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## **Psychosocial development and the development of problem behaviour during adolescence**

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## 4 Pathways of psychosocial development and problem behaviour from early to mid-adolescence<sup>1</sup>

*This study examines the longitudinal relation between psychosocial development and the development of problem behaviour of adolescents. We use a two-wave sample of 539 adolescents. They were asked to complete a self-report questionnaire on problem behaviour and a sentence completion test on psychosocial development. We identified five pathways of individual development: normative, lagging, stagnating, regressing and precocious development. Adolescents in non-normative developmental pathways (i.e. a lagging behind, stagnating, and regressing pathway) were more involved in problem behaviour at Wave 2 than adolescents with a normative or precocious psychosocial development. A decrease in problem behaviour was found for adolescents with a normative psychosocial development, but adolescents with a lagging psychosocial development was characterised by an increase in more severe problem behaviour. We discuss theoretical implications.*

### 4.1 Introduction

Problem behaviour<sup>2</sup> changes dramatically in prevalence throughout childhood and adolescence. Research has shown that the prevalence of delinquency increases strongly from the age of 12 years onwards, with a peak around 17-19 years, and a slow decrease afterwards (Farrington, 1986, 2003; Blokland, 2005). Misbehaviour already starts in childhood while delinquency usually develops during adolescence, especially more serious forms of it (Coté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002; LeBlanc & Frechette, 1989; Loeber & Farrington, 2000). Criminological studies also showed that light or moderate forms of delinquency start earlier than more serious forms, for instance shoplifting is committed before burglary which in turn is typically committed before robbery (LeBlanc & Frechette, 1989; see also Farrington, 2003).

Despite the general development of problem behaviour, considerable variability exists at the individual level (Westenberg & Block, 1993; Romero, Luego & Sobral, 2001). While non-normative behaviour is not uncommon or atypical in adolescence, only a small part of the early-adolescent population develops further into more severe forms of delinquent behaviour (Weerman, 2007). Studies on psychosocial development show that moral reasoning, social emotions and social identity develop, changing over time throughout childhood and adolescence. Psychological and psychosocial factors also play a considerable role in the occurrence and development of problem behaviour (Brugman & Aleva, 2004; Romero et al., 2001; Westenberg, 2002). A well-known theory that considers these changes in combination is Loevinger's theory of psychosocial -or socio-emotional- development (Loevinger, 1976). This theory views psychosocial development as personal

<sup>1</sup> This chapter has been submitted for publication.

<sup>2</sup> *Problem behaviour* is in this paper defined as both *delinquent offences outside school* and *misbehaviour/delinquent offences in school*. When we refer to problem behaviour we mean both categories.

growth, entailing changes over time in the perception of the Self (personality characteristics), others (relations) and the environment (influential factors on behaviour). The theory incorporates changes in a wide array of variables such as impulse control, conscious preoccupations, character development and interpersonal orientation. The theory has proven its value in explaining several developmental and behavioural problems. For example, empirical studies using the theory of psychosocial development have shown that levels of development are related to separation anxiety related issues (Westenberg, Siebelink, Warmenhoven & Treffers, 1999), and to suicidal tendencies (Borst & Noam, 1993). With respect to problem behaviour, research has shown that low levels of psychosocial development associate with the prevalence of rule breaking behaviour. Respondents who lag behind in psychosocial development exhibit more serious problem behaviour (Ezinga, Weerman, Westenberg & Bijleveld, 2006; Frank & Quinlan, 1976; Krettenauer, Ullrich, Hofmann, & Edelstein, 2003). However, most research until now has been cross-sectional, which does not contribute to understanding *changes* in problem behaviour during adolescence. Therefore, the present study examines the longitudinal relation between psychosocial development of adolescents and the development of problem behaviour. To analyse changes, we differentiate between pathways of psychosocial development. This enables us to interpret possible relations between problem behaviour and psychosocial development. We seek to answer the following question: How and to what extent are pathways of psychosocial development related to individual differences in involvement and development of problem behaviour in adolescence?

## 4.2 Psychosocial development and problem behaviour: theoretical background

### 4.2.1 Psychosocial development

Loevinger (1976) views psychosocial development as personal growth experienced by every individual, entailing changes in impulse control, conscious preoccupations, character development and interpersonal orientation (the view on one self, on others and the third-person-view on interaction between two persons). The theory identifies nine levels of psychosocial development. A revised theory of Loevinger is put forward by Westenberg and colleagues (Westenberg, Drewes, Siebelink, Treffers, Jonckheer & Goedhart, 2000), in which eight levels of psychosocial development are identified, each having its own unique characteristics. As far as the developmental level of early-mid adolescents is concerned, four levels are most relevant: the Impulsive level (E2), the Self-protective level (E3), the Conformist level (E4), and the Self-awareness level (E5).

The Impulsive level is characterised by high impulsivity and dependence and obedience. In the Self-protective level, feelings of independence develop, and may reach a level of indisputability. Adolescents in the Self-protective level try to control their impulsive behaviour, although they often do not succeed. In the Conformist level, impulse control is reasonably developed. Bonding and social behaviour are important. Equality has a large influence within relationships with others. The last relevant level in adolescence is the Self-awareness level where the focus has changed to the (inner) self, instead of the group. Rules are guidelines while in the previous level rule obedience was essential.

