



Research Paper

Stigma and self-stigma among women within the context of the German “zero alcohol during pregnancy” recommendation: A qualitative analysis of online forums and blogs

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ABSTRACT

Background: In many countries, including Germany, it is recommended to abstain from alcohol during pregnancy to avoid harm to the baby. In this qualitative research study, analysis of online forums was conducted to explore women’s perception of the German “zero alcohol during pregnancy” recommendation with regard to stigma and self-stigma.

Methods: We used a grounded theory approach to analyze online forum discussions on alcohol use during pregnancy. Data consisted of 9 discussion threads from 5 different forums and blogs involving 115 participants in total. We used key concepts developed during analysis and the theory of stigma to interpret the posts.

Results: We identified five key themes: (1) Low alcohol health literacy as a breeding ground for stigmatization; (2) The widespread assumption that maternal abstinence is a prerequisite for being considered a “good mother”; (3) Interpersonal role conflicts and a guilty conscience as a result of stigmatization or self-stigmatization; (4) Paying little attention to the role of psychosocial factors in alcohol consumption, especially regarding partner responsibility during pregnancy.; (5) Understanding the “zero alcohol during pregnancy” recommendation as a complete ban, associated with loss of autonomy.

Conclusion: The current method of communicating the “zero alcohol during pregnancy” recommendation may have unintended consequences. Specifically, misconceptions about the harm associated with low alcohol consumption and setting high expectations of motherhood are factors that can contribute to stigma or self-stigma and potentially undermine self-efficacy, help-seeking behavior, and overcoming the barriers to alcohol health literacy.

Introduction

Alcohol consumption during pregnancy is considered the most significant preventable risk factor for congenital malformations (Harris et al., 2017) and the most important non-genetic cause of cognitive disability (DeJong et al., 2019). Health organizations in many countries, such as the United Kingdom (National Health Service, 2020), the United States of America (National Center on Birth Defects & Developmental Disabilities, 2022) and Germany (German Centre for Addiction Issues, 2015), recommend complete abstinence from alcohol during pregnancy.

This recommendation is internationally widespread and based on the precautionary principle. Whereas it is well-established that heavy alcohol consumption during pregnancy can harm the fetus, there is less conclusive evidence relating to low or moderate consumption (Mamluk et al., 2017). There is a lack of evidence to support the idea of “safe” levels of alcohol consumption during pregnancy. Therefore, the same advice is given for low or moderate alcohol consumption - as a precautionary measure, i.e., aimed at reducing risks, avoiding uncertainty and ultimately, preventing harm to the fetus. (Lee et al., 2022). This approach to risk communication remains controversial in the literature

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(Blaylock et al., 2022; Gavaghan, 2009; Lee et al., 2022).

In Germany, several measures have been developed, aimed at reducing alcohol consumption during pregnancy, including education and information campaigns and anonymous online psychotherapy and psychoeducation. The effects of measures implemented in Germany have not been scientifically investigated. However, in Germany, the prevalence of alcohol consumption during pregnancy remains largely unchanged, according to a global modelling study (Popova et al., 2017, 2018). Unfortunately, there is no up-to-date or accurate research on the prevalence of alcohol use during pregnancy for Germany. The 2012 GEDA survey (German Health Update) used the AUDIT-C (Bush et al., 1998) to assess alcohol use during pregnancy and revealed the following drinking patterns: 20 % of the women used moderate amounts of alcohol, 8 % used risky amounts. 12 % binge drank (meaning ≥ 5 drinks per occasion) less than once a month, 4 % every month, and 0.1 % at least every week. (Robert Koch Institut, 2012). Based on a meta-analytic estimate, the incidence of fetal alcohol spectrum disorder (FASD) in 2014 was estimated to be 1.77 % (95 % CI 1.35 %; 3.26 %) or 177 children with FASD per 10,000 live births per year (Kraus et al., 2019). International studies indicate that a range of factors limit help-seeking and undermine prevention and other intervention efforts relating to alcohol use during pregnancy. In addition to factors such as fear of losing custody of children, insufficient knowledge about consequences of alcohol use during pregnancy and perceived time constraints (Chiodo et al., 2019; Frazer et al., 2019; Wangberg, 2015), public stigmatization of alcohol use during pregnancy in general and, in particular, self-stigmatization by the women¹ concerned, are likely play a key role shaping help-seeking and other amelioration efforts.

