RESEARCH REPORT

The role of alcohol-specific socialization in adolescents' drinking behaviour

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ABSTRACT

Aims To determine which alcohol-specific socialization practices are related to adolescents' alcohol use, and to investigate whether parents differ in their alcohol-specific socialization towards their children.

Design In a sample of 428 families, both parents and two adolescents (aged 13–16 years) completed a questionnaire at home about alcohol-specific parenting and their own alcohol use. Based on the reports of each family member, three different models of alcohol-specific socialization were formulated: from the perspective of the siblings, the mother and the father.

Findings Results of structural equation modelling generally showed the same associations between alcohol-specific socialization and drinking of younger and older adolescents. The strongest association was found for providing alcohol-specific rules. Applying strict rules about alcohol use was negatively related to adolescents' alcohol use; this was also the case for having confidence in the effectiveness of alcohol-specific socialization. Unexpectedly, frequency of communication about alcohol issues was positively associated with alcohol consumption of adolescents.

Conclusions This study is one of the first to examine associations between alcohol-specific socialization and adolescents' drinking using a between- and a within-family design. Results showed strong associations between alcohol-specific socialization (particularly of enforcing rules) and adolescent alcohol use. Although parents strongly differentiated their socialization practices between children, no differences in associations between alcohol-specific socialization and drinking were found between older and younger adolescents.

KEYWORDS Adolescents, alcohol-specific socialization, alcohol use, parenting.

INTRODUCTION

It is well established that parents affect the development of adolescents' drinking behaviour in various ways. First, several studies have demonstrated that to some extent youngsters imitate the alcohol consumption of their parents, especially the consumption of fathers (e.g. Ennett & Bauman 1991; Zhang, Welte & Wieczorek 1999; Beal, Ausiello & Perrinn 2001; Yu 2003). For instance, Yu (2003) demonstrated that exposure to parental alcohol use affected adolescents' initiation of drinking at a younger age and led to higher alcohol consumption of youngsters. Furthermore, Zhang *et al.* (1999) showed that male adolescents in particular imitate the drinking of their fathers.

General parenting practices

Secondly, parents might influence their offspring's alcohol involvement by the way they raise them. For

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example, parental control is reported to be related to adolescents' alcohol use (e.g. Stice & Barrera 1995). Several cross-sectional and longitudinal research studies have demonstrated that parental monitoring is associated with less heavy drinking among adolescents (Barnes & Farrell 1992; Barnes *et al.* 2000; Wood *et al.* 2004). Moreover, Engels & Van der Vorst (2003) indicated that harsh discipline as well as providing rules reduces the likelihood of youngsters' drunkenness. According to Beal *et al.* (2001) parents could control their adolescents' alcohol use by expressing their disapproval of health risk behaviours. Further, parental support or nurturance seemed to have a preventive effect on adolescents' alcohol consumption (Barnes & Farrell 1992; Stice & Barrera 1995; Engels & Van der Vorst 2003). Barnes & Farrell (1992) stressed that adolescents are less likely to drink regularly when they feel valued, accepted and loved.

Alcohol-specific socialization

However, these studies do not explain how parents actually deal with the drinking behaviour of their offspring, so-called alcohol-specific socialization (e.g. setting rules about alcohol use, expressing disapproval of drinking or talking about alcohol use). Only a few studies have explored alcohol-specific socialization. Wood *et al.* (2004) showed that late adolescents drank less alcohol if their parents disapproved of drinking behaviour. Parental permissiveness towards adolescents' alcohol use, on the other hand, encouraged youngsters to consume alcohol. In line with this finding, Yu (2003) observed that being strict about children's alcohol use at home prevented heavy drinking of youngsters. Jackson, Hendriksen & Dickinson (1999) found that children in the fifth grade who were permitted to have alcohol of their own at home were more likely to have drunk 2 years later. In another study, Jackson (2002) pointed out that it is important that adolescents consider parental authority to be legitimate. Adolescents who did not acknowledge the authority of their parents were nearly four times as likely to consume alcohol compared to adolescents who did. Thus, if adolescents think that their parents are not effective in their efforts to raise them, parental efforts will rarely lead to lower levels of drinking in youths. Another strategy that parents might use to deal with adolescents' alcohol consumption is communicating about alcohol. According to Ennett *et al.* (2001), parents talk more often with their offspring about alcohol use if both parents are non-users than if one or both of the parents drink. However, in both using and non-using parents, frequency of communication on alcohol matters was not related to adolescents' alcohol use (see also Jackson *et al.* 1999).

Directions for new research

Although the role of parental socialization efforts in adolescents' alcohol use has received some attention in the past decade, several issues remain unresolved. First, in almost all studies analyses focused on differences between families rather than observing differences within families. For example, siblings might differ in their responses to alcohol-specific socialization practices and in their drinking behaviour. In a recent review, Darling & Cumsille (2003) stressed the importance of within-family differences in research on the development of adolescents' substance use. Translated to the topic of adolescent drinking, parents might be less restrictive regarding drinking of older adolescents than of younger adolescents. This, in turn, might have differential effects on the drinking behaviour of siblings.

Secondly, family members probably experience alcohol-specific socialization practices differently. For instance, adolescents may think that their parents are permissive regarding drinking whereas their parents may think that they impose strict rules. In turn, these differences in perceptions might be reflected in actual alcohol use of youth. It is therefore relevant to acquire the perceptions of each member of a family instead of just one (see also Engels *et al.* 2001 for a discussion on the relevance of taking perceptions of different family members into account).

