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Ten-year trends in self-reported emotional and behavioral problems of Dutch adolescents

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Abstract *Background* Research comparing population samples from different time periods to investigate secular changes in adolescents' psychosocial problems have mostly focused on parent and teacher reports. The few studies using self-reports have limitations, such as using only school-based samples or investigating a limited range of problems. *Aim* We investigated changes from 1993 to 2003 in Dutch 11- to 18-year-old girls' and boys' self-reported emotional and behavioral problems. We also examined whether trends were different for various socio-demographic groups. *Method* We used the Youth Self-Report (YSR) to assess emotional and behavioral problems, and obtained self-reports of police contact, substance abuse, suicidal ideation and self-harm across two adolescent population samples, assessed in 1993 and 2003. To investigate whether reports were different for the 2 years, we performed analyses of variance on the mean scores, and chi-square analyses on the percentages of deviant-scoring children and children reporting specific problem behaviors for boys and girls separately. Logistic regressions were conducted to investigate interactions of year with various socio-demographic variables. *Results* For boys, results showed a few small changes, indicating decreases from 1993 to 2003 in self-reported Social Problems, Externalizing, Aggressive Behavior, and Rule-Breaking Behavior. For girls, Thought problems, Somatic Complaints, Internalizing problems, suicidal ideation and self-harm increased. Drunkenness and

drug use increased for both boys and girls. There were some differences between socio-demographic groups. Boys from low-SES families and younger adolescent girls experienced most increases. *Conclusion* We found evidence for some small trends in self-reported problems. For boys, some decreases were seen, regarding mostly behavioral problems, whereas for girls, some increases were seen in emotional and behavioral problems. Changes appeared to have most negatively affected young adolescent girls' functioning.

Key words emotional problems – behavioral problems – time trends – substance abuse – adolescents – epidemiology

Introduction

Times are changing, and so is the environment of adolescents. Information about secular trends in adolescents' emotional and behavioral problems can inform us if there is empirical ground for concerns about their well being in this changing society. Such information is of importance for estimating service needs in the population and, subsequently, to develop an effective health service policy.

A valid and direct method to investigate secular changes in adolescents' emotional and behavioral problems, is to compare levels of problems in general population samples from different time periods that were assessed with identical measures [17]. Such studies primarily used parent reports and teacher reports to gain insight in secular changes [1, 3, 10, 26, 32]. However, in adolescence, self-reports are an important source of information when investigating emotional and behavioral problems. A few studies have investigated secular changes in self-reported functioning over the past three decades, with varying results. Increases in self-reported internalizing

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problems have been found among adolescents in Greece and Scotland, but not in the US and Sweden [2, 13, 34, 35]. In Sweden, antisocial problems increased [34], while in the US, a decrease in behavioral problems was seen [2]. Most of these studies, however, are hampered by limitations, such as investigating only a narrow age range [34, 35], investigating only girls [34], using school-based samples [13, 34], or assessing a limited range of problems [13, 35].

Most studies on secular changes in self-reported emotional and behavioral problems have investigated overall levels of emotional and behavioral problems, but did not zoom in on specific problem behaviors that can have adverse consequences, such as self-reported delinquency, substance abuse, suicidal ideation and self-harm behavior. With regard to such behaviors, several trends over recent decades have been reported, in the Netherlands as well as in other Western countries. Crime rates increased over the last half of the twentieth century in the Western world [25], although a stabilizing trend was seen during the 1990s [17]. Some increases were found during the 1990s in excessive alcohol use among Dutch youngsters [29], and worries about binge drinking of Western adolescents are often expressed [17]. Although drug use increased over past decades in the Western world, recently a stabilizing trend was identified in the Netherlands and the US [20, 23, 24, 29]. Also, deliberate self-harming behaviors among young people appear to be on the rise in different Western countries. Some of these studies, however, are dependent on the registration of hospitals or the police. This may often leave only the most serious cases being registered. Also, these trend studies have only focused on a specific area of behaviors and did not combine information a wide range of emotional and behavioral problems to gain insight in changes in adolescents' functioning.