Conceptualization of stigma and self-stigma

When discussing stigma, it is important to acknowledge that there is no single manifestation of stigma. Stigma can be understood as a continuous process involving the identification of a person as part of a certain group (e.g., identifying a woman as being pregnant), stereotyping (e.g., a pregnant woman has to protect her unborn child) and prejudice (e.g., a woman who consumes alcohol during pregnancy is therefore a “bad mother”), and discrimination (e.g., avoidance behavior) (Corrigan et al., 2016; Link & Phelan, 2001). Stigma operates on different levels within society; it can be directed against oneself (self-stigma), be expressed by the public (public stigma) and - in its most detrimental form - lead to structural discrimination. Public stigma around mental health conditions is rife, but among people with substance use disorders severe stigmatization is highly prevalent (Kilian et al., 2021; Schomerus et al., 2011) and has been identified as one cause of poor treatment coverage (Hammarlund et al., 2018; Probst et al., 2015). Self-stigmatization is of particular concern as it can result in a loss of self-respect and the “why try” effect (Corrigan et al., 2016) and may significantly undermine the effectiveness of health interventions. Self-stigma is the internalization of stigmatizing beliefs, including being aware of them and agreeing with these beliefs, their self-application, and a loss of self-esteem (Corrigan et al., 2016). As a result, feelings of anger and shame may prevent people from talking to other people, changing her behavior, or seeking help. This is enacted by a social environment that condemns women’s behavior during pregnancy, including but not limited to alcohol use. Given that women with alcohol use disorder may be particularly affected by stigmatization (or self-stigmatization), the risk of an adverse birth outcome is all the greater.

¹ In our text we refer to women and mothers, primarily because that is how study participants chose to identify themselves, but also as much of the cited literature refers to females and women and enacts sex and gender as a binary. We want to emphasize that we recognize that non-binary, queer, or trans people can also become pregnant, use alcohol during pregnancy, and experience stigma as a result.

Stigma and alcohol use during pregnancy

Many years ago, pregnancy was identified as a vulnerable condition, which has the potential to stigmatize women for a variety of reasons (Taylor & Langer, 1977). Also, in many recent studies, stigmatizing attitudes towards pregnant women have been found; these relate to topics such as weight gain (Incollingo Rodriguez & Nagpal, 2021), deviation from traditional gender roles (Hebl et al., 2007), and smoking (Grant et al., 2020). Drinking alcohol during pregnancy is another highly stigmatized behavior and considered a moral failure. Women whose children are born with FASD are held responsible for their behavior during pregnancy (Corrigan et al., 2017, 2018). One international review highlighted that discriminatory attitudes towards women who use alcohol during pregnancy are commonly experienced by women themselves at the interpersonal level (Lyll et al., 2021). Few of the included studies examined self-stigma, but in two, shame, guilt and a perceived lack of parental competence were identified as internalized stigma (Lyll et al., 2021). In addition to consumption patterns, various factors were found to influence the perceived potential risks of alcohol use during pregnancy (Erng et al., 2023). It can therefore be assumed that the type and extent of stigmatization varies, depending on consumption patterns, but is not exclusively influenced by them. It seems that alcohol consumption during pregnancy is a taboo topic that even healthcare professionals are reluctant to talk about. In Germany, for example, the subject is frequently avoided by members of the medical profession, rather than risk stigmatizing the patient (Stiegler et al., 2016). Whilst avoidance behavior can result in structural discrimination, i.e. women who use alcohol during pregnancy receive inadequate prenatal care, stigma has also been shown to have detrimental effects on help-seeking behavior among people with mental health conditions (Clement et al., 2015). Against this backdrop, it can be hypothesized that stigma (or self-stigma) in women using alcohol during pregnancy also reduces or inhibits the use of support services.

Alcohol policy in Germany

Alcohol consumption is common in present-day Germany, but there is also a historical perspective. (Heinz & Daedelow, 2021) People drink in various settings, especially when socializing or on special occasions. Although the level of alcohol consumption in the Germany population is slowly declining (Seitz et al., 2019), globally, it is still among the highest (Manthey et al., 2019). Within the EU (European Union), Germany is one of the countries with the most liberal alcohol policies (Hemström, 2002; Kilian et al., 2023) and compared to other countries, sales and service of alcohol in Germany are more lightly regulated. Excise duties on alcoholic beverages are low compared with other European countries (Angus et al., 2019), thus alcoholic beverages are more affordable, meaning that more alcoholic drinks can be purchased from the disposable household income (Kilian et al., 2022).

