

Effect of Prepregnancy Alcohol Consumption on Postpartum Relationship Satisfaction and Divorce among Norwegian Mothers

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ABSTRACT: This study assessed the effect of prepregnancy level of alcohol use among mothers on relationship breakups with young children at 36 months after birth and the extent to which relationship satisfaction (RS) throughout the postpartum period could mediate any association between alcohol use and divorce. The data were part of the Norwegian Mother and Child Cohort Study, and analyses of the present article were based on a total of 69,117 mothers divided into low-, medium-, and high-risk consumption groups. All the three groups experienced a decrease in RS, but the largest effect was observed for the high-risk group. Mothers in this group had 55% higher odds for divorce as compared to the low-risk group. The findings supported a conceptual model whereby the effects of alcohol use on divorce were mediated through lowered RS.

KEYWORDS: alcohol use, women, young children, postpartum

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Background

Two competing hypotheses have been applied to the study of any effects of alcohol consumption on marital or relationship functioning. The most intuitive hypothesis proposes that drinking, and particularly heavy drinking, serves as a stressor that increases the risk of relationship dysfunction and subsequent divorce or breakup.¹ The alternative hypothesis is based on the more adaptive functions of alcohol on social interactions and relations, suggesting that drinking may relieve daily stress or tension and help to maintain relatively stable and positive family relationships.² Although there are some studies supporting this latter hypothesis, the former has received overwhelming empirical support (for review, see Marshal³). More recent studies have confirmed the maladaptive functions of alcohol use on relationship quality^{4,5} and divorce and breakup.^{6,7}

However, the research on any effects of alcohol consumption on the relationship quality has usually been based on clinical groups where the husband has been a problem drinker or alcoholic, while population-based research and particularly studies focusing on women's drinking have been scarce.³ The limited focus on any relational effects of women's alcohol consumption is noticeable because increase in drinking among women has been one of the most important trends

in alcohol consumption over the last decades.^{8,9} Moreover, the association between drinking and family dysfunction seems to be stronger for women than for men, and female problem drinkers report more stress, conflict, and disharmony in their marriages than do male problem drinkers.¹⁰

Of particular interest would be to investigate any effect of women's alcohol consumption on relationship quality during the transition to parenthood and in the early stages of motherhood. Numerous studies have found that relationship satisfaction (RS), on average, declines across transition to parenthood.¹¹ Having a second child has also been related to increased parental stress and a decline in relationship quality.¹² Furthermore, this period is also characterized by profound changes in the lifestyle of the parents, including a reduction of alcohol consumption by the mothers.¹³ Still, recent findings indicate that most mothers resume their prepregnancy drinking levels within the first three years postpartum, and the speed of the resumption seems to be closely related to the initial level of drinking.¹⁴

Regarding relationship quality, the development of a romantic relationship involves complex processes where the two partners need to unify their individual set of norms and habits and successfully manage various critical relationship events, such as arguments and fights, violations of expectations,



and incompatible needs and wishes.¹⁵ Hence, the relationship is contingent on the partners' abilities to communicate well and take each other's perspective when negotiating, managing, and solving disagreements, problems, and conflicts. These abilities are put to the test when the couple have a child, perhaps especially with the firstborn child, and the frequently observed decline in RS during the transition to parenthood may be due to the strain and conflicts created by role negotiations.¹⁶ In keeping with this, the most commonly reported conflict between spouses after birth is related to the division of childcare.¹⁷

Adding alcohol consumption to these tasks may interfere with the mothers' ability to communicate and negotiate with their partners and thus to manage any problems or conflicts. This may particularly be the case if the mother is a heavy drinker. In that case, we may expect communication and negotiation abilities to be reduced.¹⁸ Heavy drinking may also, in itself, produce conflicts between the partners, reduce the quality of the couple relationship, and increase the risk of relationship breakup.¹⁹ On the other hand, smaller amount of alcohol use may serve as a kind of coping strategy or self-medication,²⁰ particularly when engaging in new social roles and in relation to lack of social support.²¹ Applied to mothers in the transition to parenthood and mothers with young children, this could perhaps mitigate any strains related to lack of support by their partner and therefore be positively associated with RS and negatively associated with divorce or breakups.

