



Parental alcohol use, alcohol-related problems, and alcohol-specific attitudes, alcohol-specific communication, and adolescent excessive alcohol use and alcohol-related problems: An indirect path model

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ABSTRACT

Alcohol-specific parent–child communication has often been studied in relation to regular alcohol use of adolescents. However, it might be as important to focus on adolescent problematic alcohol use. In addition, the way parents communicate with their children about alcohol might depend on their own (problematic) drinking behaviors. Therefore, the current study examined the direct effects of parental alcohol use, alcohol-related problems, and parental alcohol-specific attitudes on adolescent excessive drinking and alcohol-related problems later in life. It also looked at indirect effects via alcohol-specific communication. The sample consisted of 428 Dutch families including fathers, mothers and adolescents from two age groups (13 and 15 years old) at T1, who have been surveyed annually for 5 years. We tested the model with structural equation modeling (SEM). The results showed that parental alcohol-related problems were positively associated with communication about alcohol, which in turn was related with less excessive adolescent drinking and alcohol-related problems. Lenient parental attitudes about alcohol and parental alcohol-related problems were directly related to more excessive drinking and alcohol-related problems in adolescents. In conclusion, alcohol-specific communication intervenes in the relationship between parental alcohol-related problems and adolescent excessive drinking and alcohol-related problems. This indicates that in family alcohol interventions targeted at youth alcohol use, parental alcohol-related problems should be taken into account.

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1. Introduction

Many European and North-American prevention programs advocate parent–child communication to reduce adolescents' alcohol use (Brody et al., 2006; Komro et al., 2008; Mason et al., 2009; Riggs, Elnbaum, & Pentz, 2006; Robertson, David, & Rao, 2003; Rueter, Conger, & Ramisetty-Mikler, 1999; Smit, Verdurmen, Monshouwer, & Smit, 2008). As part of promoting good and solid parent–child bonds, these prevention programs teach parents to talk with their children about alcohol. However, research on the link between alcohol-specific parent–child communication and adolescent alcohol use showed that familial communication about alcohol might not always be effective in preventing adolescent drinking (Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001; Martyn et al., 2009; Van der Vorst, Burk, & Engels, 2010). Therefore, more research is required into which family aspects lead to effective

parental communication in lowering adolescents' alcohol consumption. The present study examined the link between alcohol-specific communication and adolescents' excessive alcohol use and alcohol-related problems while taking parental drinking and attitudes into account.

1.1. Parental factors related to alcohol-specific communication

One of the missing links regarding alcohol-specific communication and adolescents' excessive alcohol use is to examine why or which parents communicate intensively with their offspring on alcohol matters. Although it is known that adolescent drinking positively affects how frequently parents talk with their offspring about drinking, at least for boys (Van der Vorst et al., 2010), previous studies did not pay attention to other factors influencing the frequency of communication. However, there are ample studies on general parenting practices such as support and control indicating that parents lack in their parenting when drinking excessively. That is, parental control and monitoring are negatively affected by parental alcohol-related problems or heavy alcohol use (Blackson et al., 1999; Chassin, Pillow, Curran, Molina, & Barrera, 1993; King & Chassin, 2004; Lang, Pelham, Atkeson, & Murphy, 1999; Tildesley &

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Andrews, 2008). Parents who were intoxicated in an experimental setting were less accurate in perceiving problems in children, and were less consistent in their control strategies (Lang et al., 1999). Parental alcohol use has a negative effect on positive parenting as well (Tildesley & Andrews, 2008), with parents using alcohol expressing less support and providing less structure (Barnes, Reifman, Farrell, & Dintcheff, 2000; Engels, Vermulst, Dubas, Bot, & Gerris, 2005). These studies reveal that parent's alcohol-related problems negatively affect the parent–child interaction and child rearing styles. It seems plausible that a parenting practice like alcohol-specific communication would be affected in a negative way by parental alcohol-related problems.

Besides parental alcohol-related problems, normative parental alcohol use and parental alcohol-specific attitudes are likely to determine the way parents communicate with their adolescents about alcohol as well. Normative alcohol use of parents has been shown to be related negatively to general parenting (Tildesley & Andrews, 2008) and alcohol-specific parenting (Van der Vorst, Vermulst, & Engels, 2006). Moreover, parental alcohol use and strict alcohol-specific attitudes show a strong negative association (Koning, Engels, Verdurmen, & Vollebergh, 2009; Payne, Govorun, & Arbuckle, 2008; Stacy, Bentler, & Flay, 1994; Van der Vorst, Engels, Meeus, & Dekovic, 2006). Since strict parental attitudes towards alcohol use of their adolescents are positively associated with general parenting strategies like parental support and monitoring (Wood, Read, Mitchell, & Brand, 2004), a positive link between strict alcohol-specific attitudes and more alcohol-specific communication is to be expected, but has yet to be shown.