Changing female social roles and gender income equity - especially in societies with liberal social policies - seem to influence women’s alcohol consumption (Bond et al., 2010; Kuntsche et al., 2011). In Germany, the prevalence of hazardous alcohol use (i.e., more than 12 g of pure alcohol per day for women and more than 24 g for men) has leveled off for both sexes in recent years, whereby statistics from the German 2021 Epidemiological Survey on Substance Abuse showed no significant difference between the prevalence of hazardous alcohol use among men (21.1 %) and women (22.9 %) (Rauschert et al., 2022). German women’s favorite alcoholic drink was still wine, which accounted for approximately 60 % of total consumption (Kilian et al., 2021). It is worth noting that the perceived risks associated with different types of alcoholic beverages vary. Wine is often falsely considered less harmful than spirits (Dumas et al., 2018). German alcohol guidelines recommend total abstinence from alcohol during pregnancy (German Centre for Addiction Issues, 2015; Kiefer et al., 2021); however, there are no laws to restrict consumption during pregnancy and no legal limits for breath or blood

alcohol. We will henceforth call this the “zero alcohol during pregnancy” recommendation. Advice on alcohol use during pregnancy has significantly changed over the years. The following is a brief overview of German recommendations, prevention measures and campaigns. In 2001, the Federal Center for Health Education (Bundeszentrale für gesundheitliche Aufklärung - BZgA) issued the following advice: “There is no safe amount of alcohol use during pregnancy and no safe time to use alcohol during pregnancy” (Bundeszentrale für gesundheitliche Aufklärung (BZGA), 2001). Since then, the BZgA have launched various nationwide campaigns and developed prevention measures. Some information materials focus specifically on pregnancy, others relate to measures aimed at reducing alcohol consumption in the general population (Alcohol? Know your limit, since 2000) (Schwarz & Goecke, 2021). Prevention campaigns developed by BZgA use the following wording: “Even the consumption of small amounts of alcohol during pregnancy can severely disrupt the physical and mental development of your child” to communicate the recommendation for abstinence during pregnancy to the public. There have also been some regional campaigns, such as “Pregnant? Zero Alcohol!” by the Bavarian Center for Prevention and Health Promotion (Bayerisches Zentrum für Prävention und Gesundheitsförderung, ZPG) which has been running since 2012. In Germany, maternity records are kept in a booklet called a “Mutterpass” which a pregnant woman keeps with her and takes to every prenatal check-up appointment. This is where the most important medical findings and information about the pregnancy are recorded by the doctor. 2011 marks an important change in the field of prenatal care when the Federal Ministry of Health (BMG) added a clause to the “Mutterpass”, now specifically naming the consumption of “alcohol, tobacco and other drugs” in the checkbox section “Medical advice provided” (Bronner, 2012).

Aims of the present study

In this study, our objective is to obtain a better understanding of how the “zero alcohol during pregnancy” recommendation is perceived by women in Germany with regard to public stigma and self-stigmatization. These findings are important to help improve campaigns aimed at reducing alcohol use during pregnancy while incorporating tailored anti-stigma interventions to reduce barriers to seeking professional help. We take advantage of the unique situation created by online forums, where women (and men) share their experiences and challenges during pregnancy, birth and parenthood, and which can be a breeding ground for stigmatizing beliefs (Cataldo et al., 2022; Das, 2017; Wegener et al., 2022; Wigginton & Lafrance, 2017). In an online forum people can post anonymously about behaviors considered socially unacceptable and others can respond and express their opinion. Previous French studies on alcohol consumption during pregnancy illustrate the effective use of discussion forums to examine knowledge, beliefs and perceived social standards related to this topic (Toutain, 2011, 2017). Specifically, the aim of this exploratory research study is to investigate common concepts and misconceptions about alcohol use in pregnancy among women in connection with the German “zero alcohol during pregnancy” recommendation. (It was of no importance, whether the women were pregnant or not and there were no restrictions as far as consumption patterns are concerned.) In addition, stigmatizing and self-stigmatizing elements in German-language online forums on the topic of “alcohol consumption during pregnancy” will be identified. We will provide an overview based on the following research questions:

1. What conceptions about alcohol use during pregnancy are held by discussion forum participants?
2. What kind of stigmatizing and self-stigmatizing concepts are reported?
3. What influence does the “zero alcohol during pregnancy” recommendation have on how alcohol consumption during pregnancy is discussed in German-language online forums?

4. How do discussion forum participants position themselves in relation to the “zero alcohol during pregnancy” recommendation?