Another important question is whether trends in adolescents' emotional and behavioral problems differ by age, gender, socioeconomic status (SES), and ethnicity. These are well-investigated socio-demographic variables that are shown to be associated with emotional and behavioral problems [5, 6, 11, 16, 33]. Such knowledge informs us whether some socio-demographic groups are more at risk for secular changes than others. Previous studies investigating trends in self-reported functioning by comparing population samples assessed with identical measures have not specifically addressed socio-demographic differences in trends, besides from differences between boys and girls. West and Sweeting [35] found an increase in emotional problems from 1987 to 1999 among Scottish 15-year-olds that was only apparent among girls. A UK study has also found adolescent girls to have caught up with boy's substance abuse behaviors from 1981 to 2005 [21].

Given the limited information available on secular changes in adolescents' self-reported emotional and behavioral problems, a first aim of our study was to investigate the ten-year changes (1993–2003) in self-reported emotional and behavioral problems of Dutch adolescents in the general population. We investigated these trends for boys and girls separately. A second aim of this study was to examine whether trends were different for various socio-demographic groups, classified by age, SES and ethnicity.

Methods

■ Samples

For this study, we used two adolescent population samples, one assessed in 1993, and one in 2003. The following adolescents were excluded from the sample: those with intellectual disabilities or major physical disabilities, those whose parents did not speak Dutch, and those whose families left the study area. After complete description of the study to the subjects, written informed consent was obtained for subjects of each sample. The Medical Ethics Committee of the Erasmus Medical University Center approved each study.

1993 sample

The 1993 sample originally consisted of 2,719 randomly selected 4- to 18-year-olds living in the Netherlands. Of the 2,719 eligible parents, 2,227 parents participated (81.9 %). Fourteen children were excluded from the sample. Of the 1,126 11- to 18-year-olds whose parents participated, 1,120 (99%) provided self-report data. Of these, 25 fell out of the age range at the time of measurement. For an extensive description of the sample and procedure, see Verhulst et al. [31].

While the 2003 sample was drawn from the province of Zuid-Holland, the 1993 sample was a national sample. We performed ANCOVAs on the data of the 1993 sample, with age, gender, SES and ethnicity as covariates, to examine whether there were significant differences on the Youth Self-Report (YSR) syndrome scales between children living in Zuid-Holland and children living elsewhere in the Netherlands. Only one very small significant difference was found (effect size < 1%), indicating that children in Zuid-Holland had a lower mean Thought Problems score. We decided to use the entire 1993 sample and we included the 1095 11- to 18-year-olds.

2003 Sample

For the 2003 sample, 2,567 6- to 18-year-olds were randomly selected from the municipal registers of 35 municipalities in the Dutch province of Zuid-Holland. We excluded 250 children from the sample. Of the 2,317 eligible respondents, 1,710 (73.8%) parents participated. Of the 1,035 11- to 18-year-olds whose parents participated, 860 (83%) provided self-reports. Of these, 50 adolescents were 10- or 19-years old at the time of measurement. The present study included the remaining eight hundred and ten 11- to 18-year-olds. We tested whether the 11- to 18-year-olds who provided a self-report differed from those who did not provide a self-report with regard to their scores on the Child Behavior Checklist (CBCL), which their parents had completed. Analyses revealed no significant differences.