1.2. Factors related to adolescents' excessive drinking and alcohol-related problems

There is a large body of research on the association between parenting, parental alcohol use and adolescent alcohol use. It is well known that, for example, parental alcohol use increases the risk of initiation and the intensity of later adolescent alcohol use (Tildesley & Andrews, 2008; Van Zundert et al., 2006). The same has been shown for the association between parental alcohol-related problems and adolescent drinking (Blackson et al., 1999; Van der Zwaluw et al., 2008). In addition, when parents endorse negative alcohol-specific attitudes it prevents engagement in excessive alcohol use of their adolescent offspring (Aas & Klepp, 1992; Miller & Plant, 2003). Regarding the association between alcohol-specific communication among parents and their children and the alcohol use of the adolescents, inconsistent findings have been shown (Ennett et al., 2001, 2008; Martyn et al., 2009; Van der Vorst et al., 2010). Further, these studies examined non-problematic alcohol use of adolescents. It is essential to further assess the association between alcohol-specific communication and adolescents' alcohol use. Since excessive alcohol use leads to most deviance during adolescence and later adulthood (e.g., Brown et al., 2008), it is important to examine alcohol-specific communication in relation to excessive alcohol use and alcohol-related problems of adolescents.

1.3. Distinction between paternal and maternal effects

Studies that focus on parental alcohol use and alcohol-specific parenting have shown clear distinctions between maternal and paternal behaviors (Van der Vorst, Engels, Meeus, Dekovic, & Van Leeuwe, 2005). For example, women use alcohol less frequently and intensively and encounter fewer problems due to their drinking than men (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Nolen-Hoeksema, 2004). Besides their alcohol use, parents' strategies to prevent their children from using alcohol differ. Mothers are more likely to initiate conversations about alcohol (Van der Vorst et al., 2005, 2010) and show more understanding towards the opinion of

their children (Noller & Callan, 1990). In contrast, fathers have more lenient attitudes towards adolescent drinking (Pettersson, Linden-Bostrom, & Eriksson, 2009). In addition to general gender differences in parental drinking and parenting, the impact of them on adolescent drinking can also vary for fathers and mothers. Paternal alcohol use seems to have a stronger positive impact on adolescent alcohol use as compared to maternal alcohol use (Chassin, Curran, Hussong, & Colder, 1996; Van der Vorst, Vermulst, Meeus, Dekovic, & Engels, 2009; Zhang, Welte, & Wiczorek, 1999), while attitudes of fathers and mothers regarding adolescent alcohol use do not differ in effectiveness in reducing adolescent drinking (Van der Vorst et al., 2006). All together, these findings indicate that it is relevant to test for paternal and maternal differences in relation to alcohol-related behaviors.

1.4. Present study

The present study examined the role of parental alcohol use, parental alcohol-related problems, and alcohol-specific attitudes towards youth alcohol use in alcohol-specific communication. Subsequently, the association of alcohol-specific parent–child communication with adolescent excessive alcohol use and alcohol-related problems was examined.¹ We expected that more parental alcohol use, more parental alcohol-related problems and tolerant alcohol-specific attitudes of parents are related to less alcohol-specific communication with adolescents. In turn, we expected that more frequent alcohol-specific communication leads to more excessive alcohol use and alcohol-related problems in adolescents. Besides these indirect effects, the direct effects of all independent variables on adolescent excessive alcohol use and alcohol-related problems were tested. We hypothesized that more parental alcohol use, more parental alcohol-related problems, and tolerant alcohol-specific attitudes lead to more excessive alcohol use and alcohol-related problems in adolescents. Finally, these models were tested for mothers and fathers separately. See Fig. 1 for both the indirect and the direct path model.

2. Method

2.1. Procedure

Data used in this study come from a longitudinal project called "Family and Health" (De Leeuw, Engels, Vermulst, & Scholte, 2009; Harakeh, Scholte, de Vries, & Engels, 2005). A total of 5400 Dutch families including at least two children aged 13–16 years were mailed to ask for their participation in the study. The addresses of these families were obtained from the records of 22 Dutch municipalities. All of the 885 families who agreed to participate were phoned to ascertain whether they fulfilled the criteria of (I) parents living together or being married, (II) parents and adolescents being biologically related, (III) siblings not being a twin, and (IV) none of the children being physically or mentally disabled. Families with members that were not able to read or write in Dutch were also excluded, resulting in a sample of 765 families who fulfilled all entry criteria. On the basis of adolescents' education level and sibling dyads (i.e. boy–boy, boy–girl, girl–girl, and girl–boy), a further selection was made resulting in an equal division of both criteria. The final sample

¹ The association between alcohol-specific communication and adolescent alcohol use has been previously examined using data from the "Family and Health" study (Van der Vorst et al., 2005, 2010), while this study takes a new perspective by looking at parental alcohol use and alcohol-specific attitudes in relation to adolescent excessive drinking and alcohol-related problems. Data of wave 5 instead of waves 3 and 4 was used due to lack of information on adolescent excessive drinking and alcohol-related problems on these two waves.