Material and methods

Study design

A grounded theory approach (Glaser et al., 1968) was chosen for this exploratory study as this method is suitable for theory building, thus contributing to a deeper understanding of social phenomena (Strauss, 1998). Alcohol consumption during pregnancy is a taboo topic, meaning there is a heightened risk that any interaction with researchers may burden participants or induce socially desirable responses. In previous studies on alcohol use during pregnancy, the research group has used participant interviews but encountered substantial difficulties in reaching the target population. In this case, it was a deliberate decision to use a different approach; online-based methods of data collection may increase the likelihood of obtaining the desired sample (Davies et al., 2020). Thus, existing discussions from online forums (discussion threads) were analyzed for this study. These were created and used by participants independently of our research project. We did not participate in any of the discussions or intervene in any other way.

Data generation

The selection of threads to be included in the data corpus was based on Glaser and Strauss’s theoretical sampling, for which the interplay between data generation and analysis is central (Glaser et al., 1968). Author 1 was already familiar with one German-speaking online forum for pregnant women. The initial online research phase consisted of covert observation within this setting. Based on this information, a thread of particular relevance, i.e. one that included many important aspects, such as the attribution of the expert role of medical professionals and controversial opinions of different discussants was selected. Following that, Author 1’s initial analytical considerations and the thread itself were presented to the research team and the interdisciplinary “Research Workshop for Qualitative Methods”, an interdisciplinary advisory body at University Hospital Tübingen, where ethical (1) and content-related (2) aspects were defined for the sampling process. Regarding (1): Out of consideration for people with a greater need for online privacy protection - who would presumably use forums with more restricted access - it was decided to use only discussion threads that are freely accessible on the internet and from forums that do not limit the use of the search function in any way. (See section 2.6 for details on ethical considerations). Specifically, the search term “pregnancy forum” was entered into a search engine; the forums returned in the result list were checked in order of ranking for the pre-determined inclusion criteria. This resulted in the three largest German-speaking online forums being deemed suitable for inclusion in further searches. Regarding (2): The theoretical sampling process continued based on the initial findings (mothers’ constant striving for perfectionism and self-sacrifice as a matter of course) with the addition of a search for threads that focused on unplanned pregnancy and emancipated or feminist views on pregnancy. The aim of selection was to represent as broad a range of opinions as possible. The search term “alcohol” was used to search the forums selected for discussions about alcohol consumption during pregnancy. The threads were screened in reverse chronological order. All three online forums had sub-forums on pregnancy, unplanned pregnancy and pregnancy in women over the age of 35; these were used to collect data. Overall, there were few discussion threads on the topic of alcohol consumption during pregnancy. Despite an intense search, no results were returned for discussions that focused on emancipated or feminist views on pregnancy. So as not to neglect this aspect, the interdisciplinary “Research Workshop for Qualitative Methods” developed the idea to include another data format - blog comments - in the data corpus. To ensure data formats were analogous, the research team

decided not to include complete blogs (i.e. with many posts on different topics) or blog posts without comments. Parallel to the analysis of the thread and the identification of relevant topics, further threads were selected, which either expanded on the topics already identified or represented opposing views (such as found in blog comments). A discursive approach to decision-making was taken and weekly research meetings scheduled (participants: all authors except Author 2) to define interpretations or decisions during the respective analysis or sampling process. Throughout the analysis process, further threads were added to the data corpus to the point of theoretical saturation (Charmaz, 2006; Strauss, 1998; Strübing, 2014) i.e., the point at which no new codes or new aspects of existing codes could be identified. The research team assumed theoretical saturation had occurred when the sample consisted of 9 threads. However, in order to gain more certainty about saturation it was decided to screen more threads but not to include them in the sample. Thus, five more threads were screened before the sampling process was finally considered completed. It is worth mentioning that as no more content from blogs could be found, there were none to screen.

Data corpus

The data corpus consisted of 9 discussion threads with a total of 115 discussion participants from 5 different forums and blogs about alcohol consumption during pregnancy (number of discussion threads per forum/blog varied between 1 and 3). The posts considerably varied in length, ranging from 4 to 636 words (median = 54 words; interquartile range = 61 words). Digital communication structures in forums and blogs were similar. The initial post always dealt with a question or problem described in some detail, and was usually longer than the comments subsequently posted by other participants. The ensuing dialogue was non-linear since there were not only posts in response to the initial post but also reactions to other participants' comments. The sampling process took place from December 2018 to May 2019. Threads from the sub-forums on pregnancy and unplanned pregnancy were found and included in the sample. The posts were mainly written between January 2016 and February 2019. It was particularly difficult to find discussions on the topic of emancipated or feminist views on pregnancy, so one blog post with a dialogue dating from January 2014 was also included in the sample.