■ Measurements

Emotional and behavioral problems

The YSR is an instrument of the Achenbach System of Empirically Based Assessment (ASEBA) and has good reliability and validity [4]. Adolescents rate their behavior over the preceding 6 months, items being scored on a three-point scale, with responses: 0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true. The problem items are scored on eight empirically based syndromes that were derived by factor analyses: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior and Aggressive Behavior [4]. The first three syndromes are also scored on an Internalizing broadband scale, while the last two syndromes are scored on an Externalizing broadband scale. All problem items sum up to a Total Problems score. Because ASEBA questionnaires were revised in 2001, we used only the items that were on both pre-2001 and 2001 editions. We therefore excluded five items. One item in the pre-2001 edition of the YSR was: 'I use alcohol or drugs'. In 2003, alcohol and drug use were two separate questions ('I use alcohol' and 'I use drugs'). We calculated a combination score of these two items for the 2003 sample, determined by the highest score of the two questions. We regarded this combination score as the counterpart of the pre-2001 YSR-question pertaining to alcohol and drug use.

We also assessed the following specific problems: police contact, excessive alcohol use, drug use, suicidal ideation, and deliberate self-harm. Similar questions were asked in 1993 and in 2003. We asked adolescents if they had been in contact with the police as a result of their behavior (minor traffic offences not counted) during the past twelve months (1 = yes vs. 0 = no). Regarding substance abuse, adolescents were asked whether they had been drunk during the past six months (1 = never, 2 = 1 or 2 times, 3 = 3 or 4 times, 4 = 5 or 6 times, or 5 = more than 6 times). We dichotomized the scores (1 = yes vs. 0 = no). Subsequently, adolescents were asked whether they used drugs (marijuana, hash, cocaine, heroine, speed/amphetamines, ecstasy, LSD, GHB, other) during the past six months (1 = yes vs. 0 = no). To assess suicidal ideation, adolescents were asked if they had considered ending their lives during the past year (1 = yes vs. 0 = no). To assess self-harm behavior, adolescents were asked whether they tried to kill or hurt themselves during the past year (1 = yes vs. 0 = no).

Socio-demographic characteristics

The samples were divided into two age groups: 11- to 14 years and 15- to 18 years. Information on SES or ethnicity was obtained from the parents. As indicators for SES, we used parental occupational status and parental educational level. For the 1993 sample, parental occupational status was determined according to van Westerlaak's 6-step scale of occupation [30], and subsequently divided into two occupation levels (low parental occupation; 1 and 2 and middle/high parental occupation; 3, 4, 5, and 6). For the 2003 sample, we used the Standard Classification of Occupations [7], which discerns five levels of occupation. We made a comparable 2-category distribution (low parental occupation: elementary and lower occupations; middle/high parental occupation: middle, higher and scientific occupations). For parental educational level, we asked parents to report their highest level of finished education. Six levels of education were discerned: (1) elementary school, (2) low-level secondary education, (3) high-level secondary education or (4) middle education, (5) Bachelor degree or (6) Masters or PhD degree. We made a two-category distribution: low parental education (1, 2) versus middle or high parental education (3, 4, 5, 6). We made a two-category distribution: low parental education (1, 2) versus middle or high parental education (3, 4, 5, 6). Ethnicity was classified as Dutch or non-Dutch. Children with at least one parent

Table 1 Demographics

Sample	1993 N = 1095 ^a (%)	2003 N = 810 ^b (%)	χ^2 P-value (df = 1)
<i>Gender</i>			
Boy	49.9	46.8	0.185
Girl	50.1	53.2	
<i>Age group</i>			
10–14 years	50.1	51.6	0.526
15–19 years	49.9	48.4	
<i>Parental occupation</i>			
Low Occupation	28.8	24.8	0.055
Middle/high Occupation	71.0	75.6	
<i>Parental education</i>			
Low	47.3	27.2	0.000
Middle/ High	52.7	72.8	
<i>Ethnicity</i>			
Dutch	91.9	79.5	0.000
Non-Dutch	8.1	20.5	
<i>Urbanicity</i>			
Urban	39.5	65.6	0.000
Rural	60.5	34.4	

^aNinety nine percent of the 11- to 18-year-olds whose parents participated. Total parental participation in 1993: 81.9%