Thirdly, some studies used one or two items to measure alcohol-specific socialization practices. To improve the reliability of assessment, it would be better to include measurements with more items. Finally, most studies investigated the role of parental drinking in adolescents' alcohol use *or* the influence of parenting practices. Because parental drinking status is related to alcohol-specific socialization (Yu 2003), it is preferable to assess multivariate effects of parental drinking and socialization efforts.

The current study

In the current study the associations between alcohol-specific socialization and adolescents' alcohol consumption were examined by gathering data from the father, the mother and two adolescents in the same family. This enabled us to compare the perceptions of each family member on alcohol-specific socialization within a family. In addition, we explored whether parents treat their children differently with regard to alcohol-specific socialization and whether the associations between parental drinking and alcohol-specific socialization, on one hand, and adolescent drinking, on the other hand, differed for the two adolescents in the same family. Finally, we investigated whether alcohol-specific socialization practices

towards one adolescent affected the drinking behaviour of the other, the so-called 'cross-associations' (Feinberg *et al.* 2000). For example, when parents talk intensively about the effects of drinking with the older adolescent, the younger sibling might notice these conversations and consequently this might affect the drinking of the younger sibling.

METHOD

Participants and procedure

Data for this study were collected as part of a broader longitudinal survey called 'Family and Health', which examined different socialization processes underlying various health behaviours in adolescence. A sample of Dutch families with at least two children aged 13–16 years were asked (by mail) to participate in the study. The addresses of these families were derived from registers of 22 municipalities in the Netherlands including approximately 5400 families; 885 of the families approached agreed to participate by returning the included response form. These families were then contacted by telephone to establish whether they fulfilled all the entry criteria, i.e. the parents had to be married or living together, and the youngsters and their parents should be related biologically. Families with twins or with offspring who had mental or physical disabilities were excluded from the study. In total 765 families fulfilled all entry criteria. Because our aim was an equal division of education and an equal amount of sibling dyads (i.e. boy–boy, boy–girl, girl–girl, girl–boy), a further selection was made. Finally, a total of 428 Dutch families took part in this longitudinal research project. Only the data of the first wave are currently available.

Participants were interviewed at home in the presence of a trained interviewer. All four family members completed an extensive questionnaire individually, which took about 2 hours to complete. The respondents were not allowed to discuss the questions or answers with each other. Each family received 30 euros (US $39) after all four family members had completed the questionnaire. At the end of the project five travel cheques of 1000 euros (US $1300) will be raffled between the families who participated in all three waves of the study.

Each family consisted of both biological parents and two adolescent children; 95% of the participants were of Dutch origin and the remaining 5% were born in other West European countries, such as Germany and Belgium, or in Indonesia. The mean age of the older siblings was 15.22 years (SD = 0.60; range 14–17 years), and that of the younger siblings was 13.36 years (SD = 0.50; range 13–15 years). Fathers had a mean age of 46 years (SD = 4.00) and mothers of 44 years (SD = 3.57). Concerning religious affiliation, 55% of the parents were Catholic, 20% were Protestant and 25% of the parents said they were not religious. Of the siblings, 52.8% of the older adolescents were boys and 47.2% girls, whereas of the younger adolescents 47.7% were boys and 52.3% girls. About one-third of both siblings followed special or low education, one-third followed an intermediate general education, and the remainder followed the highest level of secondary school in the Netherlands (i.e. preparatory college and university education).

Measures

Alcohol consumption

Each of the four family members was asked about the frequency of their alcohol use in the past 4 weeks. The participants responded on a six-point scale ranging from 1 ('have not been drinking') to 6 ('every day') (Engels & Knibbe 2000). The intensity of drinking was assessed by asking about the number of glasses of alcohol the respondents had been drinking during the previous week during weekdays and at weekends, both at home and outside the home (Engels, Knibbe & Drop 1999). The scores on these four questions were summed to obtain an indication of the total number of glasses consumed by each family member in the past week.

Alcohol-specific socialization practices

Described below are the scales used to measure parental alcohol-specific socialization practices. Both parents and the two adolescents completed all scales. The adolescents were asked to complete the scales on parental communication and reactions for both parents independently. However, because the questions about rules on alcohol and parental confidence were asked for the parents together, we summed the scores of the adolescents concerning the communication and the two reaction scales.

Communication about alcohol

We used the alcohol communication measure of Ennett *et al.* (2001), which assesses the following eight specific domains of communication on alcohol matters: negative consequences of use, how to resist peer pressure to use, encouragement to choose friends who do not use, media portrayal of use, encouragement not to use, telling the adolescent not to use, rules about use and discipline. The family members were asked how many times each parent had talked about these specific areas of alcohol consumption with the adolescent in the last 12 months. Response

categories ranged from 1 ('never') to 5 ('very often'). The items had a high internal consistency: 0.80 (fathers about older adolescents; FO), 0.83 (fathers about younger adolescents; FY), 0.78 (mothers about older adolescents; MO), 0.82 (mothers about younger adolescents; MY), 0.92 (older adolescents about parents; OP), 0.90 (younger adolescents about parents; YP).

Reactions to adolescents' drunkenness

The participants were asked how the parents would react if their child came home drunk (eight items). The participants had to decide for themselves what 'drunkenness' would be. This might be, for instance, 'being drunk' or 'under the influence'. We realize that strong cultural and societal differences are apparent on the definition of drunkenness. Response categories ranged from 1 ('not applicable at all) to 6 ('completely applicable'). Factor analyses on these eight items revealed two distinct factors: negative reactions (e.g. 'I become very angry; I show him/her that I am disappointed') and neglecting reactions (e.g. 'It is fine with me; I do not bother'). The internal reliability of the negative reactions scale was 0.73 (FO), 0.72 (FY), 0.73 (MO), 0.74 (MY), 0.87 (OP) and 0.84 (YP). The internal reliability of the neglecting reactions scale was 0.69 (FO), 0.65 (FY), 0.68 (MO), 0.54 (MY), 0.89 (OP) and 0.83 (YP).

