Aggressive tendencies may, furthermore, make individuals vulnerable to dismissal from their jobs. Layton and Eysenck (1985) have suggested that hostile individuals may not be successful in presenting themselves in a favourable light to prospective employers, and thus may have problems in becoming re-employed. To conclude, previous research has failed to provide adequate conceptual and empirical models of the paths from childhood aggression to adult unemployment. However, certain studies have shed light on different parts of these paths.

The goal of the present study was to combine the different parts into a single model and in this way to account for the mechanisms operating between childhood characteristics and later unemployment. Moreover, these mechanisms were explained in terms of Caspi et al.’s concepts of continuity.

1.2.3 Protective effects

Since researchers have only just begun to identify the early risk factors of later unemployment, there are not yet studies of the protective effects which may serve to protect those with a high risk of unemployment from actually becoming unemployed. However, in fields other than unemployment protective effects have been widely studied in relation to, for example, the consequences of childhood aggressiveness. Protective effects can be either personal or environmental, that is, they reside either in the individual or in his or her context (Freitas & Downey, 1998; Luthar & Cicchetti, 2000; Masten & Coatsworth, 1998; Rutter, 1985, 1994b). Protective effects have been defined either as interactive or buffering processes operating against a risk factor, or as main effects (Freitas & Downey, 1998; Luthar, 1993; Luthar & Cicchetti, 2000). If certain factor is said to have a “buffering effect” the meaning is that this factor exercises its favourable influence only on high-risk individuals; whereas a “main effect”, on the other hand, is one which has positive effects for both high-risk and low-risk individuals.

In the present study, I focused on prosocial behavior as an individual protective factor and child-centered parenting as an environmental protective

factor. Both of these factors have been shown to exert both main and buffering effects on a child's adjustment. Regarding prosocial behavior, Hämäläinen and Pulkkinen (1996) found that in addition to aggression, lack of prosociality in childhood was associated with later criminality. Prosocial skills have been shown to be especially useful for an aggressive child: They protect an aggressive child from exclusion by peer groups (Bierman, Smoot, & Aumiller, 1993; Nangle & Foster, 1992; Volling, MacKinnon-Lewis, Rabiner, & Baradaran, 1993). Peer rejection has been found to explain maladjustment (Cairns & Cairns, 1994; Magnusson & Bergman, 1990) and delinquency (Rutter, Giller, & Hagell, 1998). In the present study, prosocial behavior was defined in terms of the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998). It was assumed that those aggressive individuals who are also capable of constructive behavior will cope better with critical life situations than those aggressive individuals who lack constructive problem-solving strategies.

It has been shown that authoritative (Steinberg, Elmen, & Mounts, 1989), or child-centered (Pulkkinen, 1982) parenting - including parental acceptance, behavioral supervision, and psychological autonomy granting - is related to good school achievement (Steinberg, Lamborn, Dornbusch, & Darling, 1992; Steinberg, Mounts, Lamborn, & Dornbusch, 1991), high self-confidence, few psychological symptoms, and a lack of delinquent activity (Steinberg et al., 1991); as well as to high self-control of emotions and a stable working career (Männikkö & Pulkkinen, in press). The findings imply that parenting has a general positive main effect on the child's adjustment (e.g., Maccoby, 2000) by, for example, affecting the child's choice of peer groups, the child's involvement in school, and the influences of neighborhood contexts on the child's development (e.g., Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). However, its influence may be especially important for children with developmental risks (e.g., Collins et al., 2000), such as low self-control of emotions. Gottfredson and Hirschi (1990) have suggested that that low self-control can be modified by effective child-rearing. In this study, I was interested in studying the possible protective effects of child-centered parenting on an aggressive child's later employment situation.

1.3 Multifaceted unemployment

Unemployment is a multifaceted phenomenon, which means that it varies depending on the age at which it is measured, the national unemployment rate, and its length, recency, and continuity. Consequently, it gives rise to problems for the measurement of the antecedents and consequences of unemployment. For both antecedents and consequences, one has to consider 1) the age of the individual at the time of the measurement, 2) whether there is a dose-response association, and 3) the national unemployment rate. With regard to age, previous research has indicated that compared to the young unemployed, the mature-aged unemployed suffer psychologically more (e.g., Broomhall & Winefield, 1990; Rowley & Feather, 1987). According to Winefield (1995), there are at least two reasons which may explain this finding. First, youth and adult unemployment may be qualitatively different, that is, the mature unemployed have usually lost their jobs, whereas it is

common for the young unemployed to have problems in getting a job after leaving school. It can be further speculated that the experience of difficulties in finding a job may possibly socialize a youngster into unemployment - an effect which might not be discernible until a much later developmental phase. It is possible that the distressing effects of unemployment may not appear until the individual reaches the age at which getting a job is a normative age-graded developmental task, as called by Baltes, Reese, and Lipsitt (1980). This age may, however, vary considerably in different countries and cultures, depending on the respective educational systems. Second, the psychological distress of the adult unemployed may be confused with financial problems and it is difficult to separate these two effects.

The age at which unemployment is measured may also affect findings on the antecedents of unemployment. In the two existing prospective longitudinal studies by Fergusson et al. (1997) and Caspi et al. (1998), the duration of unemployment was measured in early adulthood, at ages 18 and 21, respectively. In the present study the duration of unemployment was assessed at ages 27 and 36. It needs to be seen whether early characteristics also explain selection into unemployment at these ages.

On the basis of previous findings it cannot be determined whether a dose-response association (Hammarström & Janlert, 1997) can plausibly be assumed. In other words, it is unclear whether a linear relationship exists, between the degree to which an individual possesses a particular childhood characteristic, and the duration of the unemployment experienced by this individual in later life. It is similarly unclear whether the increased duration of unemployment is linearly linked to an increased level of psychological symptoms. Concerning the consequences of unemployment, linear (Dew et al., 1992; Hammer, 1993; Leeflang, Klein-Hesselink, & Spruit, 1992a; Rowley & Feather, 1987) and curvilinear (Warr & Jackson, 1987) associations have been previously supported. According to Warr and Jackson's results, psychological distress increases up to around 6 months, stabilizes thereafter, and then decreases after 15 months of continuous unemployment. This finding may reflect a socialization into unemployment. An alternative to the dose-response association would be to assume that both the effects of unemployment and selection into unemployment appear only after certain cut-off duration of unemployment has been experienced. This latter assumption implies that the association between psychological symptoms and/or early characteristics and unemployment is non-linear. However, Fergusson and his colleagues (1997) have claimed that the relation between unemployment and psychiatric disorders is "robust as to the choice of definition of unemployment" (p. 379).

An additional feature which may affect the findings on unemployment is the unemployment rate in a given society. Researchers have argued that the overall unemployment rate may play an important role in explaining how individuals cope with unemployment, and how stigmatized they feel by this experience (e.g., Barling, 1990; Leeflang et al., 1992a). Additionally, it has been claimed that the overall unemployment rate affects selection into unemployment. According to Winefield and Fryer (1996), during times of low unemployment, the unemployed are more likely to become unemployed because of prior psychological problems than because of the unavailability of jobs; and according to Sanford et al. (1994), during a recession unemployed also include individuals with advantaged developmental backgrounds. Individual differences may then occur in the duration of unemployment due to one's capacity for re-employment.

As for the psychological consequences of unemployment, there is a specific point to consider: The recency of the unemployment experience. The effects of unemployment may appear differently depending on whether the unemployment recorded at the study point refers to, for example, “ever unemployed” versus “unemployed now” (Hammarstöm & Janlert, 1997). It might be assumed that the more recent the unemployment experience, the more likely it is that the psychological symptoms observed are related to job loss.

Regarding specifically the antecedents of unemployment, it is essential to consider whether unemployment is measured as the duration of life-course unemployment or as a state of unemployment at one point in time (Caspi et al., 1998). Caspi and his colleagues have claimed that those studies which focus on the effects of unemployment generally use the static definition of unemployment, that is, they have defined unemployment on the basis of whether the person is currently unemployed or not at the time of the study. Caspi et al. point out that an alternative to the static definition of unemployment is to investigate the duration of unemployment, which is assumed to describe individuals’ work histories.

In the present study I assumed that selection into unemployment would be more reliably measured by the life-course duration of unemployment than by unemployment at one point in time, such as at the study time. The reason for this assumption is that unemployment at a one point may occur randomly and may be a function of, for example, economic recession, and thus does not reliably characterize an individual’s long-standing problems in the domain of work. Sinisalo (1986) has defined a stagnated career line on the basis of the total duration of unemployment (which may include several periods of unemployment or consist of long-term unemployment). To be classified by Sinisalo as having a stagnated career line, an individual has to have been unemployed for at least one-third of a five-year follow-up period. Even if the total duration of unemployment by a certain age is measured, the researcher is faced with a further measurement problem, that is, whether the duration of unemployment describes continuous unemployment or whether it is made up of bouts of unemployment. It has been argued that these two measures of unemployment are indices of qualitatively different problems in employment (Barling, 2000; Caspi et al., 1998) and, consequently, may be preceded by different types of early characteristics. Empirical support for these claims needs to be provided.

To sum up, in the present study, my goal was to tap the consequences and the antecedents of unemployment by measuring unemployment both statically, i.e., on the basis of the individual’s employment status at the point of measurement, and in terms of the duration of unemployment; both as a continuous and as a dichotomous variable; at different ages; and, finally, during times of low and high unemployment.

1.4 The aims of this study

The main aim of my study was to analyze the consequences and the antecedents of long-term unemployment. The consequences of long-term unemployment were defined in terms of psychological distress, such as depressive symptoms and anxiety. The antecedents of long-term unemployment consisted of personality

characteristics in childhood, school success in adolescence, and educational attainment and drinking behavior in young adulthood. Long-term unemployment was assessed either as something observed at the time of measurement or by measuring the total duration of unemployment in the life-course. The specific research questions and hypotheses were as follows:

Study I

(1) Is current long-term unemployment at age 36 related to an increased level of concurrent psychological distress?

In line with previous findings (e.g., Hanisch, 1999; Murphy & Athanasou, 1999; Winefield, 1995), it was hypothesized that current long-term unemployment at age 36 would be related to a heightened current level of psychological ill-health, depressive symptoms, and anxiety.

(2) Are there any mediators and moderators which explain the relation between current long-term unemployment and psychological distress?

It was assumed that self-esteem (e.g., Pearlin et al., 1981) and economic situation (e.g., Kessler et al., 1987, 1988) function as mediators in the relation between unemployment and distress; that is, current long-term unemployment would be related to a weakening of both self-esteem and economic situation, which would further be associated with current psychological problems. In order to confirm that current long-term unemployment was not a result of low self-esteem, self-esteem measured at age 27 was controlled for. In addition, it was expected that the stability of the career line (Hepworth, 1980; Rönkä & Pulkkinen, 1995) and social support (e.g., Turner et al., 1991) would turn out to function as moderators between unemployment and distress. The hypothesis was that the long-term unemployed who have a stable working career and who receive good social support would have fewer psychological symptoms when long-term unemployed than the long-term unemployed whose career line is unstable and who do not have social support available.

Study II

(3) Is long-term unemployment between ages 27 and 36 predictable on the basis of personality characteristics at age 8?

It was expected that low self-control of emotions and behavioral inhibition at age 8, drawn from the Pulkkinen's (1995, 1998) model of emotional and behavioral regulation and assumed to be markers of childhood psychological problems, would prove to be linked to long-term unemployment (defined as the total duration of unemployment between ages 27 and 36). According to Pulkkinen, both aggressive and anxious behavior are indicators of low self-control of emotions. Of these two indicators, childhood aggressive behavior in particular was assumed to be associated with unemployment (Caspi et al., 1998; Fergusson et al., 1997).

4) Are there direct or indirect links between childhood personality characteristics and subsequent long-term unemployment?

The hypothesis was that both low self-control of emotions and behavioral inhibition in childhood have indirect links, and that low self-control has a direct link, to later long-term unemployment. The indirect links were expected to operate via poor educational attainments (Caspi et al., 1998).

(5) Is long-term unemployment related to an increased level of psychological distress at age 36 when selection into unemployment on the basis of earlier characteristics is taken into account?

In line with previous findings (e.g., Fergusson et al., 1997; Feather & O'Brien, 1986; Hammarström, 1994), it was proposed that not only would the individuals with prior psychological problems get selected into long-term unemployment, but also that long-term unemployment further increases the level of psychological distress.

Study III

(6) Does aggressive behavior at age 8 begin a cycle of maladaptation that results in long-term unemployment between ages 27 and 36?

It was expected that aggressive behavior at age 8 begins a cycle of maladaptation which implies cumulative continuity (Caspi et al., 1987, 1989). By the "cycle of maladaptation" I mean that childhood aggression is associated with school maladjustment, including poor school success, low school motivation, punishments at school, and truancy, at age 14. Maladjustment was assumed to be further related to alcohol abuse and lack of occupational alternatives at age 27, which were, finally, assumed to be linked to long-term unemployment between ages 27 and 36.

(7) Are there any protective factors that buffer the relation between aggression in childhood and long-term unemployment in adulthood?

The hypothesis was that prosocial behavior, indexed by constructive behavior (Pulkkinen, 1995, 1998), and child-centered parenting (Gottfredson & Hirschi, 1990; Pulkkinen, 1982) protect against an aggressive child's becoming a long-term unemployed adult.

Study IV

(8) Is long-term unemployment by age 27 predictable on the basis of personality characteristics at age 8?

It was assumed that when long-term unemployment is measured at age 27, educational factors rather than personality characteristics explain selection into long-term unemployment. The reason for this assumption was that only individuals who have received only a short period of education have been available for

the labour market at this age. A low level of education was expected to be preceded by childhood personality characteristics, that is, low self-control of emotions and behavioral inhibition.

(9) Is selection into long-term unemployment similar among 27-year-old Finnish and 26-year-old Swedish participants?

According to Rutter (1994a), it is essential to try to replicate longitudinal research findings with different samples. In line with this notion, selection into unemployment was investigated with two prospective longitudinal samples, one drawn from Finland and the other one from Sweden. There were no reasons to expect the findings on selection into long-term unemployment at age 26 - 27 to differ between Finnish and Swedish participants. The cultures of these two countries, especially as regards the educational system and female participation in employment, are similar.

2 METHOD

2.1 Participants and procedure

JYLS

The study was part of the ongoing Jyväskylä Longitudinal Study of Personality and Social Development (JYLS) which was started in 1968 and is directed by Professor Lea Pulkkinen (Pulkkinen, 1982, 1998). In the JYLS, the originally about 8-year-old participants (born mostly in 1959) have been followed up at ages 14, 20, 27, 33, and 36. In the present study, data gathered at ages 8, 14, 27, and 36 were used. The original random sample consisted of 369 (173 girls and 196 boys) second-grade pupils, drawn from both downtown and suburban schools of the medium-sized (about 78,000 inhabitants) town of Jyväskylä in central Finland. At age 8, teacher-ratings and peer nominations of the children's social behavior and personality characteristics were gathered.

The participation rate of the JYLS has remained high over the years. At age 14 in 1974, teacher- and peer-ratings, which were similar to the ratings collected at age 8, were obtained from 356 participants (96% of the original sample; 167 girls and 189 boys). At age 27 in 1986, 321 participants (87%; 155 women and 166 men) filled in and returned a mailed questionnaire and 292 participants (79%; 142 women and 150 men) were personally interviewed. Information on the duration of unemployment was available for 313 27-year-old participants (152 women and 161 men). The mailed Life Situation Questionnaire (LSQ1) consisted of about 200 questions covering, for example, marital status, education and work, economic situation, smoking and drinking, and personal control over development. Among other questions, the semi-structured interview included memories of the home atmosphere and parents when the participant was 14 years old. Additionally, two personality inventories – the standardized Finnish versions (Haapasalo, 1990) of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and the Sensation Seeking Scale (Zuckerman, 1979) – were presented to the participants during the interview. The unemployment rate was about 5% in Finland in 1986.

At age 36 in 1995, 311 participants (84% - two persons had died by age 36; 151 women and 160 men) filled in and returned a mailed questionnaire and 283 (77%; 137 women and 146 men) were personally interviewed. Information on current unemployment and total duration of unemployment was available for 311 36-year-old participants (150 women and 161 men). In addition to the life domains covered by the LSQ1, the mailed Life Situation Questionnaire (LSQ2) included the General Health Questionnaire (Goldberg, 1972) as an index of psychological distress. The semi-structured interview included, among other questions, 20 self-reports to be filled in during the interview. They concerned, for example, depressive symptoms (General Behavior Inventory; Depue, 1987) and self-esteem (Self-Esteem Scale; Rosenberg, 1965). The Karolinska Scales of Personality (af Klinteberg, Schalling, & Magnusson, 1986, 1990) was given to be filled in at home and returned using a prepaid envelope. The unemployment rate was about 18% in Finland in 1995.

The attrition analyses indicated that at age 36, the participants and non-participants did not differ with respect to the social behavior and personality characteristics (e.g., aggressive and constructive behavior) measured at age 8, nor in school success at age 14. Attrition at age 36 was higher among the participants who were problem drinkers at age 27 than among the rest. However, attrition from age 27 to 36 did not occur on the basis of education. The participants at age 36 were representative of the whole age cohort born in 1959 in terms of marital status, number of children, level of education, and unemployment rate.

IDA

For comparative purposes, a Swedish prospective longitudinal sample was also used in the present study. The sample was drawn from the ongoing Individual Development and Adaptation (IDA) study, founded and directed by Professor David Magnusson, later directed by Professor Lars R. Bergman (Magnusson & Bergman, 2000; Magnusson, Dunér, & Zetterblom, 1975). The IDA study began in 1965 when the participants in the main group were 10 years old (born mostly in 1955). The participants who belonged to the main group were included in the statistical analyses of the present study. The main group consisted of all the pupils who attended the third grade in the Örebro comprehensive school system in the school year 1964 - 1965. Örebro is a fairly large Swedish town with 100,000 inhabitants. At age 10, teacher-ratings of the social behavior and personality characteristics were obtained from 1026 children (509 girls, 517 boys). At age 13 in 1968, the original main cohort plus participants in the same age cohort who had moved to Örebro were followed. Similar teacher-rated information as that obtained at age 10 was available on 1092 participants (549 girls, 543 boys). At age 26 in 1981, the mailed questionnaire covering, for example, work and education, was returned by 1393 participants (683 women, 710 men) belonging to the main group. The group size had increased, since children moving into the Örebro school system at a later age were added to the cohort. Information on the duration of unemployment was available for 1085 26-year-old participants (570 women, 515 men). The unemployment rate was about 3% in Sweden in 1981.

2.2 Measures

Because detailed information on the various measures is provided in the original studies, only a short summary is given here. The measures used in the present study can be divided into three general categories: long-term unemployment, consequences of long-term unemployment, and antecedents of long-term unemployment. Additionally, several control variables were included in this study.

Long-term unemployment was identified either on the basis of unemployment at the time of measurement, or on the basis of the length of time over which the unemployment extended. It is long-term unemployment measured by the first method that is recorded in Table 1, Study I. Current unemployment and its duration were assessed in both the LSQ2 and in the interview. On the basis of this information, three categories were formed: 1 = employed; 2 = short-term unemployed (1 - 12 months); and 3 = long-term unemployed (over 12 months). By the length of time over which unemployment extended I refer to unemployment which was measured either between ages 27 and 36 (see Table 1, Studies II and III) or by age 26 - 27 (see Table 1, Study IV). At age 36, the participants were asked to recall their periods of unemployment from age 27 to age 36 in the LSQ2. On the basis of the total duration of unemployment between these ages, five categories were formed: 1 = employed ($n = 200$), 2 = less than 6 months ($n = 25$), 3 = 6 - 12 months ($n = 31$), 4 = 13 - 24 months ($n = 30$); and 5 = more than 24 months unemployed ($n = 25$). For further statistical analyses, groups 1 to 4 were combined (0 = not long-term unemployed) and compared with group 5 (1 = long-term unemployed). At age 27, the JYLS participants were asked in the interview and at age 26, the IDA participants were asked in the mailed questionnaire to recall their periods of unemployment so far. On the basis of the total duration of unemployment by ages 27 and 26, respectively, two categories were formed in both samples: unemployed less than 12 months (0 = not long-term unemployed) and unemployed 12 months or more (1 = long-term unemployed).

Consequences of long-term unemployment were assessed in Study I (see Table 1) in terms of psychological ill-health, measured using the General Health Questionnaire (GHQ; Goldberg, 1972); depressive symptoms, measured using the General Behavior Inventory (GBI; Depue, 1987); and anxiety, measured using the Karolinska Scales of Personality (KSP; af Klinteberg et al., 1986, 1990). The GHQ was given in the LSQ2, the GBI was filled in during the interview, and the KSP was left to be filled in at home after the interview. Additionally, low self-esteem, measured using the Rosenberg's (1965) Self-Esteem Scale (RSE), was used as an index of psychological distress in Study II. The RSE was filled in during the interview. All of these age 36 measures consisted of composite scores calculated as averaged scores of the single items. For more information on the reliabilities (calculated by Cronbach's alphas) of the composite scores, see Table 1. In Study I, low self-esteem (see above) and poor economic situation, assessed by a single item in the LSQ2, were studied as mediators; and social support, assessed by a composite score of eight items in the LSQ2, and stability of career line by age 27 (Rönkä & Pulkkinen, 1995) were studied as moderators in the relation between long-term unemployment and its psychological consequences.

TABLE 1 Summary of the variables and methods used in Studies I - IV.

Study	Participants	Variables	Data analysis
Study I JYLS ^a	At age 27: 155 women and 166 men	Independent variable at age 36: - Length of <i>current</i> unemployment: employed ($n = 177$), short-term unemployed (≤ 12 mths; $n = 29$), and long-term unemployed (>12 mths; $n = 29$)	ANOVA Duncan's test
At age 36: 151 women and 160 men	Mediators at age 36: - Low self-esteem ($\alpha = .79$) - Poor economic situation	Pearson correlations	
	Moderators: - Social support at age 36 ($\alpha = .77$) - Stability of career line by age 27	Path analysis based on covariance matrices (calculated separately for women and men; pairwise deletion) and maximum likelihood estimation	
	Dependent variables at age 36: - Psychological ill-health ($\alpha = .88$) - Depressive symptoms ($\alpha = .89$) - Anxiety ($\alpha = .91$)		
	Control variables at age 27: - Low self-confidence ($\alpha = .65$) - Low self-worth ($\alpha = .65$)		
Study II JYLS	At age 8: 173 girls and 196 boys	Independent variables at age 8: - Low self-control of emotions, obtained by correspondence analysis	Correspondence analysis
At age 14: 167 girls and 189 boys	- Behavioral inhibition, obtained by correspondence analysis	Hierarchical logistic regression analysis	
At age 27: 155 women and 166 men	Mediators: - Poor school success at age 14 - Low educational level at age 27 - <i>Total duration</i> of unemployment between ages 27 and 36: not long- term unemployed (≤ 24 mths; $n = 286$) and long-term unemployed (> 24 mths; $n = 25$)	Path analysis based on correlation matrices (Pearson; pairwise deletion) and general least squares estimation	
At age 36: 150 women and 161 men	Dependent variables at age 36: - Low self-esteem ($\alpha = .79$) - Depressive symptoms ($\alpha = .89$) - Anxiety ($\alpha = .91$)	MANOVA	
	Control variables: - Low parental socioeconomic status - Participants' sex		
Study III JYLS	At age 8: 173 girls and 196 boys	Independent variable at age 8: - Aggressive behavior ($\alpha = .86$)	Path analysis based on correlation matrices
At age 14: 167 girls and 189 boys	Mediators: - School maladjustment at age 14 - Lack of occupational alternatives at age 27 - Problem drinking at age 27	(polychoric; pairwise deletion) and general least squares estimation	
At age 27: 155 women and 166 men	Moderators: - Prosocial behavior at age 8 - Child-centered parenting at age 14 (measured at age 27)	Student's <i>t</i> test for independent samples	
At age 36: 150 women and 161 men	Dependent variable at age 36: - <i>Total duration</i> of unemployment between ages 27 and 36 (see Study II)	Logistic regression analysis	

TABLE 1 (continues)

Study	Participants	Variables	Data analysis
<i>Study IV</i> <i>JYLS</i>	At age 8: 173 girls and 196 boys At age 14: 167 girls and 189 boys At age 27: 155 women and 166 men	Independent variables at age 8: - Low self-control of emotions (see Study II) - Behavioral inhibition (see Study II) Mediators: - Poor school success at age 14 - Low educational level at age 27 Dependent variable at age 27: - <i>Total duration</i> of unemployment by age 27: not long-term unemployed (< 12 mths; <i>n</i> = 285) and long-term unemployed (\geq 12 mths; <i>n</i> = 28) Control variables: - Low parental socioeconomic status - Participants' sex	Effect sizes Path analysis based on correlation matrices (Pearson; pairwise deletion) and generalized least squares estimation
<i>IDA</i> ^b	At age 10: 509 girls and 517 boys At age 13: 549 girls and 543 boys At age 26: 570 women and 515 men	Independent variables at age 10: - Conduct problems - Timidity Mediators: - Poor scholastic achievement at age 13 - Low educational level at age 26 Dependent variable at age 26: - <i>Total duration</i> of unemployment by age 26: not long-term unemployed (< 12 mths; <i>n</i> = 1040) and long-term unemployed (\geq 12 mths; <i>n</i> = 45) Control variables: - Low parental education - Participants' sex	Effect sizes Path analysis based on correlation matrices (Pearson; pairwise deletion) and generalized least squares estimation

Note. ^aJYLS: Jyväskylä Longitudinal Study of Personality and Social Development
^bIDA: Individual Development and Adaptation

Antecedents of long-term unemployment can be, basically, grouped into personality and educational variables. In Studies II and IV (see Table 1), personality variables were indexed by two axes extracted by the correspondence analysis and resembling the two dimensions of the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998): high versus low self-control of emotions and behavioral expression versus inhibition. These axes were based on the following teacher-rated variables measured at age 8: lability, anxiety, aggression, stability, compliance, constructiveness, passivity, and activity. Low self-control of emotions was loaded by, for example, aggressive behavior and lability, and behavioral inhibition was loaded by passivity and anxiety. In Study IV, teacher-rated conduct problems and timidity at age 10 were used as indexes of low self-control of emotions and behavioral inhibition, respectively, in the Swedish IDA sample. In Studies II and IV, poor school success, measured at age 14 as a grade point average collected from school archives, and low educational level, measured at age 27 by the LSQ1 were investigated as mediators between childhood personality characteristics and

subsequent long-term unemployment. The respective variables in the IDA sample were poor scholastic achievement, measured at age 13 as the grade point average in Mathematics and Swedish, and collected from school registers; and low educational level, measured at age 26 by the mailed questionnaire.