Analysis

This article is based on a previous qualitative research project about alcohol consumption during pregnancy; results on the reasons for consumption and methodological aspects have already been published (Binder et al., 2021, 2022). As previously indicated, grounded theory methodology was applied to analyze the research questions dealt with in this study (Charmaz, 2006; Glaser et al., 1968). Here, "coding" is understood as a process used to develop concepts and theories by processing and interpreting the empirical data (Charmaz, 2006; Strübing, 2014). The primary focus of this analysis was self-revelation, self-representation, and positioning in relation to the research subject, rather than exploration of participant interaction or argumentative dynamics. *Open*, *axial*, and *selective coding* phases were performed in an iterative process, with intermediate results regularly discussed within the research team (4 psychologists and 2 physicians - all authors except Author 2) to ensure inter-subjectivity and thus quality of interpretation. During the *open coding* phase, a small-step interpretation of selected data sections was carried out by the research team in order to identify initial phenomena and categories. Individual passages were interpreted word by word and the meaning of the linguistically fixed phenomena was discussed. During *axial coding*, connections between categories were identified and verified by continuous comparison. This included a search for common key topics in the data, carried out by Author 1. Selected passages were discussed during the research team's weekly meetings and collectively coded. In addition, selected parts of the data were

analyzed by the Research Workshop for Qualitative Methods convened by the Coordination Office for Health Services Research of two institutes: Institute of Occupational and Social Medicine and Health Services Research at the University Hospital Tübingen and the Institute of General Medicine and Interprofessional Care at the University Hospital Tübingen.

During the *open* and *axial coding* phases, the "role of motherhood" and "of motherhood" emerged as central concepts for theory building. Here, "image of motherhood" is defined as a normatively expected image or self-image and social role definition relating to motherhood. During the *selective coding* phase, material focusing on this central concept was partially coded (or recoded) by Author 1, integrating thematic complexes previously elaborated and validating the relationships identified. Recoding was discussed at weekly meetings within the research team to ensure inter-subjectivity. Based on this iterative process, the research team developed theories about why women continued to consume alcohol during pregnancy. The "self-image of motherhood" was identified as a central element (Binder et al., 2021). It became clear that women felt caught between the best interests of the child, individual self-image, and needs arising from their new role as a pregnant woman. Findings on possible causes of continued alcohol consumption during pregnancy have been published elsewhere (Binder et al., 2021). The subsequent in-depth analysis focusing on stigmatization and self-stigmatization against the background of the "zero alcohol during pregnancy" recommendation in Germany centered around the key concept of the "image of motherhood". Stigmatizing and self-stigmatizing statements in the discussions were compared in terms of their character. In addition, direct and indirect references to the "zero alcohol during pregnancy" recommendation and resulting concepts or misconceptions were examined.

Reflexivity

In the research process, reflexivity – a continuous examination of the interaction between the researchers and the research process - is considered a sign of qualitative research rigor (Jootun et al., 2009). In particular, the multiple identities of researchers play a major role (Olukotun et al., 2021), which is why we now reveal the relevant identities of those involved in the research and publication process. All authors work in the field of addiction research. Some also work in (psychological) therapy at a hospital, including addiction therapy and counselling (Authors 1, 3, 4, 5 & 7); others mainly work in the field of health research (Authors 2 & 6). Some authors see themselves as feminists and pursue the goal of gender-sensitive and gender-appropriate addiction research and addiction therapy (Authors 1, 2, 3 & 7). In this context and regardless of gender, a supportive alcohol policy is preferred that is neither discriminating, paternalistic nor punitive. The authors neither disagree with the recommendation to avoid alcohol during pregnancy, nor deny that any amount of alcohol poses a health risk to the embryo/fetus. The authors' sole aim is to shed light on various aspects of stigmatization and to this end we represent a public health approach. One concern particularly important to the authors is to promote the concept "Less alcohol is (always) better (for everyone)" within the general population.