Rules about alcohol

We developed a 10-item scale to measure the degree to which parents permit their children to consume alcohol in various situations, such as 'drinking in the absence of parents at home' or 'coming home drunk'. Higher scores indicate stricter rules about alcohol consumption. Response categories ranged from 1 ('completely applicable') to 5 ('not applicable at all'). The internal consistency of this scale was high, with Cronbach's alphas of 0.90 (FO), 0.88 (FY), 0.89 (MO), 0.86 (MY), 0.91 (OP) and 0.92 (YP).

Confidence

Engels & Willemsen (2004) developed a four-item questionnaire which assesses the level of confidence a family member has in the actions of parents to prevent adolescents from smoking. These items were rewritten for adolescents' alcohol use, for instance: 'Do you think your parents can stop you from becoming drunk?' and 'Would you accept your parents' suggestions about not drinking too much?'. The scale consists of five response categories ranging from 1 ('definitely not') to 5 ('definitely'). The internal reliability was 0.70 (FO), 0.76 (FY), 0.74 (MO), 0.82 (MY), 0.82 (OP) and 0.82 (YP).

Strategy of analysis

First, descriptive analyses were conducted on the alcohol consumption variables (intensity and frequency) to examine possible differences between drinking behaviours of the family members. Secondly, paired *t*-tests were used to compare the responses of the family members on each alcohol-specific socialization practice. We compared the perception of the fathers concerning the older adolescents with the perception of the mothers concerning the older adolescents, and with the perception of the older adolescents themselves concerning the parents. The same was conducted for the younger adolescents (see Harakeh *et al.* 2005). Further, we compared the responses of both adolescent groups to acquire insight into possible differences in parental treatment towards their children with regard to alcohol consumption. Thirdly, to investigate relations between alcohol-specific socialization, parental drinking and adolescents' alcohol use, three phases of structural modelling were distinguished, each containing three models (AMOS 5.0; Arbuckle 2003). The fit of the models was measured by the following global fit indexes: χ^2, GFI (goodness-of-fit index), NFI (Bentler–Bonnett index), AGFI (adjusted goodness-of-fit index) and RMSEA (root mean square error of approximation).

As presented in Fig. 1, each latent variable of alcohol consumption in the model was assessed by two manifest variables, namely frequency and intensity of drinking. A covariance matrix was used as input. Drinking patterns of the older and younger adolescents were the endogenous variables. Exogenous variables were the alcohol use of the mother and the father, and the alcohol-specific socialization practices. In the first phase of analysis we tested the initial model as depicted in Fig. 1. In this model, the associations between alcohol-specific socialization of younger adolescents and the alcohol use of older adolescents were zero, and the same held for the associations between older adolescents' alcohol-specific socialization and the alcohol use of younger adolescents. The correlations between the exogenous variables (two latent and 10 manifest) were estimated. Thus, it was assumed that opinions about alcohol-specific socialization (between- and within-adolescents) are interrelated. Because drinking patterns of the older and the younger adolescents were not independent, the error terms of the latent variables assessing alcohol use were correlated.

The first model is based on the perceptions of the adolescents on alcohol-specific socialization. In this model alcohol use is based on self-reports of each particular family member (see Fig. 1). For both parents separately we developed two models which are, conceptually, the same as the model of the adolescents, but one is based on the perceptions of the mothers on alcohol-specific social-