The aim of present study was to assess the extent to which alcohol consumption before pregnancy may influence women's RS throughout the infant and toddler years and predict divorce. The study was carried out in a Norwegian context, characterized by a family support policy aiming at parents with young children that is more generous than in most other countries,²² including full payment for 10 months or 80% for 12 months during maternity leave (which can be shared by the parents in various ways). All families also receive a monthly cash benefit for each child up to 18 years of age and a cash-for-care benefit if the parents do not use publicly subsidized childcare during the child's first and second year of age. Additionally, all parents have the right to avail paid leave to care for sick children. These family support schemes could possibly mitigate some of the strains related to parenting infants and young children, indicating less pressure on the couple. Thus, testing these associations in the Norwegian context might be considered as a conservative approach. If the associations correspond with the findings from the USA and other countries, it would suggest that these findings are robust even in the most supportive environments. More detailed knowledge on these associations may add to our general understanding of the link between alcohol consumption and relationship quality and could be of particular value to alcohol prevention measures targeting expectant mothers, as well as to relationship education programs for couples in transition to parenthood and in the early stages of parenthood. More specifically, the

current study tested a conceptual model whereby the effects of alcohol use on divorce at 36 months postpartum are mediated through lowered RS.

Thirty-six months was chosen as an end point in order to focus attention on associations between mothers' alcohol use and relationship quality and stability during infancy and early childhood. The test includes the following associations:

1. Alcohol use increases the risk of divorce.
2. Alcohol consumption is associated with a lower RS and a stronger decline in RS postpartum.
3. Lower RS increases the odds of divorce, and when controlling for this relationship, the association between alcohol consumption and divorce is no longer statistically significant.

Method

Procedures and design. The Norwegian Mother and Child Cohort Study (MoBa)²³ is a prospective population-based pregnancy cohort study conducted by the Norwegian Institute of Public Health¹⁻³ (www.fhi.no/morogbarn). Participants were recruited from all over Norway from 1999 to 2008. Recruitment was done in connection with a routine ultrasound examination offered to all pregnant women in Norway at 17–18 weeks of gestation, and 40.6% of the women consented to participation. The invitation to ultrasound is based on a pregnancy validation performed by a physician. The cohort now includes 114,500 children, 95,200 mothers, and 75,200 fathers. All pregnant women in Norway were invited to participate, provided that they could read Norwegian. Prevalence estimates of several exposure and outcome variables, and associations among them, have been tested.²⁴ For some of these variables, the prevalence estimates are somewhat different from the general population of pregnant women in Norway. However, no associations among the observed variables are biased due to self-selection into the MoBa study.

MoBa has obtained a license from the Norwegian Data Protection Authority. The current study is based on version 6 of the quality-assured data files released for research on April 22, 2011, including 101,111 pregnancies. Informed consent was obtained from each MoBa participant on recruitment. The Regional Committee for Medical Research Ethics approved the study.

The data were collected by means of self-administered questionnaires, received by mail at home, and delivered at eight time waves from ~17 weeks of gestation (Q1) to when the child was seven years old (Q8). In the present study, we used data from the first wave (Q1, 17 weeks of gestation), fourth wave (Q4, four to six months after birth giving), fifth wave (Q5, 18 months after birth giving), and sixth wave (Q6, 36 months after birth giving).

Participants. The present study includes mothers participating in the MoBa study for the first time. To avoid pseudoreplication, multitime participating mothers were included with



only their first participating pregnancy. For the purposes of the current study, inclusion criterion was that mothers had indicated their status as either married ($n = 39,355$) or cohabiting ($n = 43,007$). Thus, the available sample was 82,362. Mothers' mean age was 29.6 years ($SD = 4.61$), and the average couple duration was 6.24 years ($SD = 4.15$).