Ethical aspects, data privacy and translation

The posts from the forums and blogs used in this research are freely accessible on the internet. Although the contributors have not explicitly agreed to the use of their posts for research purposes, it can be assumed that they are aware of the fact that any posts freely accessible and available on the web, can basically be used for any purpose (Bruckman, 2002; Harriman & Patel, 2014). The study was approved by the Ethics Committee of the University of Tübingen on 29/11/2018 (project number 852/2018B02). More recent guidelines on ethical aspects of internet research suggest the researcher contact the author of the post

and request consent, after data analysis but before any citation is published (Franzke et al., 2020). Based on the research team's experience with the interview method in an earlier study on alcohol use during pregnancy, it was decided against using that method here - for a topic even more sensitive. The previous study had shown that potential participants experienced stress as early as in the recruitment phase (Binder et al., 2022), emphasizing the cardinal importance of privacy protection. To that effect, we strictly respect privacy rights and protect identities by the following measures: In order to safeguard personal data, public names and screen names used online for posts or comments were not included in the analysis and did not feature in the results. Any references to personal identity were anonymized. To avoid the risk of individuals being "re-identified", no reference is made to the forum or blog name. Even without a real name it is still possible to identify an individual by linking together information or data that can be closely connected to that particular individual, thus "revealing" their identity. The following measures were taken to ensure secure data storage: once downloaded, online dialogue was stored in text form (Word document) on a secure server at the University Hospital to which only the research team had access. The Word documents were imported to the software MAXQDA, for further analysis; this was critical to process the large volume of data. The corresponding files were also stored on the same secure server. To ensure accuracy in translation, we used a forward-backward translation technique involving a native speaker (AF) and a person from the research team (Author 1) to translate the selected quotes.

Results

Using the data collected, we have been able to conduct an in-depth analysis of stigmatizing and self-stigmatizing beliefs associated with alcohol use during pregnancy. Five overarching themes were generated: (1) low alcohol health literacy as a breeding ground for stigmatization, (2) abstinence as a prerequisite for qualifying as a "good mother" (stigma and self-stigma), (3) consequences of stigmatization (or self-stigmatization), (4) the role of the partner, responsibility, and consumption, and (5) critiques of the current "zero alcohol during pregnancy" recommendation and how it is conveyed. Sub-themes are also identified and assigned accordingly.

As indicated above, results regarding possible reasons for continuing to use alcohol during pregnancy, and in which situations, have already been published elsewhere (Binder et al., 2021). In brief, the "image of motherhood" emerged as a core concept of the grounded theory analysis. The analysis highlighted that attitudes towards alcohol consumption during pregnancy were influenced by pregnant women's self-perception (the same applies to those who were already mothers) and personal conceptions of the role of motherhood. Redefining one's own role seems to be a dynamic process, especially for those who are pregnant for the first time. It became clear, that when trying to redefine their own role, pregnant women may find themselves caught in a triangle of tension, i.e., between the welfare of the child, individual self-image and the needs arising from the new role as a mother. Depending on which aspect dominated, different reasons for consuming alcohol, whether once or on several occasions, were identified (Binder et al., 2021). This core concept was also a guiding aspect in the in-depth analysis of stigmatizing elements.

Illustrative quotes were selected to provide an insight into the material. Due to privacy reasons, screen names were removed before presenting the results. Any references that could make a person identifiable were either removed or modified. Individual posts were numbered consecutively by discussion thread and sub-section. For instance, a quote referred to as 2_32 can be found in discussion thread number 2, sub-section 32. A text in square brackets [...] is additional information given by the research team to better understand a quote.

Low alcohol-related health literacy as a breeding ground for stigma

The analysis showed that the interpretation of the "zero alcohol during pregnancy" recommendation was a subject of controversy in the forums. Many participants took a strong view and interpreted the "zero alcohol" recommendation as analogous to the recommendation for abstinence among people with alcohol use disorders, including avoiding products with "hidden alcohol" such as pralines and sauces. The following quotes show the lack of knowledge about alcohol, in particular, the alcohol content (percentage of ethanol) contained in beverages or food.

"Think about how quickly two glasses of wine make you feel tipsy and it makes you wonder for example, what just one of those little Mon Chéri chocolates [filled with 0.66 g cherry liqueur] must do to such a tiny little being that is still developing." (6_44)

"Personally, I think it's irresponsible to drink even one glass of sparkling wine on New Year's Eve. Imagine how tiny that little being growing in your tummy is - it'll be absolutely drunk from one glass and hasn't even been born yet. Sorry, but I do not understand that. I'm quite happy to go without, for my baby's sake. Please, even that one sip can be dangerous. And if you're not addicted, then you can go without that drink on New Year's Eve." (7_135-136)

The last quote makes reference to a popular public health message featured in many prevention campaigns in German-speaking countries (i.e., even one sip can be dangerous), but which is also used internationally and independently of pregnancy [No level of alcohol consumption is safe for our health, (WHO Europe, 2023)], At the same time, women who choose not to abstain or who could not abstain from alcohol were indirectly labeled as "dependent" (see above: last sentence of the last quote). Other parts of the discussions reveal the perfectionist lifestyle that pregnant women demanded of themselves - and of others. A discussion about accidentally eating chocolates containing alcohol illustrates this.