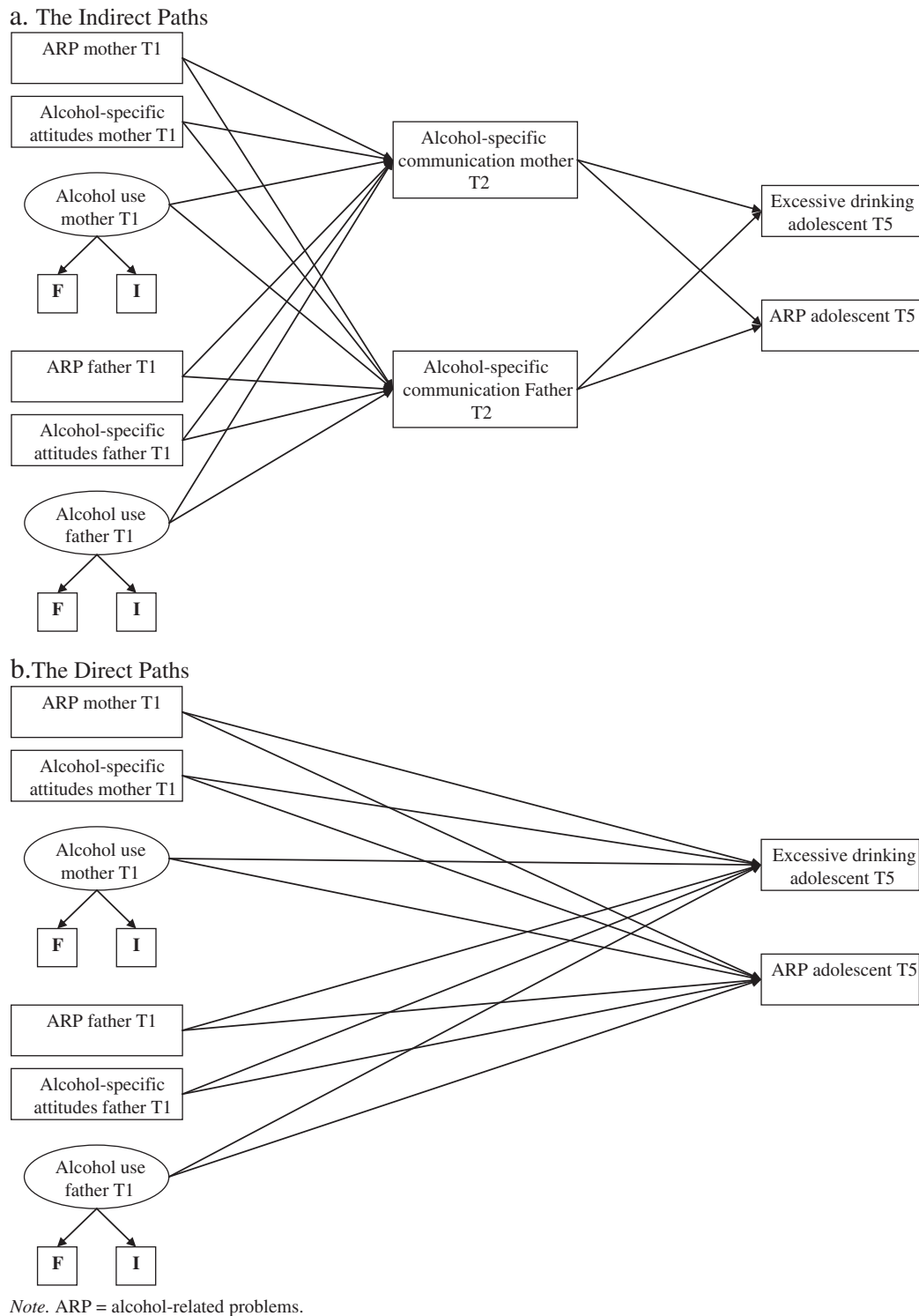


Fig. 1. Conceptual model of parental factors in relation to adolescent factors. a. The indirect paths. b. The direct paths. *Note.* ARP = alcohol-related problems.

comprised 428 families consisting of both parents and two adolescent children at baseline measurement (T1). A total of 416 families participated at the second wave (T2), and 325 families participated three years later at time 5 (T5), which resulted in a response rate of 76% over the waves.

A trained interviewer visited the families at home at each time point. All four family members individually filled out a wide-ranging questionnaire at home in five annual waves with a yearly interval,

starting in November 2002. Respondents were not allowed to discuss the questions or answers with each other. After all four family members completed the questionnaire each family received 30 Euros per wave. After the third wave, 5 families were selected to receive a travel check worth €1000. The current study used the data of the first two waves to tap predictor variables. Adolescent outcomes were assessed at the fifth wave, as both adolescents were only asked about their problematic alcohol use at this measurement point.