^bEighty three percent of the 11- to 18-year-olds whose parents participated. Total parental participation in 2003: 73.8%

born outside the Netherlands were classified as non-Dutch. Compared to the 1993 sample, the 2003 sample contained fewer children from families with low parental education and more children with a non-Dutch ethnic background (Table 1). Urbanicity was classified according to data from the Dutch Statistics [8]. The Dutch statistics [8] only had data available since 1996. We therefore used 1996 data as an indicator for the urbanicity codes in 1993. Municipalities are rated according to a five-point scale of urbanicity, ranging from 1 = very urban to 5 = not urban. We made a two-category distribution: Urban (1, 2) and rural (3, 4, 5). We could not assign an urbanicity score to 86 of the participants from the 1993 sample, as their parents did not provide permission to save their address. The available data showed that in 2003, significantly more children lived in an urban area than in 1993 (65.6 vs. 39.5%; $\chi^2 = 122.408$, $P < 0.001$). This difference was probably due to the fact that in 1993, the sample was drawn from the Netherlands, whereas in 2003, the sample was drawn only from the province of Zuid-Holland.

Data analyses

We performed 2 (year) \times 2 (gender) \times 2 (age group) ANCOVAs on the syndrome scales, the broadband scales and the Total Problems scale in order to test for differences in the mean scale scores ($P < 0.05$, two-tailed) for boys and girls separately. We used ethnicity and the SES indicators: parental education and parental occupation as covariates. We report estimated means, which are means adjusted for the effects of covariates. Given that we used large samples, we report the percentages of explained variance, indicating the effect size (ES), for the significant effects of year. An ES of 1–5.9% is considered small, an ES of 6–13.8% medium and an ES exceeding 13.8% large [9]. To investigate whether the percentages of children with high levels of emotional and behavioral problems changed from 1993 to 2003, we examined whether the percentage of children scoring in the deviant range of the scales changed significantly for boys and girls. We first calculated cut-off scores on the YSR problem scales for boys and girls separately. To calculate these cut-offs, we combined the 1993 and the 2003 sample. In line with Achenbach and Rescorla [4], children having a Total Problems, Internalizing or Externalizing score in the 84th percentile of the norm group or higher were classified as scoring in the

Table 2 YSR estimated means, standard errors (SE) and effect sizes (ES) for significant effects of year

YSR scales	Boys			Girls		
	1993 Mean (SE)	2003 Mean (SE)	ES ^a %	1993 Mean (SE)	2003 Mean (SE)	ES ^a %
<i>Syndrome scales</i>						
Anxious/Depressed	3.7 (0.13)	3.1 (0.16)	1.1	5.0 (0.17)	5.2 (0.19)	
Withdrawn/Depressed	2.4 (0.09)	2.5 (0.11)		2.7 (0.10)	2.9 (0.11)	
Somatic Complaints	2.4 (0.10)	2.1 (0.12)		3.3 (0.12)	3.7 (0.14)	0.7
Social Problems	3.6 (0.12)	2.9 (0.14)	1.5	3.4 (0.11)	3.5 (0.12)	
Thought Problems	2.6 (0.11)	2.9 (0.13)		2.7 (0.12)	3.4 (0.13)	1.5
Attention Problems	3.8 (0.10)	3.7 (0.12)		3.8 (0.11)	3.9 (0.12)	
Rule-breaking Behavior	4.4 (0.12)	3.5 (0.14)	2.1	3.2 (0.11)	3.3 (0.12)	
Aggressive Behavior	6.2 (0.19)	4.9 (0.22)	2.3	5.6 (0.17)	5.5 (0.19)	
<i>Broadband scales</i>						
Internalizing	8.5 (0.25)	7.7 (0.30)	0.5	10.9 (0.31)	11.9 (0.34)	0.4
Externalizing	10.6 (0.28)	8.4 (0.33)	2.7	8.8 (0.25)	8.8 (0.28)	
Total problems	33.2 (0.74)	29.3 (0.87)	1.3	33.7 (0.76)	35.8 (0.85)	

^aPercentages of explained variance of significant ($P < 0.05$) effects of year

deviant range of these scales. With regard to the syndrome scales, children scoring in the 93rd percentile or higher were classified as having t scores in the deviant range. We conducted chi-square tests to examine whether the percentages of adolescents with scores in the deviant range differed significantly between 1993 and 2003. We also conducted chi-square tests to investigate whether the proportion of children that scored positively on drunkenness, drug use, police contact, suicidal ideation and self-harm differed significantly between 1993 and 2003.