Thread creator: "Now I've just eaten two of these chocolates and noticed they taste slightly of alcohol. According to the ingredients it is real alcohol not alcohol flavouring. So now, there's a kind of basic question ... Is it OK to eat these when you're pregnant (because of the low alcohol content - as long as it's not one of those liquid centre chocolates filled with spirits that I obviously wouldn't give to a child anyway) or should you keep away from them completely because **no** alcohol should be taken literally and mean no alcohol whatsoever?" (3_7-8)

Reply #1: "In my opinion if you eat chocolate but don't know it contains alcohol, OK, you can't help it but if you do know, why eat it? I mean, why not eat normal chocolate without alcohol? It tastes just a good or maybe even better. I'm totally against things like that because no one knows how much alcohol is safe to drink during pregnancy without harming your baby and that is exactly why you shouldn't risk it." (3_22-24)

Reply #2: "Yes, I read the ingredient list on things I eat, especially if I'm unsure as to whether I should be eating them!" (3_41)

Reply #1 shows a readiness to "excuse" accidental consumption, but as soon as even the smallest amount of alcohol is *knowingly* consumed, there are doubts as to whether the pregnant woman is exercising sufficient self-control and a degree of failure is attributed to her. Whilst the argumentation regarding the abstinence recommendation aligns with current evidence-based recommendations, still a certain degree of lack of alcohol health literacy can be assumed. The amounts discussed are so small that a serious risk for the child are unlikely. Reply #2 illustrates the will to completely comply with a strict interpretation of the recommendation to abstain; it also shows the resulting uncertainty and the necessity of putting more effort into everyday life and strictly

checking all foods.

Abstinence as a prerequisite for qualifying as a “good mother”

Overall, the picture of a “perfect mother” was drawn in many discussions. In terms of the tension triangle (one of the core concepts) i.e., between the child’s well-being, autonomy and needs in the context of the new role, a particularly large number of discussion participants aligned their personal image of motherhood with that of the child’s well-being. Women who used alcohol during pregnancy were subject to stigmatization by comments posted by people with a different perspective. It was frequently indirectly denied that it can be challenging or difficult to remain abstinent and adopt a healthy lifestyle during pregnancy. Thus, women who consume alcohol during pregnancy were held responsible for their behavior and possibly risking an adverse birth outcome.

“... really, a responsible mother should be so concerned about her baby’s health that she doesn’t question going without anything that could harm the baby.” (7_81)

In addition, the length of pregnancy was played down (framed as “a few weeks” rather than 40 weeks), to emphasize how insignificant the effort associated with the requirement, is.

“But I don’t think doing without should be too difficult for those few weeks.” (3_131)

Thus, in discussions, the mother’s own effort to abstain from alcohol was not considered “great” or worth mentioning, so a kind of self-stigmatization occurs. Also in the following quotation, the child is brought into focus in a very harsh and moralizing way, while control and self-discipline are demanded of the mother.

“For the sake of your unborn I hope it really was a slip ... perhaps you should try and get a better grip on yourself ... you can’t rely on the saying that once counts as never ...” (5_80–81)

Additionally, highly stigmatizing statements were made about women who failed to stay abstinent even though they really wanted to. The following quote illustrates this point:

“(...) because if you can’t manage to go without alcohol for 9 months, you’re certainly not going to manage to be a responsible mother for 18 years ...” (7_82)

Through not maintaining total abstinence from alcohol for nine months, this person is framed as incapable of taking responsibility for another person - in this case their child. It is particularly worth mentioning that this derogatory statement was made about women with single or infrequent consumption of small amounts of alcohol (e.g., one glass of wine, three times throughout the entire pregnancy), thus, generalizing the behavior and deeming it invariable. This ties in closely with the core concept of being a “good mother”, by conveying that mothers should make their personal image of motherhood a top priority, have the best interests of the child in mind, not only during pregnancy, but at least for the first 18 years. The wording of the following quotation also fits in with this, classifying alcohol as a “drug” - which it is - but, it’s unusual in the German context and has more negative connotations, i.e. akin to doing something illegal.