Between each level, Loevinger identified transitions levels or so-called *borderline*<sup>3</sup> levels. These “in-between” levels have characteristics of both the previous level as well as the oncoming level. Two particular elements of Loevinger’s psychosocial theory are important in the psychosocial development of early- and mid-adolescence: impulse control and social behaviour. These elements go through a huge change when adolescents develop from the third, Self-protective level to the Conformist level. From there on, other people’s opinions are taken into account. According to Loevinger, the levels do not strictly correspond with age. However, it is possible to relate age-cohorts to the various levels (Westenberg et al., 2000).

The approach of Loevinger and Westenberg resembles the person-oriented approach of Bergman and Magnusson (1997). They emphasised the importance to look at the person as a whole and from a dynamic perspective. An in-depth study on the person oriented approach as a research strategy for developmental psychopathology was conducted by Von Eye and Bergman (2003). This paper stressed the necessity to view psychosocial development from the individual’s perspective instead of variables (Bergman & Magnusson, 1997; Von Eye & Bergman, 2003).

Existing research on the relation between psychosocial maturity and problem behaviour has been cross-sectional. Krettenauer et al. (2003) showed that a delayed developmental level increases the chance of problem behaviour and externalising problem behaviour (Krettenauer et al., 2003). Already in 1976, Frank and Quinlan showed that delinquent girls were more often in the early developmental levels, compared to non-delinquent girls who experienced a more advanced development (Frank & Quinlan, 1976). Earlier cross-sectional analysis of the sample used in this paper also showed that adolescents in pre-normative as well as in the normative levels (Self-protective level) at that age reported relatively more problem behaviour. This indicated that *normative* development could be related to problem behaviour as well (Ezinga et al., 2006).

#### 4.2.2 Pathways

Development can be studied longitudinally in several ways. Often, longitudinal studies focus on the relation between changing variables. However, distinguishing pathways of development is also possible and in some cases more useful. For instance, within criminology there are several important contributions that originate from the use of pathways. Moffitt identified distinct paths of adolescent delinquent development (i.e. adolescence onset offenders and life-course persistent offenders) (Moffitt, 1993). Loeber identified several distinct pathways of serious delinquency (Loeber et al., 1998). In developmental psychology, studies on pathways of psychosocial development are also not uncommon. An article by Noam and colleagues on maladaptation and adjustment within a group of hospitalised adolescents, led to the identification of two pathways: progressors and non-progressors. Results showed that progressors in psychosocial development significantly decreased in psychiatric symptoms, and coped better with stressors and defence proc-

3 This term is not referred as the clinical disorder, but used for describing the event of being in transit from one psychosocial stage to the other.

esses, compared to those not progressing in psychosocial development (Noam, Recklitis & Frome-Paget, 1991).

Hauser and colleagues (1990, 1991) studied the relation between pathways of psychosocial development and family interactions. In this study eight different pathways of development were identified (Hauser, Borman, Powers, Jacobson, & Noam, 1990; Hauser, Powers & Noam, 1991). Hauser's results showed that adolescents within a pathway leading to the so-called pre-conformist levels exhibited a more basal, aggressive way of interacting with parents than adolescents within a conformist pathway. More recently Hennighausen and colleagues (2004) used these eight pathways to study the association between adolescent psychosocial development and young adult relationship outcomes (Hennighausen, Hauser, Billings, Schultz & Allen, 2004). The pathways of Hauser and Hennighausen concentrated around one particular level of psychosocial development. So, instead of using a normative approach, Hauser and Hennighausen used a stage-specific approach. However, Ezinga et al (2006) in empirical research on psychosocial development and problem behaviour, showed support for relating "normal", age-appropriate development to problem behaviour, thus focusing on normative development. Another important argument for supporting a so-called normative approach is that development itself is dynamic. The normative level of psychosocial maturity changes constantly. For instance, an eight-year-old child in the Impulsive level is normative for its psychosocial development, and its corresponding behaviours. Subsequently, a fifteen-year-old adolescent in the Conformist level is also in a normative psychosocial level for its age. The normative level changes throughout development. Misbehaviour is thus not determined through one specific level, but with changing perspectives on development. This dynamic perspective is also the main reason to use paths of development. Through constant change of normative levels, the dynamics become visible. Therefore, it is not only important to analyse individuals in their absolute level of psychosocial development but also with regard to their relative level. Thus, not the level itself but whether the level is normative has its own theoretical relevance as will.

As discussed earlier, the use of pathways with Loevinger's theory of psychosocial development has already been explored by Hauser and Hennighausen (Hauser et al., 1990, 1991; Hennighausen et al., 2004). Hauser's eight different pathways, all concentrated around the fourth, so-called Conformist level. Our study uses similar pathways as Hauser did, but differs in three ways. First, our analysis emphasises the normativity of the development for the age under consideration. Second, Hauser based his theoretical pathways on more than two waves of data, giving him the opportunity to observe a moratorium pathway<sup>4</sup>. Third, the psychosocial development in the current study is measured at the age of thirteen and at the age of fifteen. Hauser on the other hand describes his pathways from a baseline starting at 14 years until 17 years. Table 4.1 shows the pathways described by research until now.

4 The psychosocial moratorium, originally stems from Erikson's (1959) definition where an individual at first decreases and then increases in levels of ego development (Erikson, 1959).