In Study III (see Table 1), I focused on the role of teacher-rated aggressive (a composite score of four items, such as "Attacks somebody without reason") as an antecedent of long-term unemployment. School maladjustment at age 14, as well as lack of occupational alternatives and problem drinking at age 27 were investigated as mediators between childhood aggression and later long-term unemployment. School maladjustment was composed of poor school success (see above) and teacher-rated lack of interest in school work; punishments at school, and truancy. Lack of occupational alternatives were assessed during the interview ("When choosing your current field, how many alternatives did you have in mind?"), and problem drinking was defined on the basis of information about arrests for drunkenness (information gathered from both the government and the local, more informal register) and the CAGE Questionnaire (Ewing, 1984) included in the LSQ1 (Pulkkinen & Pitkänen, 1994). Prosocial behavior at age 8 and child-centered parenting at age 14 were investigated as moderators between aggression and unemployment. Prosocial behavior was a composite score of six teacher-rated and two peer-nominated items which were indicators of constructive behavior, high-self-control of emotions, good coping capacities, prosocial strategies, and coping with social expectations. Child-centered parenting was a retrospective recollection (measured at age 27) of participants' parenting practices and the home environment at age 14. It was a composite score of five variables: good parental relationship, good relationship with the father, maternal support, maternal supervision, and lack of physical punishment.

Control variables included self-confidence and low self-worth at age 27; which were used in Study I (see Table 1) as indicators of the continuity of self-esteem from age 27 to age 36. They were based on the information gathered by the Personal Control Inventory (Pulkkinen & Rönkä, 1994) which was included in the LSQ1. Self-confidence indicated trust in one's own powers and denoted a sense of positive internal control over one's development, whereas Low Self-worth consisted of negative moods or depression due to perceived incompetence. In Studies II and IV, participants' sex and parental socioeconomic status (SES) were controlled for. In these studies, the sample size of the long-term unemployed was not large enough to permit separate analyses for women and men; and so the effect of the participants' sex was statistically controlled for in the analyses. Parental SES was defined on the basis of both the father's and mother's occupational status, information about which was obtained in the interview at age 27. In the IDA sample, parental education was defined on the basis of the parent with the highest education.

2.3 Data analyses

The main methods of data analysis were LISREL models (Jöreskog & Sörbom, 1996; see Table 1). In Studies I, II, and IV only structural equation models were tested, whereas in Study III a measurement model was also employed. LISREL

models were used to examine the paths from childhood characteristics to long-term adult unemployment (Studies II, III, and IV) and to study mediating (Studies II, III, and IV) and modifying (Study III) factors between early characteristics and unemployment, as well as to investigate the mediators and moderators between current long-term unemployment and psychological distress (Study I). Several other types of analysis were used for comparative purposes, such as ANOVA (with Duncan's test; Study I), MANOVA (Study II), Student's *t* test for independent samples (Study III), and effect sizes (Study IV). Additionally, correspondence analysis was used (Study II) in order to obtain the two dimensions of Pulkkinen's (1995, 1998) model of emotional and behavioral regulation. Finally, logistic regression analysis was applied (Studies II and III) to confirm the LISREL findings on the antecedents of long-term unemployment.

3 OVERVIEW OF THE ORIGINAL STUDIES

Study I

Kokko, K. & Pulkkinen, L. (1998). Unemployment and psychological distress: Mediator effects. *Journal of Adult Development*, 5, 205-217.

The main purpose of the first study was to determine whether current long-term unemployment was associated with concurrent psychological distress, and whether there were any mediators and moderators between long-term unemployment and psychological distress, such as psychological ill-health, depressive symptoms, and anxiety. Employment and unemployment were defined on the basis of the employment status at the study point, at age 36; and three groups were compared to each other: employed, short-term unemployed, and long-term unemployed. In line with the hypothesis, the long-term unemployed were more distressed than the employed, that is, they had more depressive symptoms and were more anxious than those who had a job.

However, as expected, it was not the experience of unemployment per se which was associated with distress. Self-esteem and economic situation mediated the relation between long-term unemployment and psychological symptoms: Current long-term unemployment was related to a deterioration of both the self-esteem and the financial situation of the participants, and weak self-esteem and poor financial situation were further linked to depressive symptoms and psychological ill-health. Lowered self-esteem was, additionally, related to anxiety, whereas financial worries were not related to it. It was shown that the long-term unemployment was not a result of low self-esteem at age 27.

Contrary to what might have been assumed, good social support did not buffer against the negative effects of long-term unemployment. Instead, those long-term unemployed men who received social support had more psychological ill-health than those who did not receive support. Finally, consistent with the hypothesis, the stability of career line moderated the negative effects of unemployment. The long-term unemployed men whose career lines were already characterized by instability by age 27 were more anxious than unemployed men with stable career lines.

Study II

Kokko, K., Pulkkinen, L., & Puustinen, M. (2000). Selection into long-term unemployment and its psychological consequences. *International Journal of Behavioral Development, 24*, 310-320.

The second study had three goals: First, to determine whether long-term unemployment, defined as unemployment which had lasted for more than two years between ages 27 and 36, was related to personality characteristics at age 8. Personality characteristics were conceptualized in terms of the two dimensions - low versus high self-control of emotions and behavioral inhibition versus expression - of Pulkkinen's (1995, 1998) model of emotional and behavioral regulation. Second, to determine whether childhood personality characteristics had direct or indirect links to subsequent long-term unemployment. Third, to find out whether long-term unemployment was related to psychological distress, after the selection effects had been controlled for.

Consistent with the hypothesis, low self-control of emotions in childhood was related more strongly than behavioral inhibition to long-term unemployment in adulthood. It should be noted, that contrary to theoretical expectations, low self-control of emotions was loaded by aggressive behavior; not by anxiety, which was loaded on to the dimension for behavioral inhibition.

Low self-control of emotions at age 8 had a direct link to unemployment, whereas behavioral inhibition at age 8 was indirectly associated with unemployment. By "indirect link" I mean that behavioral inhibition in childhood was related to poor school success at age 14 which, in turn, was linked to low educational level at age 27. Furthermore, low education preceded long-term unemployment. The observed direct and indirect links remained after taking into account the effects of the participants' sex and parental SES. When selection into long-term unemployment on the basis of personality characteristics and educational factors was controlled for, long-term unemployment was further related to an increased level of psychological distress, as indexed by low self-esteem, depressive symptoms, and anxiety. Consequently, the present findings gave support to both the selection and causation hypotheses of the relation between psychological symptoms and unemployment. In other words, children with low self-control of emotions were more likely to become long-term unemployed adults than children without problems in emotional self-control, but long-term unemployment was further linked to psychological distress.

Study III

Kokko, K. & Pulkkinen, L. (2000). Aggression in childhood and long-term unemployment in adulthood: A cycle of maladaptation and some protective factors. *Developmental Psychology, 36*, 463-472.

The third study had two goals: First, it concentrated on the mechanisms through which aggressive behavior at age 8 was related to long-term unemployment between ages 27 and 36 (see Study II) and, second, it set out to discover whether there were any protective effects in this relation between aggression and unemployment. It was found that aggressive behavior in childhood began a cycle

of maladaptation with cumulative continuity (Caspi et al., 1987, 1989): Childhood aggressive behavior was linked to school maladjustment (indicated by poor school success, poor motivation, punishments, and truancy) which was further, directly and indirectly (via problem drinking and/or lack of occupational alternatives at age 27) related to long-term unemployment.

However, the findings indicated that prosocial behavior (indicated by, for example, constructive behavior and high self-control of emotions) and child-centered parenting (indicated by, for example, a good relationship between the parents, a good relationship with the mother, and a good relationship with the father) buffered against an aggressive child's becoming a long-term unemployed adult. Among the aggressive, the probability of becoming long-term unemployed was 1% if both prosociality and child-centered parenting were one standard deviation above the values obtained for average aggressive children; whereas it was 45% if they were one standard below those of average aggressive children. Prosociality and child-centered parenting also had main effects on long-term unemployment, that is, they were negatively linked to it in the entire sample.

Study IV

Kokko, K., Bergman, L. R., & Pulkkinen, L. (2000). *Selection into long-term unemployment in Finnish and Swedish longitudinal samples*. Manuscript submitted for publication.

Studies II and III showed that childhood personality characteristics, especially aggressive behavior, were related to long-term unemployment between ages 27 and 36. The main aim of the fourth study was to ascertain whether long-term unemployment, defined as unemployment which had lasted for at least a year by age 27, was also related to personality characteristics at age 8. The same personality characteristics, low self-control of emotions and behavioral inhibition, were used; and the same model of selection into long-term unemployment was tested in this study as in Study II (for the 36-year-old unemployed). For comparative purposes, selection into long-term unemployment by age 26 was also analyzed in the Swedish IDA sample, where conduct problems and timidity at age 10 were assumed to be indicators of low self-control of emotions and behavioral inhibition, respectively.

It was shown that neither low self-control of emotions nor behavioral inhibition in the JYLS, and neither conduct problems nor timidity in the IDA were directly related to long-term unemployment by age 26 - 27. However, they preceded poor school success at age 14 (JYLS) or 13 (IDA), which was further linked to low educational level at age 27 (JYLS) or 26 (IDA). Moreover, as previously shown, low education was associated with long-term unemployment. Thus, at age 26 - 27, what could be observed was selection into an educational track on the basis of childhood personality characteristics, rather than selection into long-term unemployment. This finding was confirmed by both the JYLS and IDA samples.

4 DISCUSSION

4.1 Main findings

The findings of the present study showed that long-term unemployment had consequences in terms of psychological distress, indicated by the finding that the currently long-term unemployed at age 36 had more concurrent depressive symptoms and anxiety than the employed. The relation between current long-term unemployment and distress depended, however, on different mediating and modifying factors. Long-term unemployment was related to financial problems and low self-esteem, which were further linked to psychological symptoms. Thus, financial situation and self-esteem functioned as mediators in the relation between long-term unemployment and distress. In addition, stability of career line and social support functioned as moderators in the relation between unemployment and distress. This was apparent in the finding that long-term unemployed men whose career line was already characterized by instability before age 27, and who received good social support, were especially vulnerable to the negative psychological consequences of unemployment. The negative consequences of long-term unemployment remained when the early antecedents of long-term unemployment had been taken into consideration.

Long-term unemployment by age 27 was preceded by poor educational attainments in adolescence and young adulthood, which were accounted for by low self-control of emotions, particularly aggressive behavior, and behavioral inhibition in childhood. This finding was confirmed using both the Finnish JYLS and the Swedish IDA sample. Long-term unemployment between ages 27 and 36 was more strongly explained than earlier long-term unemployment, by childhood personality characteristics; because at an older age most of the participants had passed the period of formal education and were thus available for the labor-market as well as for potential unemployment.

Childhood aggressive behavior began a cycle of maladaptation. Aggressive tendencies at age 8 were associated with school maladjustment at age 14; which was both directly and indirectly, through problem drinking and lack of occupational alternatives at age 27, related to long-term unemployment between ages 27 and 36.

Prosocial behavior at age 8, and child-centered parents at age 14, however, buffered an aggressive child against long-term unemployment.

4.2 Mediators and moderators in the relation between long-term unemployment and distress

The finding that the long-term unemployed were more distressed than their employed counterparts is in accordance with a large number of previous findings which show that there is a relation between unemployment and psychological distress (e.g., Hanisch, 1999; Murphy & Athanasou, 1999; Winefield, 1995). The relation between long-term unemployment and psychological distress depended on four factors: Financial strain, self-esteem, stability of career line, and social support. Financial strain turned out to be a mediator in the relation between unemployment and psychological distress. The same finding has also been demonstrated by, for example, Kessler et al. (1987, 1988) in the US. It is worth noting that the mediator role of financial strain was confirmed in Finland, where social security, such as unemployment benefits, is at a reasonably high level. It is possible that, in addition to current financial strain, the anticipation of future financial strain causes psychological distress (Kinnunen & Pulkkinen, 1998).

Self-esteem was another mediator in the relation between unemployment and distress. This finding is in line with Pearlin et al.'s (1981) results, which indicated that self-esteem mediated the relation between disruptive job events and depression. However, it contrasts with Shamir's (1986) findings on the modifying effects of self-esteem. In his study, unemployment was not related to a lowering of self-esteem, but individuals with high self-esteem before job loss coped better with the unemployment experience than individuals with low self-esteem. At least two facts may explain the differences between Shamir's, and the present findings. One is related to the level of education and the other to the age of the unemployed. In the present study, the participants were less well educated than they were in Shamir's study. One may assume that individuals with university-level education have better chances for re-employment than individuals with average education. As a result of better chances for re-employment, unemployment may have minor effect on self-esteem. Secondly, the participants in this study were more homogeneous as regards their age (35 - 36 years) than Shamir's subjects (27 - 47 years); and it is possible that the effects of age were especially in evidence in the present study. The long-term unemployed in the present study may have been especially vulnerable to experiencing a serious blow to their self-esteem because of the importance of work for individuals of their age, compared to the young unemployed (Hammer, 1993). Developmental theorists, such as Havighurst (1948/1982, 1953) and Levinson (1986, 1996; Levinson et al., 1978), have claimed that the age of 36 belongs to the stage in life when establishing a stable position in the domain of work is important.

Stability of career line functioned as a moderator between unemployment and psychological symptoms in men. An explanation for this may be that other problems in social functioning, such as problem drinking, financial problems, and

lack of social relations, tend to co-occur with an unstable working career (Rönkä, 1999). These problems may have further exposed individuals to future problems in the domains of work and psychological well-being.

The connection between unemployment and distress among men was also modified by social support. However, in contrast to previous research (e.g., Broomhall & Winefield, 1990; Dew et al., 1992; Ensminger & Celentano, 1990; Hammer, 1993), good social support did not buffer against the negative effects created by unemployment. Instead, long-term unemployed men who received good social support manifested more psychological ill-health. Since unemployment, social support, and psychological ill-health were measured at the same point, at age 36, the directions of causality among these effects is ambiguous; a plausible explanation is that men with psychological symptoms sought support in order to relieve their distress.

Generally, compared to previous research on the mediating and moderating effects operating between unemployment and psychological distress, this study included a higher number of factors in the same model. Analyzed in this way, with both mediators and moderators, as well as different indices of distress simultaneously tested, the relation between long-term unemployment and psychological distress turned out to be complex, and to include both indirect and modifying effects. Ezzy (1993) and Winefield (1995) among others, have recommended the study of these kinds of complicated, simultaneous relations.

4.3 Selection and causation hypotheses

Childhood personality characteristics, particularly low self-control of emotions and behavioral inhibition, played a role in the selection process into long-term unemployment. Their effects depended, however, on the age at which unemployment was measured. Long-term unemployment before age 27, in both the JYLS and IDA samples, was explained by lack of education or low educational qualifications, which in turn were preceded by childhood characteristics. Long-term unemployment between ages 27 and 36, on the other hand, was more strongly accounted for by low self-control of emotions in childhood, indicated by aggressive behavior. According to the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998), both anxiety and aggressive behavior are indicators of low self-control of emotions (differing in behavioral activity), but in this study aggressive behavior loaded on the axis for low self-control of emotions, whereas anxiety loaded on the axis for behavioral inhibition. Of these axes, low self-control had direct links to long-term unemployment between ages 27 and 36, while behavioral inhibition was indirectly (via poor educational attainments) related to long-term unemployment.

Childhood low self-control of emotions was more strongly linked to unemployment at an older age compared to a younger age, in spite of the longer time-span between antecedents and an outcome. If selection into unemployment on the basis of early personality characteristics is studied, unemployment should be measured at an age when institutional commitments, such as education, do

not constrain an individual's opportunities for entry into the labor-market. Otherwise, only individuals with a short period of education are available for the labor-market and, thus, potential unemployed individuals.

When selection into long-term unemployment on the basis of personality characteristics and educational factors was taken into consideration, long-term unemployment was further associated with an increased level of psychological distress. These findings give support to both hypotheses of the relation between unemployment and psychological distress; that is, the selection and causation hypotheses (e.g., Winefield, 1995, 1997). By this is meant that more distressed individuals became selected into long-term unemployment, and long-term unemployment further increased the level of distress among these individuals.

Two considerations should be borne in mind in relation to the selection and causation findings of the present study: First, the measurement of the antecedents and consequences of long-term unemployment and, second, the societal factors affecting selection and causation. Selection and causation have been previously studied using similar, or even the same measures of distress, such as depressive symptoms and anxiety, both before and after the unemployment experience. This is reasonable when the time-span between two assessments is short and both measurements occur in, for example, adolescence or adulthood. This is the case when the employment prospects of school-leavers, or the re-employment of originally unemployed adults are studied (Mortimer, 1994). However, when the time-span extends from childhood to adulthood, the situation is different (Pulkkinen, 1998). It is not possible to measure, for example, depressive symptoms, in the same way among 8-year-olds and 36-year-olds. In this study, low self-control of emotions and behavioral inhibition were included in the childhood indicators of psychological distress, whereas, for instance, depressive symptoms and anxiety were chosen to indicate adult distress. Low self-control and behavioral inhibition, including both externalizing and internalizing problem behavior, were expected to give a broader picture of childhood psychological symptoms than depressive symptoms alone. In the JYLS, depression was not studied at age 8; but social anxiety, which correlates positively with depression in childhood (Pulkkinen, Kaprio, & Rose, 1999) was investigated. Anxiety was indirectly related to long-term unemployment, whereas aggressive behavior was more directly linked to unemployment. This suggests that the selection mechanisms may be somewhat different from the causality processes. In future studies, it will be important to study selection and causation hypotheses in relation to different types of antecedents and consequences of unemployment.

It is possible that the unemployment rate in a given society affects the strength of individual characteristics in accounting for selection into unemployment. It has been argued that during periods of high unemployment, selection into unemployment on the basis of individual characteristics is not plausible, since the reason for job loss is then external (Hammarström & Janlert, 1997; Winefield & Fryer, 1996). This may be so, but individual differences may nonetheless appear in the speed of re-employment, as a result of which individual characteristics may still have a discernible effect on the individual's long-term unemployment.

In line with Caspi and Moffitt's (1991) claims that individual differences in personality characteristics are accentuated during periods of social change, I expected that selection into long-term unemployment on the basis of aggressive

behavior would be more prominent at age 36 compared to age 27, due to the fact that in 1986 (at age 27) the unemployment rate was about 5% in Finland, whereas it had risen to about 18% by 1995 (at age 36). Because of high unemployment in 1995, there were individuals who had suddenly lost their jobs as a result of recession even though previously there were no problems in their career lines or developmental backgrounds. These individuals became re-employed in a short period of time. In contrast, individuals with previous problems, such as childhood aggressive behavior, had persistent difficulties in becoming re-employed.

Personality characteristics possibly play a more significant role in the hiring process during times of few available jobs, when the competition is hard, compared to times when plenty of jobs are available. Lahelma, Arber, Rahkonen, and Silventoinen (2000) have actually shown that during a period of high unemployment the employed labor force is more homogenous in terms of good health than in times of low unemployment because of a "healthy worker effect". The stably-employed and re-employed are selected on the basis of their good health status. The national unemployment rate may also influence the psychological well-being of the unemployed. In particular, it may affect the way the unemployed cope with job loss and how stigmatized they feel (Barling, 1990; Leeflang et al., 1992a).

4.4 A cycle of maladaptation

The finding that childhood aggressive behavior is a significant antecedent of subsequent long-term unemployment is in line with two prospective New Zealand longitudinal studies which show that conduct problems (Fergusson et al., 1997) and behavioral problems (Caspi et al., 1998) in early childhood are related to unemployment in young adulthood. It is also in line with previous studies based on the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998) which indicate that Type A, aggressive behavior is a risk factor for later maladjustment, such as drinking problems (Pulkkinen & Pitkänen, 1994) and criminal arrests (Pulkkinen & Hämäläinen, 1995).

It is possible to interpret the results on the basis of Caspi's (1998; Caspi et al., 1987, 1989) concepts of cumulative and contemporary consequences. According to him, cumulative continuity means that on the basis of their previous behavior, individuals select environments that further strengthen their behavior and, in this way, the cycle of antecedents and their consequences is maintained. On the other hand, contemporary (interactive) consequences imply that an individual's current personality, rather than the consequences of earlier events, explain his or her current outcomes (Caspi, 1998), such as unemployment.

Since no measure of the stability of aggressive behavior over time was included in the present analyses, as noted by Pettit (2000), it is more plausible to interpret the results in terms of cumulative continuity; which I refer to by the cycle of maladaptation. The cycle of maladaptation describes the following chain of events: Aggression at age 8 preceded school maladjustment at age 14; which was both directly and indirectly, via problem drinking and / or lack of occupational alternatives at age 27, linked to long-term unemployment between ages 27 and 36. It should be noted that the abuse of alcohol may be functional; demonstrating,

for instance, one's independence in adolescence (Silbereisen & Eyferth, 1986). But in this study, problem drinking was recorded in early adulthood, indicating long-standing alcohol dependence.

4.5 Protective factors against long-term unemployment

It should be noted that not every aggressive child became a long-term unemployed adult in the present study. There were significant protective effects operating between early aggressive behavior and later unemployment, namely, a child's prosocial behavior and child-centered parents. The likelihood that an aggressive child would become a long-term unemployed adult was dramatically lowered if he or she manifested prosocial tendencies and had child-centered parents. In addition to buffering effects, these factors had main effects, that is, they were negatively related to long-term unemployment when the entire sample was analyzed. Consequently, in the present investigation prosociality and parenting accorded with the definition of protective factors which considers them to have both interactive and main effects (Freitas & Downey, 1998; Luthar, 1993).

As for the protective effects of prosociality, it is interesting that aggressive and prosocial behavior have traditionally been studied as contrasting types of behavior or *traits* which cannot reside in the same individual. In the present study, prosocial behavior was defined as a *problem-solving strategy*, indicated by constructive behavior in an aggression-provoking situation (Pulkkinen, 1995, 1998). If an aggressive child was capable of prosociality at least to some extent, which means that the child possessed an alternative problem-solving strategy to aggression, the probability that he or she would become long-term unemployed was dramatically lowered. By "some extent" I refer to the fact that, on average, the aggressive children had less prosociality than the others, but even prosociality apparent in some situations only protected them against later maladjustment. It can reasonably be assumed that aggressive individuals with prosocial capacities are more reliable and co-operative workmates, and become more easily re-employed when unemployed than aggressive individuals for whom prosocial strategies are uncommon. There are some other recent arguments according to which aggressive behavior and prosocial tendencies may characterize the same individual (Feshbach & Feshbach, 1986; Graziano & Eisenberg, 1997; Shiner, 1998), and empirical findings lend further support to these claims: Prosocial skills seem to protect an aggressive child from peer rejection (Bierman et al., 1993; Nangle & Foster, 1992; Volling et al., 1993).