Measures and variables. *Alcohol consumption.* Alcohol consumption was measured at 17 weeks of gestation (Q1), with questions about drinking three months before pregnancy. Alcohol consumption was measured according to monthly frequency, the usual number of alcohol units (AUs) per drinking occasion, and monthly heavy episodic drinking (HED).

The alcohol frequency was measured with the following question: *How often did you consume alcohol in the three months before you became pregnant?* The response categories were: (1) "approximately 6–7 times a week," (2) "approximately 4–5 times a week," (3) "approximately 2–3 times a week," (4) "approximately once a week," (5) "approximately 1–3 times a month," (6) "less than once a month," and (7) "never."

The amount of drinking was measured in AUs, where one unit was equivalent to 1.5 cL pure alcohol (one bottle of alcopop/cider, one glass of beer (1/3 L), one wineglass of red wine or white wine, one sherry glass of sherry or other fortified wine, one glass with a single measure of spirit or liquor); the amount of drinking was measured with the following question: *How many alcohol units did you normally drink when you consumed alcohol in the three months before you became pregnant?* The response categories were: 10 or more, 7–9, 5–6, 3–4, 1–2, and <1. In the analysis, all item values were recoded to reflect the continuous underlying metric (1–2 episodes coded as 1.5, 3–4 episodes coded as 3.5, 5–6 episodes coded as 5.5, 7–9 episodes coded as 8, and 10 or more episodes coded as 10).

Total weekly consumption was calculated by multiplying number of units per drinking occasion and weekly frequency of drinking. This variable was recoded into three categories: a low-risk group drinking <7 AUs a week, a medium-risk group drinking between 7 and 14 AUs a week, and a high-risk group drinking 14 AUs or more a week.

Partner relationship. RS was measured using five items scored on a Likert agreement scale ranging from 1 "totally agree" to 6 "don't agree at all." In the current study, we used data on RS collected at Q1, Q4, Q5, and Q6. The scale originally contained 10 items, showing good psychometric properties (Cronbach's alpha = 0.91) and was highly correlated with the Quality of Marriage Index ($r = 0.92$).²⁵ Only a subset of the sample received the full 10-item scale. The five-item version was available for all the participants in the MoBa study and was used for the present study. The five-item version included the following items: *My partner and I have problems in our relationship; I am very happy in my relationship; My partner is generally very understanding; I am satisfied with my relationship with my partner; and We agree about child rearing issues*, with a Cronbach's alpha of 0.85. The five-item scale was highly correlated with the 10-item scale ($r = 0.98$). The duration of relationships was measured

using the mother's report of how long they had had a sexual relationship with their current partner before the pregnancy.

Statistical procedure. The current study examined RS and dissolution as proximal and distal outcomes of alcohol consumption, respectively, with alcohol consumption groups as defined by total consumption as the key independent variable.

The overarching framework for the analysis was mediation analysis. A mediation analysis is a path analysis that describes direct and indirect associations between an independent variable (X) and one or more outcome variables (Y). A mediator (Z) is an intermediate variable that explains why the independent variable affects the outcome. The current study examined whether alcohol consumption (X) affects the risk of relationship dissolution (Y) indirectly through changes in RS (Z) from pregnancy to 36 months postpartum. This requires specification of several regression equations: one set regressing the outcome on the mediator and the independent variable and the other set regressing the mediator on the independent variable. Figure 1 shows the full model tested in the present study. This model predicts that alcohol consumption increases the risk of divorce (C path) through affecting baseline differences in RS (A1) and the slope of change in RS from pregnancy to 36 months postpartum (A2), which in turn affects the odds of divorce (paths B1 and B2).

The proposed mediator, level of and change in RS, was modeled through a mediated latent curve model, measuring the level of and change in RS from week 17 of pregnancy to 36 months after childbirth. The latent curve analysis²⁶ used information from four time points, modeling the covariance between time points as function of an intercept factor (α) and a slope factor (β). The intercept factor captured interindividual differences in the level of RS at baseline (Q1) with parameters μ_α and $\zeta_{\alpha i}$ for the intercept factor. The slope factor captured interindividual differences in intraindividual change in RS, with mean μ_β and variance $\zeta_{\beta i}$. To fix the scaling of change to an interpretable metric, the loadings for the pre-pregnancy measurement were fixed to 0 and the loading for the 36 months

Table 1. Descriptive statistics for main study variables.