Table 4.1 Pathways of Psychosocial Development

Noam et al., 1991	Hauser, 1990; Hennighausen et al., 2004
Non-progressors	Profound arrest: Remain in a pre-conformist level during adolescence
Non-progressors	Steady conformists: Starts at the conformist level and remain there during adolescence
Non-progressors	Accelerated development: Starts in a post-conformist level and remain there during adolescence
Progressors	Early progression: From a pre-conformist level to a conformist level
Progressors	Advanced progression: From a conformist level to a post-conformist level
Progressors	Dramatic progression: From a pre-conformist level to a post conformist level
Progressors	Regressing development: Shifting downward from levels during adolescence
	Psychosocial moratorium: Decreasing and increasing dramatically in levels during adolescence

The first column shows the first differentiation of Noam and colleagues between *progressors* and *non-progressors*. The second column shows the pathways studied by Hauser et al. (1990) and more recently by Hennighausen et al. (2004). Hauser also placed an emphasis on progression, but identified rather detailed types of progressing development. He identifies an *early progression*, an *advanced progression* and a *dramatic progression*. Next to progressing Hauser identified a *regressive pathway* (declining in psychosocial development) and the pathway of *psychosocial moratorium* (progressing and regressing dramatically over time) (Hauser et al., 1990; Hennighausen et al., 2004). Both types however seem to be controversial, especially because they are rarely observed.

### 4.3 Hypotheses

We try to relate five different pathways of psychosocial development to (the development of) problem behaviour. Recalling from the introduction, our main research question is to what extent paths in psychosocial development relate to the prevalence and development of problem behaviour from early to mid adolescence. This paper investigates the effect of psychosocial development on the development of problem behaviour. As such, the paper is testing a unidirectional relationship.

Our expectations are differentiated in pathway differences in prevalence of problem behaviour in Wave 2, and also in increase or decrease of problem behaviour within the pathways. The following pathways are identified in this paper with a lag of 2 years between Wave 1 and Wave 2: the *stagnating pathway* (no progression between the two waves, which means that the level becomes pre-normative), the *normative pathway* (progression from a normative level in Wave 1 to a normative level in Wave 2), the *precocious pathway* (developing from a (post)-normative level to a post-normative level), the *lagging pathway* (adolescents progress from a pre-normative level in Wave 1 to another pre-normative level in Wave 2), and finally the *regressing pathway* (declining from a normative level in Wave 1 to a pre-normative level in Wave 2). For each path we have a specific hypothesis.

- The prevalence of problem behaviour in Wave 2 among adolescents with a normative development (i.e. adolescents who develop from E3 to E4) is lower than the prevalence

of problem behaviour among adolescents with a regressing, stagnating or lagging personality development. According to the theory, being in and moving to the conformist level leads to more conforming behaviour and obedience towards the rules society has. This is in contrast with those paths that end up in Wave 2 at a lower (less than normative) level. Here, adolescents seem less concerned with rules, are egocentric and less capable of controlling their impulses. Also, normative development is characterised by a *decrease* in problem behaviour in from Wave 1 to Wave 2. Regarding more serious problem behaviour a slight *increase* is expected. We see this as a normal development of problem behaviour. We expect a slight increase of more serious problem behaviour because we also want to acknowledge the fact that those adolescents who do commit an offence behave to more “grown up” offences. This group will be small. This is in line with the general “age-crime curve”, where mild misbehaviour decreases and more serious problem behaviour increases.

- Adolescents with a stagnating personality development (i.e. adolescents who retain in the borderline level E2/E3 or self-protective level, E3) have a higher prevalence of problem behaviour than adolescents who have a normal or a precocious development of personality. Also, adolescents who stagnate in their personality development are characterised by an *increase* in prevalence of problem behaviour from Wave 1 to Wave 2. We have several theoretical considerations to expect this. First of all, we believe that adolescents present in non-normative levels are experiencing discrepancies with their peers. They will therefore seek other adolescents with a similar, more egocentric and low impulse control like attitude. This process is expected to increase the chances for delinquent behaviour. Furthermore, we expect an increase in delinquent behaviour because the adolescents become over time more distanced from normative psychosocial development.
- Adolescents with a lagging psychosocial development (i.e. developing upwards from a pre-normative baseline level to a higher but still pre-normative level in Wave 2) have a higher prevalence of problem behaviour than adolescents having a normal or precocious personality development. Secondly, a lagging development relates to a *continuation* of problem behaviour from Wave 1 to Wave 2. The theoretical considerations for this type are more or less the same on those in the previous hypotheses. However, we now expect a continuation in prevalence of delinquency, because the adolescent does develop although at a slower pace. The distance from the normative developing adolescents stays the same.
- A regressing development (a negative personality development with a baseline at the normative level -E3- or lower) leads to a higher prevalence in Wave 2 than the prevalence of the other developmental paths. Regression in personality development also relates to an *increase* of more serious problem behaviour from Wave 1 to Wave 2. Again we refer to the previous hypotheses. Also, we expect an increase in more serious problem behaviour, because the regressing development leads to the first levels of psychosocial development where no or minimal impulse control exist. The susceptibility for delinquent behaviour is enhanced by the adolescent’s environment that does expect some sort of independent behaviour and control over the self.
- Adolescents with a precocious development (higher than normative in Wave 2) have less problem behaviour than those who are normative, lagging, stagnating or regressing in development. Also, their prevalence of problem behaviour *decreases* even fur-

ther. The theoretical argument for expecting less problem behaviour is the fact that the presence of adolescents in levels above normative is characterised by good impulse control, self-awareness, understanding of moral behaviour and empathic feelings. These adolescents reached or developed to a level that is characterised by mature behaviours and reflection on feelings of others. Deviant behaviour is now acknowledged as something that is not fruitful in socio-emotional processes.