As regards the buffering role of child-centered parenting, it is interesting that the present finding is in line with previous arguments claiming that through effective child-rearing, low self-control (Gottfredson & Hirschi, 1990), or a difficult temperament (Collins et al., 2000); of both of which, aggressive behavior may be an indicator, can be modified. In this study, aggressive behavior was assessed at age 8, whereas parenting described the home atmosphere at age 14. It seemed to be important for pubertal adolescents - particularly for those who because of their earlier problem behavior tended to be at risk for maladjustment - to have parents

who had a good mutual relationship; and to have a positive relationship with their fathers, and to receive maternal support and supervision.

An unresolved question is whether there are any mediators through which prosociality and parenting are linked to successful employment prospects (Kokko & Pulkkinen, 2000). It is obvious that these mediators are dissimilar to the mediators which operate in the cycle of maladaptation. The recent analyses based on the JYLS have shown that favourable developmental background (e.g., prosocial behavior, school success, and good family circumstances) tends to be related to the accumulation of positive factors (e.g., a stable working career, controlled drinking, and psychological well-being) later in life (Pulkkinen, Hölsä, & Kokko, 2000). In this study, it is likely that child-centered parents gave support to education and encouraged working. They may also have modelled prosocial strategies for coping with conflicts. It would be interesting to analyze the role of the fathers in improving their children's prosocial skills. There is a Finnish study which indicates that the fathers of aggressive boys were rather indifferent and punishment-oriented (Pakaslahti, Asplund-Peltola, & Keltikangas-Järvinen, 1996). Both child-centered parenting and prosocial behavior may have been associated with, for example, the selection of peers who have positive attitudes to school (Collins et al., 2000). In the future, it would be important to shed more light on the ameliorating mechanisms through which protective factors exert their influences on long-term unemployment.

4.6 Methodological evaluation

The limitations and strengths of the present study concern, first, the nature of the data and statistical analyses and, second, the definition and measurement of long-term unemployment. The JYLS data offered a unique opportunity for an analysis of the early antecedents and later consequences of long-term unemployment, because of its long-standing duration. The study was begun in 1968 when the participants were 8-year-old children and had no labor-market experiences. Thus, it is easier to make conclusions about the cause-effect relations than when the study begins with school-leavers or adults. The antecedents of long-term unemployment could not be consequences of labor-market experiences in this study. Additionally, as noted by Caspi et al. (1998), longitudinal studies beginning with school-leavers may under-represent the youngsters who are at greatest risk for unemployment.

However, it should be noted that not even in the longitudinal study, where the time-ordering of the variables makes it possible to draw certain conclusions about the direction of the relations (e.g., Bergman et al., 1991; Silbereisen & Walper, 1988), can cause-effect relations be reliably inferred. For the powerful study of cause-effect relations, a longitudinal-experimental study would be needed (Farrington, 1992). In the present study, it is argued that childhood aggressive behavior may be a *marker*, not necessarily a *cause* of later long-term unemployment.

The latest follow-ups of the entire JYLS sample were conducted at ages 27 and 36. Compared to the other prospective longitudinal studies of early antecedents of unemployment around age 20 by Fergusson et al. (1997) and Caspi et al. (1998),

this study made it possible to shed light on unemployment experiences at older ages. Between the age 27 and 36 data collections, Finland experienced a radical increase in the unemployment rate (from 5 to 18%). Due to this "natural experiment", unemployment became a central experience in the sample. One birth-cohort was analyzed in the present study. It would be interesting to see whether there were cohort-effects in the reaction to historical time, as suggested by Baltes et al. (1980).

Despite the high unemployment rate, the number of the long-term unemployed was rather small. Consequently, women and men had to be analyzed together; and it was, therefore, not possible to detect any gender-differences which might exist in selection into unemployment. However, the antecedents of unemployment may differ between women and men. Previous studies have suggested that aggression plays a role in selection into a working career in both genders (Pulkkinen et al., 1999). This study was focused on physical aggression, but it would be interesting to investigate the role of different types of aggression, such as the indirect or relational aggression more typical of women (e.g., Crick, 1996; Pulkkinen, 1992; Österman, Björkqvist, & Lagerspetz et al., 1998).

Since the years from childhood to adulthood, data collection for the JYLS has been guided by a solid theoretical framework: the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998). The strength of this study is its theoretical ground; previous research on the antecedents of unemployment has been criticized as lacking in an adequate framework (e.g., Feather & O'Brien, 1986; Hammarström, 1994; Layton & Eysenck, 1985). Another strength of the present study is that information has been gathered by means of different informants and multiple methods, such as teacher-ratings, peer-nominations, registers and archives, as well as self-reports. Previous unemployment research has been criticized for its predominant use of self-report data (Fryer & Winefield, 1998; Hammarström & Janlert, 1997).

As regards the statistical analyses, variable-oriented methods, such as LISREL analysis, were used in this study. Although they have been generally recommended for the analysis of non-experimental longitudinal data (e.g., Keith, 1999), a notable shortcoming emerged: The explained variance of the long-term unemployment was rather small in Studies II (7%) and IV (8% for the JYLS and 4% for the IDA). This implies that there were other factors which explain selection into long-term unemployment but which were not included in the present analyses. Their exclusion is partly accounted for by the fact that my data analyses were mostly so-called secondary analysis of data. In the case of secondary analysis, the main measures have already been chosen and the selected measures pose some limitations on the research questions which may be asked (McCall & Appelbaum, 1991). Another fact is that there are factors related to, for example, the structure of the labor-markets and to the occupational fields which might explain selection into long-term unemployment. However, factors of this kind were beyond the scope of the present investigation.

It would be fruitful to continue the statistical analyses using person-oriented methods (Bergman & Magnusson, 1997; Block, 1971; Magnusson, 1988), such as pattern analysis. The main idea of person-oriented methods is to group individuals on the basis of the similarity of their value patterns in respect of certain variables. In the case of risk factors, this means that each risk factor's meaning is derived

from its relations to other risk factors (Bergman & Magnusson, 1997, p. 293). For example, it would be interesting to examine the way aggressive behavior clusters with both other risk factors and protective factors; and the relation of the respective clusters to later adjustment.

In regard to the measurement of unemployment, there seems to be a certain cut-off length of unemployment, after which selection into unemployment occurs and its psychological consequences appear. In this investigation, the long-term unemployed, including individuals who had been unemployed for more than two years between ages 27 and 36, differed from the others in terms of both the antecedents and the consequences of unemployment. It is interesting to note that the relation between early characteristics, such as low self-control of emotions, and long-term unemployment, and between long-term unemployment and psychological distress, such as depressive symptoms, was not linear. Specifically, those individuals who had not been unemployed between ages 27 and 36 did not have more favourable developmental background or fewer psychological symptoms than those individuals who had been unemployed for, for instance, less than 6 months during this period of their lives. It would be interesting to see what happens after a certain length of unemployment.

In this study, long-term unemployment was defined as the total duration of unemployment during a certain time period. Continuous long-term unemployment was not distinguished from a number of different spells of unemployment extending over an equal period. However, continuous unemployment, and bouts of unemployment when an individual moves between jobs may be qualitatively different aspects of unemployment (Barling, 2000; Caspi et al., 1998), and worthy of separate study. It is possible that the individuals who experience several short-term periods of unemployment have certain skills which are necessary for re-employment, whereas the severely long-term unemployed may be lacking in these skills. Notwithstanding the qualitatively different aspects of unemployment, it seems that long-term unemployment is also somehow robust as to the choice of definition, as suggested by Fergusson and his colleagues (1997). I refer to the fact that the long-term unemployed were more distressed than the not long-term unemployed, regardless of whether individuals were categorized as "long-term unemployed" on the basis of their being unemployed at the point of measurement (Study I); or whether the total duration of their unemployment was taken into account (Study II).

4.7 Implications for prevention and intervention

The most important preventive aspect of my study is related to interference with the most serious childhood risk factor for later long-term unemployment, that is, early aggressive behavior. It is important to consider how an aggressive child may be taught to incline to use positive ways of conflict resolution in aggression-provoking situations (Kokko & Pulkkinen, 2000). It has been argued by Wright (2000) that instead of teaching children to use alternative strategies, the actual level of aggressive behavior could be diminished. However, according to the Pulkkinen's (1995, 1998) model of emotional and behavioral regulation, decreasing

aggressive behavior, without encouraging constructive ways of solving conflicts, would involve the suppression of aggressive feelings; which might result in internalizing symptoms, such as anxious behavior. It is more reasonable to instruct an aggressive child to handle aggression-provoking situations in a prosocial way. The level of aggression may automatically decrease as a result of an aggressive child's learning of a new way to deal with conflicting situations.

Aggressive behavior, as defined in the present study, has some stability over the life-span (Pulkkinen, 1998), but is also influenced by social situations and parenting practices (Pulkkinen, 1995). It is essential to give parents both support and proper information in the demanding task of child-rearing, especially in the case of aggressive-prone children. Parents could learn new parenting practices if they were given training (Collins et al., 2000) in, for example, child-health centres. It has been suggested that it is possible to instruct children in the use of prosocial conflict-solving skills, and to teach them how to help others (Eisenberg & Fabes, 1998). Silbereisen and Reitzle (1992) have suggested that by learning social skills through intervention programs, adolescents may acquire greater self-confidence; which may further increase resistance to social pressures among peer groups, such as pressure to use substances.

Additionally, prosocial skills could be acquired at school. Kellam, Ling, Meirsca, Brown and Ialongo (1998) have shown that a classroom preventive intervention (team-based behavior management strategy) that promotes good behavior significantly reduces high levels of classroom aggression. The early detection of markers of aggressive behavior might pave the way for early interventions and preventions, which could include the teaching of prosocial skills by parents and teachers.

Notwithstanding the value of early intervention and prevention, there will always exist long-term unemployed individuals. It is worth considering how to prevent their psychological distress. The conventional wisdom implies that the most effective way to improve psychological well-being is to get re-employed. There are studies which show that re-employment actually increases the level of well-being among previously unemployed individuals (e.g., Payne & Jones, 1987); although the relation seems to be rather complicated (Fryer & Winefield, 1998). In the JYLS study, we are currently collecting data on the 42-year-old participants. It will be interesting to see, in the future, which of the age-36 unemployed individuals have become re-employed by age 42, and what the level of their psychological distress is compared to their earlier level. Hopefully, future findings will provide some information about the factors which promote re-employment; and in this way provide hints as to how to set about preventive work among the mature-aged unemployed. It will also be important to learn more about the protective factors which operate among those continuously long-term unemployed who maintain their psychological well-being despite the prolonged unemployment experience.

TIIVISTELMÄ

Väitöskirjatutkimukseni tavoitteena oli selvittää pitkäaikaistyöttömyyden yhteyksiä psyykkiseen pahoinvointiin ja pitkäaikaistyöttömyyttä ennakoivia tekijöitä. Taloudellisen laman seurauksena pitkäaikaistyöttömyydestä tuli 1990-luvulla Suomessa suuri inhimillinen ja yhteiskunnallinen ongelma. Vuonna 1995 noin 18 % työkäisestä väestöstä oli vailla työtä. Aiemmat tutkimukset ovat osoittaneet, että työttömyys on yhteydessä lisääntyneisiin psyykkisiin oireisiin (esim. Hanisch, 1999; Murphy & Athanasou, 1999).

On epäselvää, mistä havaittu yhteys työttömyyden ja psyykkisen pahoinvoinnin välillä johtuu. Selityksiä on haettu sekä työttömyyden aiheuttamista psyykkisistä oireista (seurausoletus) että työttömäksi valikoitumisesta (valikoitumisoletus). Työttömyyden *seurauksilla* tarkoitetaan sitä, että työn menettäminen itsessään tai siitä aiheutuvat itsetunnon ongelmat tai taloudelliset vaikeudet ennakoivat psyykkistä pahoinvointia.

Työttömäksi *valikoitumisella* viitataan siihen, että työttömien tavallista runsaammat psyykkiset oireet eivät johdu työttömyydestä, vaan siitä, että työttömiksi on joutunut ihmisiä, joilla on ollut psyykkisiä ongelmia jo ennen työttömyyttä. On myös mahdollista, että sekä seurauksiin että valikoitumiseen liittyvät oletukset toteutuvat, ts. työttömiksi joutuu ihmisiä, joilla on ollut aiempia psyykkisiä vaikeuksia, ja työttömyys edelleen lisää näiden ihmisten pahoinvointia.

Tutkimuksessani *työttömyyden* kriteerinä oli, että henkilö oli ollut työttömänä työnhakijana työvoimatoimistossa. Työttömyys määriteltiin tutkimuksessa kahdella tavalla. Sillä viitattiin joko äskeisimpään yhtäjaksoiseen työttömyyteen (tutkimus I) tai työttömyyden kokonaiskeston tietyllä aikavälillä (tutkimukset II - IV). Kummassakin tapauksessa analyysin kohteena olivat pitkäaikaistyöttömät. *Psyykkisellä pahoinvoinnilla* aikuisiässä tarkoitettiin tutkimuksen osanottajien itsensä arvioimia, normaalin vaihtelun rajoissa ilmeneviä masennuksen oireita ja ahdistuneisuutta. Lapsuusiässä psyykinen pahoinvointi määriteltiin opettajien arvioimiksi tunteiden säätelyn vaikeuksiksi.

Tutkimukseni on osa akatemiaprofessori Lea Pulkkisen aloittamaa ja johtamaa suomalaista Lapsesta aikuiseksi (Jyväskylä Longitudinal Study of Personality and Social Development, JYLS) -pitkittäistutkimusta, jossa samoja, vuonna 1959 syntyneitä, ihmisiä on seurattu lähes 30 vuoden ajan. Tutkittavat, 173 tyttöä ja 196 poikaa, olivat tutkimuksen alkaessa vuonna 1968 noin 8-vuotiaita. Väitöstutkimuksessani käytin osanottajista 8-, 14- (1974), 27- (1986) ja 36-vuotiaina (1995) kerättyjä tietoja. Lapsuudessa ja nuoruudessa tietoja kerättiin opettaja- ja toveriarviointien avulla ja aikuisiässä haastattelujen ja kyselylomakkeiden avulla. Yhdessä osatutkimuksessa (tutkimus IV) tuloksien varmentamisessa käytettiin vertailuaineistona ruotsalaista Individual Development and Adaptation (IDA) -pitkittäistutkimusaineistoa (Magnusson & Bergman, 2000). Aineistojen tilastollisessa analysoinnissa käytettiin pääosin rakenneyhtälömalleja.

JYLS-tutkimuksen erityispiirteinä voidaan pitää sen pitkän keston lisäksi korkeaa osallistumisastetta ja otoksen edustavuutta. Vuonna 1995 vielä yli 80 % ensi vaiheessa mukana olleista osallistui tutkimukseen. Tutkimukseen tällöin osallistuneet edustivat valikoitumattomasti sekä alkuperäistä satunnaisotosta että

vuonna 1959 syntyneiden ikäkohorttia muun muassa työttömyysasteen, koulutuksen ja siviilisäädyn suhteen.

Tutkimuksellani oli kolme päätavoitetta. *Ensimmäisenä* tavoitteena oli selvittää, eroavatko 36-vuotiaana tutkimushetkellä pitkäaikaistyöttömänä (yli 12 kuukauden yhtäjaksoinen työttömyys) olevat työssä olevista psyykkisen pahoinvoinnin suhteen ja selittävätkö erilaiset välittävät ja väliin tulevat tekijät pitkäaikaistyöttömyyden ja pahoinvoinnin välistä suhdetta. *Toiseksi* tarkasteltiin, onko pitkäaikaistyöttömien (yli 24 kuukautta työttömyyttä yhteensä 27 ja 36 ikävuoden välillä) mahdollinen psyykkinen pahoinvointi 36-vuotiaana työttömyyden seurausta vai johtuuko se siitä, että pitkäaikaistyöttömiksi on valikoitunut henkilöitä, joilla on ollut jo aiemmin psyykkisiä vaikeuksia. Aiemmilla psyykkisillä vaikeuksilla tarkoitettiin 8-vuotiaana ilmenevää heikkoa tunteiden hallintaa, erityisesti aggressiivista käyttäytymistä. *Kolmanneksi* selvitettiin, aloittaako 8-vuotiaan lapsen aggressiivinen käyttäytyminen epäonnistumisten kehän, joka johtaa pitkäaikaistyöttömyyteen ja onko löydettävissä suojaavia tekijöitä, jotka estävät aggressiivista lasta joutumasta tälle kehälle.

Tutkimus osoitti, että 36-vuotiaana pitkäaikaistyöttömänä olevilla ilmeni enemmän masennuksen oireita ja ahdistuneisuutta kuin työssä olevilla. Tätä yhteyttä selitti osaltaan se, että pitkäaikaistyöttömyys ennakoii taloudellisia vaikeuksia ja itsetunnon ongelmia, jotka puolestaan selittivät psyykkistä oirehdintaa. Pitkäaikaistyöttömyys oli psyykkisesti erityisen raskasta niille miehille, joiden työura oli jo aiemmin sisältänyt työttömyyttä ja monia työpaikan vaihdoksia ja joille pysyvän työpaikan saaminen oli tuottanut hankaluuksia.

Toisaalta pitkäaikaistyöttömyyden ja psyykkisen pahoinvoinnin välinen yhteys selittyi työttömäksi valikoitumisen avulla. Tällä tarkoitetaan sitä, että 36-vuotiaana pitkäaikaistyöttömänä oli ihmisiä, joilla oli ollut tunteiden hallinnan vaikeuksia, mikä ilmeni erityisesti aggressiivisena käyttäytymisenä jo 8-vuotiaana. Kun tämä aiempien ominaisuuksien perusteella tapahtuva valikoituminen otettiin huomioon, niin havaittiin, että pitkäaikaistyöttömyys osaltaan lisäsi psyykkistä pahoinvointia. Lapsen aggressiivinen käyttäytyminen näytti siis ennakoivan työelämästä syrjäytymistä, mutta työelämästä syrjäytyminen kavensi edelleen selviytymisen mahdollisuuksia.

Tutkimuksessa havaittiin, että 8-vuotiaan lapsen aggressiivisen käyttäytymisen yhteys aikuisiän pitkäaikaistyöttömyyteen selittyi epäonnistumisten kehän avulla. Tällä tarkoitetaan sitä, että aggressiivinen käytös ennakoii koulu-sopeutumattomuutta 14-vuotiaana, mikä oli sekä suoraan että epäsuorasti yhteydessä 27 ja 36 ikävuoden välillä arvioituun pitkäaikaistyöttömyyteen. Epäsuoralla yhteydellä viitataan siihen, että koulusopeutumattomuus liittyi sekä ammatillisten vaihtoehtojen vähyyteen että alkoholiongelmiin 27 vuoden iässä, mitkä puolestaan liittyivät työllistymisen ongelmiin.

Heikon koulutuksen merkitys pitkäaikaistyöttömäksi valikoitumisessa korostui erityisesti silloin, kun pitkäaikaistyöttömyyden kesto (vähintään 12 kuukautta) arvioitiin ennen 27 ikävuotta. Sekä JYLS- että IDA-pitkittäistutkimusaineistojen avulla pystyttiin osoittamaan, että nuorena aikuisena koettu pitkäaikaistyöttömyys selittyi heikon ammatillisen koulutuksen avulla. Lapsena ilmennyt aggressiivinen käyttäytyminen näyttikin liittyvän siihen, valitsiko nuori aikuinen opintojen jatkamisen vai työelämäänsä siirtymisen. Ne nuoret aikuiset,

jotka eivät jatkaneet ammatillisia opintojaan, olivat kokeneet muita useammin pitkäaikaistyöttömyyttä 27-vuotiaana.

Lapsen aggressiivisen käyttäytymisen aloittamalta epäonnistumisten kehältä oli mahdollista päästä pois. Lapsen prososiaalinen käyttäytyminen 8-vuotiaana ja lapsilähtöiset vanhemmat 14-vuotiaana suojasivat aggressiivista lasta merkitsevällä tavalla myöhemmältä pitkäaikaistyöttömyydeltä. Prososiaalinen käyttäytyminen määriteltiin vahvaksi tunteiden hallinnaksi ja toiset lapset huomioon ottavaksi käyttäytymiseksi. Lapsilähtöistä kasvatusta luonnehti puolestaan vanhempien hyvä keskinäinen suhde, lapsen myönteinen suhde isään, lapsen äidiltä saama tuki ja ohjaus sekä vähäinen fyysisen rankaisun käyttö.

Tulokset osoittivat, että todennäköisyys joutua pitkäaikaistyöttömäksi oli vain 1 % niillä aggressiivisilla lapsilla, jotka olivat olleet prososiaalisia ja joiden vanhemmat olivat olleet lapsilähtöisiä kasvattajia. Huomattavaa on, että pitkäaikaistyöttömyyden todennäköisyys oli jopa 45 % niillä aggressiivisilla lapsilla, joilta nämä suojaavat tekijät puuttuivat.

Väitöskirjatutkimukseni tulokset antavat uudenlaista tietoa siitä, miten jo varhaiset tunteiden hallinnan vaikeudet, kuten aggressiivinen käyttäytyminen, saattavat ennakoida myöhempiä vaikeuksia työelämässä. Tutkimuksessani lapsen aggressiivinen käyttäytyminen määriteltiin ristiriitatilanteessa ilmeneväksi toimintastrategiaksi, jolla on pysyvyyttä, mutta johon vaikuttavat myös esimerkiksi tilannetekijät ja kasvatustapa. Merkittävää on se, että lapsilähtöisen kasvatuksen avulla ongelmaisen lapsen kehitystä voitiin tukea myöhemmälläkin iällä, kuten tämän tutkimuksen tulokset osoittivat. Aggressiivisuushan arvioitiin 8-vuotiaana, mutta lapsilähtöinen kasvatustapa viittasi osanottajan kotitilanteeseen 14-vuotiaana, esimerkiksi vanhempien hyvään keskinäiseen suhteeseen ja lapsen myönteiseen isäsuhteeseen.

Aggressiivisen lapsen käyttäytymiseen tulisikin puuttua, jotta sen myöhemmiltä yksilöllisiltä ja yhteiskunnallisilta haittavaikutuksilta vältyttäisiin. Erityisen merkityksellistä olisi opettaa aggressiiviselle lapselle vaihtoehtoisia käyttäytymismalleja, joista esimerkkinä voidaan mainita prososiaalinen käyttäytyminen. Lapsen aggressiivinen käyttäytyminen voi vähentyä, kun hän oppii vaihtoehtoisia ongelmanratkaisutapoja ja saa niistä onnistumiskokemuksia.

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I

Unemployment and psychological distress: Mediator effects

by

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Unemployment and Psychological Distress: Mediator Effects

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The study concerned possible mediators and moderators in the relationship between unemployment and psychological distress. The sample consisted of 58 unemployed and 177 employed 36-year-old Finnish people drawn from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development. Data were gathered by means of a mailed questionnaire, a semistructured interview, and personality inventories. The results showed that poor economic situation, and poor self-esteem as measured by Rosenberg's Self-Esteem Scale, mediated the relationship between unemployment and psychological distress even after controlling for the prior level of self-esteem. Psychological distress was defined as psychological ill-health (the General Health Questionnaire), depressive symptoms (the General Behavior Inventory), and anxiety (the Karolinska Scales of Personality). However, support was also found for an alternative model, in which depressive symptoms functioned as a mediator between long unemployment and poor self-esteem, suggesting that individuals may react to unemployment in different ways.

KEY WORDS: Unemployment; psychological distress; mediator; moderator; LISREL.

INTRODUCTION

Unemployment has become an increasingly serious problem in Finland due to recent structural changes in the national economy. The unemployment rate rose from 3% to 18% during the first half of the 1990s (*Employment in Europe*, 1996). At the time of this study, in 1995, it was still about 18% in both the present sample of 36-year-old adults as well as in the whole age cohort. Although individuals with low education were the most likely to become unemployed, it was obvious that a sudden increase in the unemployment rate in Finland manifested as job losses also among the well educated (e.g., as a consequence of bankruptcy). The present study was focused on the psychological consequences of unemployment.

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Research has consistently shown that unemployed people report diminished levels of psychological well-being in comparison to their employed counterparts. Psychological distress has usually been defined in terms of the General Health Questionnaire (GHQ) score, depressive symptoms, or anxiety. Studies of psychological distress have revealed higher GHQ scores (e.g., Banks et al., 1980; Ensminger & Celentano, 1990; Graetz, 1993; Jackson, Stafford, Banks, & Warr, 1983), more depressive symptoms (e.g., Dew, Bromet, & Penkower, 1992; Hamilton, Hoffman, Broman, & Rauma, 1993; Kessler, Turner, & House, 1988; Liem & Liem, 1988; Winefield & Tiggemann, 1990a), and higher anxiety (e.g., Hamilton et al., 1993; Kessler et al., 1988; Liem & Liem, 1988) among the unemployed than among the employed.