2.2. Participants

Of the participating parents at the first wave, 95% were of Dutch origin. At the first wave the age of the mothers ranged from 35 to 56 years ($M=43.82$; $SD=3.57$) and the age of the fathers ranged from 37 to 62 years ($M=46.18$; $SD=4.00$). The majority of mothers finished elementary school or a low educational level of Dutch secondary school (50.4%), 44.2% finished vocational education, while the remaining 5.4% finished college or university. Of the fathers, 42.1% and 40.4% finished respectively elementary school or a low educational level of secondary school, and vocational education, while 17.5% finished college or university. The mean age of the younger adolescents was 13.36 years ($SD=.50$) and that of the older adolescents was 15.22 years ($SD=.60$). At baseline, approximately one third of younger and older adolescents followed special or low education (37.2% and 31.0% respectively), one third followed an intermediate general education (36.0% and 29.3% respectively), and the remaining one third followed the highest level of secondary school, which is preparatory college and university education (26.9% and 39.7% respectively).

An attrition analysis was conducted to check whether families that completed 5 measurement waves differed compared to families that dropped out. A logistic regression analysis showed that families who completed all measurements ($n=325$) did not differ from the drop-outs ($n=103$) in age, gender and educational level, except for educational level of the younger adolescents (odds ratio [OR]=1.84, $p=.00$, 95% confidence interval [CI]: 1.25, 2.69). Younger adolescents who followed the higher educational level of the Dutch secondary school system were less likely to drop out. The Cox and Snell indicator of explained variance was .07, indicating that the model variables predicted limited variance in attrition.

2.3. Measures

2.3.1. Parental alcohol consumption

At T1, parents were asked about the frequency of their alcohol use in the past four weeks with one item. The response categories ranged from 1 = *have not been drinking* to 6 = *every day* (Engels & Knibbe, 2000). Intensity of drinking was assessed by asking the parents about the number of alcoholic beverages they drank in the previous week. This scale contains 4 items, targeted on alcohol use during weekdays and weekend, both home and outside the home (Engels, Knibbe, & Drop, 1999). Of these four items, sum scores were used as an indication of the total number of alcoholic drinks consumed in a week.

2.3.2. Parental alcohol-related problems

The problem drinking list of Cornel, Knibbe, van Zutphen, and Drop (1994), which consisted of 18 items, was used to measure the severity of parental alcohol-related problems at T1. The items form a reliable and unidimensional scale (Cornel et al., 1994). Response categories ranged from 1 = *never* to 5 = *very often*. To achieve congruence with the original scale (Cornel et al., 1994), these categories were transformed into 0 = *no* or 1 = *yes*, with 0 representing a score of 1 and 1 representing a score ranging from 2 to 5. Of this scale, sum scores were computed. This division is often used and has been shown to be reliable and valid (Van der Zwaluw et al., 2008). Some examples of items are: "Do you ever drink alcohol to forget your concerns?" and "Have you ever lost your job because of your drinking?" A high sum score on this scale reflected more severe alcohol-related problems. Alphas for this scale were satisfactory: .74 for mothers and .70 for fathers.

2.3.3. Parental alcohol-specific attitudes

Seven items of a Dutch translation of the Alcohol Use Norms Scale (Brody, Flor, Hollett-Wright, McCoy, & Donovan, 1999; Van der Vorst et al., 2006) were used to assess parental attitudes about drinking of

13-year olds at T1. The response categories ranged from 1 = *totally unacceptable* to 5 = *totally acceptable*. A higher mean score on this scale reflected more liberal attitudes toward youth drinking. Some examples of items are: "How acceptable is it for a 13-year-old boy/girl to have a small glass of wine during a family dinner" and "How acceptable is it for a 13-year-old boy/girl to get drunk when drinking alone". We asked the parents about alcohol-specific attitudes of boys and girls separately. However, because these scores showed high correlations (.94 for mothers and .95 for fathers), we computed them into one variable for the mothers and one variable for the fathers. These scales had a high internal consistency: $\alpha=.83$ for mothers and $\alpha=.85$ for fathers.

2.3.4. Alcohol-specific communication

The alcohol-specific communication scale of Ennett et al. (2001) has been translated in Dutch and used to assess eight specific domains of parent-child communication on alcohol at T2 (Van der Vorst et al., 2005); The domains were 1) negative consequences of use, 2) peer pressure resistance, 3) encouragement to choose non-drinking friends, 4) media portrayal of alcohol, 5) encouragement not to use, 6) telling the adolescent not to use, 7) rules about use and 8) discipline. Mothers and fathers reported for the younger and older adolescents separately how many times they talked about these topics with their children in the last twelve months on a 5-point Likert scale ranging from 1 = *never* to 5 = *very often*. Internal consistencies were computed for all family dyads separately, resulting in alpha's ranging from .84 to .88.