#### 4.4 Method

##### 4.4.1 Procedure

The data collection took place in 2002 and was part of the NSCR School Study (see Weerman & Smeenk, 2005). About 40 schools for secondary education (comparable to middle- and high schools in the U.S.) were approached for participation. A total of 12 schools located in or near The Hague agreed to participate in this longitudinal study. Survey data were obtained for about 2000 first and third graders. A measurement instrument for psychosocial development was administered for 1048 first grade adolescents. For 811 adolescents both survey and psychosocial development data were obtained. The data collection was conducted in the classroom. All information was treated with confidentiality, including offences.

Studies have shown that the interval of two years is acceptable to investigate psychosocial development (Westenberg & Gjerde, 1999). The current study is related to a larger research project studying the early adolescent problem behaviour development over a four-year interval. We implemented psychosocial measurement in the first and third wave. Measuring every year would be too soon to investigate psychosocial development.

##### 4.4.2 Sample characteristics

This paper uses a sample that has been studied over two waves. The first wave (baseline) consists of 811 adolescents. In the second wave, approximately 66.5% (539 adolescents) participated again. This longitudinal sample consists of 271 boys (50.3%) and 268 girls (49.7%). The majority is of Dutch origin (69%) whereas roughly one-third of the sample had a non-Dutch ethnic background. At the second wave, the mean age was 15.6 years ( $SD = 0.54$ ).

There are significant differences between our final sample and the dropouts in age with  $\chi^2(5, 809) = 15.1, p < .01$ , ethnicity with  $\chi^2(1, 811) = 16.4, p < .001$ , misbehaviour with  $F(1, 810) = 4.0, p < .05$ , delinquency with  $F(1, 810) = 22.5, p < .001$  and psychosocial development with  $\chi^2(4, N = 811) = 11.1, p < .05$ . In other words, the attrition analyses show that older adolescents, adolescents coming from an ethnic minority and being more prevalent in problem behaviour in Wave 1, participate less often in Wave 2. The results also show that these dropouts have a psychosocial level that is relatively often pre-normative in Wave 1.



#### 4.4.3 Measures

##### *Problem behaviour*

The survey contained 10 items on the frequency of misbehaviour in school and 13 items on delinquency outside school, all in *the past school year*. These frequency variables show how often the adolescent committed the offence in one year. Misbehaviour in school includes the following offences: throwing items in class, verbal bullying, physical bullying, graffiti in school, vandalizing school property, stealing something worth < €5,-, stealing something worth > €5,-, fighting without injury, fighting with injury, and threatening at or using violence against a teacher. Delinquency outside school includes the following: graffiti, vandalism, fare dodging, shoplifting something worth < €5,-, shoplifting something worth above €5,-, buying stolen goods, stealing a bike or moped, car theft, burglary, robbery, other theft, fighting without injury and fighting with injury. With the frequency variables we employed variation scales that indicate the number of different offences committed. Research has shown that such variation scales are a more reliable indication of intensity than frequency scales measuring misbehaviour or delinquency (Bendixen, Endresen, & Olweus, 2003). The internal consistencies of the scales for both misbehaviour and delinquency were sufficient with a Cronbach's alpha of respectively .65 and .74 at the baseline in 2002 and .62 and .68 at the second wave in 2004.

Next to variation scales, we also constructed categories and subscales based on the severity of the offences. Six criminologists, not involved in the present study, independently rated the severity of the offences. This resulted in six categorical subscales: mild misbehaviour, moderate misbehaviour, severe misbehaviour, mild delinquency, moderate delinquency and severe delinquency. The intraclass correlation coefficient analysis for interrater agreement was .61, so there was some discussion about the severity of the items. Table 4.2 displays all categories of dependent variables and the respective items.

**Table 4.2** Categorization of Misbehaviour and Delinquency by Severity

Scale	Items in the scale
<i>Misbehaviour in school:</i>	
Total misbehaviour	All 10 items concerning misbehaviour in school;
Mild misbehaviour	Throw things in class, verbal bullying;
Moderate misbehaviour	Physical bullying, graffiti in school, vandalizing property of school, stealing something worth < €5,-, fighting without injury;
Severe misbehaviour	Stealing something worth > €5,-, fighting with injury, threatening at or using violence against a teacher;
<i>Delinquency outside school:</i>	
Total delinquency	All 13 items concerning delinquency outside school;
Mild delinquency	Fare dodging;
Moderate delinquency	Graffiti, vandalism, shoplifting something worth < €5,-, buying stolen goods, fighting without injury;
Severe delinquency	Shoplifting something worth > €5,-, stealing a bike or moped, car theft, burglary, robbery, theft otherwise, fighting with injury.

*Psychosocial development*

The Sentence Completion Test for Youth (SCT-Y) consists of 32 sentence stems, such as “My conscience bothers me if...”; “My father...”; or “When people are helpless...”. Adolescents were instructed to complete the sentences freely. There are modified forms for boys and girls. Using an empirically based scoring manual, each student receives a score of psychosocial development that ranges between 2 and 6. Each number stands for a particular developmental level (e.g. E2 is the Impulsive level, E6 is the Conscientious level). All sentence completions are rated according to the levels of psychosocial development. Eventually this results in 32 different scores ranging from 2 to 6 (for details see Westenberg, 2002; Westenberg et al., 2000). A sentence completion was given a missing when it could not be traced to a particular level or was nonsensical. The levels for the 32 item scores are counted (so, all E2s, E3s, E4s, E5s, and E6s are counted). A weight procedure leads to a final score of psychosocial development.