	%/M(SD)	n
Alcohol Consumption Q1		
Low risk	89.3%	67155
Medium risk	8.8%	6609
High risk	1.9%	1467
Marital status Q6 36 months		
Intact	96.9%	39352
Divorce/split	3.1%	1279
Relationship satisfaction Q1	5.27 (0.69)	76503
Relationship satisfaction Q4	5.20 (0.78)	67778
Relationship satisfaction Q5	5.10 (0.84)	52078
Relationship satisfaction Q6	5.01 (0.90)	39331



postpartum was fixed to 1. To accommodate nonlinear change in the postpartum measurement, the loadings for the slope factor on the postmeasurements at 4–6 and 18 months were estimated freely, a procedure sometimes referred to as “stretching time.”²⁶ For this scaling of time, the mean of the slope component (μ_β) reflected the mean change from prepregnancy to 36 months postpartum. The slope and intercept in RS were regressed on alcohol groups, specified through dummy variable coding of alcohol groups. Low-risk consumption was used as the reference group for coding. The structural part of the regression equation of the intercept factor was:

$$Y = B_0 + B_1\text{dummyMediumRisk} + B_2\text{dummyHighRisk} + \text{error}$$

where *dummyMediumRisk* and *dummyHighRisk* are contrasted with the reference group at low-risk consumption.

The structural part of the regression equation for the slope factor was:

$$Y = B_0 + B_1\text{dummyMediumRisk} + B_2\text{dummyHighRisk} + \text{error}$$

where *dummyMediumRisk* and *dummyHighRisk* are contrasted with the slope of change in the reference group at low-risk consumption.

The final outcome to be examined was relationship dissolution at 36 months. In this part of the overall model, dissolution at 36 months was regressed on the level of and change in RS and alcohol consumption group prepregnancy, using a logit link function for the dependent variable. The equation for the logistic regression was:

$$\text{Dissolution} = B_0 + B_1\text{dummyMediumRisk} + B_2\text{dummyHighRisk} + B_3\text{Interceptfactor} + B_4\text{SlopefactorRelationshipSatisfaction} + \text{error}$$

where *dummyMediumRisk* and

dummyHighRisk are contrasted with the reference group at low-risk consumption. For increased interpretability, regression coefficients were transformed from a logit scale to odds ratios and predicted probabilities.

A set of regression models were estimated simultaneously, enabling an integrated test of the full mediation model. All statistical procedures were conducted in Mplus 7.31. The model was estimated using full information maximum likelihood. As the model included a binary outcome, adaptive quadrature estimation was used for the model. For the dependent variables, missing data were estimated for the dependent variables, but not for the missing covariates. A total of 12,779 participants had missing data on one or more covariates and were excluded from the analysis. In addition, 466 cases with missing data on all dependent variables were excluded. The remaining 69,117 cases had data on all covariates and at least one observation on the dependent variable. After establishing the mediation model, alternative explanations were assessed by including covariates, such as marital status, duration of relationship, age, level of education, and planned pregnancy.

Results

Descriptive statistics. Table 1 shows alcohol risk group size and mean level of relationship satisfaction across measurements. According to the current classification, the low-risk group comprised 89.3% ($n = 67,155$) of the sample, the medium-risk group comprised 8.8% ($n = 6609$), and the high-risk group comprised 1.9% ($n = 1467$) of the total sample. The probability of being a first-time parent was higher in the