The level of psychological distress has been especially high among the long-term unemployed. It has been shown that length of unemployment is linearly related to psychological distress (Dew et al., 1992; Hammer, 1993; Leeflang, Klein-Hesselink, &

Spruit, 1992a; Rowley & Feather, 1987), although a curvilinear association has also been proposed by Warr and Jackson (1984, 1985, 1987). According to their findings, psychological distress increases up to around 6 months, stabilizes thereafter, and then decreases after 15 months of continuous unemployment.

The connection between unemployment and psychological distress is not direct, but is often indirect and explained by a variety of mediating and moderating factors. Research has indicated that the following factors influence the psychological well-being of the unemployed: self-esteem, economic situation, social support, employment commitment, and sex and age. In the present study, we focused on self-esteem and economic situation as possible mediators in the relationship between unemployment and psychological distress, and on social support and stability of career line as moderators against the negative effects of unemployment.

Several studies have failed to establish an association between unemployment and a decline in self-esteem (e.g., Hartley, 1980; Winefield & Tiggemann, 1990a, 1990b). However, some findings suggest that unemployment weakens self-esteem (Hammer, 1993; Lennings, 1993; Rowley & Feather, 1987). According to Shamir (1986), self-esteem is a moderator that modifies the effects of unemployment. He found that people with high self-esteem could, when unemployed, maintain their psychological well-being better than people with low self-esteem. Similar results were obtained by Kessler and others (Kessler et al., 1988; Turner, Kessler, & House, 1991). On the other hand, Pearlin, Lieberman, Menaghan, and Mullan's (1981) findings suggest that self-esteem is a mediator; they observed in their longitudinal study of the stress process that disruptive job events lower self-esteem, which increases depression. They accounted for the sequence of the incidents in the following way: certain eventful life events, like unemployment, can lead to persistent role strains, which are likely to create depression if they also threaten the individual's self-concept.

Several studies have shown that social support modifies the negative effects of unemployment on psychological well-being. This has appeared in both the young (Hammer, 1993) and the middle-aged (Broomhall & Winefield, 1990), and in both women (Dew et al., 1992) and men (Ensminger & Celentano, 1990). Nevertheless, Kessler et al. (1988) discovered that social support was important only for

single unemployed people. It may be that married people receive adequate support from their spouses. The modifying effect of social support possibly functions to protect the unemployed against the negative health effects created by the financial strain of unemployment (Turner et al., 1991).

As regards the stability of the career line, Rönkä and Pulkkinen (1995) observed that in men an unstable career line is related to poor social relations, financial strain, drinking problems, and criminal arrests. In other words, an unstable career line and the accumulation of problems in social functioning are linked together. In women, an unstable career line is also a powerful determinant of psychological distress, which is reflected in social functioning problems (Rönkä & Pulkkinen, 1998) and marital relationships (Kinnunen & Pulkkinen, 1998).

Research into the psychological effects of unemployment has focused extensively on different mediators and moderators, but except for Kessler et al. (1988; Kessler, Turner, & House, 1987), studies have not combined mediators and moderators in the same statistical model, and have not investigated their complicated effects on psychological distress. According to Baron and Kenny (1986), it is very important to distinguish between mediators and moderators, for this distinction has differential implications for the choice of experimental design, research operations, and statistical analysis. Baron and Kenny defined a moderator as a variable that affects either the direction or the strength of the connection between an independent and a dependent variable, i.e., it specifies when certain effects appear. By contrast, a mediator explains how or why the relation between an independent and a dependent variable occurs.

The main aim of the present study was to examine mediators and moderators thought to explain the relationship between unemployment and psychological distress. We assumed that unemployment, especially long-term unemployment, is related to low psychological well-being compared with the well-being of the employed (Dew et al., 1992; Leeftang et al., 1992a; Rowley & Feather, 1987). On the basis of previous findings, we expected that self-esteem (Pearlin et al., 1981) and economic situation (e.g., Kessler et al., 1987, 1988) would function as mediators in the relationship between unemployment and distress (such as depressive symptoms, anxiety, and psychological ill-health). We hypothesized that unemployment has a deleterious effect on psychological

well-being if it worsens the self-esteem of the unemployed. Within a longitudinal design it was possible to compare the level of self-esteem before and after a period of unemployment, and to ascertain whether any possible change could be attributed to the experience of unemployment. Correspondingly, we expected that, if unemployment worsened the economic situation, it would have negative effects on well-being.

Our hypothesis about the mediating effect of self-esteem was based on developmental theories, such as those proposed by Havighurst (1948/1982, 1953) and Levinson (1986; Levinson, Darrow, Klein, Levinson, & McKee, 1978). According to these researchers, establishing a niche in society is one of the most important tasks of adulthood. This can be achieved through, for example, satisfactory performance in an occupational career. Jahoda (1982, 1988) has proposed that the satisfaction of employment comes from certain broad categories of experience it offers, e.g., participation in a collective purpose, and establishment of social status and identity. Warr (1987) has further proposed that, in addition to the financial strains caused by job loss, it is the loss of a valued social position that is related to the weakening of self-esteem in the middle-aged unemployed. Psychological distress, including depressive symptoms, is a clinically more serious consequence of prolonged unemployment, and is preceded by a weakening of self-esteem.

As regards the moderators, we expected social support and stability of career line before the current period of unemployment to have modifying effects on the psychological well-being of the unemployed. Good social support (e.g., Turner et al., 1991) and a stable career line (Rönkä & Pulkkinen, 1995) were assumed to act as buffers against the negative effects of unemployment.

We did not expect gender differences to emerge since, in the first place, previous results on gender differences in the reaction to unemployment have been contradictory. According to Shamir (1985), unemployed men had more depressive symptoms and were more anxious than unemployed women, but Feather and O'Brien (1986), and Dew et al. (1992) claimed that women experience unemployment more negatively than men. Some studies found no differences between women and men in how they experience unemployment (Ensminger & Celentano, 1990; Leana & Feldman, 1991). Such inconclusive results are partly explained by the fact that it is more diffi-

cult to explain women's unemployment because it is often "hidden unemployment" (Bartell & Bartell, 1985; Leeftang, Klein-Hesselink, & Spruit, 1992b). Second, it is worth noting that the rates of employment for women and men in Finland are almost equal. In 1995, 59.9% of working-age (15 to 64 years old) women, and 63.5% of working-age men were employed, while in the other European Union countries the corresponding figures were 50.1% and 70.9%, respectively (*Employment in Europe*, 1996). In addition, about 90% of Finnish women are in a full-time employment. Finally, previous studies have indicated that Finnish women highly value working for pay (Haavio-Mannila & Kelam, 1996).

METHOD

Participants

The study was part of the ongoing Jyväskylä Longitudinal Study of Personality and Social Development conducted in Finland. The original sample (196 boys and 173 girls aged 8 years, born mostly in 1959) was drawn from the town of Jyväskylä in 1968. The sample consisted of 12 school classes of second-grade pupils from both downtown and suburban areas. Data gathered at ages 27 and 36 were used in the present study.

At age 27 (in 1986), 155 women (90% of the women) and 166 men (85% of the men), and at age 36 (in 1995), 151 women (87%) and 160 men (82%) were investigated in a follow-up study. Five percent of the women and 7% of the men were unemployed at the time of the 1986 data collection, and 21% of the women and 17% of the men were unemployed at the time of the 1995 data collection. In this study, data analyses were conducted with the 36-year-old subjects who were either unemployed ($n = 58$; 31 women, 27 men) or employed ($n = 177$; 84 women, 93 men) at the time of the 1995 data collection. Individuals who were entrepreneurs or farmers, in part-time jobs, full-time mothers, students, retired, or in some other work situation were excluded from the analyses.

Of the participants included in the data analyses at age 36, data on 106 women and 106 men were available at age 27. In some pairwise correlations the number of participants was lower because of missing information. In all pairwise correlations, the number of women was at least 89, and the number of men

was at least 88. No systematic reason for attrition at age 36 could be found on the basis of the data on social-behavioral characteristics collected at age 8, and school success at age 14; the participants unbiasedly represented the original sample. They were also representative of the whole Finnish age cohort of 36-year-olds in, e.g., marital status, number of offspring, education, and unemployment rate.

Procedure

At age 27, data gathering was carried out by means of a mailed Life Situation Questionnaire (LSQ1), a semistructured interview, and two personality inventories, yielding information about, for instance, marital status, education, employment, and self-assessed behavior. The procedures used in earlier data collections have been reported in detail elsewhere (Pulkkinen, 1982, 1996).

At age 36, data were gathered by a Life Situation Questionnaire (LSQ2), a semistructured interview, and 20 personality inventories. The LSQ consisted of about 200 items, and covered the following topics: family circumstances, living and livelihood, education and work, leisure time, alcohol consumption and smoking, self-reported state of health, personal opinions, life changes, and the future. The interview was conducted by specially trained interviewers (14 persons) and lasted for about 3 hours. Most personality inventories were filled in during the interview, but two inventories, including the Karolinska Scales of Personality, were given to be filled in at home. The participants were given a prepaid mailing envelope in which they could return the inventory.

Measures

Age 36

Current Employment Status. This was elicited both in the LSQ2 and in the interview. The question put to participants was "What is your present work situation?" The currently unemployed were further asked, "How long has your present period of unemployment lasted so far (in months)?" Finally, participants were classified in three categories on the basis of length of current unemployment: 1 = employed ($n = 177$); 2 = short-term unemployed (1 to 12 months,

$n = 29$); and 3 = long-term unemployed (over 12 months, $n = 29$).

Psychological Ill-Health. This was assessed by means of the 12-item version of Goldberg's (1972) General Health Questionnaire (GHQ) which was included in the LSQ2. The GHQ is a self-administered screening test for detecting minor psychiatric disorders (e.g., "Have you been able to concentrate on your tasks lately?"). Responses were coded on a 4-point scale: 1 = better than usual, 2 = as well as usual, 3 = worse than usual, 4 = a lot worse than usual. The coefficient alpha for the scale was .88.

Depressive Symptoms. These were assessed using the General Behavior Inventory (GBI) developed by Depue (1987) for clinical and nonclinical populations. In this study, a shortened version of the depression subscale was used. It was given to participants during the interview. It contained 16 items (e.g., "Have there been periods of time when you felt a persistent sense of gloom?"), which were answered on a 4-point scale from 1 = never to 4 = very often. The coefficient alpha for the scale was .89.

Anxiety. This was measured by means of the Karolinska Scales of Personality test (KSP; Af Klinteberg, Schalling, & Magnusson, 1990). The KSP contains 15 subscales, among them three anxiety-related scales: Somatic Anxiety (e.g., "I often feel uncomfortable and ill at ease for no real reason"), Psychic Anxiety (e.g., "I'm the kind of person who is excessively sensitive and easily hurt"), and Muscular Tension (e.g., "When trying to fall asleep I often notice that my muscles are very tense"). The responses were given on a scale ranging from 1 = does not apply at all to 4 = applies completely. The reliability of the composite score of the three anxiety scales (30 items) was .91.

Self-Esteem. This was measured using the 10-item Self-Esteem Scale (RSE) by Rosenberg (1965), administered during the interview. The responses were given on a 4-point scale: 1 = strongly disagree, 2 = slightly disagree, 3 = slightly agree, 4 = strongly agree. The coefficient alpha was .79.

Economic Situation. This was measured by means of a question in the LSQ2: "How would you describe your own or your family's current economic situation?" The responses were given on a 4-point scale: 1 = very tight, 2 = relatively tight, 3 = relatively good, 4 = very good.

Social Support. This was a composite score of 10 questions concerning the number of close friends (from 1 = none to 4 = several), satisfaction with pre-

sent friendly relations (from 1 = *very unsatisfied* to 4 = *very satisfied*), and the number of persons among friends, relatives and workmates who lend mental support (from 1 = *none* to 4 = *several* for each) and who supply practical help (from 1 = *none* to 4 = *several* for each category). The coefficient alpha for this sum score was .77.

Occupational Education. The subjects were classified into four educational categories on the basis of the following question: "What is your occupational education?" The categories were 1 = *9-year compulsory school and vocational training course for the unemployed at most*, 2 = *vocational school after compulsory school*, 3 = *a degree in a higher vocational education after compulsory school*, 4 = *M.A. degree*.

Intimate Relationship. The marital status of the participants was elicited by the following item: "Your present marital status is: not married (single); married (first marriage); remarried; in a common-law marriage; separated or divorced; or widowed." Not married, separated or divorced, and widowed participants were further classified as 0 = *not having an intimate relationship*, whereas married, remarried, and those living in a common-law marriage were coded as 1 = *having an intimate relationship*.

Age 27

Career Line by Age 27. A classification of the career lines of the participants was based on the career line categories obtained by Rönkä and Pulkkinen (1995): 1 = *unstable career line* (including unstable and stagnated careers); 2 = *changeable career line* (including family-centered and later unstabilized careers, and the retired); and 3 = *stable career line* (including later stabilized, stable, and educational careers).

Personal Control over One's Development. At age 27, the participants were presented with the Personal Control Inventory developed by Pulkkinen (Pulkkinen & Rönkä, 1994). Five subscales were formed on the basis of a factor analysis: Self-Confidence, Social Support, Low Self-Worth, Accusation of Others, and Contentment (Pulkkinen, Kokkonen, & Mäkiäho, 1998). The subscales for Self-Confidence and Low Self-Worth were included in the present study. They were our best estimates for high and low self-esteem, respectively, based on data collected at age 27. Self-Confidence included trust in one's own powers and denoted a sense of positive internal control over

one's development (e.g., "I believe that I can influence my development"); whereas Low Self-Worth consisted of negative moods or depression due to perceived incompetence (e.g., "The reasons for my failure are within myself"). The responses were given on a 4-point scale from 1 = *strongly disagree* to 4 = *strongly agree*. The coefficient alphas for the scales were as follows: Self-Confidence .65 and Low Self-Worth .66.

Analysis of Data

Analysis of the data was conducted using an SPSS for Windows computer program. Intercomparisons between the groups (employed, short-term unemployed, and long-term unemployed) were analyzed using one-way analysis of variance and Duncan's significance test. Pearson correlations were used to reveal interrelationships between the study variables. The hypothetical path model between unemployment and psychological distress was analyzed by means of LISREL (8.14; Jöreskog & Sörbom, 1996b). The measure of the continuity of self-esteem was also included in the LISREL path model. The fit of the hypothetical model with the observed variables can be estimated by 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), standardized root mean square residual (SRMR), goodness-of-fit-index (GFI), nonnormed fit index (NNFI), and Akaike's information criterion (AIC). The method of estimation used was maximum likelihood, and the input to LISREL was in the form of matrices of covariances produced by PRELIS (2.14; Jöreskog & Sörbom, 1996c) and calculated separately for women and men. In order to calculate covariances, missing values were treated pairwise.

RESULTS

Comparison of the Unemployed and the Employed

The median length of the current period of unemployment of the 31 women and 27 men who were defined as unemployed in the present study was 12 and 18 months, respectively. Three of the men had been unemployed for as long as from 6 to 8 years. Long-term unemployment (over 12 months) involved

women and men almost equally: Of the 29 long-term unemployed, 13 were women and 16 were men. The reasons for the job loss among the unemployed were as follows: one-third had been laid off, one-third had not had their fixed-term job contracts renewed, and the rest had other reasons, such as job loss as a consequence of bankruptcy.

One-way analyses of variance (ANOVAs) were performed to study differences between the employed, the short-term unemployed, and the long-term unemployed with respect to the variables included in this study. As Table I shows, the long-term unemployed were at age 36 more anxious, and had more depressive symptoms and lower self-esteem, than the employed; no difference existed between the employed and unemployed in their self-confidence or self-worth at age 27. Nor did the groups differ in psychological ill-health at age 36. The employed had a better economic situation at age 36 than the unemployed, and a more stable career line in early adulthood than the groups of the unemployed; 79% of the employed had a stable career line compared to 42% of the short-term unemployed and 35% of the long-term unemployed. Half of the long-term unemployed had no occupational education, compared to 20% of the employed. The employed and unemployed did not differ from each other as regards the availability of social support. An intimate relationship was, however, more common among the employed (82% than among the unemployed (75% for the short-term unemployed and 60% for the long-term unemployed).

Intercorrelations Between the Variables

Intercorrelations between the variables, included in the LISREL path model, showed that length of current unemployment significantly correlated with depressive symptoms, anxiety, and psychological ill-health in men, but not in women (Table II). However, only the correlation between length of current unemployment and psychological ill-health was significantly ($p < .05$) higher for men than for women. Length of current unemployment correlated with poor economic situation in both sexes, and with low self-esteem in men. Poor economic situation and low self-esteem correlated with psychological distress, except for a nonsignificant correlation between economic situation and anxiety.

The results also indicated that the product term calculated using length of current unemployment and social support at age 36, for the study of the possible moderator effect of social support, correlated significantly with low self-esteem both among women and men. The product term was also related to psychological distress: It correlated with anxiety in women, but with psychological ill-health and depressive symptoms in men. Only the correlation between the product term and psychological ill-health was significantly ($p < .01$) higher for men than for women. The other product term, calculated using length of current unemployment and stability of career line by age 27, had no significant correlations with measures of psychological distress.

With regard to continuity in self-esteem, a significant correlation was found between self-confi-

Table I. Comparison of Groups by Employment Status: Analysis of Variance

Variable	1. Employed (<i>n</i> = 177)		2. Short-term unemployed (<i>n</i> = 29)		3. Long-term unemployed (<i>n</i> = 29)		<i>df</i>	<i>F</i>	Duncan
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Self-confidence, age 27	15.12	2.29	15.07	1.90	15.64	1.68	2, 208	0.56	
Low self-worth, age 27	7.71	1.91	8.40	1.83	8.17	1.58	2, 207	1.86	
Self-esteem, age 36	3.26	0.44	3.26	0.46	2.95	0.40	2, 200	5.77 ^a	1,2>3
Economic situation, age 36	2.63	0.71	2.00	0.65	1.96	0.69	2, 228	18.19 ^b	1>2,3
Social support, age 36	2.42	0.52	2.55	0.54	2.49	0.65	2, 232	0.86	
Career line by age 27	2.64	0.74	1.93	0.96	1.84	0.94	2, 217	18.00 ^b	1>2,3
Psychological ill-health, age 36	1.88	0.39	1.95	0.55	2.00	0.52	2, 232	1.20	
Depressive symptoms, age 36	1.40	0.31	1.48	0.37	1.63	0.33	2, 205	6.01 ^a	3>1
Anxiety, age 36	1.68	0.37	1.77	0.39	1.95	0.38	2, 193	5.42 ^a	3>1

^a $p < .01$.

^b $p < .001$.

dence at age 27 and self-esteem at age 36 for men, but not for women, where the correlation was lower: The gender difference was significant ($p < .05$). Nevertheless, low self-worth at age 27 correlated with low self-esteem and anxiety at age 36 in both sexes, and with poor economic situation at age 36 in women. The correlations also showed that length of current unemployment at age 36 was preceded by an unstable career line prior to age 27 for both sexes.

Self-Esteem and Economic Situation as Mediators

The possible mediating effects of self-esteem and economic situation, and the moderator effects of career line and social support on the relationship between unemployment and psychological distress, were tested by means of the LISREL path model. The variables listed in Table II were included in the analysis; social support and career line were included as product terms—Length of Current Unemployment \times Stability of Career Line, and Length of Current Unemployment \times Social Support—which were calculated by using mean-centered values. The product terms were calculated so that they became independent of the variables they consisted of. Despite the acknowledged difficulties related to the use of product terms in LISREL (Jaccard & Wan, 1996), there were two reasons for applying them in the present study. One was the small sample size of the unemployed, and the other was the fact that there were only a few theoretically interesting connections, i.e.,

those between length of current unemployment and psychological distress.

We expected that the same path model would apply to both sexes. Therefore, the same model was estimated for women and men. Separately calculated covariance matrices showed that for the most part the model was similar for both sexes, but that some connections were either of a different strength or appeared only among women or men. The coefficients which were of equal size in women and men were estimated as the same. All the path model connections and standardized coefficients shown in Figs. 1 and 2 are statistically significant ($|t| > 2.0$). The goodness-of-fit measures indicated that the model fitted the data well: $\chi^2(79) = 67.74, p = .81$; RMSEA = .00; SRMR = .088; GFI = .94; NNFI = 1.00, and AIC = 129.74.

As Fig. 1 shows for women, low self-worth at age 27 was directly linked to poor self-esteem at age 36, whereas self-confidence at age 27 was indirectly related to self-esteem at age 36 via low self-worth. In men (Fig. 2), both poor self-confidence and low self-worth at age 27 were directly linked to poor self-esteem at age 36. In addition, low self-worth at age 27 preceded poor economic situation and anxiety at age 36 both among women and men.

Figs. 1 and 2 also show that length of current unemployment was directly linked to self-esteem, but not to psychological ill-health, depressive symptoms, or anxiety. Self-esteem functioned as a mediator between length of current unemployment and psycho-

Table II. Intercorrelations of the Variables Included in the LISREL Path Model; Women (Maximum $n = 115$) Above the Diagonal, Men (Maximum $n = 120$) Below the Diagonal^a

	1	2	3	4	5	6	7	8	9	10	11	12
1. Length of unemployment (LU), age 36	—	-.07	.05	-.18	-.23 ^b	.07	.00	-.27 ^c	.00	-.01	.16	.19
2. Self-confidence, age 27	.15	—	-.38 ^d	.18	.24 ^b	-.02	.00	.29 ^c	-.05	-.08	-.05	.00
3. Low self-worth, age 27	.16	-.06	—	-.25 ^b	-.30 ^c	-.04	.05	-.27 ^c	.04	.08	.22 ^b	.37 ^d
4. Self-esteem, age 36	-.21 ^b	.42 ^d	-.26 ^b	—	.19	.06	-.28 ^c	.17	.00	-.20 ^b	-.36 ^d	-.39 ^d
5. Economic situation, age 36	-.47 ^d	.03	-.19	.19	—	-.12	.06	.11	-.10	-.22 ^b	-.34 ^c	-.10
6. Social support (SS), age 36	.06	-.01	-.08	-.01	-.02	—	.00	.03	-.06	.01	-.02	-.10
7. LU \times SS	.00	.02	-.02	-.21 ^b	-.18	.00	—	-.05	-.08	.08	.17	.21 ^b
8. Career line by age 27 (CL)	-.45 ^d	.06	-.26 ^c	.20	.19	.09	.05	—	.00	.15	-.19	-.33 ^c
9. LU \times CL	.00	-.09	-.03	-.10	-.09	.13	.29 ^c	.00	—	-.08	-.01	-.05
10. Psychological ill-health, age 36	.23 ^b	-.05	.20 ^b	-.39 ^d	-.32 ^d	-.06	.35 ^d	-.02	.03	—	.18	.02
11. Depressive symptoms, age 36	.29 ^c	-.02	.07	-.48 ^d	-.29 ^c	.16	.22 ^b	-.16	.08	.50 ^d	—	.57 ^d
12. Anxiety, age 36	.27 ^c	-.21 ^b	.33 ^c	-.62 ^d	-.20	.01	.09	-.23 ^b	-.13	.41 ^d	.61 ^d	—

^aMinimum $n = 88$ for pairwise correlations.

^b $p < .05$.

^c $p < .01$.

^d $p < .001$.

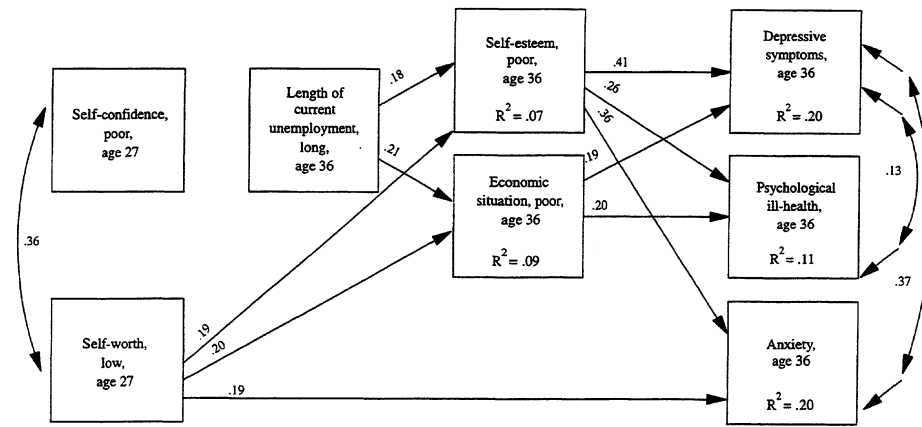


Fig. 1. A hypothesized LISREL path model in women.