2.3.5. Adolescent excessive alcohol use

At T5, adolescents were asked about their binge drinking in the past four weeks by an item concerning the frequency of having five or more drinks in a row. The response categories ranged from 1 = *never* to 7 = *9 times or more*. This question is based on a standard self-report measure of binge drinking (Schulenberg, Wadsworth, O'Malley, Bachman, & Johnston, 1996).

2.3.6. Adolescent alcohol-related problems

The Rutgers' alcohol problem index (RAPI: White & Labouvie, 1989) was used to measure adolescent alcohol-related problems. This scale, consisting of 18 items, assesses problematic situations that are related to youth alcohol use. Response categories ranged from 1 = *never* to 5 = *very often*, of which mean scores were computed. Some examples of items are: "You went to school or to work while you were still under the influence of alcohol", and "You acted unkind or got involved in a fight because you consumed alcohol." Alpha's were .90 (younger adolescents) and .88 (older adolescents).

2.4. Strategy of analyses

First, means, standard deviations, and bivariate correlations of model variables were calculated. Second, associations between maternal and paternal drinking, alcohol-related problems, alcohol-specific attitudes, alcohol-specific communication and adolescent excessive drinking and alcohol-related problems were examined longitudinally with MPLUS version 5.1 (Muthén & Muthén, 1998–2007; see Fig. 1 for the conceptual models), while controlling for adolescent alcohol use at T1. We tested an identical model for older and younger adolescents separately. The full information maximum likelihood with robust standard errors was utilized to estimate parameters in the model (Muthén & Muthén, 1998–2007). This estimator uses a numerical integration algorithm to get a maximum likelihood estimator with robust standard errors. With missing data, the standard errors for the parameter estimates are computed using the observed information matrix (Kenward & Molenberghs, 1998). The latent factors of alcohol use of fathers and mothers were measured by two indicators: frequency and intensity of drinking. All factor

loadings were above .68, indicating an adequate assessment of the latent factors by the manifest variables. All other model variables were manifest. Model fit was assessed by the following global fit indices: χ^2 , CFI, and RMSEA (Hu & Bentler, 1999).

3. Results

3.1. Descriptive statistics

On average, fathers drank alcohol more often than mothers, and they drank more glasses of alcohol per week (Table 1). Fathers also reported to experience more problems due to their drinking than mothers. Fathers and mothers did not differ in their alcohol-specific attitudes. A comparison between fathers and mothers showed that mothers communicated more frequently with their younger ($t(412) = 4.28, p < .001$) and older ($t(412) = 3.82, p < .001$) offspring on alcohol than fathers did. T-tests showed no differences for excessive drinking ($t(264) = .73, p > .05$) and alcohol-related problems ($t(265) = -1.17, p > .05$) between younger ($M_{\text{Binge drinking}} = 2.97, SD = 1.70; M_{\text{Problem drinking}} = 1.30, SD = .03$) and older adolescents ($M_{\text{Binge drinking}} = 3.07, SD = .11; M_{\text{Problem drinking}} = 1.33, SD = .02$) at T5. Correlations between the model variables are depicted in Table 2. It was found that parental alcohol-related problems were strongly associated with the frequency of parent–child alcohol-specific communication.

3.2. Model findings for the younger adolescents

The model for younger adolescents showed an acceptable fit ($\chi^2(20) = 54.28, p = .00; CFI = .97; RMSEA = .06$). All standardized estimates are presented in Table 3. Findings with regard to the indirect path model, depicted in Fig. 1a, revealed that maternal and paternal alcohol-related problems were positively related to parent–adolescent communication, implying that the more problems parents experience regarding their drinking, the more they talk with their children about alcohol matters. The degree to which mothers experienced problems due to drinking alcohol was also positively related to paternal communication, revealing that the higher the level of maternal alcohol-related problems, the more fathers engage in alcohol-specific communication with their offspring. Further, liberal alcohol-specific attitudes of the fathers were related to lower frequency of alcohol-specific communication. All the other parental factors did not predict parental alcohol-specific communication in the model of the younger adolescents. Subsequently, the more frequent mothers communicate with their offspring about alcohol, the lower the levels of adolescent alcohol-related problems were.

Findings with regard to the direct path model, depicted in Fig. 1b, showed that liberal paternal alcohol-specific attitudes and high levels of paternal alcohol use and alcohol-related problems were related to engagement of their offspring in excessive drinking. All other associations regarding younger adolescent excessive alcohol use and related problems were not significant.

Table 1

Comparison of reports on alcohol use and attitudes by fathers and mothers (paired samples T-tests).

| | Fathers ($n = 428$) | | Mothers ($n = 428$) | |
|--------------------------|-----------------------|-----------|-----------------------|-----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Frequency of alcohol use | 3.70 ^a | 1.60 | 3.08 ^b | 1.69 |
| Intensity of alcohol use | 12.88 ^a | 11.29 | 6.09 ^b | 6.75 |
| Alcohol-related problems | 1.84 ^a | 2.18 | .88 ^b | 1.56 |
| Attitudes | 1.59 ^a | .43 | 1.55 ^a | .40 |

Note. Means in the same row that have different superscripts are significantly different ($p < .05$).