For each wave two trained raters independently scored all sentences and discussed and resolved any differences. Interrater agreement at the initial interpretation of each sentence was 86% in the first wave and 91% in the second wave. Two types of final categorizations are available. The first is the automatic total score. Here the main levels are identified (i.e. second, third or fourth level). The second is called the borderline score and identifies also transition levels. The latter option results, for example, in the level E2/E3 when a student is already progressing to the third level but has not yet arrived there completely.

Regarding the reliability and validity of the instrument, Lilienfeld and colleagues (2000) published a review of projective and semi-projective techniques including the sentence completion test. According to this study, the sentence completion test has attained the scientific standards for ‘zero order’ (construct validity; does the test measure what is meant for) and ‘incremental’ validity (does the test measure something extra, besides for instance intelligence measures and personality measures). Also internal consistency, and test-retest standards are judged as reliable (see for more detail Lilienfeld, Wood, & Garb, 2000).

Table 4.3 displays the distribution of psychosocial development in total and disaggregated for gender over the first and second wave (respectively 2002 and 2004).

**Table 4.3** Prevalence over the Levels of Personality across a Two-Wave Study (N=539)

	<b>Total T1</b>	<b>Total T2</b>	<b>Boys T1</b>	<b>Boys T2</b>	<b>Girls T1</b>	<b>Girls T2</b>
Impulsive level	3,9%	0,2%	4,8%	0,0%	3,0%	0,0%
E2/E3	12,2%	4,6%	15,9%	7,0%	8,6%	2,2%
Self-protective level	50,5%	34,5%	62,4%	48,0%	38,4%	20,9%
E3/E4	19,5%	25,4%	12,2%	28,0%	26,9%	22,8%
Conformist level	13,9%	31,9%	4,8%	14,8%	23,1%	49,3%
E4/E5	0,0%	2,8%	0,0%	1,8%	0,0%	3,7%
Self-awareness level	0,0%	0,6%	0,0%	0,4%	0,0%	0,7%

*Note:* All bold number show the two largest percentages for each column.

Each column has two bold numbers that indicate the two largest prevalences. In the total sample (the first columns) it can be seen that from Wave 1 to Wave 2 a shift is made from E3/E4 to E4 as second most prevalent level. Furthermore, percentages for the levels below the Self-protective level E3 decrease strongly in prevalence. In total, the mean level of psychosocial development increases half a level from Wave 1 to Wave 2, from 3.14 (SD = 0.49) to 3.47 (SD = 0.51). The following columns show percentages for boys and girls respectively. In the second wave, approximately 50% of the boys-sample can be found in the Self-protective level. Girls however, are faster in development and move already towards the Conformist level (E4). This difference in pace between boys and girls is normal and in line with Loevinger's theory. This result implies that boys are present more in underdeveloped paths and girls more in the precocious path.

4.4.4 Plan of analysis

First we will present frequency scores of adolescents developing to another psychosocial level from Wave 1 to Wave 2. Following this, we test significant differences in prevalence of problem behaviour between the psychosocial paths on Wave 2 with an ANOVA test and Dunnett- C post-hoc analysis. Our last analysis tests if prevalence of problem behaviour significantly increased or decreased in four different psychosocial paths. We use a Paired-sample T-test. All the analyses are conducted with SPSS.

4.5 Results

We outlined five different developmental pathways in psychosocial maturity: the normative, stagnating, lagging, regressing and precocious pathway. We expect for the majority of the sample a normative development, and thus progress from the self-protective level to the conformist level (or at least the borderline level E3/4). Table 4.4 shows in detail which changes in personality development occur, and how many adolescents follow the different pathways.

Table 4.4 Developmental Change in Psychosocial Levels

		T2						
		E2	E2/E3	E3	E3/E4	E4	E4/E5	E5
T1	E2	–	.6% (3)	2.0% (11)	1.1% (6)	–	.2% (1)	–
	E2/E3	–	1.3% (7)	5.9% (32)	3.3% (18)	1.7% (9)	–	–
	E3	–	2.4% (13)	21.5% (116)	12.8% (69)	13.0% (70)	.7% (4)	–
	E3/E4	.2% (1)	.4% (2)	3.3% (18)	5.6% (30)	8.7% (47)	.9% (5)	.4% (2)
	E4	–	–	1.7% (9)	2.6% (14)	8.5% (46)	.9% (5)	.2% (1)
		Lagging	Normative			Precocious		
		Stagnating						
		Regressing						

In Table 4.4, the percentages in the white cells represent adolescents who develop normatively; these comprise 57.3%. This immediately confirms our expectation that the majority of the adolescents have a *normative* personality pathway. The lightly shaded group at the far right is the group of adolescents whose pathway is *precocious* (3.3%,  $N=18$ ). The third group consists of adolescents who do develop, but not enough to reach a normative level. These adolescents have a *lagging* development of personality (8.5%,  $N=46$ ). The fourth group is a group (two cells) of adolescents who remain at their first wave level and have a so-called *stagnating* development (22.8%,  $N=123$ ). This is the second largest group. Lastly, a group of adolescents *regress* in development (8.0%,  $N=43$ ). These adolescents move back from a normative or advanced level in Wave 1 to a pre-normative level in Wave 2.