To investigate whether trends were different for different socio-demographic groups, we performed logistic regressions on deviant scores on the different YSR scales and on the specific problem behaviors. For both boys and girls, we conducted four different logistic regressions on each of the outcomes in which we included the four socio-demographic variables and one of the following interaction effects: year by age group, year by parental education, year by parental occupation, or year by ethnicity.

Results

■ Changes in self-reported emotional and behavioral problems

For boys, seven out of 11 scales showed a significant effect of year (Table 2). Mean scores on the Anxious/Depressed, Social Problems, Rule-Breaking Behavior, Aggressive Behavior, Internalizing, Externalizing, and Total Problems scales decreased. Except for the change in Internalizing problems, all changes reached the size of a small effect according to Cohen [9]. For girls, three out of 11 scales showed a significant effect of year (Table 2). Mean scores on the somatic complaints, thought problems, and internalizing scales increased. Only the increase in thought problems score reached the size of a small effect [9].

For boys, the proportion of children with scores in the deviant range decreased significantly for the social problems, aggressive behavior, rule-breaking behavior, externalizing, and total problems scales (Table 3). The proportion of girls who scored in the deviant range increased significantly for the thought problems scale.

Changes across time were seen for several other problem behaviors. The proportions of boys who indicated drunkenness or drug use increased significantly from 1993 to 2003, as did the proportions of girls who indicated suicidal ideation, self-harm behavior, drunkenness or drug use (Table 4).

■ Different trends in different socio-demographic groups

Several significant interaction effects indicated different trends for different socio-demographic groups (data not shown in table). For boys, Somatic Complaints scores decreased for older adolescent boys (OR 2003 vs. 1993: 0.36, $P < 0.05$), but not for younger adolescent boys. Boys' reported drunkenness increased only among boys from families with low parental education (OR 2003 vs. 1993: 3.80, $P < 0.05$) or low parental occupation (OR 2003 vs. 1993: 4.38, $P < 0.05$). Boys' drug use increased only among boys from families with low parental education (OR 2003 vs. 1993: 6.36, $P < .05$). For girls, a significant interaction showed that opposing trends were seen regarding the aggressive problems scores of younger and older adolescents, indicating an increase for younger adolescent girls and a decrease for older adolescent girls, although these separate trends were not significant. Also, total problems scores increased among younger adolescent girls (OR 2003 vs. 1993: 1.78, $P < 0.05$), but not among older adolescent girls. Girls' suicidal behaviors increased only among girls from families with middle/high parental education (OR 2003 vs. 1993: 6.08, $P < 0.05$).

Discussion

In this study, we investigated secular changes from 1993 to 2003 in self-reported emotional and behav-

Table 3 YSR percentages of deviant-scoring children

YSR scales	Boys			Girls		
	1993	2003	χ^2 P-(df = 1)	1993	2003	χ^2 P-value (df = 1)
<i>Syndrome scales</i>						
Anxious/Depressed	11.0	8.7	0.256	7.8	9.3	0.419
Withdrawn/Depressed	14.3	14.8	0.835	12.6	11.4	0.567
Somatic Complaints	10.8	9.0	0.361	12.6	15.8	0.150
Social Problems	13.7	9.0	0.027	11.8	14.4	0.239
Thought Problems	8.2	10.8	0.185	7.8	13.2	0.006
Attention Problems	12.1	12.9	0.703	14.4	12.8	0.461
Rule-breaking Behavior	12.8	7.1	0.005	10.4	10.4	0.976
Aggressive Behavior	13.0	7.7	0.010	8.6	7.7	0.608
<i>Broadband scales</i>						
Internalizing	21.8	19.3	0.350	17.7	19.7	0.412
Externalizing	23.4	13.5	0.000	17.8	20.0	0.692
Total Problems	20.3	12.9	0.003	16.2	19.5	0.182