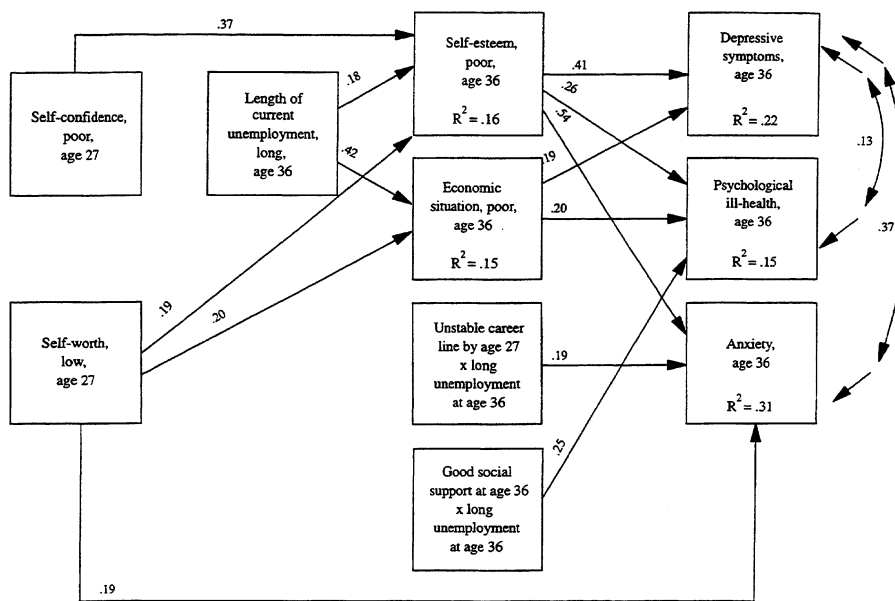


Fig. 2. A hypothesized LISREL path model in men.

logical distress. Longer unemployment caused low self-esteem, and low self-esteem explained depressive symptoms, anxiety, and psychological ill-health. Economic situation also mediated the connection between length of current unemployment and psychological distress. Longer unemployment led to a poor economic situation, which accounted for psychological ill-health and depressive symptoms, but not for anxiety.

Among men, stability of career line and social support affected the experience of unemployment as moderators (Fig. 2). Length of current unemployment predicted anxiety differently depending on stability of career line. Unemployment caused more anxiety in men whose career line was characterized as unstable before age 27. Contrary to the hypothesis, social support did not function as a buffer against the negative effects of unemployment on psychological well-being. Instead, longer unemployment was related to a higher level of psychological ill-health among men who had more social support available.

As proposed, for example, by MacCallum, Wegener, Uchino, and Fabrigar (1993), for any given LISREL model there can be alternative models that fit the data equally as well as the original model. In order to clarify the relationship between self-esteem and depressive symptoms, we constructed an alternative model in which we changed the direction of the relationship between self-esteem and depressive symptoms; all other parts of the model were maintained as before. All path model connections and standardized coefficients shown in Figs. 3 and 4 are statistically significant ($|t| > 2.0$). The fit indices of the alternative model were as follows: $\chi^2(79) = 77.46$, $p = .53$; RMSEA = .00; SRMR = .10; GFI = .93; NNFI = 1.00, and AIC = 139.46.

Figures 3 and 4 show that length of current unemployment was directly linked to depressive symptoms, which were further related to anxiety, poor self-esteem, and psychological ill-health. Economic situation also functioned as a mediator between length of current unemployment and psychological distress; longer unemployment was related to a poor economic situation, which further explained an increase in psychological ill-health.

As in the hypothesized model, among men stability of career line and social support functioned as moderators between unemployment and psychological distress (Fig. 4). An unstable career line by age 27, together with long current unemployment at age 36, caused more anxiety in men. As regards social

support, good social support at age 36 together with long current unemployment was related to a higher level of psychological ill-health.

DISCUSSION

The results showed that psychological distress in terms of depressive symptoms and anxiety was higher in the long-term unemployed than in the employed. A similar trend in psychological ill-health, as measured by the GHQ score, did not reach statistical significance. Nevertheless, the LISREL path model revealed no direct connection between length of current unemployment and psychological distress; as hypothesized, economic situation and self-esteem functioned as mediators in this relationship. Support was also found for an alternative LISREL model, in which depressive symptoms mediated the relationship between length of current unemployment and self-esteem.

As far as the economic situation is concerned, the results of the present study lent support to the extensively reported relation between the weakening of economic situation, as a consequence of job loss, and psychological distress (e.g., Kessler et al., 1987, 1988). A poor economic situation explained psychological ill-health and depressive symptoms, but not anxiety. The explanation for this can be sought for in the difference between depressive symptoms and anxiety. Depressive symptoms are assumed to be more reactive (Oatley & Bolton, 1985) than anxiety, which is considered to be a more stable, temperament-based personality characteristic (Gray, 1983, 1987).

Contradictory results concerning self-esteem have been obtained in previous studies. Only Pearlman et al. (1981) have studied self-esteem as a mediator; in other studies self-esteem has been regarded either as an outcome variable which unemployment affects negatively (e.g., Hammer, 1993), or as a moderator (e.g., Shamir, 1986). In Shamir's study, the sample was restricted to individuals with university degrees. It might be that the self-esteem of well-educated individuals is not affected by job loss, since they expect to be reemployed.

In the present study, self-esteem functioned as a mediator between unemployment and psychological distress; but an alternative model, in which depressive symptoms functioned as a mediator between long current unemployment and poor self-esteem,

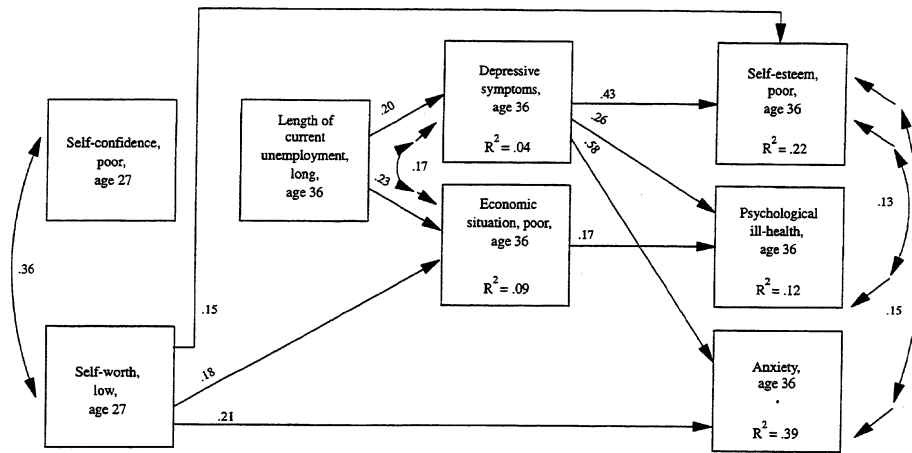


Fig. 3. An alternative LISREL path model in women.

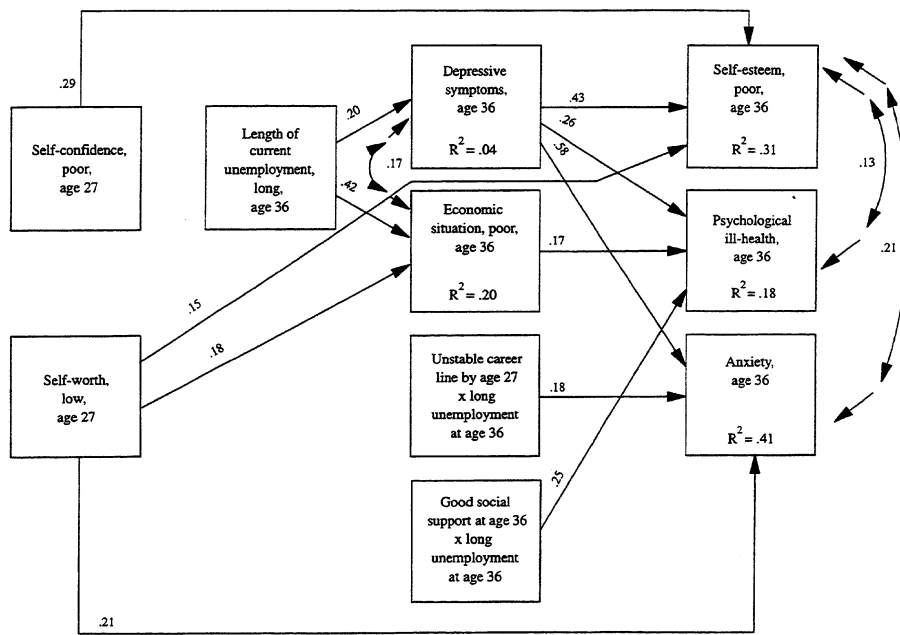


Fig. 4. An alternative LISREL path model in men.

fitted the data sufficiently well. Although both the hypothesized and the alternative model fitted the data adequately, the goodness-of-fit measures of the hypothesized model, where self-esteem was a mediator, were better than the fit indices of the alternative model, where depressive symptoms functioned as a mediator. According to Jöreskog and Sörbom (1996a, p. 119), Akaike's information criterion can be used in the comparison of the models. In this study, the AIC for the hypothesized model indicated a better fit to the data (AIC = 129.74) compared to the alternative model (AIC = 139.46).

Our hypothesis was based on a consideration of what employment and unemployment (Jahoda, 1982, 1988) might mean to young adults, and on our conception of a developmental process in which psychological symptoms such as the weakening of self-esteem would precede psychiatric symptoms such as depression, anxiety, and psychological ill-health. Our findings showed that only the long-term unemployed differed in self-esteem, depressive symptoms, and anxiety from the employed. The short-term unemployed had better self-esteem than the long-term unemployed, which suggests that self-esteem does not change very easily.

It is to be noted that self-esteem and depressive symptoms were measured at the same time, at age 36. Unemployment explained only a few percent of their variance. It is possible that some individuals react to unemployment with a weakening of self-esteem, and only later experience more generalized psychological distress, whereas others react more readily with depressive symptoms. There are individual differences in vulnerability to depression. The fact that both our hypothesized model and the alternative model fitted the data might be explained by these individual differences in the reaction to unemployment. The minimum requirement for the establishment of causality is that the data should be longitudinal (e.g., Bergman, Eklund, & Magnusson, 1991). More detailed data on an individual's self-esteem and depressive symptoms measured before, during, and after his/her period of unemployment are needed to reliably establish the causal ordering of the relationships.

Stability of career line was expected to function as a moderator between unemployment and psychological distress. The results revealed that an unstable career line, accompanied by continuing unemployment made men, but not women, vulnerable to anxiety. Previous research has shown that in men an

unstable career line and problems in social functioning commonly co-occur, whereas in women an unstable career line may alternatively relate to their valuing work over family (Rönkä & Pulkkinen, 1995).

Social support did not function as a buffer against negative effects created by job loss. Instead, good social support together with long current unemployment was related to psychological ill-health among men. A reason for the unexpected relationship between good social support and psychological ill-health might be that distressed men tend to seek support as a way of coping with their psychological problems. Previous research has indicated that unemployed women use symptom-focused coping strategies, i.e., they talk to friends and are active in community groups, more readily than unemployed men (Leana & Feldman, 1991). It seems as if the unemployed men in this study were not willing to talk about their distress until it had reached a high level.

The marital status of the participants was not taken into consideration in the measurement of social support, because 40% of the long-term unemployed had no intimate relationship. Kessler et al. (1988) observed that the availability of social support was not important for the married unemployed. In general, when measuring social support, attention should be paid to the question of whether to assess the amount or the quality of social support, or both. According to Broomhall and Winefield (1990), the number of social contacts may increase as a consequence of job loss, but their quality may weaken.

One of the strengths of the present study is that we clearly differentiated the terms *mediator* and *moderator* from each other. We made this distinction both conceptually and statistically. We also combined mediating and moderating effects in the same statistical path model. The LISREL path model revealed that the psychological well-being of the unemployed is indirectly affected by different factors. In Rutter's (1994, pp. 158-159) terms, we can speak about the "multifactorial determination" of the effect of unemployment on well-being. Psychological distress was measured by three different indices, whose reliabilities and validities have been observed to be high both in the present study and in previous research (see Banks et al., 1980, for the GHQ; Gjerde, 1995, for the GBI; Af Klinteberg et al., 1990, for the KSP).

In the present study we did not aim to identify the factors which predispose some individuals to an unstable career line and unemployment. The sudden increase in the unemployment rate in Finland has

been characterized by job losses and increased psychological distress even among well-educated and well-adjusted persons, although our ongoing analyses with the same participants suggest that very-long-term unemployment can be predicted on the basis of childhood characteristics, e.g., low self-control of emotions. The present study was motivated by the idea that for individual and social reasons it is important to obtain more information about the mediating and moderating factors which affect the psychological distress of the unemployed.

At the time of data collection, the unemployment rate was very high (about 18%) in Finland. Finland has traditionally been a country where work is highly valued, and therefore being in the work force may have contributed to psychological well-being among the participants in the present study. This applies to both women and men, since Finnish women have adopted the norm that it is good for a woman to work full-time outside the home (Haavio-Mannila & Kelam, 1996). This valuation may, however, be changing, due to insecure job markets which might influence the effects of unemployment. Investigators (Barling, 1990; Leeflang et al., 1992a) have claimed that the overall unemployment rate may be extremely significant in determining the way individuals cope with the unemployment experience, and how stigmatized they feel.

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II

Selection into long-term unemployment and its psychological consequences

by

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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

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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, Ohraanen, & 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.

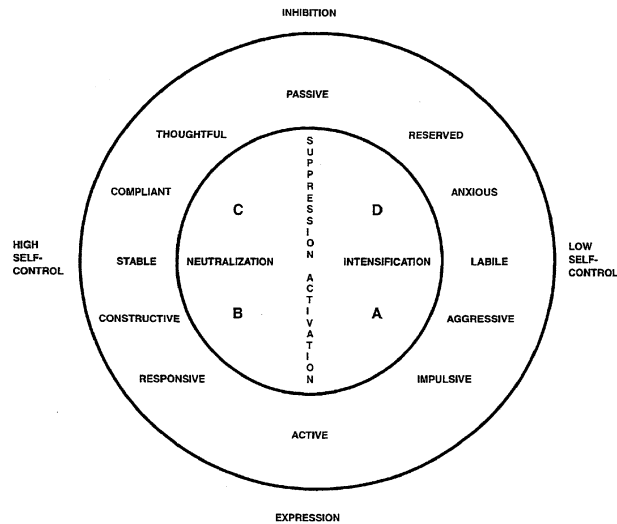


Figure 1. Model of emotional and behavioural regulation (Pulkkinen, 1995, 1996). (Reproduced with kind permission of the Society for Research in Child Development. © 1995 *Child Development*, 66, 1660–1679.)

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

Unemployment between Ages 27 and 36	Employed (%) (n = 200)	< 6 mths Unemployed (%) (n = 25)	6–12 mths Unemployed (%) (n = 31)	13–24 mths Unemployed (%) (n = 30)	> 24 mths Unemployed (%) (n = 25)
<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	14.5	17.4	17.2	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

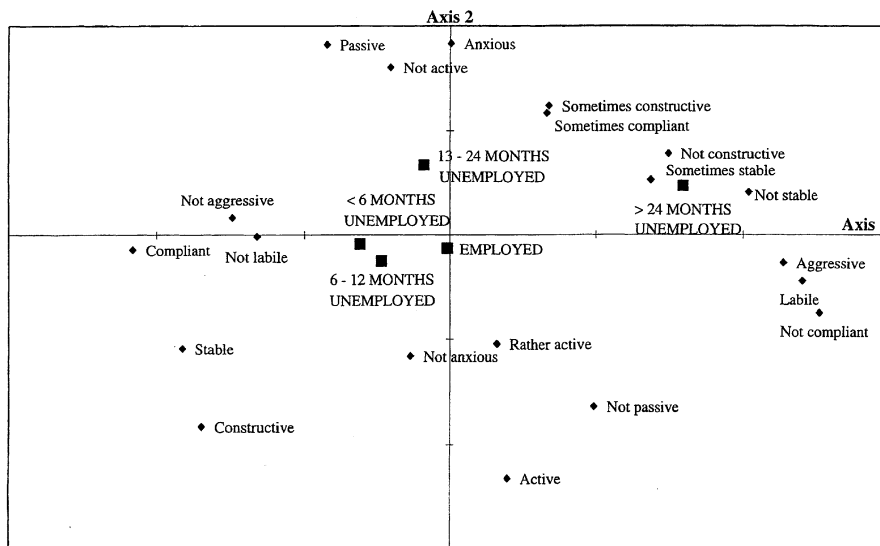


Figure 2. Correspondence analysis of the teacher ratings obtained at age 8.

(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

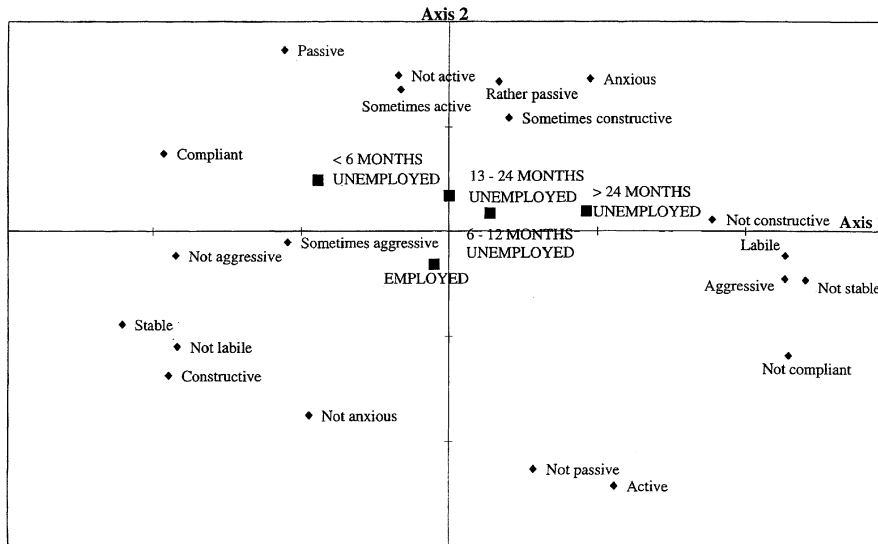


Figure 3. Correspondence analysis of the teacher ratings obtained at age 14.

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; 8)	.19***	.05	-										
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

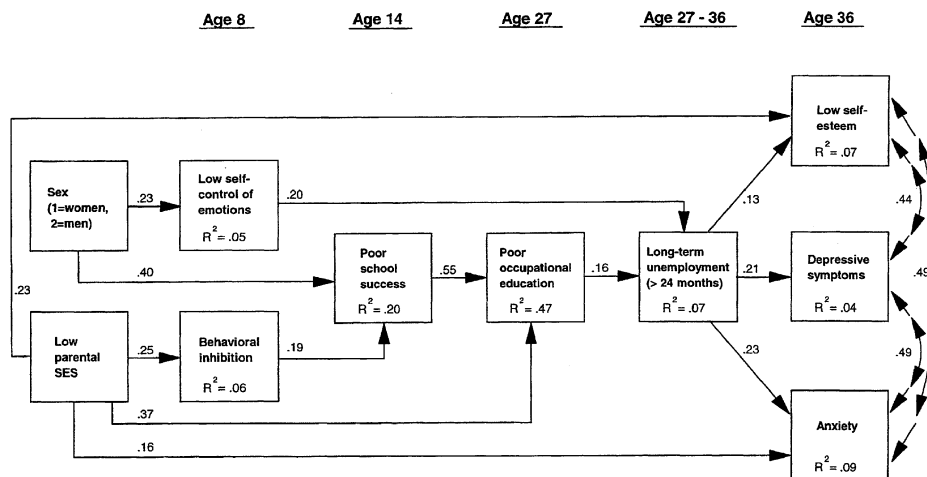


Figure 4. LISREL path diagram of direct and indirect connections between individuals' characteristics in childhood and adolescence and long-term unemployment in adulthood: [$\chi^2(28) = 37.27, p = .11$; RMSEA = .034; RMR = .055; GFI = .97; AGFI = .95].

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 liability; 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 assumed 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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III

**Aggression in childhood and long-term unemployment in
adulthood: A cycle of maladaptation and
some protective factors**

by

Katja Kokko and Lea Pulkkinen

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Aggression in Childhood and Long-Term Unemployment in Adulthood: A Cycle of Maladaptation and Some Protective Factors

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The present study was designed to shed light on specific risk mechanisms and protective factors in the relation between aggression in childhood and long-term unemployment in adulthood. Participants were drawn from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development; data gathered at the ages of 8 ($N = 369$), 14, 27, and 36 years ($n = 311$) were used in the present study. Teacher-rated aggression at age 8 was related to subsequent long-term unemployment through a cycle of maladaptation. Specifically, childhood aggression predicted school maladjustment at age 14, which was both directly and indirectly (via problem drinking and lack of occupational alternatives at age 27) related to long-term unemployment. Child-centered parenting and prosocial tendencies in an aggressive child significantly lowered his or her probability of becoming long-term unemployed in adulthood.

Prospective studies of the individual characteristics that predict unemployment have revealed that conduct disorder (Fergusson, Horwood, & Lynskey, 1997), behavior problems (Caspi, Wright, Moffitt, & Silva, 1998), and low self-control of emotions (Kokko, Pulkkinen, & Puustinen, in press) are powerful predictors of subsequent unemployment. Although measured and defined differently, these predictors have one thing in common, namely, physically aggressive behavior that is intended to hurt other people and that reflects a lack of concern for other people's feelings (Loeber & Hay, 1997). Previous research, however, has not specified the risk mechanisms through which aggressive behavior in childhood and adolescence produces unemployment in adulthood. Our main aim in the present investigation was to identify links between aggression in childhood and long-term unemployment in adulthood and to shed light on factors that might counteract these links.

Two mechanisms have been suggested that may heighten the risk of long-term unemployment among aggressive children: cumulative continuity and interactional continuity (Caspi, Bem, & Elder, 1989; Caspi, Elder, & Bem, 1987). *Cumulative continuity* describes prior behaviors in which individuals select environments that further strengthen their behaviors. In this manner, aggressive behaviors "are sustained by the progressive accumulation of their own consequences" (Caspi et al., 1987, p. 308). It has been shown that childhood aggression is a powerful determinant of subsequent poor educational attainment (Brook & Newcomb, 1995; Caspi et al., 1987, 1989; Rönkä & Pulkkinen, 1995), which further increases the chances of unemployment (Caspi et al., 1998; Kokko et

al., in press) and low career orientation (Pulkkinen, Ohranen, & Tolvanen, 1999) by closing the doors of opportunity. Childhood aggression also predicts drinking problems (Brook & Newcomb, 1995; Pulkkinen & Pitkänen, 1994), which are, in turn, related to low work involvement (Brook & Newcomb, 1995), an unstable career line (Rönkä & Pulkkinen, 1995), as well as underemployment and unemployment (Sanford et al., 1994).

Interactional continuity describes behaviors that are sustained by the reciprocal responses they evoke in others (Caspi et al., 1987, 1989). Early aggression may begin a cycle of maladaptation that contributes to school behavior problems during adolescence, such as peer rejection (Coie & Dodge, 1998), low motivation, and poor school achievement (Bergman & Magnusson, 1997; Brook & Newcomb, 1995). Childhood aggression has also been shown to predict dropping out of school (Cairns, Cairns, & Neckerman, 1989; Ensminger & Slusarcick, 1992). These are serious problems because school adjustment and academic achievement are some of the most important developmental tasks faced in adolescence and because each is a strong predictor of subsequent success and competence in the work domain (e.g., Masten & Coatsworth, 1995, 1998). Previous research has also indicated that childhood aggression per se relates to subsequent "erratic worklife" (Caspi et al., 1987, 1989; Kokko et al., in press). Aggressive individuals may lack necessary skills for successful interaction in the workplace. For that reason they may easily be discharged from their jobs or may voluntarily leave their jobs. Hostile individuals may not be particularly successful in presenting themselves to prospective employers and thus may have difficulties with reemployment when unemployed (Layton & Eysenck, 1985).

Moderators and mediators (see Baron & Kenny, 1986) may explain the relation between aggression and unemployment. Mediators describe different pathways through which aggressiveness leads to unemployment, whereas moderators describe why some individuals avoid unemployment in spite of aggression. We equate moderators with protective factors that provide some aggressive children a buffer against becoming unemployed (see Rutter, 1994). It has been shown that protective factors can reside either in the individual or in the context, that is, that they are either personal or

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environmental (Freitas & Downey, 1998; Masten & Coatsworth, 1998; Rutter, 1985, 1994).