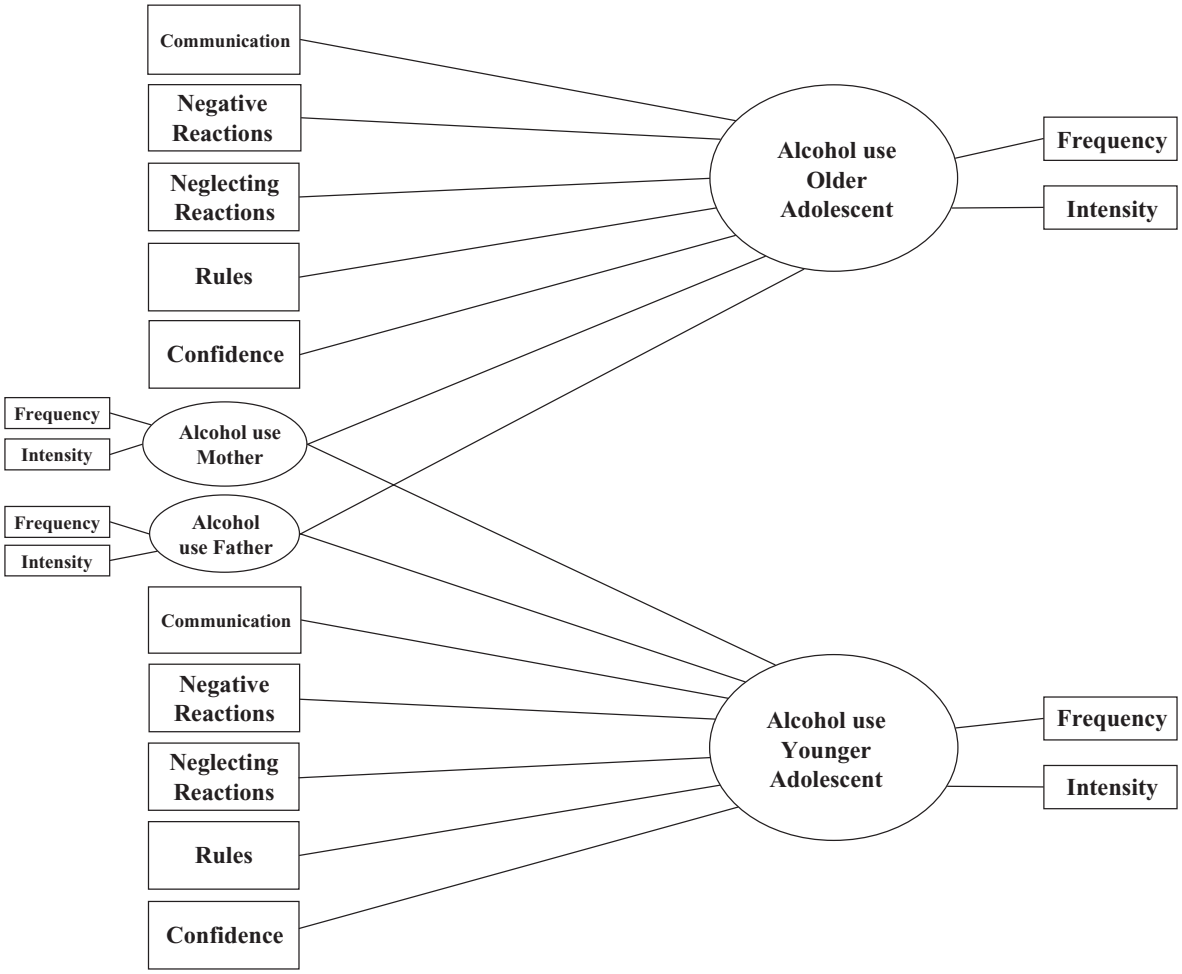

Figure 1 Conceptual model of the adolescents' responses

ization and the other on the perceptions of the fathers on alcohol-specific socialization. Note that in these two models alcohol consumption is also based on self-reports of each family member.

In the second phase of analysis the cross-associations were introduced and tested. Thus, 10 additional associations were included: the five regressions of the alcohol-specific socialization scales of the younger adolescents on the alcohol use of the older ones and the five regressions of the alcohol-specific socialization scales of the older adolescents on the alcohol use of the younger adolescents. All non-significant associations were removed. We conducted this cross-associations analysis in the three models separately.

In the third phase of analysis we tested whether the associations of the alcohol-specific socialization scales on adolescents' alcohol use can be considered to be the same for older and younger adolescents. We measured only the associations, which appeared to be significant for the older adolescents as well as the younger adolescents in the first phase of analysis. This hypothesis is measured by constraining the same associations to be equal and calculating the χ^2 of this constrained model. If χ^2 increases significantly, one or more associations are significantly different between the older and the younger adolescents. Again, this analysis was performed for the three models.

RESULTS

Descriptives on alcohol consumption

Of all family members, fathers drank the most alcoholic beverages in the past week. The amount of alcohol consumed ranged from 0 to 85 glasses, with a mean of 13.5 glasses (SD = 12.86). Mothers consumed on average 6.2 glasses a week (SD = 7.24; range 0–54 glasses). The older adolescents consumed about 4.4 glasses a week (SD = 6.81; range 0–51 glasses). Finally, the younger adolescents drank the least of the four family members ($t_{(417)} = 9.30$, $P = 0.000$, indicating the differences in consumption between siblings), on average 1.2 glasses a

week (SD = 3.41; range 0–36 glasses). Fathers consumed alcohol on average 3–4 days a week (M = 3.69; SD = 12.86) and mothers 1–2 days a week (M = 3.08; SD = 1.69). Further, the older siblings drank on average (M = 2.15; SD = 0.95) more often than the younger ones (M = 1.56; SD = 0.75; $t_{(424)} = 11.85$, $P = 0.001$).

Paired *t*-tests on alcohol-specific socialization practices

Comparison of the responses of both parents and the older adolescents (Table 1) revealed strong differences in perceptions of alcohol-specific socialization practices. Both parents thought that they communicated about alcohol more often than the older adolescents thought they did. Parents also believed that they imposed stricter rules than the adolescents perceived them to do. On the other hand, the older adolescents experienced more neglecting reactions when they came home drunk than both parents, as well as more negative reactions than the fathers. With regard to parental confidence, the family members provided more homogeneous answers, although the fathers had significantly more confidence in the effect of their parenting practices than did the adolescents.

When comparing responses of both parents and the younger adolescents (Table 1), the findings were similar to that of the older adolescents. Both parents thought that they communicated about alcohol matters more often with their child, and reported to be less permissive with regard to alcohol use than the adolescents thought they did. Similar to their older siblings, the younger adolescents reported more neglecting reactions when they came home drunk as well as more negative reactions than both parents did. Only mothers and the younger adolescents differed significantly concerning confidence. The adolescents had more confidence in the effect of alcohol-specific socialization practices than their mothers had.

Responses of both adolescents to the various alcohol socialization practices were also compared. According to the siblings, parents treated them differently, except with regard to communication about alcohol. The younger adolescents reported more negative reactions when they came home drunk, had stricter rules imposed and had more confidence in the preventive effect of the parenting practices than the older adolescents. In addition, the younger adolescents perceived less neglecting reactions when being drunk than the older adolescents.