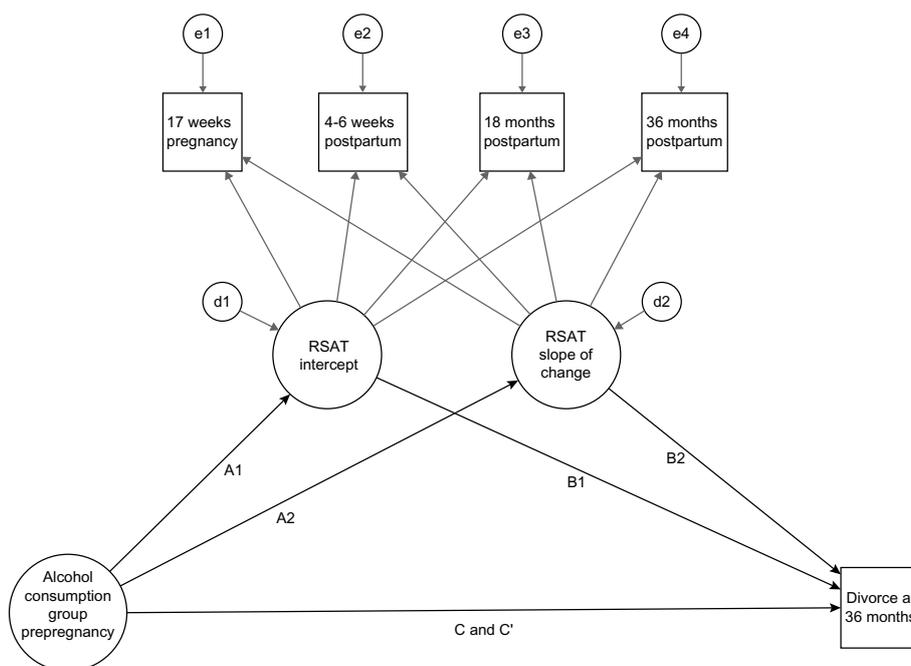


Figure 1. The full model tested in the present study. The model predicts that alcohol consumption increases risk of divorce (C path) through affecting baseline differences in relationships satisfaction (A1) and the slope of change in relationship satisfaction from pregnancy to 36 months postpartum (A2), which in turn affects the odds of divorce (paths B1 and B2).

**Table 2.** RS and divorce by alcohol consumption risk group classification.

RISK GROUP	RELATIONSHIP SATISFACTION		DIVORCE 36 MONTHS POST PARTUM	
	INTERCEPT [95% CI]	SLOPE OF CHANGE [95% CI]	OR [95% CI]	PREVALENCE (%) [95% CI]
Low	5.28 [5.28 to 5.29]	-0.27 [-0.28 to -0.26]	1.00	3.1 [2.9 to 3.3]
Medium	5.28 [5.26 to 5.3]	-0.31 [-0.34 to -0.29]	1.20 [0.98 to 1.47]	3.6 [3.0 to 4.4]
High	5.23 [5.19 to 5.27]	-0.33 [-0.38 to -0.28]	1.55 [1.06 to 2.28]	4.7 [3.2 to 6.7]

high-risk group (79.2% first-time parents) compared to the low-risk group (52.2% first-time parents). The probability of being married (as opposed to cohabiting) was higher in the low-risk group (47.2%) than in the high-risk group (32.9%). The proportion of pregnancy being unplanned was higher in the high-risk group (30.5%) than in the low-risk group (16.3%). The alcohol consumption groups also differed with regard to couple duration, with high-risk consumers having a shorter couple duration ($M = 4.53$) than low-risk consumers ($M = 6.40$). For age and level of education, differences were statistically significant, but the effect sizes were small.

Mediation model. The effect of alcohol consumption on relationship outcomes was tested in a mediated latent curve analysis, as depicted in Figure 1. In this model, RS was modeled as a proximal outcome of high-risk alcohol use and with divorce at 36 months as a distal end point. The model states that high-risk consumption affects the risk of divorce partly through reducing RS. In the first set of analysis, only direct effects of alcohol use on RS were included.