In the present study of aggression in childhood and long-term unemployment in adulthood, we examined both environmental and personal protective factors. Environmental main effects of parenting practices were considered because authoritative (Steinberg, Elmen, & Mounts, 1989), or child-centered (Pulkkinen, 1982), parenting—including parental acceptance, behavioral supervision, and psychological autonomy granting—is related to good school performance (Steinberg, Lamborn, Dornbusch, & Darling, 1992; Steinberg, Mounts, Lamborn, & Dornbusch, 1991), high self-reliance, a low level of psychological distress, and infrequent involvement in delinquent activity (Steinberg et al., 1991) as well as to high self-control of emotions and a stable working career (Männikkö & Pulkkinen, in press). Parenting practices may also represent environmental buffering mechanisms. Low self-control, typified by aggression, can be modified by effective child rearing (Gottfredson & Hirschi, 1990). Effective child rearing may channel an aggressive child into a more positive developmental pathway by, for example, encouraging involvement in school.

The present study also examined personal protective factors. There were two reasons for expecting prosocial tendencies to have buffering effects. First, theoretically prosocial tendencies, particularly constructive behavior in conflict resolution, and aggressive behavior can be seen as manifestations of social activity differing in emotional regulation (Pulkkinen, 1995, 1996, 1998). Self-control of negative emotions is low in aggression but high in constructive behavior. Individuals may not be absolutely consistent in displaying only either aggressive or constructive behaviors in social situations. Even a normally well-behaved child may react aggressively to adverse factors if the adversity exceeds his or her coping capacity (Pulkkinen, 1984). Feshbach and Feshbach (1986) also noted that prosocial and aggressive tendencies are not mutually exclusive: "Strong aggressive dispositions and strong altruistic dispositions can characterize the same organism" (p. 191). Individuals who are capable of constructive behavior in spite of their aggressive tendencies may be able to cope with critical life situations in more constructive ways than individuals for whom prosocial strategies are uncommon.

Second, empirical research lends support to expectations that prosocial behavior may function as a protective factor against school maladjustment. Prosocial skills protect aggressive children from exclusion by peer groups (Bierman, Smoot, & Aumiller, 1993; Nangle & Foster, 1992; Volling, MacKinnon-Lewis, Rabiner, & Baradaran, 1993). Peer rejection is one of the most important factors that explain maladjustment (Magnusson & Bergman, 1990) and even delinquency (Rutter, Giller, & Hagell, 1998). Loeber and Hay (1997) summarized the findings concerning aggression and peer rejection as follows: "Apparently it is not just the presence of aggression but also the absence of more positive features that leads to children's rejection by their peers" (p. 397). Supporting this notion is Hämäläinen and Pulkkinen's (1996) finding that not only aggressive behavior but also lack of prosocial behavior was associated with arrests for offenses.

We addressed two main research problems in the present study. First, we studied whether childhood aggression begins a cycle of maladaptation that results in an erratic worklife with cumulative continuity. By a "cycle of maladaptation" we mean that childhood aggression has continuity with adolescent school maladjustment,

which may manifest in poor school success, lack of interest in schoolwork, punishments at school, and truancy. School maladjustment was further assumed to be related directly and indirectly through problem drinking and lack of occupational alternatives in young adulthood to long-term unemployment. In addition, we expected aggression to be related to drinking problems. In this cycle of maladaptation, we hypothesized that a link between childhood aggression and adolescent school maladjustment would be particularly critical because poor school achievement has been shown to predict subsequent problems in the work domain.

Second, we investigated whether there are protective factors that buffer the relation between aggression in childhood and long-term unemployment in adulthood. We hypothesized that pathways between aggression and long-term unemployment would differ depending on the level of child-centered parenting and prosocial, particularly constructive, behavior. Aggressive individuals whose parents were supportive, gave supervision, and provided a warm family environment were expected to be at lesser risk for long-term unemployment than were aggressive individuals with less child-centered parents. In addition, aggressive individuals who manifested both aggression and prosocial behavior indexed by high self-control of emotions were expected to be at lesser risk for long-term unemployment than were aggressive individuals with low levels of prosocial behavior.

Method

Participants and Procedure

Participants were drawn from the ongoing Jyväskylä Longitudinal Study of Personality and Social Development (Pulkkinen, 1982, 1998), which has traced individuals from the ages of 8 to 36 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 369 8-year-old children (173 girls and 196 boys, most of whom were born in 1959). Data gathered at ages 8, 14, 27, and 36 years were used in the present analyses.

At ages 8 and 14, information about the participants' social behavior was gathered through teacher ratings and peer nominations. At age 14 in 1974, teacher ratings were available for 167 girls (97% of the original sample) and 189 boys (96%). At age 27 in 1986, a Life Situation Questionnaire (LSQ1) was mailed to participants and returned by 155 women (90%) and 166 men (85%). In addition, 142 women (82%) and 150 men (77%) participated in a semi-structured interview. At age 36 in 1995, a second Life Situation Questionnaire (LSQ2) was mailed to participants and returned by 150 women (87%) and 161 men (83%; 2 men had died). Both LSQs yielded information on education, work history, and alcohol consumption. Data on the length of unemployment between ages 27 and 36 were obtained from 311 participants (150 women and 161 men).

At age 36, the participants and nonparticipants differed neither in socioemotional behavior (e.g., aggressive and constructive behavior) measured at age 8 nor in school success measured at age 14. Thus, on these key variables, the adult participants were representative of the original sample. Attrition at age 36 was higher among the participants who were problem drinkers at age 27 than among the other participants (Pulkkinen, Pitkänen, & Tolvanen, 1999). However, attrition from ages 27 to 36 did not occur on the basis of education. The participants at age 36 were representative of the whole age cohort born in 1959 in terms of marital status, number of children, level of education, and unemployment rate. Between the 1986 and 1995 data collections, Finland experienced a radical change in its unemployment rate, which rose from 3% to 18% (*Employment in Europe*, 1996), a fact reflected in the employment rates of the whole age cohort born in 1959 and in the present sample.

Age 8 Measures

Aggression was assessed by teachers using the following four items: "hurts another child when angry, e.g., by hitting, kicking, or throwing something"; "kicks pieces of furniture or other objects when angry at something"; "attacks somebody without reason"; and "teases smaller and weaker peers when angry at something." Teacher ratings were made for each pupil on a scale from 3 (*often*) to 0 (*never*). Both individual items and the composite score (CS8 = composite score at age 8) were used for data analyses. Cronbach's alpha for the composite score was .86.

Prosocial behavior was conceptualized in terms of the two-dimensional model of emotional and behavioral regulation (Pulkkinen, 1995, 1996, 1998). The following teacher-rated variables were included in a composite score for prosocial behavior: "acts reasonably even in annoying situations," "thinks that if one negotiates, everything will be better," and "sides with smaller and weaker peers" for constructive behavior; "reliable classmate" and "friendly to others" for high self-control of emotions; and "will certainly find his/her way later on in life" for good coping capacities. Teachers rated each participant on a scale varying from 3 (*often*) to 0 (*never*). In addition, two peer nomination variables were included in the composite score: "Who do you think would be a good leader of an outing?" for prosocial strategies and "Who tends to disobey the teacher?" (reverse scored) for coping with social expectations. In peer nomination, the participants were asked to name at least three same-sex children who displayed a specific behavior. A participant's score for each variable was formed by the number of nominations received in the class (Pulkkinen, 1987). Cronbach's alpha for the composite score for prosocial behavior was .80.

Age 14 Measures

School maladjustment was a composite score of four variables: school success, interest in schoolwork, punishments at school, and truancy. *School success* described grade point averages collected from school archives (reverse scored). Teachers rated the pupil's *interest in schoolwork* ("Is the pupil interested in schoolwork?") on a scale varying from 1 (*not at all*) to 4 (*very interested*; reverse scored). Teachers also rated whether the pupil had been *punished at school* on a scale ranging from 1 (*often*) to 4 (*never*; reverse scored) and whether they knew of instances when the pupil was *truant* on a scale ranging from 1 (*yes*) to 3 (*no*; reverse scored). Both individual items and the composite score (CS14 = composite score at age 14) were used for data analyses. Cronbach's alpha for the composite score was .75.

Age 27 Measures

Occupational alternatives were assessed during the interview ("When choosing your current field, how many alternatives did you have in your mind?") on a scale ranging from 1 (*none*) to 5 (*more than three alternatives*).

Problem drinking describes volume drinking and the difficulties caused by it (Cochrane, Goering, & Lancee, 1992; Hughes, Power, & Francis, 1992). A scale for problem drinking was constructed on the basis of information about arrests for drunkenness (gathered from both the government and the local police register, which offered information about petty offenses and arrests for which the person was not necessarily prosecuted) and responses to the CAGE Questionnaire (Ewing, 1984), which was presented in the LSQ1 (Pulkkinen & Pitkänen, 1994). The acronym CAGE refers to the focus of the four items constituting the questionnaire: "Have you ever felt you ought to Cut down on your drinking?" "Have people Annoyed you by criticizing your drinking?" "Have you ever felt bad or Guilty about your drinking?" and "Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (Eye-opener)?" Responses were given on a 2-point scale (*no/yes*). A participant was categorized as having clear indicators of problem drinking if he or she had

been arrested at least three times for public drunkenness or if he or she had given at least three affirmative answers to the four questions in the CAGE Questionnaire. A participant was categorized as having some indicators of problem drinking if he or she had been arrested once or twice for public drunkenness or if he or she had given two affirmative answers to the CAGE questions. Altogether, three categories were formed: 1 = *no indicators* (60.5% of the participants), 2 = *some indicators* (22.5%), or 3 = *clear indicators of problem drinking* (17.0%).

Child-centered parenting describes participants' recollections of parenting practices and the home environment at age 14. Child-centered parents consider the child's developmental needs and tasks and provide the child with both emotional support and age-appropriate demands. A good parental relationship is important to the child's well-being and is reflected in many spheres of life. Child-centered parenting represented the composite score on five variables: *parental relationship* (0 = single-parent home or quarrelsome relationship between the parents, 1 = good relations between the parents); *relationship with the father* (0 = no father or negative memories of the father, 1 = positive memories of the father); *maternal support* (0 = no mother or mother took the participant's opinions into consideration rarely, 1 = mother considered the participant's opinions); *maternal supervision* (0 = no mother or mother's supervision was poor, 1 = mother gave supervision and guidance); and *physical punishment* (0 = physical punishment used, 1 = not used). A composite score was formed by computing an averaged score of the dichotomized variables. Our data allowed a comparison of memories on parenting and home environment with prospective data on them for a subsample of 154 participants (42% of the original sample). Significant correlations were found for individual variables (Pulkkinen, 1990) and a scale for parenting (Männikkö & Pulkkinen, in press). In order to keep our sample size as large as possible, we chose to use retrospective data on parenting collected at age 27.

Age 36 Measures

Long-term unemployment between ages 27 and 36 was assessed. The participants were asked in the LSQ2, "How would you describe your work situation since age 26 (i.e., during the past 9 years)?" Participants described their employment history (a full-time job, a part-time job, a casual job, at home as a full-time mother or father or on maternity leave, retired, something else) and the duration of unemployment in years and months during this 9-year period. Two categories were formed: long-term unemployed (more than 24 months; $n = 25$; 9 women and 16 men) and not long-term unemployed (employed or unemployed for less than 24 months; $n = 286$; 142 women and 144 men). It should be noted that full-time students and full-time mothers or fathers or those on maternity leave were not included in the long-term unemployed category. Similarly, those whose health problems seriously limited their working abilities were not coded as long-term unemployed. We had two reasons for focusing only on long-term unemployment in this study and thus using a dichotomous variable as an index (for a discussion of the use of dichotomous variables, see Farrington & Loeber, in press). Previous analyses (Kokko et al., in press) indicated that the relation between childhood personality characteristics and subsequent length of unemployment was not linear and that the long-term (more than 24 months) unemployed formed a special group that differed significantly from the others in terms of personal development.

Data Analysis

Links between aggression in childhood and unemployment in adulthood were studied by means of the LISREL models (LISREL 8.14; Jöreskog & Sörbom, 1996b). The mediator model was focused on the cycle of maladaptation, beginning with aggression in childhood and ending with long-term unemployment in adulthood. The relation between aggression and unemployment was expected to be mediated by school maladjustment at age 14 and by problem drinking as well as lack of occupational alternatives

at age 27. This model consisted of two parts: the measurement model and the structural equation model. With the moderator model, we investigated the hypothesized protective effects of child-centered parenting and prosocial behavior by adding them into the model as interaction terms. As recommended by Aiken and West (1991, p. 9), we calculated the interaction terms by using the mean-centered values of aggression (CS8) and prosociality at age 8, and aggression (CS8) and child-centered parenting at age 14, which satisfied requirements that interaction terms be independent of the variables of which they consist. Both models were based on the matrix of polychoric correlations (PRELIS 2.14; Jöreskog & Sörbom, 1996c) because approximately half of the variables were either dichotomous or ordinal (see Jöreskog & Sörbom, 1996c, p. 9). In the calculation of correlations, missing values were treated pairwise. The method of estimation used was generalized least squares. We estimated the fit of the hypothetical model with the observed variables by using the following goodness-of-fit measures: chi-square, root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), goodness-of-fit index (GFI), and adjusted goodness-of-fit index (AGFI). It is generally accepted that values smaller than .05 (minimum is 0) for the RMSEA and the SRMR and values higher than .90 for the GFI and the AGFI indicate a good fit of the model to the data. In order to confirm our original models, we tested several alternative models. As suggested by Jöreskog and Sörbom (1996a, p. 119), the Akaike's information criterion (AIC) was used in the comparison of the fit of the alternative models. The AIC takes both the parsimony (referring to number of parameters) and the fit of the models into account. In the comparison of the alternative models, the lower the AIC, the better the model.

The statistically significant connections between interaction terms and dependent variables (i.e., the protective effects of prosociality and child-centered parenting) were further studied by means of the Student's *t* test for independent samples. Two groups of aggressive individuals, those who later became long-term unemployed and those who did not, were compared on prosociality and child-centered parenting. Finally, we used logistic regression analysis to analyze how the level of the protective factors changes the probability of an aggressive child's becoming long-term unemployed. We used the Wald statistic (*Wald*) to test the significance of each variable.

Results

From Aggression in Childhood to Long-Term Unemployment in Adulthood

A LISREL model was applied to study the cycle of maladaptation from childhood aggression to adult long-term unemployment. Measurement models were formed to examine the fit of the observed variables to assumed latent factors for aggression at age 8 and school maladjustment at age 14. Intercorrelations among the variables for aggression as well as intercorrelations among the variables for school maladjustment were high; see Table 1, Variables 1–4 and 5–8, respectively. Latent factors for aggression and school maladjustment, respectively, were formed by these variables.

We assumed that aggression would explain subsequent long-term unemployment indirectly via school maladjustment at age 14 and problem drinking at age 27. School maladjustment was assumed to have both direct and indirect links through drinking problems as well as lack of occupational alternatives to long-term unemployment. On the basis of nonsignificant *t* values ($|t| < 2.0$), certain paths were deleted one at a time over several iterations in the model construction, and only statistically significant connections and completely standardized coefficients are presented in

Table 1
Pairwise Polychoric Correlations for the Variables Included in the LISREL Model for the Cycle of Maladaptation

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Hurts another child (8)	—										
2. Kicks objects (8)	.71***	—									
3. Attacks (8)	.88***	.75***	—								
4. Teases (8)	.76***	.64***	.78***	—							
5. Poor school success (14)	.36***	.27***	.36***	.29***	—						
6. Lack of interest in schoolwork (14)	.45***	.32***	.39***	.32***	.66***	—					
7. Punishments at school (14)	.52***	.35***	.42***	.39***	.51***	.59***	—				
8. Truancy (14)	.30***	.25***	.31***	.23***	.57***	.52***	.50***	—			
9. Lack of occupational alternatives (27)	.19**	.22***	.22***	.13*	.35***	.29***	.33***	.27***	—		
10. Problem drinking (27)	.43***	.41***	.35***	.40***	.49***	.48***	.45***	.38***	.30***	—	
11. Long-term unemployment (27–36)	.18**	.31***	.28***	.24***	.35***	.30***	.21***	.37***	.34***	.41***	—

Note. Numbers in parentheses indicate participants' age in years at time of measurement. Maximum *n* = 369 and minimum *n* = 254 for pairwise correlations. * *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 1. Modification indices were used to add specific correlations of measurement errors to the model. Aggression at age 8 explained 28% of the variance of school maladjustment at age 14, which was further, both directly and indirectly, related to subsequent long-term unemployment. Aggression had an indirect link to long-term unemployment through problem drinking. The indirect links from school maladjustment to long-term unemployment were via both problem drinking and lack of occupational alternatives at age 27. The model explained 25% of the variance of long-term unemployment.

Not shown in Figure 1 are significant correlations of measurement errors between single variables. Hurting another child at age 8 correlated with both lack of interest in schoolwork and punishments at school at age 14, as well as with long-term unemployment at age 36. Punishments at school was also correlated with both poor school success at age 14 and unemployment. Attacking other pupils at age 8 correlated with problem drinking at age 27. The model fit the data very well: $\chi^2(34, N = 280) = 32.78, p = .53$; RMSEA = .00; SRMR = .041; GFI = .98; AGFI = .96; and model AIC = 96.78.

Alternative models were tested next. In the first alternative model, aggression was set to directly predict school maladjustment, problem drinking, lack of occupational alternatives, and long-term unemployment. In other words, neither indirect pathways nor two-way connections were estimated. Aggression turned out to be a significant predictor of these variables, but the model fit the data poorly: $\chi^2(37, N = 280) = 84.80, p = .00$; model AIC = 142.80. This poor fit indicated that, at the least, two-way connections between school maladjustment, problem drinking, lack of occupational alternatives, and long-term unemployment should be included in the model. When these were added to the second alternative model, the goodness-of-fit indices showed a better fit to the data: $\chi^2(31, N = 280) = 29.41, p = .55$; model AIC = 99.41. This better fit implied that the latter variables were related to each other and might form indirect pathways. This finding gave support to our hypothesis of possible indirect links between aggression and long-term unemployment. Comparisons based on the model AIC indicated that the original model (AIC = 96.78) fit the data better than did the alternative models.

Effects of Low Prosociality and Low Child-Centered Parenting on Long-Term Unemployment

Effects of the hypothesized protective factors (prosocial behavior and child-centered parenting) on long-term unemployment were studied by including these variables and the interaction terms, calculated between aggression (CS8) and prosocial behavior at age 8 and between aggression (CS8) and child-centered parenting at age 14, into the LISREL model. We followed the procedure of testing the alternative models as described above except that we did not include measurement models and respective factors for aggression and school maladjustment in the model because these would have made it too complex (see Jaccard & Wan, 1996). Instead, composite scores for aggression at age 8 (CS8) and school maladjustment at age 14 (CS14) were used (see Table 2).

As Figure 2 indicates, both aggression and low prosocial behavior at age 8 were linked to long-term unemployment at age 36 through several paths. Aggression was related to long-term unemployment indirectly through school maladjustment at age 14 and

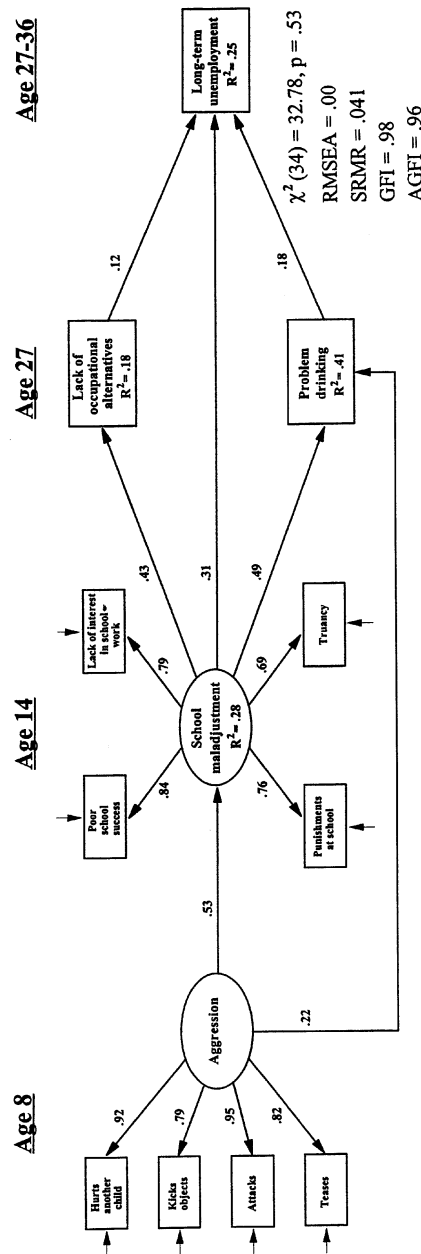


Figure 1. LISREL model of the cycle of maladjustment between aggression in childhood and long-term unemployment in adulthood.

Table 2
Pairwise Polychoric Correlations for the Variables Included in the LISREL Model for the Protective Factors

Variable	1	2	3	4	5	6	7	8	9
1. Aggression, composite score (8)	—								
2. Prosociality (8)	-.41***	—							
3. Child-centered parenting ^a (14)	-.04	.18**	—						
4. Aggression × Prosociality	.00	-.09	.02	—					
5. Aggression × Child-Centered Parenting	-.05	.04	.01	.19**	—				
6. School maladjustment, composite score (14)	.38***	-.40***	-.16*	-.06	-.04	—			
7. Lack of occupational alternatives (27)	.22***	-.18**	-.28***	.04	.02	.35***	—		
8. Problem drinking (27)	.41***	-.22***	-.22***	-.04	-.07	.48***	.30***	—	
9. Long-term unemployment (27–36)	.28***	-.49***	-.39***	-.15**	-.26***	.35***	.34***	.41***	—

Note. Numbers in parentheses indicate participants' age in years at time of measurement. Maximum $n = 369$ and minimum $n = 254$ for pairwise correlations.

^a Measured at age 27 but referring to age 14.

* $p < .05$. ** $p < .01$. *** $p < .001$.

problem drinking at age 27, as well as directly in interactions with low prosocial behavior and low child-centered parenting. Aside from interactions with aggression, low prosociality was related to long-term unemployment directly and indirectly via school maladjustment. Low child-centered parenting had multiple connec-

tions to long-term unemployment, both directly and indirectly through problem drinking and lack of occupational alternatives. Low child-centered parenting also interacted with aggression, suggesting that the effects of aggression on unemployment depended on the level of prosociality and child-centered parenting. The model explained

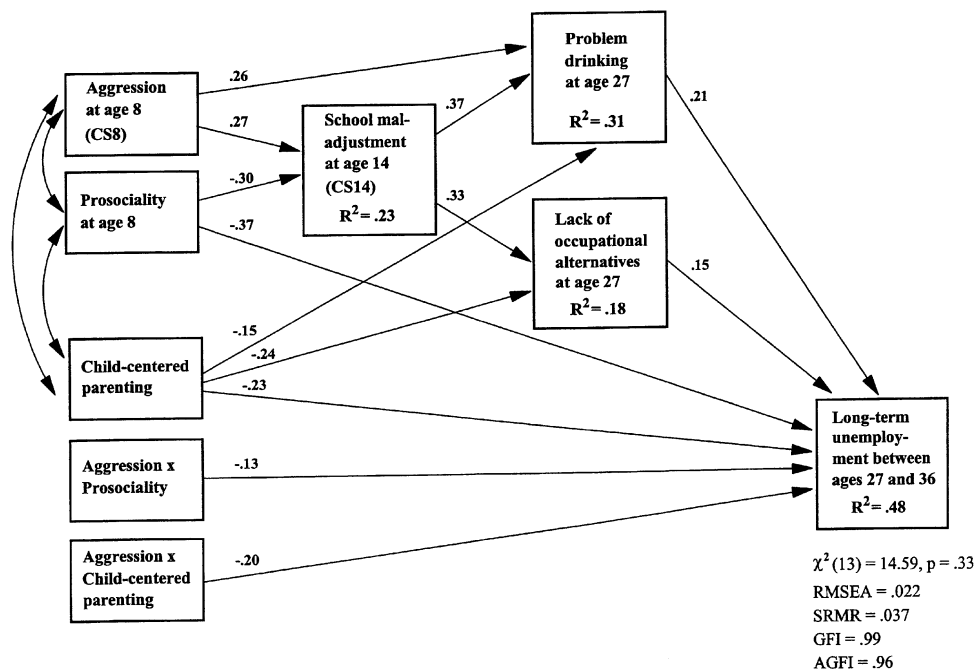


Figure 2. LISREL model of the protective factors between aggression in childhood and long-term unemployment in adulthood.

48% of the variance of long-term unemployment and fit the data well: $\chi^2(13, N = 260) = 14.59, p = .33$; RMSEA = .022; SRMR = .037; GFI = .99; AGFI = .96; model AIC = 78.59.