We also analysed the changes in prevalence of problem behaviour. With respect to problem behaviour we expect an increase in more severe delinquency. This expectation is based on the general idea of increasing prevalence of problem behaviour over time in adolescence. Milder problem behaviour is likely to continue or decrease. We tested the significance of changes in prevalence with the Wilcoxon test, a non-parametric test (Shestkin, 2000). Earlier, we introduced the severity categories of problem behaviour. Table 4.5 shows the changes in prevalence for these categories of problem behaviour.

Table 4.5 Change in Prevalence for each Category of Problem Behaviour

	2002	2004
Overall misbehaviour	87.8% (473)	80.9% (436)***
Mild misbehaviour	82.7% (446)	75.9% (409)**
Moderate Misbehaviour	48.6% (262)	44.5% (240)
Severe Misbehaviour	7.8% (42)	9.5% (51)
Overall delinquency	52.3% (282)	54.0% (291)
Mild delinquency	38.6% (208)	41.2% (222)
Moderate Delinquency	31.9% (172)	30.8% (166)
Severe delinquency	7.1% (38)	10.9% (59)*

\*:  $p < .05$ ; \*\*:  $p < .01$ ; \*\*\*:  $p < .001$

A significant decrease is found for overall misbehaviour. This can be attributed mainly to a decrease in mild misbehaviour. An increase is found for overall delinquency outside school (but not significant). There is a small but significant increase in severe delinquent behaviour.

Our main research question focuses on the relation between psychosocial pathways and problem behaviour in the second wave. We used the five pathways as introduced earlier in this paper. First we associated these paths with the level of misbehaviour and delinquency in Wave 2. Because both variation scales for total misbehaviour and delinquency, as defined in the method section, were heavily skewed to the right we *logtransformed* them. Next to the total variation scales, we used the subscales of severity in problem behaviour (mild/moderate/severe). We calculated the differences in mean scores for each pathway of psychosocial development. Differences were tested with a variance analysis with multiple comparisons (We used a Dunnett-C post-hoc test because we assume no equal variance, which was confirmed after the Levene's test, measuring the homogeneity of variance). Table 4.6 shows the results of this analysis. The second column displays

the mean severity scores (the average number of problem behaviours for all categories of severity) for each pathway. A mean score can be shaded; this indicates a significantly higher mean, compared to the others. The third column shows the results of a post-hoc analysis, which identifies where the difference can be found ( $p < .05$ ). The abbreviations stand for Stagnating (S), Regressing (R), Normal (N), Lagging (L), and Precocious (P). The fourth column shows a comparison between the normative pathway and the stagnating, lagging and regressing pathways.

**Table 4.6 A Comparison of Means of Problem Behaviour in Wave 2 between Personality Paths with Post-hoc Test**

	Normative (N) (n=309)	Stagnating (S) (n=123)	Lagging (L) (n=46)	Regressing (R) (n=43)	Precocious (P) (n=18)	F (4,534)	N compared with S,L,R (n=212)	F (1,519)
Misbehaviour (log)	.71 (.43)	.90 (.36) <sup>N</sup>	.82 (.47)	.79 (.40)	.75 (.35)	4.87**	.86 (.40)	16.33***
Mild (range 0-2)	.94 (.71)	1.25 (.67) <sup>N</sup>	1.09 (.78)	1.05 (.79)	1.06 (.54)	4.36**	1.17 (.72)	13.65***
Moderate (range 0-5)	.59 (.90)	1.04 (1.28) <sup>N</sup>	1.21 (1.35) <sup>N</sup>	.72 (1.12)	.44 (1.04)	6.78***	1.01 (1.27)	20.37***
Severe (range 0-3)	.07 (.28) <sup>P</sup>	.17 (.46) <sup>P</sup>	.26 (.61) <sup>P</sup>	.16 (.53)	.00 (.00)	3.89**	.19 (.51)	11.42**
Delinquency (log)	.44 (.46) <sup>P</sup>	.55 (.48) <sup>P</sup>	.61 (.52) <sup>P</sup>	.54 (.45) <sup>P</sup>	.15 (.30)	4.45**	.56 (.48)	7.94**
Mild (range 0-1)	.39 (.49)	.46 (.50)	.44 (.50)	.49 (.51)	.22 (.43)	1.32	.46 (.50)	2.25
Moderate (range 0-5)	.44 (.83) <sup>P</sup>	.66 (1.05) <sup>P</sup>	.87 (1.28) <sup>P</sup>	.53 (.93) <sup>P</sup>	.00 (.00)	4.39**	.68 (1.08)	8.37**
Severe (range 0-7)	.11 (.53) <sup>P</sup>	.24 (.68) <sup>P</sup>	.56 (1.33) <sup>P</sup>	.26 (1.09)	.00 (.00)	4.60**	.31 (.95)	9.26**

Note. N= Normative; S=Stagnated; L=Lagging behind; R=Regressing; P=Precocious; Superscript = post-hoc significance of lower mean  
\*:  $p < .05$ ; \*\*:  $p < .01$ ; \*\*\*:  $p < .001$

The results in Table 4.6 show that there are significant differences between the different pathways. These differences are first observed in the overall scale of misbehaviour with  $F(4, 534) = 4.87$  ( $p < .01$ ). Post-hoc tests revealed a significantly higher mean for the adolescents in the stagnating pathway compared to the adolescents with a normal development. In other words, adolescents with a stagnating psychosocial development report more misbehaviour in the second wave than adolescents who have a normal development. Also the total scale of delinquency was analysed. Here, all pathways are significantly different from adolescents with a precocious development with  $F(4, 534) = 4.45$  ( $p < .01$ ). This means that adolescents with a faster than normal psychosocial development have a lower mean of delinquency outside school than adolescents who have a regressing, stagnating, lagging or a normal psychosocial development.