According to the classical definition of mediation, the independent variable alcohol consumption group (X) should be associated with divorce, as shown in path C of Figure 1. The two columns of Table 2 show the effect of alcohol consumption groups on risk of divorce, expressed as odds ratios and predicted probabilities. In line with the mediation model, mothers in the high-risk group had 55% higher odds of divorce or breakup than mothers from the low-risk group ($\exp(B) = 1.55 [1.06, 2.28]$).

The mediation model also predicts that alcohol consumption group is related to RS, as depicted in paths A1 and A2 of Figure 1. Being in the high-risk group was associated with a lower baseline level of RS ($B = -0.051$, $B/SE = -2.691$, $P < 0.01$) as compared to the low-risk group, and a stronger reduction in RS from baseline to 36 months ($B = -0.063$, $B/SE = -2.28$, $P < 0.05$). As shown in Table 2, the mean level

of change in RS across the period was $-0.27 [-0.28, -0.26]$ for the low-risk group, $-0.31 [-0.34, -0.29]$ for the medium-risk group, and $-0.33 [-0.38, -0.28]$ for the high-risk group. The common standard deviation for the slope of change was 0.57, indicating strong individual difference around the mean slope of change. To exemplify, a mother in the high-risk group with 1 SD more negative slope of change than the mean slope of change would reduce the level of RS with $-0.33 - 1 \times 0.57 = 0.90$ units. A mother with 1 SD more positive slope of change would increase her RS with $-0.33 + 1 \times 0.57 = 0.24$ units. This indicates that alcohol risk group differences in change in RS were relatively weak compared to the overall individual variability.

The mediation model also predicted that the mediating variable, baseline level of RS intercept ($Z1$), and change in RS ($Z2$) were associated with higher odds of divorce, as described by paths B1 and B2 in Figure 1. In line with this prediction, a one-unit increase in baseline RS was associated with a -1.02 logit reduction in the odds of divorce. A one-unit increase in the slope of change across the period was associated with a 1.6 logit decrease in the odds of divorce. The effects of change in RS in the three groups of alcohol consumption can be shown by plugging the mean level of change in RS for each risk group. A prototypical mother in the high-risk group would have an odds ratio of divorce at $\exp(B) = 1.68 [1.60, 1.78]$ as compared to a mother in the high-risk group with no decrease in RS. A prototypical mother in the low-risk group would have an odds ratio of divorce at $\exp(B) = 1.52 [1.46, 1.59]$ as compared to a mother in the low-risk group with no decrease in RS (Table 3).

In line with the criteria for mediation, when including the paths from level (path B1) and slope of change (path B2) in RS, the association between high-risk consumption and divorce (path C') was no longer statistically significant, $\exp(B) = 1.40 [0.92, 2.12]$, indicating that parts of the relationship between high-risk consumption and divorce were mediated through the level of and change in RS. Sobel tests of indirect effects

Table 3. Odds ratio of divorce and percentage risk of divorce as a function of alcohol consumption risk group and change in RS.

RISK GROUP	ODDS RATIO			PERCENTAGE POINT ESTIMATE		
	-1 SD SLOPE	AVERAGE SLOPE	+1 SD SLOPE	-1 SD SLOPE	AVERAGE SLOPE	+1 SD SLOPE
Low risk	3.47	1.52	0.67	4.1%	1.8%	0.8%
Medium risk	3.72	1.63	0.71	4.9%	2.2%	1.0%
High risk	3.82	1.68	0.73	6.4%	2.9%	1.3%

Note: Evaluated at SD slope of change = 0.52 and intercept factor RS = 5.28. Reference for odds ratio is individual with no change in RS.



revealed that most of the association between high-risk consumption and divorce was mediated through slope differences in RS across time (indirect effect: 0.097, $t = 2.25$, $P = 0.024$) rather than prebirth differences in RS (indirect effect: 0.052, $t = 2.67$, $P = 0.008$).