Correlations between model variables

In general, the alcohol-specific socialization practices were marginally to moderately interrelated in the model of the adolescents. The highest association was found between negative and neglecting reactions on drunkenness of the older adolescents ($r_{(428)} = 0.489$; Table 2). Concerning the correlations between alcohol-specific socialization practices and frequency and intensity of adolescents' alcohol consumption, the strongest associations were found between parental rules and adolescents' drinking, and between having confidence and adolescents' drinking. Alcohol use of both parents was more strongly interrelated ($r_{(428)} = 0.345$ for frequency of drinking; $r_{(428)} = 0.495$ for intensity of drinking), than that of the adolescents ($r_{(428)} = 0.217$; $r_{(428)} = 0.292$). Alcohol use of the parents was marginally related to alcohol use of both adolescents.

In the fathers' and mothers' models the correlations were generally in line with those mentioned above (Table 3), with some exceptions. First, rules about alcohol use seemed to correlate less strongly with frequency of

Table 1 Comparison of reports on alcohol socialization practices by the adolescents, the mothers and the fathers (paired *t*-tests).

	Adolescent-Parents		*Mother-Adolescent*		*Father-Adolescent*	
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*
Older adolescent						
Communication	1.69[a]	(0.61)	2.24[b]	(0.66)	2.14	(0.68)
Negative reactions	2.84[a]	(0.98)	2.73[a,b]	(0.95)	2.71[b]	(0.92)
Neglective reactions	1.76[a]	(0.74)	1.34[b]	(0.59)	1.48[c]	(0.67)
Rules	3.26[a]	(0.94)	4.16[b]	(0.67)	4.12[b]	(0.70)
Confidence	3.19[a]	(0.87)	3.27[a,b]	(0.61)	3.30[b]	(0.63)
Younger adolescent						
Communication	1.75[a]	(0.67)	2.16[b]	(0.73)	2.04[c]	(0.70)
Negative reactions	2.99[a]	(0.91)	2.81[b]	(0.99)	2.75[b]	(0.96)
Neglective reactions	1.63[a]	(0.65)	1.22[b]	(0.47)	1.32[c]	(0.58)
Rules	4.05[a]	(0.80)	4.67[b]	(0.46)	4.64[b]	(0.50)
Confidence	3.44[a]	(0.86)	3.35[b]	(0.72)	3.38[a,b]	(0.69)

Means in the same row that do not share superscripts (a, b, c) are significantly different ($P < 0.05$).

Table 2 Sample correlations between variables of the conceptual model of the adolescents' responses.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1. Communication O																		
2. Negative R, O	0.310																	
3. Neglecting R, O	–0.093	–0.489																
4, Rules O	0.184	0.399	–0.369															
5. Confidence O	0.118	0.274	–0.281	0.345														
6. Communication Y	0.183	0.143	–0.026	0.071	–0.019													
7. Negative R, Y	0.150	0.270	–0.114	0.206	0.105	0.261												
8. Neglecting R, Y	–0.149	–0.230	0.232	–0.217	–0.109	–0.025	–0.314											
9. Rules Y	0.059	0.225	–0.239	0.481	0.175	0.067	0.370	–0.396										
10. Confidence Y	0.090	0.183	–0.121	0.202	0.198	0.059	0.244	–0.316	0.337									
11. Intensity M	–0.008	–0.142	0.143	–0.181	–0.142	0.015	–0.045	0.043	–0.174	–0.131								
12. Intensity F	0.003	–0.140	0.145	–0.143	–0.082	0.008	–0.048	0.048	–0.207	–0.064	0.345							
13. Intensity O	–0.031	–0.221	0.186	–0.370	–0.307	0.078	–0.103	0.117	–0.197	–0.138	0.083	0.157						
14. Intensity Y	0.069	–0.092	0.126	–0.173	–0.162	0.130	–0.123	0.221	–0.370	–0.217	0.222	0.145	0.217					
15. Frequency M	–0.064	–0.112	0.098	–0.173	–0.162	0.031	0.016	–0.007	–0.095	–0.122	0.761	0.295	0.074	0.030				
16. Frequency F	–0.039	–0.104	0.053	–0.135	–0.094	–0.010	–0.060	–0.038	–0.141	–0.102	0.416	0.613	0.107	0.086	0.495			
17. Frequency O	0.003	–0.142	0.117	–0.485	–0.352	0.055	–0.081	0.023	–0.227	–0.174	0.182	0.207	0.536	0.140	0.210	0.179		
18. Frequency Y	0.061	–0.065	0.109	–0.208	–0.202	0.122	–0.075	0.196	–0.430	–0.274	0.217	0.219	0.216	0.632	0.139	0.145	0.292	

R = reactions, O = older adolescents, Y = younger adolescents, M = mothers, F = fathers.