Further, in most categories of problem behaviour, the highest means are found for adolescents with a stagnating development and for adolescents with a lagging development. Post-hoc analyses show that these stagnating and lagging groups differ significantly from the normative group regarding mild problem behaviour. For the categories severe misbehaviour, moderate delinquency and severe delinquency on the other hand, the precocious developmental group has significantly lower scores than the other developmen-

tal paths. Summing up, adolescents experiencing normative personality development show less problem behaviour than adolescents experiencing a lagging, regressing or stagnating development of personality. Adolescents experiencing a precocious development show less serious problem behaviour than the others. They seem to be protected by their advanced psychosocial level.

We also tested the differences in mean between the normative pathway and a combined pre-normative group. This pre-normative group consists of all adolescents lagging behind, stagnating and regressing in development. Significantly higher means are found for the pre-normative group on all subscales of problem behaviour, with the exception of the mild delinquency subscale.

In the next step we analysed the changes in mean from the first to the second wave within each psychosocial path. We used paired samples T-tests, to test whether changes in mean per problem behaviour category were significant. Noteworthy is that that level of the first wave can be calculated by subtracting the score in Table 4.6 of the corresponding mean change in Table 4.7.

Table 4.7 Mean Changes of Misbehaviour and Delinquency Categories within Personality Pathways

Mean change T2-T1	N (n=309)	T	L (n=46)	T	R (n=43)	T
Misbehaviour	-.09 (.49)	-3.36**	-.07 (.39)	-1.14	-.07 (.40)	-1.14
Mild misbehaviour (range 0-2)	-.19 (.79)	-4.19***	-.04 (.89)	-.330	-.23 (.95)	-1.61
Moderate misbehaviour (range 0-5)	-.14 (1.11)	-2.21*	.50 (1.49)	2.28*	-.09 (1.19)	-.51
Severe misbehaviour (range 0-3)	-.00 (.39)	-.15	.13 (.62)	1.43	.02 (.67)	.23
Delinquency	-.01 (.62)	-.18	.15 (.67)	1.55	.07 (.51)	.90
Mild delinquency (range 0-1)	.02 (.57)	.50	.11 (.57)	1.30	.00 (.57)	.00
Moderate delinquency (range 0-5)	-.05 (.99)	-.86	.46 (1.26)	2.46*	-.02 (.86)	-.18
Severe delinquency (range 0-7)	.06 (.55)	1.98*	.48 (1.30)	2.51*	.09 (.75)	.81
	S (n=123)	T	P (n=18)	T		
Misbehaviour	-.03 (.34)	-1.07	.11 (.58)	-.81		
Mild misbehaviour (range 0-2)	-.02 (.83)	-.32	.17 (.71)	1.00		
Moderate misbehaviour (range 0-5)	.14 (1.30)	1.18	-.06 (1.26)	-.19		
Severe misbehaviour (range 0-3)	.07 (.47)	1.52	-.06 (.24)	-1.00		
Delinquency	.02 (.54)	.33	-.06 (.54)	.44		
Mild delinquency (range 0-1)	.03 (.56)	.65	.00 (.49)	.00		
Moderate delinquency (range 0-5)	.03 (1.23)	.29	-.06 (.24)	-1.00		
Severe delinquency (range 0-7)	.04 (.89)	.51	-.06 (.24)	-1.00		

Note. N= Normative; S=Stagnated; L=Lagging behind; R=Regressing; P=Precocious

\*:  $p < .05$ ; \*\*:  $p < .01$ ; \*\*\*:  $p < .001$

Table 4.7 shows that a normative personality development is associated with a decrease in misbehaviour ( $p < .01$ ) but an increase in severe delinquency ( $p < .05$ ). A lagging personality development associates with an increase in the moderate category of misbehaviour as well as the moderate and severe category of delinquency. No significant changes

in problem behaviour prevalence are found for adolescents experiencing a stagnating personality development.

#### 4.6 Conclusion and discussion

In this study we analysed the relation between psychosocial development and problem behaviour. The subjects were categorised in five different pathways of psychosocial development. Each path was compared with the other paths on mean level of problem behaviour at the second wave. Also, the development of problem behaviour within each path was analysed. The descriptive results suggest that the majority of the sample had a normative psychosocial development. Mild problem behaviour decreased and more serious problem behaviour increased.

Our first hypothesis about adolescents with a normative development is partially supported. The mean rate of their problem behaviour in Wave 2 is lower than that of the stagnating, lagging or regressing developmental paths. However, when severity increases, differences between normative and stagnating, lagging and regressing paths are smaller. In line with the hypothesis, adolescents with a normative development decrease in their level of mild problem behaviour, but increase in more severe types of problem behaviour. This can be interpreted as maturation of problem behaviour from mild to more “grown-up” misbehaviour.

Our second hypothesis concentrated on those who stagnated in their development. Adolescents with a stagnating development had relatively high mean scores at Wave 2 on all types of problem behaviour, which is in line with our hypothesis. However they did not show a significant increase over time on all severity subscales of problem behaviour. This is a somewhat surprising result because these adolescents remained in their self-centred level, and the gap with their peers who did develop increased. Such an incongruity in psychosocial thinking can be expected to result in an increase of problem behaviour.