Scoring above the 93rd percentile on the syndrome scores, and above the 84th percentile on the broadband scores

ioral problems among Dutch adolescents. We found some evidence for several trends, which were different for boys and girls. For boys, scores on several subscales of the YSR decreased from 1993 to 2003, whereas for girls some increases were seen. For both boys and girls, the prevalence of several specific problem behaviors increased. Results indicated that young adolescent girls and boys from low SES families experienced most increasing trends.

We found no clear changes in self-reported internalizing problems. A small increase in girls' somatic complaints scores problems did not reach the size of a small effect. Findings on secular changes in self-reported emotional problems from other studies are mixed. Achenbach et al. [2] found a small decrease in anxiety problems from 1989 to 1999 among American adolescents. Wangby et al. [34] found no changes in emotional problems from 1970 to 1996 among 15-year-old adolescent girls, whereas West and Sweeting [35] found an increase from 1987 to 1999 among Scottish girls. Fichter et al. [13] found an increase from 1980 to 1998 among Greek adolescents. Although we did not find changes in overall self-reported emotional problems, we did find evidence for an increase in self-reported self-harm and suicidal ideation among girls. These findings are supported by findings from previous studies, indicating that deliberate self-harm is increasing among adolescents in different Western countries [14]. Our finding that suicidal behavior has increased among

girls, not boys, is not in line with the finding that suicide rates have increased over recent decades mostly among young men [12]. Perhaps our results reflect an increase in 'non-serious' suicidal behaviors, indicating these behaviors to be less associated with actual suicide.

With regard to externalizing problems, we identified some decreases in boys' externalizing problem scores. Only two other studies investigated secular changes in self-reported externalizing problems, with inconsistent findings. Achenbach et al. [1-3] also found a small decrease from 1989 to 1999 in self-reported Oppositional Defiant Problems among American adolescents, whereas Wangby et al. [34] found an increase from 1970 to 1996 in the percentage of girls with serious self-reported antisocial problems.

Although self-reported overall behavioral problems decreased in our study, we found that reported drunkenness increased among both boys and girls. This is in line with the often-expressed worry of an increased number of children engaging in binge drinking in several Western countries [17]. We also found an increase in drug use, whereas other studies have shown a stabilizing trend in recent years with regard to drug use among youngsters in the Netherlands and the US [23, 24, 29]. Since we focused on a broad, ten-year time period, we do not know how this trend has developed within these 10 years. An initial increase in drug use may have been followed by a decrease.

Table 4 Changes in percentages of children who exhibited problem behaviors

Behaviors	Boys			Girls		
	1993 (%)	2003 (%)	χ^2 P-value (df = 1)	1993	2003	χ^2 P-value (df = 1)
Police contact	11.4	11.7	0.882	2.2	4.0	0.105
Drunkenness	17.5	23.7	0.019	6.8	24.6	0.000
Drug use	7.0	11.6	0.015	4.0	9.7	0.000
Suicidal ideation	2.3	2.4	0.896	4.0	7.7	0.014
Self-harm	1.7	1.3	0.689	3.1	6.5	0.012

We found a small increase in self-reported thought problems among girls and a decrease in self-reported social problems among boys. No secular changes were seen among American adolescents with regard to these problems [2]. No other studies comparing population samples have investigated changes in self-reported social or thought problems.