To test for alternative explanations, we also adjusted the current model for other confounders and mediators, including marital status, age, education, planned pregnancy, first-time parent, and relationship duration. As shown in Table 4, the effect of alcohol risk group on slope of change in RS was non-significant when adjusting for planned pregnancy, suggesting that the association between high-risk alcohol consumption and RS consumption overlapped with the association between nonplanned pregnancy and RS. For divorce, the association between high-risk alcohol consumption and divorce was non-significant when including duration and planned pregnancy as independent variables, suggesting overlapping effects with divorce. This pattern reflects that the duration of relationship was longer among low-risk consumer and inversely related to divorce. Additionally, planned pregnancy was higher among low-risk consumers and inversely related to divorce.

Discussion

High alcohol consumption level before pregnancy was associated with a lower level of RS and a higher risk of divorce or breakup when the child was 36 months old. The findings were consistent with a model whereby high alcohol consumption increases the risk of divorce through a steeper decline in RS after birth and onward. Moreover, the development (slope) in RS was the strongest indicator for the risk of divorce. This may indicate that findings from previous research on alcohol use and relationship quality, mainly focusing on male alcoholics and their spouses,³ also apply to high-consuming women in the general population. Hence, our findings are in keeping with previous studies observing associations between excessive drinking and increased risk of divorce in the general population.^{7,27,28}

Previous findings have also shown that RS tends to decline after the birth of a child.²⁹⁻³³ Our findings indicate

that this is also the case for Norwegian mothers in spite of a relatively generous family support policy in Norway. Their RS declined throughout the postpartum period irrespective of the level of alcohol use. However, high level of alcohol use added to the general tendency of decreasing RS and divorce.

Various factors may explain the association between high consumption of alcohol and reduced relationship quality and divorce among the participating mothers. A previous study from the MoBa cohort¹⁴ has shown that the mothers with the highest prepregnancy alcohol consumption level had started to resume their alcohol habits already at four to six months postpartum. By the time when the child was 18 months and even more so at 36 months, their alcohol use was at about the same level as it was before they got pregnant. Thus, the mothers' increasing alcohol consumption throughout the infant and toddler years into a relatively high level could therefore partly explain the steeper fall in RS and the higher risk of divorce. More specifically, a high level of alcohol use would likely imply a pattern of HED, which in itself could be a critical event in a couple relationship³⁴ and may cause both direct and indirect strains to the relationship.²⁸ Moreover, relationship problems caused by excessive drinking may also act as a trigger for more drinking, resulting in a negative feedback loop.^{5,35} Alcohol-related problems in the couple relationship would perhaps particularly be the case in a phase of life when mothers are expected to devote great deal of time and attention to nurturing and caring for their young children, and heavy drinking might be considered to be more socially deviant than in other phases of life.

At a more general level, women who drink excessively have traditionally been criticized for neglecting their roles as wives and mothers and have been portrayed as lacking in characteristics associated with "femininity."^{36,37} However, this view of women and alcohol may have been changing during the last decades in parallel with the increase in alcohol use among women.^{8,9} In keeping with this, mothers of young children may describe how excessive drinking returns them to their youth by allowing them to perform a younger, carefree version of themselves having fun, where they literally have a

Table 4. Sensitivity analysis of total unstandardized effects with and without adjustment for other covariates.

	INTERCEPT FACTOR		SLOPE FACTOR		DIVORCE	
	HIGH RISK	MEDIUM RISK	HIGH RISK	MEDIUM RISK	HIGH RISK	MEDIUM RISK
Crude total effect	-0.051**	-0.001 Ns	-0.063*	-0.045*	0.438*	0.18 Ns
Adjusted for						
Married	-0.040*	0.008 Ns	-0.056*	-0.038**	0.372 Ns	0.105 Ns
First time parent	-0.131***	-0.067***	-0.007 Ns	0.002 Ns	0.435*	0.177 Ns
Duration	-0.081***	-0.022*	-0.029 Ns	-0.021 Ns	0.258 Ns	0.051 Ns
Age	-0.056**	-0.004 Ns	-0.06*	-0.044**	0.433 Ns	0.175 Ns
Planned pregnancy	-0.021 Ns	0.012 Ns	-0.063*	-0.046***	0.305 Ns	0.118 Ns
Education	-0.052**	-0.004 Ns	-0.065*	-0.048***	0.455*	0.233*

Notes: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; Ns Nonsignificant at the 0.05 level of significance.