The third hypothesis focused on adolescents who lagged behind in their psychosocial development. These adolescents developed from a pre-normative level in Wave 1 to a still pre-normative level in Wave 2. Adolescents with a lagging development had the highest mean scores on more severe problem behaviours in comparison with the other developmental paths, which is in line with our expectation. We also hypothesised that the levels of their problem behaviour would increase. This was partially supported. Problem behaviour increased significantly over time but mainly in the serious categories of problem behaviour.

The fourth hypothesis focused on adolescents regressing in psychosocial development. We hypothesised an increase in serious types of problem behaviour. The results however show no clear evidence for this expectation. The only difference found is with adolescents in a precocious development. High mean levels are present for regressing adolescents, but only significantly higher regarding general delinquency and moderate delinquency. The regressing group is rather small, and a possible explanation for our (lack of) results is that these adolescents actually were coincidentally categorised in a higher level in Wave 1, or lower level in Wave 2, than they ought to be in, due to measurement error.

The fifth and final hypothesis about adolescents who are precocious in their psychosocial development was supported. The mean level of problem behaviour was lowest when

compared to the other paths. We also expected no serious difference in their prevalence over time. This expectation was supported, although a small increase in mild misbehaviour is seen.

Our results are in line with previous studies. In 1976, Frank and Quinlan already found an association of early developmental levels with problem behaviour in girls. Krettenauer et al. (2003) found an association between early developmental levels and externalising behaviour. Previous, cross-sectional analyses on this sample also showed a modest relation between the early psychosocial levels and the prevalence of problem behaviour (Ezinga et al., 2006). The current paper also shows clear associations between early developmental levels and problem behaviour. This supports our general assumption that pre-normative psychosocial maturity places adolescents at risk for problem behaviour. Research until now has hardly reported anything on pathways of psychosocial maturity, with the exception of Hauser's work. The results in this paper show clear support for differences between various pathways of psychosocial maturity. Adolescents who are lagging behind, stagnating or regressing in their development of psychosocial maturity show more problem behaviour than adolescents with a normative psychosocial development. Lower levels of problem behaviour are found for students with a precocious psychosocial development. Noteworthy is the result concerning changes in problem behaviour within the developmental pathway of lagging behind. It appeared that this group develops significantly more problem behaviour over time. We believe that this is most likely due to their enduring exposure of pre-normative experiences in psychosocial development.

Our results were less clear on the hypothesis that tested the mean changes over time within the other pathways of psychosocial development. This could imply that psychosocial pathways are mainly important because they lead to different levels, but also that the short-term development is not so relevant. In other words, the trend is already set and continues into mid-adolescence.

#### 4.6.1 *Limits and implications for future research*

There are some limitations to this study that should be mentioned. First of all, the study is limited to two measurements. Therefore, we were not able to investigate other possible pathways such as a moratorium development, which Hauser et al. (1990) and Hennighausen et al. (2004) already suggested. Secondly, there are possibilities of measurement errors in the determination in level of psychosocial development. This could explain the vague results on the adolescents with a regressing development. A third limitation is the relatively large attrition in Wave 2. The questionnaires were filled out class-wise but still voluntarily. Reasons for dropping out were truancy, illness, and personal circumstances. In the attrition analysis we found that this group participated significantly more in problem behaviour in Wave 1 than the other that did not dropped out. It could thus very well be that our results are an underestimation, and more problematic behaviour relates even stronger to non-normative pathways. Future studies should consider the design to be focusing more on attrition and the possibility of missing data analysis. This was not possible in the current design. A fourth limitation is the small group of adolescents with a precocious psychosocial development. A small sample



makes it hard to find differences. Nevertheless, we did find less problem behaviour when compared to the other groups.

Despite these complications, we showed that a pre-normative psychosocial maturity relates significantly to problem behaviour development. Of particular interest is the relation between a lagging psychosocial development and serious growth in problem behaviour, and the absence of such a change in problem behaviour for a stagnating psychosocial development. Also, the low mean level of problem behaviour in the precocious development is of particular interest. We find that being ahead in development protects the adolescent for problem behaviour. A caveat is that prevailing internalising disorders should also be taken into account. It could very well be that this small group of adolescents is developing too fast too soon, making themselves an isolated group, with low peer support. Our analyses also showed that normative development is related to some form of deviant behaviour. This does not implicate that the theory is wrong in its descriptions of adolescent psychological development; it only presumes that some form of deviant behaviour is connected to pre-to-mid adolescent years. Finally, future studies could consider gender as a function of psychosocial development. We did not disaggregate our analyses, but do note that precocious adolescents are mainly girls. Boys on the other hand are the majority of the sample present in the underdeveloped paths.

With respect to implications of the results into applied developmental psychology, we can conclude that an underdeveloped psychosocial development suggests a possible problem within the adolescent, such as negative interactions and escalating conflicts (Westenberg et al., 2000). Professionals can intervene with this knowledge, and as such, stimulate the development, for instance by social skills training and special education. Furthermore, although the theory states that a Precocious development makes an adolescent vulnerable in peer relations, helps to abstain from delinquency. This underlines the statement that a precocious development is not problematic per se (Westenberg et al., 2000).

These findings and suggestions warrant future study and suggest that the relative level of psychosocial maturity is crucial, together with the length of the period an adolescent stays behind.

#### 4.7 References

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