3.3. Model findings for the older adolescents

The model for older adolescents showed an acceptable fit ($\chi^2(20) = 58.08, p = .00; CFI = .97; RMSEA = .07$).² Standardized estimates are presented in Table 3. The indirect path model findings showed that maternal and paternal alcohol-related problems were significantly and positively associated with both their own alcohol-specific communication as well as the alcohol-specific communication of their partners. This means that the more alcohol-related problems their partners showed, the more fathers and mothers talked about alcohol with their children. Furthermore, paternal alcohol use was negatively related to alcohol-specific communication of the mothers and to communication of the fathers themselves. Alcohol-specific attitudes of the fathers showed a negative association with alcohol-specific communication of the mothers, indicating that strict attitudes of fathers towards youth alcohol use stimulate mothers to talk more frequently about alcohol with their children. All the other parental factors did not predict parental alcohol-specific communication in the model of the older adolescents. Subsequently, more frequent alcohol-specific communication of fathers was associated with less adolescent excessive drinking.

With regard to the direct path model, excessive drinking of the older adolescents, paternal alcohol-related problems and paternal alcohol use were positively related to excessive drinking, indicating that the higher the levels of paternal drinking and problems due to alcohol use, the more older children engaged in excessive alcohol use. Alcohol-specific attitudes of the fathers did not relate to excessive alcohol use of adolescents, whereas liberal attitudes of the mothers were related to more excessive drinking of adolescents four years later. Maternal alcohol use was not related to excessive drinking. In relation to alcohol-related problems, only those of the fathers were associated with subsequent alcohol-related problems of their adolescent children.

4. Discussion

In the present study, we tested the association between parental alcohol use and its related problems, parental alcohol-specific attitudes, and alcohol-specific parent–child communication, and the direct and indirect associations with adolescent excessive alcohol use and its related problems. Our findings revealed that parents communicate more about alcohol with their children when they experience problems due to their own drinking. In general, when fathers express strict alcohol-specific attitudes, both parents talk more often about alcohol with their children. The attitudes of mothers did not show this effect. In line with this, strict paternal alcohol-specific attitudes about alcohol have a preventive effect on adolescent excessive alcohol use, while among older adolescents, maternal attitudes on alcohol prevent offspring from engaging in excessive alcohol use. Paternal alcohol use and alcohol-related problems are both related to adolescent excessive drinking. In addition, paternal, but not maternal alcohol-related problems are related to older adolescent problem drinking. Alcohol-specific communication of parents with their adolescents showed no or small negative effects on excessive alcohol use and related problems of adolescents. Among younger adolescents, more frequent communication of mothers indicated less alcohol-related problems 3 years later, while among older adolescents, more frequent communication of fathers indicated less excessive drinking.

² The full model was also tested in the full sample including older and younger adolescents together to increase statistical power. However, these analyses decreased the fit of the model ($\chi^2(20) = 107.155, p = .00; CFI = .96; RMSEA = .07$). Further, because of possible difference due to age or birth order, analyses were conducted for younger and older adolescents separately.

Table 2
Pearson correlations between the model variables.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-----------------------------------|---------|--------|--------|--------|---------|---------|--------|---------|---------|---------|---------|--------|
| 1 ARP mothers | | -.10* | -.07 | -.06 | .64*** | -.13** | -.04 | -.09* | .34*** | .34*** | .04 | -.06 |
| 2 Attitudes mothers | -.16*** | | .09* | .11* | -.03 | .33*** | .08* | .01 | -.04 | -.06 | .16*** | -.05 |
| 3 Alcohol use mothers (I) | -.11* | .10* | | .78*** | .04 | .09* | .40*** | .42*** | -.06 | -.02 | .13** | -.02 |
| 4 Alcohol use mothers (F) | -.11* | .11* | .78*** | | .03 | .10* | .31*** | .46*** | -.08* | -.05 | .18*** | -.09* |
| 5 ARP fathers | .68*** | -.11* | .00 | -.02 | | -.11* | -.00 | .11* | .28*** | .34*** | .10* | -.02 |
| 6 Attitudes fathers | -.16*** | .33*** | .09* | .10* | -.13** | | .10* | .08* | -.15*** | -.17*** | .17*** | .01 |
| 7 Alcohol use fathers (I) | -.06 | .08* | .40*** | .31*** | .01 | .09* | | .65*** | .00 | -.01 | .22*** | -.05 |
| 8 Alcohol use fathers (F) | -.10* | .01 | .42*** | .46*** | -.08* | .08* | .65*** | | -.12** | -.12** | .20*** | -.10* |
| 9 Communication mothers | .35*** | -.05 | -.09* | -.11* | .34*** | -.17*** | -.06 | -.19*** | | .70*** | -.05 | -.14** |
| 10 Communication fathers | .38*** | -.05 | -.06 | -.10* | .41*** | -.14** | -.06 | -.17*** | .68*** | | -.05 | -.09* |
| 11 Excessive drinking adolescents | .03 | .16*** | .13** | .18*** | .08* | .17*** | .22*** | .20*** | -.02 | -.06 | | -.07 |
| 12 ARP adolescents | -.14** | .12** | -.06 | -.09* | -.17*** | -.02 | -.08* | -.01 | .04 | .01 | -.43*** | |