“time out” from their parental responsibilities and also metaphorically transporting themselves to an earlier stage of life.³⁸ Perhaps any changes in the role of alcohol for women with young children also may account for the lack of support of the alternative hypothesis that moderate drinking may enhance RS through a stress relieving effect as suggested by Steinglass and Robertson² more than 30 years ago. In any event, the fact that also mothers in the low- and medium-risk alcohol consumption groups experienced a fall in RS indicates that a possible stress relieving effect of alcohol is not relevant to the relationship quality.

The lack of any significant associations between pre-pregnancy alcohol consumption and postpartum RS and divorce in the adjusted model may suggest that high-risk alcohol consumption in itself was not causing relationship deterioration. Rather, high consumers tend to have several characteristics associated with higher risks of marital dissolution, such as being younger, having unplanned pregnancies, not being married, and having relationships of shorter duration. Thus, high-risk consumption before pregnancy may perhaps best be considered a risk marker for subsequent relationship deterioration and dissolution.

Some limitations of the study should be acknowledged. First, by relying on self-reported questionnaires, the study might have underestimated the mothers' alcohol consumption due to any social desirability of light drinking among mothers with young children. Thus, the numbers of medium- and high-risk consumers may be a conservative estimate. Additionally, the lack of data on fathers' drinking and RS is an obvious limitation of the present study precluding the possibility of investigating the interplay between mothers and fathers. In keeping with this, studies have shown that heavy drinking is most strongly associated with relationship dissolution when one of the partners drinks less frequently and the other drinks heavily.²⁸ However, in previous analyses from the MoBa study, we found little evidence for such a discordant effect on RS among parents in the transition to parenthood.³⁹ Moreover, the observed effects related to alcohol use were generally quite modest in magnitude; thus, one should be cautious with drawing strong conclusion from the current findings. Still, 55% higher odds of divorce in the high-risk consumption group may have clinical implications for prevention efforts aiming at pregnant women and parents with young children. The higher risk may particularly be of relevance if it continues as the child grows older and the divorce rate increases. In the future, similar studies should therefore expand the follow-up period after a child is born.

The current study also has several strengths. First, the longitudinal design ensured a temporal isolation of independent variables, mediators, and outcomes. The mediating process observed was truly intraindividual, aligning the level of the mediating process to the outcome. Second, the test of alternative explanations point to several other potential mechanisms. Thus, mothers with higher alcohol consumption had a higher prevalence of unplanned pregnancies, and when controlling for unplanned pregnancy, the effects of alcohol

consumption were no longer significant. This pattern of findings provides a more detailed account of involved processes. From the current patterns, one might speculate if alcohol use increases the probability of unplanned pregnancies, which again leads to lowered RS, which ultimately increases the risk of relationship dissolution. Finally, the large data set provided a sufficient number of women with high-risk alcohol consumption and a high statistical power enabling tests of associations with expected low effect size, and therefore made it possible to identify associations that would not be possible to identify in smaller data sets.

In conclusion, the findings lend support to the notion that excessive drinking is associated with relationship deterioration and increased risk of divorce. Moreover, it extends previous findings among male alcoholics to female high-risk drinkers in a community population with young children, adding to our knowledge of these associations. Living in a country with a generous family policy particularly aiming at parents with small children may not seem to make a difference when it comes to the association between high-risk alcohol use and relationship quality and stability.

Author Contributions

Conceived and designed the experiments: SM, TT, FT. Analyzed the data: TT, SM. Wrote the first draft of the manuscript: SM. Contributed to the writing of the manuscript: SM, TT, FT. Agree with manuscript results and conclusions: SM, TT, FT. Jointly developed the structure and arguments for the paper: SM, TT, FT. Made critical revisions and approved final version: SM, TT, FT. All authors reviewed and approved of the final manuscript.

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