An alternative model with no indirect pathways was tested. In the alternative model, aggression, prosociality, and child-centered parenting, as well as the interaction terms, were set as predictors of school maladjustment, problem drinking, lack of occupational alternatives, and long-term unemployment. The outcome variables were allowed to have two-way connections with each other. Although this model fit the data reasonably well, $\chi^2(9, N = 260) = 8.74, p = .46$, model AIC = 80.74, the comparison of the fit indices indicated that the original model (AIC = 78.59) fit the data slightly better.

Prosociality and Child-Centered Parenting as Protective Factors

Two types of analyses were conducted to elaborate the interactions (between aggression and prosociality and between aggression and child-centered parenting): (a) the Student's *t* test for independent samples and (b) logistic regression analysis.

Student's *t* test. Two groups of aggressive individuals were compared: (a) those who became long-term unemployed and (b) those who did not. We classified the participants into aggressive and nonaggressive individuals on the basis of the distribution of the sum score for aggression for the whole original sample ($N = 369$) measured at age 8, using the 75th percentile as the cutoff point: aggressive, $n = 95$ (75 boys and 20 girls); not aggressive, $n = 274$ (121 boys and 153 girls). Of the 25 long-term unemployed participants at age 36, 12 (10 men and 2 women) were aggressive at age 8; they were labeled *aggressive long-term unemployed*. In contrast, there were 68 participants (52 men and 16 women) who were not long-term unemployed at age 36 but who were aggressive at age 8; they were labeled *aggressive not-long-term-unemployed*. As Table 3 indicates, the two groups differed on both child-centered parenting and prosociality. The aggressive not-long-term-unemployed participants reported more child-centered parenting and were assessed as more prosocial than were the aggressive long-term-unemployed participants.

Logistic regression analysis. The analysis was run among the aggressive participants by entering child-centered parenting and prosociality as predictors of long-term unemployment in the same

step (not long-term unemployed was coded as 0; long-term unemployed was coded as 1). Among the aggressive participants, both child-centered parenting ($R = -.29, B = -5.43, Wald = 6.51, df = 1, p < .05$) and prosociality ($R = -.25, B = -.40, Wald = 5.48, df = 1, p < .05$) significantly predicted subsequent employment status. Low child-centered parenting and low prosociality predicted long-term unemployment, whereas high child-centered parenting and high prosociality predicted lack of long-term unemployment. The probability of an aggressive child's becoming a long-term unemployed adult is shown in Figure 3. Aggressive children whose prosociality and child-centered parenting were 1 *SD* below those of average aggressive children (see heavy solid line and -1.0 *SD* point on the horizontal axis in Figure 3) had a greater probability of becoming long-term unemployed than did aggressive children whose prosociality and child-centered parenting scores were 1 *SD* above the mean (see largest dotted line and $+1.0$ *SD* point on the horizontal axis in Figure 3); the probabilities were about 45% and 1%, respectively.

Discussion

Our results indicate that aggression in childhood is indirectly related to long-term unemployment in adulthood. Aggression at age 8 began a cycle of maladaptation that included school maladjustment, problem drinking, lack of occupational alternatives, and, finally, long-term unemployment. Child-centered parenting and prosocial behavior, indexed by high self-control of emotions, functioned as protective factors in amelioratory links between aggression and long-term unemployment. Although child-centered parenting and prosociality had direct effects on later employment status, they also differentiated aggressive individuals who later became long-term unemployed from those who were more successful in the labor market. Furthermore, child-centered parenting and prosocial behavior significantly lowered the probability of an aggressive child's becoming long-term unemployed. These findings imply that the effects of parenting and prosociality operate directly and in conjunction with aggression, confirming the findings that protective factors operate in these two ways (Freitas & Downey, 1998; Luthar, 1993; Rutter, 1994; Werner & Smith, 1992).

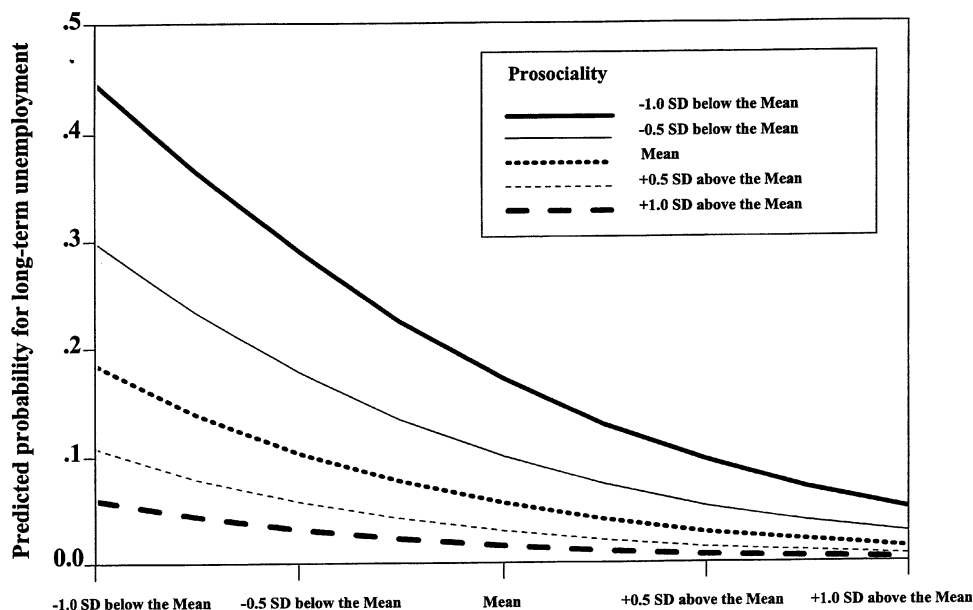
The present findings are in accord with Caspi et al.'s (1987, 1989) previous research concerning cumulative continuity, in

Table 3
Comparison of the Aggressive Not-Long-Term-Unemployed and the Aggressive Long-Term Unemployed on Child-Centered Parenting and Prosociality (Standardized Scores): Student *t* Test for Independent Samples

Variable	Aggressive not-long-term-unemployed ($n = 68$)		Aggressive long-term unemployed ($n = 12$)		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Child-centered parenting ^a	0.26	0.92	-0.91	0.80	3.61	68	.001
Prosociality	-0.39	0.83	-1.22	0.70	3.26	78	.002

Note. Entire sample: $M = 0.00$ and $SD = 1.00$ for child-centered parenting and prosociality.

^aThe number of participants for whom information on parenting was available was 61 for the aggressive not-long-term-unemployed and 9 for the aggressive long-term unemployed.



Child-centered parenting

Figure 3. Predicted probability for long-term unemployment in adulthood among aggressive children (means and standard deviations are computed for the aggressive).

which it was demonstrated that childhood ill-temperedness sets in motion a chain of events resulting in an erratic worklife in adulthood. The role of school maladjustment was important in the cycle of maladaptation: It had both direct and indirect links to subsequent long-term unemployment. School adjustment has been shown to be one of the most important developmental tasks of adolescence, because at school adolescents learn skills that are necessary for higher education and work (e.g., Masten & Coatsworth, 1995, 1998). An unsuccessful resolution of this developmental task may result in limited future opportunities, which manifested in the present study as problem drinking and lack of occupational alternatives.

A potential explanation for the positive effects of child-centered parenting among the aggressive participants might be that the child-centered parents were more interested in their children's school performance than were the less child-centered parents. Steinberg and his colleagues (1992) demonstrated that authoritative parenting is related to parents' school involvement, which is further associated with their children's school performance. Poor school performance was proven to be a risk factor for later long-term unemployment in the present study. It may be that parental support and supervision channeled aggressive children away from

the cycle of maladaptation into a more positive developmental pathway.

As for prosocial behavior, our findings are in line with previous research concerning aggression and peer rejection. It has been shown that aggressive children with prosocial skills become accepted by the peer group, whereas aggressive children lacking in prosociality have a high risk of rejection by peers (Bierman et al., 1993; Nangle & Foster, 1992; Volling et al., 1993). Peer groups provide contexts in which to further develop social skills (e.g., Coie & Dodge, 1998) and positive peer models (e.g., Hartup, 1996). With regard to our findings, poor prosocial coping capacity may have handicapped some aggressive children in school adjustment, making it difficult for them either to secure a permanent job or to get a new job after a period of unemployment.

In previous research, prosociality and aggressiveness have been studied mainly as opposite points on a continuum, which suggests that both cannot be present in the same individual. However, Feshbach and Feshbach (1986) claimed that both aggressive and prosocial tendencies can characterize the same individual. More recently, Shiner (1998, p. 323) wrote in her review of childhood personality, "As Graziano and Eisenberg (1997) have commented, aggressiveness and prosocial tendencies may eventually prove not

to be opposite ends of a single dimension, although they may tend to covary negatively." It should be noted that we defined prosocial behavior in terms of a model of emotional and behavioral regulation (Pulkkinen, 1995) according to which aggressive behavior indicates low self-control of emotions and constructive behavior indicates high self-control of emotions. If an aggressive child displayed regulatory capacities indexed by constructive behavior, high self-control, and social coping capacity, they protected him or her from becoming long-term unemployed as an adult.

There are some limitations to our study. First, data on child-centered parenting were retrospectively collected. Even though the retrospective child-centered parenting variable correlated with the corresponding prospectively collected data (Pulkkinen, 1990), it is possible that the long-term unemployed, compared with those who were not long-term unemployed, had less positive memories of their parents as a function of their subsequent life experiences. Similarly, aggressiveness was measured at age 8, whereas the parenting variable referred to participants' memories of their experiences at age 14. It is plausible that the child's behavior influenced parenting practices. Second, small sample sizes required analyses that combined women and men. In previous literature, it has been shown that aggression is indirectly related to low career orientation in both women and men (Pulkkinen, Ohanen, & Tolvanen, 1999), which suggests that aggression plays a role in the process of selection for a working career in both genders. In the present study we focused on physical aggression, but it would be interesting to investigate different types of aggression (e.g., Crick, 1996; Pulkkinen, 1987), which may have different implications for development, particularly in women (Pulkkinen, 1992). Third, the attrition from age 27 to age 36 among the individuals who were classified as problem drinkers at age 27 was higher than the attrition among other individuals in this age range. This may have caused underestimation of the relations between aggression and long-term unemployment because problem drinking was preceded by aggression and was further related to unemployment.

In the present study, we found that the cycle of maladaptation that began with aggression in childhood and ended with long-term unemployment in adulthood could be buffered by child-centered parenting and prosocial behavior. These findings are important for the study of prevention at both the individual and societal levels. At the individual level, the prevention of long-term unemployment is important because it has harmful effects on psychological well-being (Kokko et al., in press). At the societal level, prevention is important because long-term unemployment in early adulthood is a risk factor for socialization into unemployment, social marginalization, and an accumulation of problems in social functioning (Rönkä, 1999), all of which become very expensive to society.

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IV

**Selection into long-term unemployment in Finnish and
Swedish longitudinal samples**

by

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Selection into Long-Term Unemployment in Finnish and Swedish Longitudinal Samples

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The main aim of the present study was to compare the findings on selection into long-term unemployment based on 36-year-old Finnish participants (Kokko, Pulkkinen, & Puustinen, 2000) and 26 - 27-year-old Finnish and Swedish participants. The participants were drawn from two ongoing longitudinal studies: The Jyväskylä Longitudinal Study of Personality and Social Development (conducted in Finland; Pulkkinen, 1998) and the Individual Development and Adaptation (conducted in Sweden; Magnusson & Bergman, 2000). In comparison to the results based on 36-year-old unemployed, personality characteristics in middle childhood, such as low self-control of emotions or conduct problems and behavioral inhibition or timidity played a weaker role in explaining selection into long-term unemployment at age 26 - 27. Their effects were only indirect and operated via poor educational attainments, in both the Finnish and Swedish samples. At age 26 - 27, childhood personality characteristics explained selection into an educational track rather than selection into long-term unemployment and the length of education explained the duration of unemployment.

Introduction

The study of the selection into long-term unemployment has to meet specific requirements, often cited for testing causal hypotheses, such as that (1) the data should be longitudinal and (2) the findings should be replicated in different samples (e.g., Bergman, Eklund, & Magnusson, 1991; Rutter, 1994). Two additional criteria could be offered: (3) Mortimer (1994) has argued that the study should begin before the participants have gained experience of the labour market; and (4) we would argue that long-term unemployment should be measured at an age when age-graded institutional commitments, such as education and military service, no longer constrain one's possibilities of entry into the labour market. In short, if only part of the sample has entered the labour market at the time of the study of the length of unemployment, while another part continues in education, then educational factors would explain the duration of unemployment.

In the present study, selection into long-term unemployment was investigated longitudinally in two Scandinavian countries, Finland and Sweden. The first measurements of the characteristics of the participants were conducted in middle childhood when the participants had not yet experienced employment. Mortimer (1994) has classified longitudinal studies of unemployment into three categories

based on the initial sample (school-leaving age, employed adults, and unemployed adults). Many students have, however, experiences of the labour market before leaving school, and these experiences may give them some idea of their abilities as workers. These ideas may, in turn, make it difficult for a researcher to distinguish selection effects from causation effects.

There are few prospective longitudinal studies in which the participants have been so young at the time of the first measurement of their characteristics that they have not yet had experience of employment. Two such studies have been conducted in New Zealand. In the Christchurch Health and Development Study, conduct problems, such as conduct disorder or oppositional behaviors, were related to the duration of youth unemployment (Fergusson, Horwood, & Lynskey, 1997). In the Dunedin Multidisciplinary Health and Development Study, youth unemployment was predicted by a lack of the skills and qualifications required in the school, family disadvantages, and antisocial behavior in childhood (Caspi, Wright, Moffit, & Silva, 1998). Caspi (2000) has argued that undercontrolled behavior as early as at age 3 is a risk factor for unemployment between ages 15 and 21. In line with these studies, Kokko, Pulkkinen, and Puustinen (2000) found in a Finnish longitudinal study that low self-control, indexed by emotional lability and aggression, was predictive of long-term unemployment by age 36. The same sample was used in the present study. The effects of behavioral problems on unemployment seem to be partly operated through their relations to poor educational attainments (Caspi et al., 1998) and school maladjustment (Kokko & Pulkkinen, 2000).

The study by Kokko et al. (2000) also showed that behavioral inhibition, indexed by passive and anxious behavior was indirectly linked to long-term unemployment through poor educational attainments. Although Caspi's (2000) results did not show that inhibition in early childhood predicted subsequent unemployment, there are some other findings which show that behaviorally inhibited behavior may be related to indicators of labour market experiences. Caspi, Elder, and Bem (1988) demonstrated that shy American boys, but not girls, were more likely to delay entry into stable careers than nonshy boys. This delay was further related to lower occupational achievement and less stable career. In a Swedish study, shyness was an antecedent of girls', but not boys', lower educational attainments (Kerr, Lambert, & Bem, 1996). Also, in a Finnish study, passivity was directly and anxiety indirectly (via poor school success) related to low career orientation in women (Pulkkinen, Ohranen, & Tolvanen, 1999). Passivity in childhood was not a similar risk factor for low career orientation in men; rather, emotional lability in childhood explained low career orientation, both directly and indirectly (via poor school success), more highly in men than in women.

Thus, prior studies show that poor school success is an important antecedent of unemployment. Poor school success explains unemployment both directly and indirectly. The mechanism through which poor school success might exert its influence on unemployment may involve several steps: first, poor school success may indicate poor motivation for further education; second, poor motivation for further education may limit the duration of education; and third, short education may make an individual vulnerable to unemployment in a situation of heavy competition in the labour market.

Unemployment is an experience which an individual may have only after entering the labour market, and the conceptualization of long-term unemployment is further dependent on the length of time the person is available for the labour

market. In the mid-thirties, young adults with short education have already participated in work life for many years, whereas those who are aiming at higher education may still be studying. Experiences of unemployment would then be more dependent on the length of education and factors explaining it than on individuals' personality characteristics. In other words: If unemployment is studied in late adolescence or early adulthood, at an age when only individuals with shorter education have been involved in the labour market and become vulnerable for unemployment, the effect of poor school success on unemployment breaks even for technical reasons.

It was found in the Finnish longitudinal study investigated at age 36, that poor school success mediated the relation between behavioral inhibition and long-term unemployment, whereas low self-control accounted for long-term unemployment directly (see Figure 1; Kokko et al., 2000). By age 36, participants had passed their formal education and been involved in the labour market, usually for more than a decade. Personal factors, rather than institutional factors, such as length of education, accounted for their long-term unemployment. To test whether the same model (Figure 1) would fit the data where long-term unemployment was studied roughly 10 years earlier, analyses were conducted with two data sets, one collected in Finland and another in Sweden. Our *hypothesis* was that the same model would not fit the data collected in the mid-twenties and mid-thirties, because in the mid-twenties, individuals with a long education would not have participated in the labour market for a sufficiently long time (if at all). They have thus, only for a limited extent, been possible targets of unemployment experiences. Instead, we expected that in the mid-twenties, poor scholastic achievement would explain long-term unemployment by being linked to both types of personality characteristics, low self-control and behavioral inhibition. Thus, we did not expect that personality characteristics would directly explain long-term unemployment in the mid-twenties to the same extent that was the case for the mid-thirties.

Finland and Sweden are neighbouring countries and the cultures of these

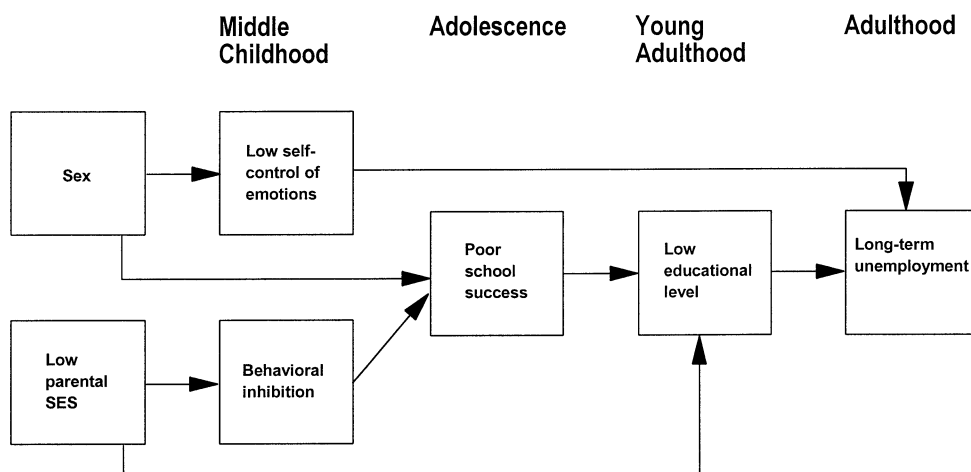


FIGURE 1 The model of selection into long-term unemployment based on the Finnish participants at age 36.

two countries share more similarities than differences. With regard to employment rate among the working-age population (15 - 64 years), levels have been comparable in Finland and Sweden. In 1985, employment rates were the following: 78.2% for Finnish men and 72.3% for Finnish women, and 83.4% for Swedish men and 77.1% for Swedish women (Employment in Europe, 1998). Unemployment rates were then as follows: 6.1%, 6.0%, 3.0%, and 2.8%, respectively. As can be seen from the figures, Swedish men and women were only slightly more often employed and less often unemployed than their Finnish counterparts. The most striking difference between the countries was that women were more frequently part-time employed in Sweden than in Finland (in 1985, 17.2% of Finnish women vs. 46.6% of Swedish women; corresponding figures for men were 6.2% for Finns and 6.8% for Swedes).

The age of entry into the labour market depends on the length of education which may vary largely according to the educational track that the individual has chosen. In both of these Scandinavian countries, children begin compulsory schooling at the age of seven and continue up to age 16. After compulsory school, most of the youngsters choose to attend three years' upper secondary general school which qualifies for university studies. University studies for a degree equivalent to the M.A. degree (Finland) or at least the B.A. degree (Sweden) are often undertaken because the degree qualifies for positions where academic training is required. These studies usually last in Finland, about six years and in Sweden, three to four years. In addition, several students spend an "off year" between upper secondary school and university studies. Many men have also performed military or civil service for about one year. Consequently, students are generally about 24 - 25 years of age when they leave the university with a degree. About one-fifth of the Finnish cohort enter university as does more than a quarter of the Swedish cohort. Most higher secondary school graduates engage in some type of continued schooling for two to four years. They enter the labour market at a younger age. Still younger individuals in the labour market are those who enter a vocational school or vocational high school stream for two to three years after the compulsory school at age 16, or who do not enter any further education.

Method

Participants

Participants were drawn from two ongoing longitudinal studies: the Jyväskylä Longitudinal Study of Personality and Social Development (JYLS) conducted in Finland, founded and directed by Lea Pulkkinen, and the Individual Development and Adaptation (IDA) conducted in Sweden, founded and directed by David Magnusson, later directed by Lars Bergman. To make the findings in the two samples comparable, the measurement points were selected to resemble each other as closely as possible and were as follows: 1) age 8 to 9 (hereafter: age 8) in the JYLS study and age 10 in the IDA study; 2) ages 14 and 13, respectively; and 3) ages 27 and 26, respectively.

The JYLS study. The JYLS study began in 1968 when the average age of the participants (173 girls and 196 boys) was 8.3 years; they were born mostly in 1959

(see Pulkkinen, 1982, 1998). Twelve second-grade school classes were randomly selected for the study sample from both downtown and suburban areas of Jyväskylä which is a medium-sized town with 78,000 inhabitants. At age 14 in 1974, 167 girls and 189 boys and at age 27 in 1986, 155 women and 166 men were followed up. Information on unemployment duration was available for 313 participants (152 women, 161 men).

The IDA study. The IDA study began in 1965 when the participants of the *main group* were 10 years old (born mostly in 1955; see Magnusson & Bergman, 2000; Magnusson, Dunér, & Zetterblom, 1975). The participants who belonged to the main group were included in the statistical analyses of the present study. The main group consisted of all the pupils who attended the third grade in the Örebro comprehensive school system in the school year 1964 - 1965. Örebro is a fairly large Swedish town with 100,000 inhabitants. The sample totalled 1026 children (509 girls, 517 boys). At age 13 in 1968, the original main cohort plus participants in the same age cohort who had moved to Örebro were followed up. Information on 1092 participants (549 girls, 543 boys) is available at this age. At age 26 in 1981, the main group consisted of 1393 participants (683 women, 710 men). The group had increased since children moving into the Örebro school system at a higher age were added to the cohort. Information on unemployment duration was available for 1085 participants (570 women, 515 men).

Measures

The variables used in the present study are summarized in Table 1. The variables of each data set were chosen to be as parallel as possible.

TABLE 1 Parallel Variables in the Two Longitudinal Studies.

Variables	The Finnish Study: JYLS	The Swedish Study: IDA
Low self-control of emotions	Axis I of correspondence analysis: low self-control of emotions	Conduct problems
Behavioral inhibition	Axis II of correspondence analysis: behavioral inhibition	Timidity
School success	Poor school success measured as the grand point average (inversed scale)	Poor school success measured as the averaged grade point of Mathematics and Swedish (inversed scale)
Parental socio-economic status	Low parental SES measured as the average of the father's and mother's occupational status	Low parental education measured by the parent with the highest education (inversed scale)
Participant's educational level	Low educational level	Low educational level
Long-term unemployment	Unemployment at least 12 months by age 27	Unemployment at least 12 months by age 26

Note. All variables are scored so that a high score indicates most of the property indicated by the variable name.

The JYLS study

The framework of the study has been a two-dimensional model of emotional and behavioral regulation (Pulkkinen, 1995, 1998), which consists of two orthogonal dimensions: behavioral inhibition versus expression, and low versus high self-control of emotions. In our previous analyses, the teacher-rated variables representing this model and measured at age 8 were included in a correspondence analysis (Kokko et al., 2000). The sum scores included were as follows: lability, anxiety, aggression, stability, compliance, constructiveness, passivity, and activity. For the correspondence analysis, the sum scores for each variable 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. These three or four categories were for each variable further dichotomized in order to obtain binary variables ($0 = \text{the category was observed}, 1 = \text{the category was not observed}$).

As expected on the basis of the model of emotional and behavioral regulation, two axes were extracted using correspondence analysis. The axes were labelled high versus low self-control of emotions and behavioral expression versus inhibition, although the axes were rotated in a way that each axis described only one of the two aspects of the dimension in the two-dimensional model.

Low self-control of emotions. One pole of the axis for self-control of emotions was loaded by variables showing low self-control of emotions, such as aggressiveness (e.g., "Hurts another child when angry, e.g., by hitting, kicking, or throwing something" and "Attacks somebody without reason") and lability ("Is sometimes very touchy and other times really nice"), whereas the other pole was loaded by variables showing high self-control of emotions, such as compliance (e.g., "Is peaceable and patient") and stability (e.g., "Is a reliable classmate"). Low self-control of emotions correlated with teacher-rated inattentiveness ($r = .48, p < .001$) and teacher-rated disobedience ($r = .59, p < .001$).