Notes. ARP = alcohol-related problems. Younger adolescents are presented above the diagonal; older adolescents are presented below the diagonal.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

4.1. Parental factors and alcohol-specific communication

The positive association between parental alcohol-related problems and alcohol-specific parent-child communication is somewhat unexpected, since previous research shows a negative effect of

Table 3
Standardized estimates of parental drinking and attitudes in relation to alcohol-specific communication of the parents and excessive drinking and related problems of the adolescents.

| | Older adolescents ($n = 428$) | Younger adolescents ($n = 428$) |
|---|------------------------------------|--------------------------------------|
| | β | β |
| <i>Indirect path model mothers</i> | | |
| ARP mothers-communication mothers | .19*** | .25*** |
| Attitudes mothers-communication mothers | .03 | .02 |
| Alcohol use mothers-communication mothers | -.00 | -.03 |
| ARP fathers-communication mothers | .19*** | .09 |
| Attitudes fathers-communication mothers | -.11* | -.12** |
| Alcohol use fathers-communication mothers | -.16** | -.07 |
| Communication mothers-excessive drinking | .07 | -.03 |
| Communication mothers-ARP | .10 | -.13* |
| <i>Indirect path model fathers</i> | | |
| ARP fathers-communication fathers | .28** | .20** |
| Attitudes fathers-communication fathers | -.08 | -.12** |
| Alcohol use fathers-communication fathers | -.13* | -.09 |
| ARP mothers-communication fathers | .17** | .18** |
| Attitudes mothers-communication fathers | .02 | -.00 |
| Alcohol use mothers-communication fathers | -.01 | .01 |
| Communication fathers-excessive drinking | -.14* | -.05 |
| Communication fathers-ARP | .06 | .02 |
| <i>Direct path model mothers</i> | | |
| ARP mothers-excessive drinking | .00 | -.02 |
| Attitudes mothers-excessive drinking | .11* | .05 |
| Alcohol use mothers-excessive drinking | .02 | .00 |
| ARP mothers-ARP | -.08 | .01 |
| Attitudes mothers-ARP | .05 | .03 |
| Alcohol use mothers-ARP | -.10 | .02 |
| <i>Direct path model fathers</i> | | |
| ARP fathers-excessive drinking | .13* | .14* |
| Attitudes fathers-excessive drinking | .07 | .11* |
| Alcohol use fathers-excessive drinking | .16* | .17* |
| ARP fathers-ARP | -.15* | .05 |
| Attitudes fathers-ARP | .05 | .04 |
| Alcohol use fathers-ARP | .06 | -.06 |

Note. ARP = alcohol-related problems.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

parental alcohol use on several parenting practices (Engels et al., 2005; King & Chassin, 2004; Lang et al., 1999; Tildesley & Andrews, 2008). In contrast to families in which parents drink alcohol occasionally, alcohol might be a more relevant and frequently discussed topic in families where parents experience problems due to their drinking. However, it should be noted that the exact content of the alcohol-related conversations, and perhaps more important, the quality of these conversations are yet unknown. Previous research suggests that there might be a negative link between parental alcohol use and the quality of parent-child communication about alcohol (Spijkerman, Van den Eijnden, & Huiberts, 2008). Therefore, future research taking alcohol-specific communication into account should ask about content and quality of these conversations. Ideally, parents and their adolescents should be observed while discussing alcohol-related topics (Van der Vorst et al., 2010). Then, the processes behind the association between communication and adolescent alcohol use can be unraveled.

4.2. Maternal and paternal influences on adolescents' alcohol use

Another important result of this study is the difference in effects between paternal and maternal factors. While most prevention and intervention programs focus on mothers (Brody et al., 2006; Riggs et al., 2006), it appears that fathers might have at least as much influence on their adolescents' drinking behavior as mothers. For example, paternal alcohol use and alcohol-related problems increase the likelihood that their children will engage in excessive drinking, while this association is absent for mothers. This difference between the effects of maternal and paternal drinking has been shown previously (Chassin et al., 1996; Lieb et al., 2002; Rohde, Lewinsohn, Kahler, Seeley, & Brown, 2001; Van der Vorst et al., 2009). It might be due to the fact that fathers have higher overall alcohol consumption rates. However, there might be a methodological explanation: in multivariate analysis the effect of maternal drinking may become invisible, because of high correlations between mothers' and fathers' alcohol use (Poelen, Scholte, Willemsen, Boomsma, & Engels, 2007).