Table 3 Sample correlations between variables of the models of the fathers and the mothers.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
1. Communication FO		0.247	0.013	0.078	0.146	0.802	0.220	0.036	0.093	0.199	−0.153	0.094	0.050	−0.172	0.055	0.056
2. Negative R, FO	0.280		−0.182	0.198	0.197	0.190	0.809	−0.149	0.211	0.120	−0.109	−0.044	0.010	−0.099	−0.065	−0.009
3. Neglecting R, FO	−0.020	−0.207		−0.258	−0.091	0.007	−0.196	0.652	−0.189	−0.019	0.043	0.053	0.064	−0.028	0.119	0.066
4. Rules FO	0.165	0.286	−0.292		0.209	0.079	0.145	−0.140	0.649	0.075	−0.188	−0.284	−0.200	−0.182	−0.470	−0.246
5. Confidence FO	0.117	0.251	−0.124	0.245		0.153	0.178	−0.042	0.186	0.748	−0.224	−0.133	−0.094	−0.184	−0.199	−0.149
6. Communication FY	0.807	0.238	−0.008	0.160	0.110		0.205	0.044	0.036	0.136	−0.107	0.071	0.133	−0.126	0.048	0.149
7. Negative R, FY	0.217	0.712	−0.206	0.220	0.192	0.223		−0.142	0.194	0.137	−0.084	−0.019	0.003	−0.069	−0.061	0.017
8. Neglecting R, FY	−0.015	−0.073	0.615	−0.232	−0.055	−0.015	−0.072		−0.190	−0.009	−0.012	0.035	0.050	−0.061	0.038	0.046
9. Rules FY	0.116	0.140	−0.154	0.578	0.206	0.088	0.200	−0.239		0.188	−0.170	−0.122	−0.297	−0.123	−0.271	−0.377
10. Confidence FY	0.088	0.200	−0.098	0.165	0.740	0.064	0.210	−0.060	0.235		−0.189	−0.051	−0.082	−0.135	−0.093	−0.156
11. Intensity F	−0.087	−0.177	0.009	−0.179	−0.135	−0.059	−0.157	−0.019	−0.151	−0.095		0.080	0.223	0.761	0.183	0.224
12. Intensity O	0.074	−0.079	0.204	−0.252	−0.099	0.023	−0.061	0.229	−0.115	−0.041	0.157		0.217	0.072	0.536	0.214
13. Intensity Y	0.099	0.028	0.062	−0.140	−0.056	0.122	0.005	0.078	−0.161	−0.127	0.145	0.215		0.029	0.139	0.638
14. Frequency F	−0.186	−0.120	0.004	−0.129	−0.172	−0.132	−0.115	−0.054	−0.065	−0.130	0.613	0.104	0.086		0.212	0.138
15. Frequency O	−0.009	−0.126	0.083	−0.363	−0.121	−0.027	−0.058	0.126	−0.217	−0.021	0.208	0.535	0.140	0.178		0.289
16. Frequency Y	0.053	−0.021	0.024	−0.165	−0.150	0.110	−0.030	0.033	−0.295	−0.211	0.217	0.213	0.640	0.146	0.290	

R = reactions, O = older adolescents, Y = younger adolescents, F = fathers, FO = fathers' perspectives about the older adolescents, FY = fathers' perspective about the younger adolescents. The univariate correlations based on the reports of the fathers are below the diagonal, above are those based on the reports of the mothers. In the left column the F (which refers to fathers), can be replaced by M (mothers) with regard to the univariate correlations of the mothers.

adolescents' drinking than in the adolescents' model. Secondly, in the parents' model, several alcohol-specific socialization practices applied to both adolescents were highly correlated, for instance with communication about alcohol ($r_{\text{father (428)}} = 0.807$; $r_{\text{mother (428)}} = 0.802$) and having confidence that the parenting practices to prevent the adolescents from drinking, will work ($r_{\text{father (428)}} = 0.740$; $r_{\text{mother (428)}} = 0.748$).

Structural equation models

The fit of all three models was satisfactory (Table 4). In addition, the factor loadings of the latent variables in the three models were high, ranging from 0.60 to 1.00. This implies that indicators assessed the latent variables of alcohol consumption relatively accurately in each of the models. In all three models, parental drinking and alcohol-specific socialization explained the variance moderately to highly in alcohol consumption of both adolescents (Table 5).

Adolescents' reports model

Rules about alcohol use were strongly negatively related to alcohol consumption of both adolescent groups (Table 5). This suggests that providing rules about alcohol prevents youngsters from drinking. This was also the case for having confidence in the alcohol-specific socialization practices. The more confidence adolescents had in their parents' ability to limit their drinking behaviour, the less adolescents actually drunk. However, communicating about alcohol was related to stronger engagement in drinking of both adolescent groups. The two variables measuring reactions of parents to their offsprings' drunkenness were not significantly associated with adolescents' alcohol consumption. This also applied to the alcohol use of the parents, except for the association between the alcohol consumption of the fathers and consumption of the older adolescents (Table 5).

In a second phase of analysis, we tested whether parenting towards one child affects the alcohol consumption of the other. Two cross-associations were observed in the model of the adolescents. First, communication about alcohol with the younger adolescents was positively associated with the alcohol use of the older adolescents ($\beta = 0.10$, $P < 0.05$). Further, the confidence that older adolescents had in the effectiveness of the alcohol-specific socialization practices of their parents was negatively related to the drinking behaviour of their younger siblings ($\beta = 0.13$, $P < 0.01$).

In a third step of analysis we tested whether the magnitude of associations between alcohol-specific socialization and adolescents' alcohol use was similar for both youngsters. The strength of the associations between communication, rules and confidence, and alcohol use of the older adolescents was as strong as those associations among the younger adolescents ($\chi^2_{(3)} = 7.45$, $P > 0.05$).

Mothers' reports model

From the mothers' perspective, communicating about alcohol was positively associated with adolescents'

Table 4 Fit measures for the three models.

	Adolescents	*Father*	*Mother*
n	428	428	428
df	62	45	45
χ^2	118.880	75.086	76.651
P	0.000	0.002	0.003
GFI	0.970	0.978	0.979
AGFI	0.917	0.935	0.936
NFI	0.949	0.971	0.975
RMSEA	0.046	0.040	0.041

Table 5 Standardized estimates for models tested for reports by adolescents, fathers and mothers.