Behavioral inhibition. One pole of the axis for behavior was loaded by items showing behavioral inhibition, such as passivity (e.g., "Is always silent and does not like being busy" and "Is too withdrawn and timid") and anxiety (e.g., "Easily starts crying if others treat him/her nastily" and "Is afraid of other children"), whereas the other pole was loaded by variables showing behavioral exhibition, such as activity (e.g., "Is always busy and plays eagerly with other children") and constructiveness (e.g., "Acts reasonably even in annoying situations").

Poor school success was measured at age 14 as a grade point average collected from school archives (inversed scale).

Low parental socioeconomic status (SES) was determined on the basis of the average occupational status of the father and mother, ranging from 1 = *the highest socioeconomic status* to 5 = *the lowest socioeconomic status*.

Educational level was ascertained from the mailed questionnaire at age 27. Five categories were formed for measuring *low educational level*: 1 = *senior secondary school and higher education*, 2 = *senior secondary school and secondary level vocational education*, 3 = *vocational school*, 4 = *compulsory education and labor market training*, or 5 = *compulsory education*.

Long-term unemployment. During the interview at age 27, the participants were asked whether they had ever been unemployed in their lives. On the basis of the duration of unemployment by age 27, the participants were classified into the

following two categories: 0 = *not long-term unemployed* (unemployed for less than 12 months), 1 = *long-term unemployed* (unemployed for 12 months or more). The reason for comparing the long-term unemployed against the rest - instead of using a continuous variable for unemployment duration - was that the relation between childhood personality characteristics and subsequent unemployment was not linear and that the long-term unemployed constituted a specific group in our previous study (Kokko et al., 2000).

The IDA Study.

Conduct problems. A sum score for conduct problems at age 10 was used. It was an averaged score from the following teacher-rated variables: aggressiveness (aggressive against teachers and classmates), lack of concentration (unable to concentrate on assigned tasks), and motor restlessness (cannot sit still, always moves around, is talkative and noisy; see Magnusson et al., 1975, pp. 77-78 and Wångby, Bergman, & Magnusson, 1999). The teachers rated the pupils on a scale from 7 (describes the pupil very well) to 1 (does not describe the pupil at all).

Timidity. Timidity (shy, poor self-esteem, inhibited; see Magnusson et al., 1975, p. 78 and Wångby, Bergman, & Magnusson, 1999) at age 10 was rated by teachers on a scale from 7 (describes the pupil very well) to 1 (does not describe the pupil at all).

Poor scholastic achievement was assessed at age 13 as the grade point average in Mathematics and Swedish (see Magnusson et al., 1975, pp. 60-61) which were collected from school registers (inversed scale).

Parental education was determined on the basis of the parent with the highest education. Seven different categories were obtained for *low parental education* (see Magnusson et al., 1975, p. 86), ranging from 1 = *university level education* to 7 = *unskilled laborer*.

Educational level was ascertained from the mailed questionnaire at age 26. *Low educational level* was measured by the following eight categories: 1 = *higher education lasting at least for four years*, 2 = *higher education lasting for 3 years*, 3 = *higher education lasting for less than 3 years*, 4 = *senior secondary school lasting for 3 years*, 5 = *senior secondary school lasting for 2 years*, 6 = *secondary level vocational education lasting for 2 years or more*, 7 = *vocational training*, or 8 = *compulsory school*.

Long-term unemployment. In the mailed questionnaire at age 26, the participants were asked whether they had ever been unemployed in their lives. On the basis of the duration of unemployment by age 26, the participants were classified into the following two categories: 0 = *not long-term unemployed* (unemployed for less than 12 months), 1 = *long-term unemployed* (unemployed for 12 months or more).

Data Analysis

For descriptive purposes, the distribution of women and men into categories for not long-term unemployed versus long-term unemployed was studied using a chi-square (χ^2) test.

In order to make national comparisons of the size of the difference in means in a studied variable between the groups for long-term unemployed and not long-term unemployed, effect sizes were computed for the Finnish and Swedish samples separately and then compared. In calculating effect sizes, we followed the

procedure recommended by Cohen (1988). The following formula was used:

$$d = \frac{m_1 - m_2}{\delta}$$

where: m_1 = mean of the long-term unemployed
 m_2 = mean of the not long-term unemployed
 δ = standard deviation of the whole sample
 d = effect size.

In the interpretation of the effect sizes, we used Cohen's (1988) definition of three levels of effect sizes. Accordingly, $d = .20$ represents a small effect size; $d = .50$ represents a medium effect size; and $d = .80$ represents a large effect size. An effect size of .50 means that there is an overlap of 67% of the two distributions and that 31% of the observations of the distribution with the lower mean are above the mean of the distribution with the higher mean. An effect size of at least .50 is interpreted as indicating a "substantial" difference between the long-term unemployed and not long-term unemployed.

In both samples, the model presented in Figure 1 of the relations between childhood personality characteristics and later long-term unemployment was tested. The model testing was based on the matrices of Pearson correlations produced by the PRELIS program (PRELIS 2.30; Jöreskog & Sörbom, 1996c). In the matrices, missing values were treated pairwise. In order to test model fit, three steps were followed: *First*, the model was fit to both samples separately using the LISREL program (LISREL 8.30; Jöreskog & Sörbom, 1996b). The method of estimation used was generalized least squares. *Second*, the obtained models were evaluated using several goodness-of-fit indices: chi-square (χ^2), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), goodness-of-fit index (GFI), and adjusted-goodness-of-fit index (AGFI). Akaike's information criterion (AIC) was used to compare the alternative models with each other (see Jöreskog & Sörbom, 1996a, p. 119). Values smaller than .05 (minimum is 0) for the RMSEA and SRMR, and values higher than .90 for the GFI and AGFI are often considered satisfactory. The AIC takes both the models' parsimony (referring to number of parameters) and fit into account. In the comparison of the alternative models, the lower the AIC, the better the model. A generally accepted standard by which to judge if χ^2 indicates good fit is to compare it to the number of degrees of freedom. However, as Jöreskog and Sörbom (1996b) point out, the χ^2 -measure is sensitive to sample size. It should be noted that in the present study, the Swedish sample was large (over 1000 participants) and, thus, made the value of the χ^2 as a measure of goodness-of-fit ambiguous. *Third*, the obtained models were modified by adding parameters with a large modification index and eliminating the parameters with small t -values ($|t| < 2.0$).

Results

Rate of Long-Term Unemployment in Relation to Gender and Nationality

The JYLS Study

In the Finnish sample, 28 participants (9%; 6 women and 22 men) belonged to the class for long-term unemployed at age 27 and 285 participants (91%; 146 women

and 139 men) belonged to the class for not long-term unemployed at age 27. There was a statistically significant gender difference in the distribution ($\chi^2(1) = 9.063$, $p < .01$): more men than women were classified as long-term unemployed. Of the 28 long-term unemployed (unemployed for 12 months or more), 11 had been unemployed at least two years. At age 27, about 7% of the participants were studying full-time (Pulkkinen, 1989).

The IDA Study

As regards the Swedish sample, 45 participants (4%; 14 women and 31 men) were categorized as being long-term unemployed at age 26 and 1040 participants (96%; 556 women and 484 men) were categorized as being not long-term unemployed at age 26. As in the Finnish sample, women and men were unevenly distributed into these two categories ($\chi^2(1) = 8.641$, $p < .01$): more men than women were classified as long-term unemployed. Of the 45 long-term unemployed, 12 had been unemployed at least two years. At age 26, 12% of the participants were studying full-time (Andersson, Magnusson, & Dunér, 1983).

Effect Sizes in the Finnish and Swedish Samples

The size of the difference between long-term unemployed and not long-term unemployed was studied in a number of variables using the earlier described effect size as a measure of the size of the difference. As Table 2 shows, for *the JYLS study* sample, the effect sizes were large for poor school success at age 14 and low educational level at age 27, at a medium level for low parental SES, and small for low self-control of emotions at age 8. The effect sizes of poor scholastic achievement at age 13 and low educational level at age 26 were large also in *the IDA study* sample. The effect size reached a medium level for conduct problems at age 10 and was small for low parental education.

TABLE 2 Effect Sizes for the JYLS and for the IDA Study.

Variable	Effect size	Variable	Effect size
<i>The JYLS Study</i>		<i>The IDA Study</i>	
Low parental SES	0.71	Low parental education	0.26
Low self-control of emotions (8)	0.27	Conduct problems (10)	0.50
Behavioral inhibition (8)	0.16	Timidity (10)	-0.14
Poor school success (14)	0.96	Poor scholastic achievement (13)	0.78
Low educational level (27)	0.94	Low educational level (26)	0.88

Note. Numbers in parentheses indicate participants' age in years at time of measurement.

Relations between Personality Characteristics, Educational Attainments, and Long-Term Unemployment

The JYLS Study

As shown in Table 3, neither low self-control of emotions nor behavioral inhibition at age 8 correlated significantly with long-term unemployment. However, they had statistically significant correlations with poor school success, that is, the lower the child's self-control or the more inhibited the child at age 8, the poorer his or her school success was at age 14. Furthermore, poor school success correlated

TABLE 3 Pearson Product-Moment Correlations for the Study Variables: The JYLS Study.

Variable	1	2	3	4	5	6	7
1. Sex (1 = women, 2 = men)	-						
2. Low parental SES	.05	-					
3. Low self-control of emotions (8)	.23***	-.02	-				
4. Behavioral inhibition (8)	.00	.20***	-.01	-			
5. Poor school success (14)	.40***	.12*	.24***	.18**	-		
6. Low educational level (27)	.16**	.34***	.14*	.20***	.53***	-	
7. Long-term unemployment (27)	.17**	.18**	.07	.08	.24***	.27***	-

Note. Numbers in parentheses indicate participants' age in years at time of measurement. Maximum $n = 346$ and minimum $n = 277$ for pairwise correlations.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

When one variable was dichotomous, a significance test designed for the point biserial correlation was used and when both variables were dichotomous, a chi-square test was used, otherwise the standard t-test was used.

significantly with low educational level at age 27, and both poor school success and low education were linked to long-term unemployment. Participant's sex had significant correlations with low self-control of emotions, school success, educational level, and long-term unemployment, indicating that male participants had lower self-control, poorer school success, lower educational level, and a higher probability of becoming long-term unemployed compared to female participants. Correlations also indicated that low parental SES was positively associated with behavioral inhibition, poor school success, low educational level, and long-term unemployment.

The IDA Study

The comparison of Table 4 for the IDA study and Table 3 for the JYLS study, revealed that, in general, the correlation pattern was very similar in the two samples. As in

TABLE 4 Pearson Product-Moment Correlations for the Study Variables: The IDA Study.

Variable	1	2	3	4	5	6	7
1. Sex (1 = women, 2 = men)	-						
2. Low parental education	.03	-					
3. Conduct problems (10)	.20***	.12*** ^b	-				
4. Timidity (10)	-.02	.18***	.04	-			
5. Poor scholastic achievement (13)	.15*** ^c	.33*** ^c	.52*** ^c	.25***	-		
6. Low educational level (26)	-.10** ^c	.41***	.29*** ^b	.20***	.54***	-	
7. Long-term unemployment (26)	.09**	.05 ^a	.11**	-.03 ^a	.16***	.18***	-

Note. Numbers in parentheses indicate participants' age in years at time of measurement. Maximum $n = 1136$ and minimum $n = 779$ for pairwise correlations.

* $p < .05$. ** $p < .01$. *** $p < .001$. (two-tailed).

When one variable was dichotomous, a significance test designed for the point biserial correlation was used and when both variables were dichotomous, a chi-square test was used, otherwise the standard t-test was used.

^aDiffers from the correlation obtained in the JYLS sample at $p < .05$.

^bDiffers from the correlation obtained in the JYLS sample at $p < .01$.

^cDiffers from the correlation obtained in the JYLS sample at $p < .001$.

The equality test of the correlation coefficients between the two samples was based on z transformation (McNemar, 1969).

the JYLS sample, timidity at age 10 did not correlate significantly with long-term unemployment at age 26. Conduct problems at age 10 had, however, a weak, but statistically significant correlation with long-term unemployment. Both timidity and conduct problems were linked to poor scholastic achievement: the more timid the child and the more conduct problems the child had at age 10, the poorer his or her scholastic achievement at age 13. As in the JYLS sample, poor scholastic achievement correlated highly with low educational level at age 26, and both were further associated with long-term unemployment. In line with the Finnish findings, male sex was related to conduct problems, poor scholastic achievement, and long-term unemployment, but in contrast to the results in the JYLS study, men in the IDA sample had attained a slightly higher educational level at age 26 than women. In the same way as in the Finnish sample, low parental education was related to timidity, poor scholastic achievement, and low educational level.

Paths between Personality Characteristics and Long-Term Unemployment

The JYLS Study

The model presented in Figure 1 was tested using the LISREL program (LISREL 8.30; Jöreskog & Sörbom, 1996b) and was found to fit the data fairly well: χ^2 (12, $N = 280$) = 21.03, $p = .050$; RMSEA = .064; SRMR = .061; GFI = .98; AGFI = .95; and AIC = 57.52. However, in addition to the non-significant path from low self-control of emotions at age 8 and long-term unemployment at age 27, there was a large modification index between low self-control of emotions and poor school success at age 14. After the deleting the non-significant path and adding the path indicated by the large modification index, we arrived at the final model which is shown in Figure 2. Only statistically significant paths and standardized coefficients above the value of .10 are presented in the figure. The model fit the data very well: χ^2 (12, $N = 280$) = 13.45, $p = .34$; RMSEA = .040; SRMR = .046; GFI = .99; AGFI = .97; and AIC = 49.21.

Consistent with the model shown in Figure 1, behavioral inhibition at age 8 was indirectly related to long-term unemployment at age 27. For difference, in the model indicated in Figure 1, low self-control of emotions at age 8 had an indirect,

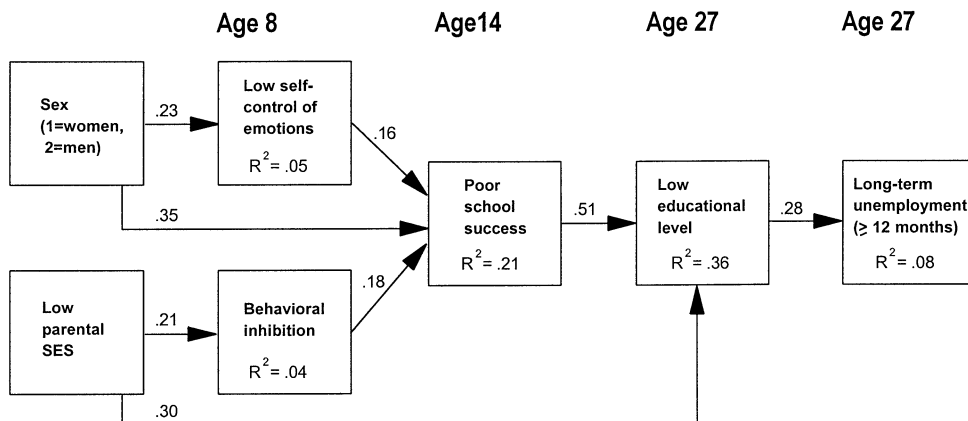


FIGURE 2 The model of selection into long-term unemployment: The JYLS study.

instead of a direct association to later long-term unemployment. Both behavioral inhibition and low self-control were linked to poor school success at age 14 which preceded low educational level at age 27. As expected, low educational level was further related to long-term unemployment. In line with the model in Figure 1, low parental SES and the participant's sex had indirect connections to long-term unemployment: Male sex was related to low self-control of emotions as well as to poor school success, and low parental SES was related to behavioral inhibition as well as to low educational level. The obtained model explained 8% of the variance of long-term unemployment and 36% of the variance of low educational level.

The IDA Study

Again, the model presented in Figure 1 was tested. It was found to fit the data poorly: $\chi^2(12, N = 1000) = 320.86, p = .00$; RMSEA = .34; SRMR = .31; GFI = .91; AGFI = .79; and AIC = 1437.43. After several modifications, we arrived at the final model which is shown in Figure 3. Only statistically significant paths and standardized coefficients above the value of .10 are presented in the figure. The model fit the data very well: $\chi^2(9, N = 1000) = 21.44, p = .011$; RMSEA = .040; SRMR = .024; GFI = .99; AGFI = .98; and AIC = 61.15.

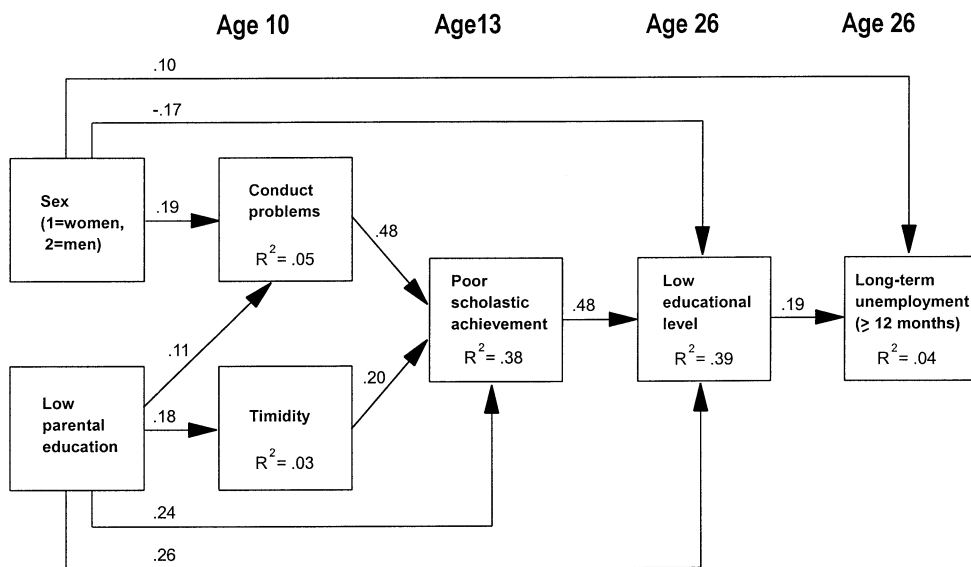


FIGURE 3 The model of selection into long-term unemployment: The IDA study.

As in the Finnish sample at age 27, childhood personality characteristics, timidity and conduct problems at age 10, had indirect links to long-term unemployment at age 26, through poor scholastic achievement at age 13 and low educational level at age 26. Consistent with the model based on the Finnish sample at age 27, low parental education was related to both timidity and low educational level. In contrast to the Finnish findings, low parental education also had links to conduct problems and poor scholastic achievement. Regarding the participant's sex, male sex was associated with conduct problems, which is in line with the Finnish findings. In contrast to the Finnish results, male sex was additionally linked to

higher educational level as well as to longer unemployment. The model explained 4% of the variance of long-term unemployment and 39% of the variance of low educational level. It should be noted that this model did not well fit the JYLS data ($\chi^2(9, N = 280) = 39.21, p = .00$; RMSEA = .16; SRMR = .13; GFI = .96; AGFI = .88; and AIC = 112.45).

Discussion

Our findings indicated that selection into long-term unemployment was similar in the Finnish and Swedish longitudinal samples. In both samples, two types of personality characteristics measured in middle childhood, were indirectly related to long-term unemployment by mid-twenties. Although labelled in different ways, low self-control of emotions and behavioral inhibition in the Finnish sample and conduct problems and timidity respectively in the Swedish sample, the personality variables could be considered parallel. These personality variables preceded poor school success in adolescence, which in part, was an antecedent of low educational level in young adulthood. Low educational level was further related to long-term unemployment.

In general, our findings were in line with previous research (e.g., Pulkkinen, 1996; Rönkä, Kinnunen, & Pulkkinen, in press) which has shown that low self-control of emotions, based on the model of emotional and behavioral regulation (Pulkkinen, 1995, 1998) in childhood precedes accumulation of problems in social functioning in adulthood. In the present study, the accumulation of problems on the basis of individuals' childhood personality characteristics was indicated by short-term education which made people vulnerable to long-term unemployment. The connection between personality characteristics and education was much stronger than the connection between personality characteristics and unemployment.

However, as expected, the present findings diverged from the model presented in Figure 1. Compared to this model, which was based on the Finnish participants at age 36 (see Kokko et al., 2000), one main difference emerged: Low self-control of emotions, indicated particularly by aggressive behavior in childhood was directly linked to long-term unemployment at age 36, but only indirectly at age 26 - 27. It seems that in the mid-thirties personality characteristics are a relatively stronger component of the accumulation process towards long-term unemployment than in the mid-twenties.

The more powerful role that the personality characteristics played in the selection into long-term unemployment at an older age compared to an earlier age may be explained both by the timing of transitions to social roles and by historical time. By the timing of transitions to social roles we mean that there were individual differences in the age that the labour markets were entered. The age of entry into the labour market depended on whether the person pursued further studies after finishing compulsory school; the longer the education, the less possibilities the individual had for unemployment experiences. Thus, at the age of 26 - 27, personality characteristics played a more important role in explaining selection into educational career than selection into long-term unemployment.

In addition to the timing of transitions, historical time, especially

unemployment rate in the respective societies, may account for the differences in the importance of personality characteristics in selection into long-term unemployment. When the data were collected for the 36-year-old Finnish participants, unemployment rate was very high in Finland, roughly 20% (see Kokko & Pulkkinen, 1998; Kokko et al., 2000). This means that there were unemployed individuals who had suddenly lost their jobs as a consequence of economic recession and who had no prior problems in their background. It is likely that these individuals were able to become re-employed in a short period of time. However, it is also evident that individuals with aggressive tendencies had serious difficulties in obtaining a new job. As suggested by Caspi and Moffitt (1991), the importance of individual differences in personality characteristics might have accentuated during periods of social change, such as rapid change in the unemployment rate.

There are some limitations in our study with regard to measurement and methodological issues. *First*, the variables were measured in slightly different ways and at slightly different ages in the Finnish and Swedish samples. For example, low self-control of emotions was indicated by a related factor measured at age 8 in the JYLS study and by a sum score for conduct problems measured at age 10 in the IDA study. However, both of these variables included elements of aggressive, distractive or labile, and disobedient behavior. As regards behavioral inhibition, it was defined on the basis of a factor measured at age 8 in the JYLS study and by a single rating for timidity measured at age 10 in the IDA study. Both of these variables were intended to be indicators of socially passive and shy behavior.

Second, the small sample size of the long-term unemployed participants forced us to analyze women and men together. It would be interesting to analyze them separately and to study whether aggressive and shy behaviors play different roles in the selection process for different sexes. Previous studies have shown that ill-temperedness (Caspi, Elder, & Bem, 1987) and aggressiveness (Pulkkinen et al., 1999) are risk factors for selection into an unstable career line, particularly, for men, and passivity (Pulkkinen et al., 1999) and anxiety (Pulkkinen et al., 1999; Rönkä & Pulkkinen, 1998) are risk factors, particularly, for women's low career orientation or low work involvement. On the basis of these findings, it could be assumed that some gender-differences would also emerge in selection into long-term unemployment. In the present study, women comprised one fifth of the long-term unemployed in the JYLS and one third in the IDA. Thus, it may be that the present findings are more characteristic of men than women. Related to the question of sample size, there were more statistically significant connections in the Swedish sample than in the Finnish sample (cf. Figures 2 and 3). It should be noted that this may be due to the larger sample size of the Swedish participants which makes smaller coefficients statistically significant.

Third, the explained variance of the long-term unemployment was low in both samples (8% for the JYLS study and 4% for the IDA study). This indicates that there were other factors which largely explain selection but were not included in our model. These factors may be related to, for example, the structure of the labour markets and to the occupational fields, that is, selection into long-term unemployment was more likely to occur in certain occupational fields as a result of fluctuations in the Finnish and Swedish macroeconomic systems in 1980s'. Economic recession limited, for instance, construction work which particularly

affected male employment independent of individual characteristics of the employees.

Notwithstanding these limitations, our study attempts to test whether the same kind of processes would explain selection into long-term unemployment by mid-twenties as it would by mid-thirties. We conducted our analyses with two data sets. The importance of conducting analyses with different samples has been highlighted by, for example, Rutter (1994). In the present study, the Finnish and Swedish findings were similar, which is not surprising considering the cultural similarities (e.g., the school system) between these two neighbouring countries. In line with previous findings (Caspi et al., 1998; Kokko & Pulkkinen, 2000; Kokko et al., 2000), our study emphasized the importance of low educational attainments for later unemployment. The role of the length of education was particularly pronounced when long-term unemployment was measured at a young age. At age 26 - 27, those individuals who had a long education may not have entered the labour market or have done so recently. However, Caspi et al. (1998) have found that difficult temperament as early as at age 3, explained the increasing duration of unemployment between ages 15 and 21. It was also shown that personality characteristics explained selection into long-term unemployment more strongly during a time of high unemployment (Kokko et al., 2000) than during a time of low unemployment.

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