We found trends to be different for boys and girls. Other studies have shown gender-specific trends as well. Gender-specific trends in self-reported problems were also found among Scottish adolescents from 1989 to 1999 [35]. Also, there appears to be a trend that the differences in substance use between males and females are decreasing, in the Netherlands [20, 29], and other Western countries [18, 19, 21]. A gender convergence has been proposed by Rutter and Smith [22], suggesting that girls' and boys' problems are becoming more alike. However, since we did not find clear increases in externalizing problems among girls or in internalizing problems among boys, our findings cannot be considered strong evidence that adolescent girls and boys' problems are becoming more alike. It would also be rash to conclude that boys are doing better on the basis of the few small decreasing trends we found. It does appear, however, that the identified changes most negatively affect the functioning of girls. Thought problems, Internalizing problems, self-harm and suicidal ideation have increased among girls. Moreover, girls' excessive alcohol use has shown a much stronger increase than boys' excessive alcohol use, and the decreasing trends found for boys' self-reported problems on several scales of the YSR did not apply to girls.

Some increasing trends were only apparent in specific socio-demographic groups. For boys, several increases, in drug use and drunkenness, were present only among boys from low-SES families. For girls it appeared that for several scales, e.g. aggressive behavior or somatic complaints, increases were only apparent among the younger adolescent group.

When comparing the findings from this study to findings from comparable studies using parent-reports or teacher-reports to investigate changes in adolescents' functioning, considerable differences between informants become apparent. In a previous study [28], we found parent-reported internalizing problems of Dutch adolescents to have increased from 1983 to 2003. We did not find such a clear trend in the self-reports. Also, Collishaw et al. [10] found increases in British 15-year-olds' parent-reported conduct and emotional problems from 1976 to 1999. Achenbach et al. [2] found parent- and teacher reports of American's adolescents to be consistent with the decreasing trend found in self-reports. Discrepancies between informants are also seen in a time trend study among Finnish children [26].

This study also showed some differences between findings from studies from different countries. Such differences may have resulted from using different

instruments. Also, the fact that we examined a more recent and smaller time period than other studies may have contributed to these differences.

■ Limitations

A limitation of our study concerns some differences between the 2003 sample and the 1993 sample. The response rate of the 2003 sample was lower than that of the 1993 sample. This could have affected the results, since adolescents with more problems may not have participated. Although adolescents who provided an YSR did not differ from those who did not provide an YSR with regard to their level of parent-reported problems, we have no information on the adolescents whose parents did not participate. Secondly, 7.2% of the children selected for the original 2003 parent sample were not assessed, because their parents could not speak Dutch. This limits the generalizability of our results to the Dutch-speaking part of the population. The non-Dutch group in our sample may not be the best reflection of the non-Dutch part of the Dutch population. Most of these excluded children were low-SES Turkish and Moroccan immigrants. They may have had more serious problems, since studies have found some evidence that Turkish or Moroccan children living in the Netherlands have more problems than Dutch children [15, 27].

Our samples also differed with regard to the region from which they were drawn. While the 1993 sample was from the Netherlands, the 2003 sample was drawn from the province of Zuid-Holland. Although analyses on the 1993 sample showed no differences regarding the problem scores of Zuid-Holland children versus children from other areas in the Netherlands, we cannot entirely rule out the possibility that this difference in region has affected our findings. Also, in 2003 more non-Dutch children and more children with middle/high parental education participated. These changes are mostly due to increases in the number of non-Dutch children living in the Netherlands and in the number of people that finished higher education [8]. Nevertheless, we do not know to what extent selective attrition has played a role. This may have influenced our results.

Conclusion

In this study, we found several trends in self-reported overall emotional and behavioral problems among adolescents from 1993 to 2003. Most trends were different for boys and girls. Externalizing and social problems showed a small decrease among boys, whereas thought problems, suicidal ideation and self-harm increased among girls. For all adolescents, drunkenness and drug use increased. The trends that appeared from this study thus most negatively affected

girls' functioning. However, there appears to be cross-informant and cross-cultural variation in time trends. Since 10 years are only a short period of time, further developments need to be monitored in different countries, using comparable instruments that assess a wide array of problems. Future time trend studies need to take into account possible gender differences.

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