	Adolescents		*Father*		*Mother*	
	Alcohol oldest	*Alcohol youngest*	*Alcohol oldest*	*Alcohol youngest*	*Alcohol oldest*	*Alcohol youngest*
Communication	0.10*	0.16***	0.14**	0.17***	0.15**	0.20***
Negative reactions	0.01	0.07	–0.02	0.04	0.02	0.08
Neglecting reactions	–0.09	0.07	0.05	–0.04	–0.01	–0.01
Rules	–0.52***	–0.42***	–0.39***	–0.26***	–0.49***	–0.40***
Confidence	–0.26***	–0.14**	–0.03	–0.16***	–0.11*	–0.09
Alcohol Mother	0.02	0.11			0.12*	0.20***
Alcohol Father	0.15*	0.10	0.22***	0.20***		
R^2	44%	35%	27%	32%	25%	17%

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

alcohol consumption, although setting rules about alcohol use was negatively related to adolescents' drinking (Table 5). Having confidence in alcohol-specific socialization practices also seemed to prevent youngsters' alcohol use. Negative and neglecting reactions to drunkenness were not significantly associated with adolescents' drinking. Alcohol consumption of the mothers, on the other hand, was positively related to alcohol involvement of both adolescent groups.

We did not find any cross-associations in the model using the mothers' reports. Further, the magnitude of the associations between communication, rules and alcohol use of the older adolescents were as strong as those of the younger siblings ($\chi^2_{(2)} = 0.01$, $P > 0.05$).

Fathers' reports model

As in the other two models, communication about alcohol matters was positively related to adolescents' alcohol use. The results also showed that providing rules about alcohol was negatively associated with adolescents' drinking (Table 5). In contrast with the findings of the other two models, having confidence in the alcohol-specific socialization practices was related only to alcohol use of the younger adolescents. Fathers' drinking behaviour was positively associated with adolescents' alcohol use.

A single cross-association was observed in the fathers' model. The more fathers showed neglecting reactions towards drunkenness of the younger adolescents, the more the older adolescents seemed to drink alcohol ($\beta = 0.19$, $P < 0.01$). Further, the magnitude of the paths between communication, rules and alcohol use among the older adolescents was as strong as those paths of the younger ones ($\chi^2_{(2)} = 0.148$, $P > 0.05$).

Additional analyses

Because the univariate correlations showed clearly that some alcohol-specific socialization practices are related to parental drinking (e.g. parents who drink heavily are less likely to have strict rules), we tested whether the magnitude of the parameters between alcohol socialization and adolescent drinking differed for parents who are light or moderate drinkers, and heavy drinkers. We conducted multi-group analyses comparing associations between alcohol-specific socialization practices and adolescents' alcohol use in two groups. These two groups were constructed with a median split on intensity of parental alcohol consumption. Mothers who drank 4.5 glasses a week or less were classified as light or moderate drinkers, and above that as heavy drinkers. For fathers, the split was at 11 glasses a week.

In the adolescents' reports model, we first tested whether the associations between alcohol-specific socialization and adolescent drinking differed for light or moderately and heavy drinking mothers. The two observed variables, which were indicators of the latent variable of maternal alcohol consumption, remained the same as in the initial conceptual model (Fig. 1). A similar procedure was carried out for a model on adolescents' reports on paternal alcohol-specific socialization practices. We found no significant differences between the two models. Although a median split method is not an optimal statistically powerful test, our findings do not support the notion that parental drinking has an impact on the relation between alcohol-specific socialization practices and adolescents' alcohol use.

DISCUSSION

The aim of the present study was to explore whether and which alcohol-specific socialization practices are related to adolescents' alcohol use. The study is one of the first to include the perspectives of four members of a family on alcohol-specific socialization. One of the most significant outcomes of our study was that imposing strict rules seemed to prevent adolescents from starting to consume alcohol heavily and frequently. This association was even more robust considering that we found this association for younger and older adolescents and on the basis of reports of different family members on alcohol-specific socialization; this outcome corresponds with the findings of Yu (2003) and Wood *et al.* (2004). Furthermore, the results show clearly that parents treated their adolescents differently concerning rule setting. Parents imposed stricter rules on younger adolescents than on the older ones. However, the magnitude of the associations between setting rules about alcohol and adolescents' drinking was similar for both siblings.

Secondly, communication about alcohol appeared to be positively associated with adolescents' drinking. This outcome was unexpected, because we assumed that when parents communicate frequently with their offspring about alcohol matters, it would discourage adolescents from drinking. Some *post hoc* explanations can be postulated. The results might indicate that many parents communicate with their adolescents in a somewhat destructive way. Perhaps some parents talk so often and ineffectively with their adolescents about alcohol topics that it results in heavier drinking. Conversely, parents may respond to adolescents' engagement in alcohol use whereby the more the adolescents drink, the more parents talk with their children about drinking.

Our results on parental communication differ from those of Jackson *et al.* (1999) and Ennett *et al.* (2001), who found no relationship between frequency of parental communication and adolescents' drinking. The differ-

ence in findings with Jackson *et al.* (1999) could be due to methodological aspects. They measured communication by asking their respondents solely about staying away from alcohol, rather than asking about different topics (e.g. imposing rules, drinking of friends, and the role of the media). Nevertheless, longitudinal research should establish what kind of consequences communicating about alcohol has on adolescents' alcohol use.

Thirdly, the reactions of parents in the case an adolescent comes home drunk were not significantly related to adolescents' alcohol consumption; this applied to parental negative reactions and to neglecting reactions. According to mothers and adolescents, parents showed more negative reactions towards drunkenness of the younger adolescents. Only fathers believed that they treated their offspring equally regarding negative reactions. Further, parents neglected older adolescents more often when they came home drunk than younger ones; however, these variations in reactions had no association with adolescents' drinking.