In addition, the alcohol-specific attitudes of fathers were predictive of excessive drinking in young adolescents. Their attitudes also incited mothers to talk more often about alcohol with their adolescent children. This finding is in accordance with the idea that fathers might employ more indirect parenting strategies, such as holding strict attitudes, while mothers are supposed to use more direct strategies, like communication (Cabrera, Fitzgerald, Bradley, & Roggman, 2007; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). The underlying thought of fathers exerting their influence indirectly via the mothers is that they are generally less present at home (Lewis & Sussman, 1986). Previous research indeed showed that fathers' attitudes

influence maternal behaviors towards their offspring (Scott, Binns, & Aroni, 1997). Taken together, these results imply that family programs targeted on youth alcohol use should try to get fathers involved as well.

4.3. Alcohol-specific communication as an intervening factor

While most previous studies showed a positive association between alcohol-specific communication and adolescent alcohol use (e.g., Ennett et al., 2001; Van der Vorst et al., 2005, 2010), this study shows a negative association. This discrepancy could be due to the fact that the current study took alcohol-related problems of the parents into account. When this factor is taken into account while controlling for parental alcohol use, the positive effect of alcohol-specific communication on alcohol use of adolescents is no longer present. This study intermittently shows that alcohol-related problems of parents lead to more communication about alcohol, which in turn leads to less alcohol-related problems of adolescents. However, alcohol-related problems of parents also lead directly to an increase in alcohol-related problems of adolescents. Because previous studies lacked information on alcohol use of parents and the problems due to this alcohol use specifically, this could explain why they showed a positive effect of alcohol-specific communication on alcohol use of adolescents (Ennett et al., 2001; Van der Vorst et al., 2005, 2010).

Thus, frequent communication on alcohol matters within families might be due to alcohol-related problems of parents as well as lenient alcohol-specific attitudes of fathers. This could indicate that in these families, frequent communication cannot be regarded as positive and constructive. Therefore, promoting a good parent–child bond and constructive communication skills might be important. However, prevention programs should be reserved in promoting alcohol-specific communication until this concept and its association with adolescents' alcohol use is exactly clear. To establish good programs, future research should examine the characteristics of high-quality communication, especially concerning conversations on alcohol-related topics.

4.4. Conclusion

To summarize, parental drinking and lenient parental alcohol-specific attitudes are positively associated with adolescent excessive alcohol use and related problems. Further, parental alcohol-related problems predict alcohol-specific parent–child communication, which in turn predicts adolescent excessive alcohol use and related problems. Parental alcohol-related problems are directly associated with more adolescent alcohol use as well. In spite of the strengths such as a longitudinal multi-informant design, limitations should be mentioned. First, the current study included a selective sample of families and therefore, the findings should not be generalized to non-traditional families such as single-parent families or families of ethnic minorities. Second, due to this selective sampling and the rather young age of the adolescents, there were very few adolescents that experienced problems related to drinking. Variance on this scale was low, which could explain the lack of findings regarding this measure. Further, the findings with regard to alcohol-specific communication may not reflect the situation in other countries besides the Netherlands. The Netherlands have a drinking culture in which adolescents drink more compared to other European countries (Hibell et al., 2004). Attitudes of parents and youth toward adolescent alcohol use are tolerant in the Netherlands. Indeed, Dutch parents are less likely to discuss or criticize the alcohol use of adolescents compared to parents in Mediterranean countries (Knibbe et al., 2007). Further, compared to the United States and the United Kingdom, alcohol is very available and very cheap in the Netherlands (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007), which might make it more difficult for parents to keep and communicate strict attitudes towards

alcohol. Last, due to a limited sample size, differences between boys and girls could not be assessed, while the model may differ for gender. For example a study of Van der Vorst et al. (2010) showed that the effect of alcohol-specific communication on alcohol use of adolescents was especially pronounced for boys. Moreover, parents employ different communication strategies when confronting boys or girls about alcohol use (Boone & Lefkowitz, 2007).

Taking these limitations into account, our findings add substantial evidence to earlier studies about alcohol-specific communication and adolescent alcohol use by hinting to the effects of parental alcohol-related problems. Studies including samples with parents diagnosed with alcohol dependence and misuse are warranted in order to confirm these results. Further, more research is needed on the role of for example the exact content and quality of communication within this association. As for prevention and intervention, it is important that these programs do not focus on advertising alcohol-specific communication until further research is done. Of course, promoting a good and solid parent–child bond is an important facet of any prevention program focusing on parent involvement. Further, focusing on the engagement of fathers as well as mothers is an important avenue for future programs.

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Contributors

Haske van der Vorst and Rutger Engels designed the study and wrote the protocol. Haske van der Vorst carried out the data collection for the study. Suzanne Mares conducted the statistical analysis and wrote the first draft of the manuscript. Rutger Engels, Haske van der Vorst, and Anna Lichtwarck-Aschoff approved the final manuscript.

Conflict of Interest

All authors declare that they have no conflicts of interest.

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