Both parents had more confidence in the effectiveness of their parenting efforts concerning their younger adolescents than their older adolescents. This coincides with the opinion of many parents that, in the course of adolescence, they become less important in the lives of their children and subsequently have less influence (see Finkenauer *et al.* 2002). However, our data show that this is not the case; although parents had less confidence in influencing their older child, the magnitude of the links between their own actions, such as setting rules, and drinking appeared to be similar for both adolescents. That parents remain significant in affecting children's adjustment in late adolescence and young adulthood has also been reported by others (e.g. Engels *et al.* 2001).

In addition, having confidence about the effectiveness of alcohol-specific socialization practices seemed to have a preventive impact on drinking behaviour of adolescents. In accordance with Jackson (2002), this underscores the importance of adolescents acknowledging parental authority. The association was observed for older and younger adolescents, but only in the model with the reports of the adolescents themselves.

With regard to the modelling effect, our findings strongly support those of other studies (e.g. Ennett & Bauman 1991; Yu 2003). Parental drinking was positively related to adolescents' alcohol consumption according to the perceptions of mothers and fathers. Most studies assessed parental alcohol consumption by using reports of adolescents only (e.g. Beal *et al.* 2001). In our study, on the contrary, alcohol use measures were based on the self-reports of each family member. Based on adolescents' reports, we might conclude that alcohol-specific socialization has a stronger association with adolescents' drinking habits than the modelling effects of parental drinking. For the youngsters, what parents say may be more important than what they do (Jackson *et al.* 1999).

Multi-informant data

The paired *t*-tests showed clearly that family members experience alcohol-specific socialization differently. This stresses the importance of being cautious about generalizing conclusions on the basis of self-reports of one person. For instance, in the current study both parents thought that they communicated about alcohol matters more often than the adolescents thought they did. In contrast, both adolescent groups perceived their parents as less permissive than the parents perceived themselves. It is essential to underline that these differences in perceptions of family members are comparatively large. According to Smith *et al.* (1999) disagreement exists between parents' self-reports about drinking and what children think their parents drink. Children often described their parents as non-users when in fact they were drinkers. Deković *et al.* (1997) demonstrated that parents thought consistently that adolescents would achieve certain developmental tasks at a later age than the adolescents thought they would. Thus, it is important to acknowledge the effects that different views have on the family system and parenting. It might even be possible that not only mean levels of parenting affect child development, but also the extreme differences in views between family members on parenting.

Cross-associations between siblings

In contrast to our expectations, alcohol-specific socialization practices towards one adolescent were not related to drinking of the other, with the exception of three associations. In the adolescents' reports model we observed two so-called cross-associations. First, it seems that the more parents talked about alcohol with younger ones, the more older adolescents drank. However, this result might also indicate that the more older adolescents drank, the more parents realized they needed to talk to the younger ones. Secondly, the confidence of the older adolescents had a preventive link with drinking behaviour of the younger adolescents. In the fathers model, we found a single cross-association between neglecting reactions on drunkenness of younger adolescents and drinking of older ones. For the moment, these associations seem incidental considering the number of cross-associations tested (Feinberg *et al.* 2000).

Limitations and strengths

Our study has some limitations. The cross-sectional design does not allow to draw conclusions about

causality and it remains unclear whether alcohol-specific socialization practices affect adolescents' alcohol use in the long term. We cannot exclude the possibility that the correlation between, for instance, rule enforcement and adolescent drinking is due primarily to parents reacting on adolescent involvement in alcohol use by lessening rules on drinking. Further, although we selected families carefully on the basis of, for instance, variance in educational level, the results cannot be generalized to single-parent families or to families with step-parents. Moreover, one should be careful about generalizing our findings to other cultures; for instance, Dutch adolescents drink more intensively and frequently compared to adolescents in many other European countries (Hibell *et al.* 2005), and differences in upbringing in different countries might yield other associations with adolescents' drinking. More studies are needed to establish whether other alcohol-specific practices play a role in adolescents' alcohol use, e.g. alcohol norms or alcohol-specific monitoring. Finally, it is essential to establish what the relative influence is of the quality of the relationship between parents and adolescents on the associations between alcohol-specific socialization practices and adolescents' drinking. Do these effects become stronger when parents and adolescents get on well? In a broader social context it would be interesting to examine the association between alcohol-specific socialization and alcohol use of adolescents with drinking peers (Mounts & Steinberg 1995). Despite the limitations, the current study is one of the first to test empirically the role of alcohol-specific socialization in adolescents' drinking using a full family design. The results demonstrate that it is important to examine alcohol-specific parenting practices in relation to alcohol consumption, rather than simply assessing general parenting practices or exclusively parental drinking.

Implications

Until recently, many prevention programmes have focused on making youngsters aware of peer influences and helping them to resist peer pressure to use alcohol (Cuijpers 2002). The present study illustrates that family factors should also be taken into account in health promotion projects. Parents must be made aware of the relevance of alcohol-specific socialization in reducing adolescents' alcohol consumption. Secondly, it might be wise to inform parents on the strong differences in the ways they treat their children: They are much more liberal on drinking of older than younger adolescents. Because enforcement of rules is related to adolescent drinking, parents may be advised to keep the strict attitude they had when their children were in their early adolescent years. Therefore, they should be informed about the potential impact of imposing strict rules on adolescents' drinking, and the fact that communicating about alcohol may not be as effective as many Dutch parents might think. In addition, parents may need more confidence in the effectiveness of their alcohol-specific parenting practices.

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