“Totally unacceptable. Just a little or just now and again – no way. It is absolutely irresponsible and if you can’t go without drugs [this thread was about alcohol] you shouldn’t have children either, it’s as simple as that. Either one or the other.” (7_73)

Concordantly, women who had not taken on the role of the “perfect mother” starting from the initial desire to become pregnant, tended to devalue themselves by agreeing with stigmatizing beliefs and self-applying them (i.e., self-stigmatization).

“I deliberately chose not to use any type of contraception but I didn’t expect to become pregnant in the first practice cycle [this refers to the female cycle and to the interval between contraceptive discontinuation and pregnancy] and behaved so immaturely ...It was my first holiday for 7 months. I have rarely let myself go like that. No physical exercise, dyed my hair, sunbed, sushi, alcohol, cigarettes, convenience foods ...” (4_56–57)

At the same time, the discussions showed that the desire for perfection competes with many challenging aspects of pregnancy, and triggers ambivalence in some women – also with regard to their own behavior, as the following quote shows:

“I had a glass of red wine at Christmas, a glass of sparkling wine on New Year’s Eve - and then felt guilty, despite the fact that my midwife had “allowed” me to do so beforehand. At the same time, I welcomed the opportunity and longed to indulge in that one glass of red wine towards the end of my pregnancy which had been difficult at times; I genuinely looked forward to it.” (2_35)

Consequences of stigmatization and self-stigmatization

The forum and blog posts show that many of the women associated high demands with motherhood; these included external constraints that they accepted for themselves and also expected of others i.e. of every mother and every pregnant woman. It seems there was a desire not to make mistakes and not to have to reproach oneself for failure in the future.

“Yes, of I course I follow these rules. After all, most of them are about eliminating risks. Risks for the unborn child, the risk of premature birth, permanent damage or disabilities. Risks sometimes within a permille range. But I don’t want to be accused by my child later that I did something wrong, do I?” (9_12)

Individuals developed a guilty conscience even after accidentally ingesting a minute amount of alcohol. Communication around health risks in public health promotion could play a crucial role here. It seems that by putting the focus on total abstinence, there is a risk of extreme interpretation, especially with regard to alcohol in foods. Additionally, the particularly high demands that mothers make of themselves in an attempt to avoid any risk, is reflected in these stressed emotional reactions. The fear of having harmed the child will likely have negative effects on self-esteem, which leads to self-stigmatization and an assumed lack of ability to adequately fulfil the role of the mother.

“I had a guilty conscience at Christmas after a meal at my Gran’s. She’d done a roast and later someone told me she had put a dash of schnapps in the gravy oh my goodness, talk about having a really guilty conscience.” (6_34)

At the same time, some of the discussion forum participants expressed feeling burdened because they could not meet either their own or perceived societal expectations of the role of mother to the required “degree of perfection”. Here the “why try” effect (Corrigan et al., 2016) can be observed; this person no longer believed that she would be able to fulfil her own expectations and therefore abandons her original intention which was to remain abstinent.

“I’m 38 weeks pregnant (for the first time) and am almost collapsing under the crushing weight of the expectations mounting up. I have dutifully read various pregnancy guides and recently I also read a book about what to expect with a newborn. That left me feeling depressed. Because it suddenly became clear to me that I cannot fulfil this demand for perfection. I am not a - ta-da! - perfect person.”

(2_34)

This shows that some women tried to accept “not being perfect” as a new self-image. Some of them described the attempt to free themselves

of self-stigma by deliberately violating social norms and rules, such as the recommendation to remain abstinent.

"I think the best thing you can do for your child is to somehow get rid of the idea that you have to be perfect. Fail and do so with pleasure!" (2_69)

This could also be interpreted as an attempt to re-empower themselves, whereby the focus changed and became centered around the needs of the mother, rather than on the child's well-being, so as to avoid self-stigmatization. At the same time, they clearly distanced themselves from women whose primary focus was the child's well-being and devalued them.

"I thoroughly agree with you when it comes to the paternalism of (expectant) mothers and this hyper-hysterical fuss "what's best for my child? - dreadful." (2_122)

These attempts to "cure" oneself from stigma can be theoretically framed in the sense of sociologist Erving Goffman's understanding of stigma and identity. The concept in his classic work is based on the fact that those affected have a "spoiled identity", but by actively working on this, can actually restore a "normal" or "unspoiled" identity (Goffman, 1963). This sociological perspective on the idea of being able to repair a "damaged identity" can contribute to a deeper understanding of individual behaviors related to alcohol consumption during pregnancy.

The role of the partner, responsibility and consumption

This topic was not defined as a subject of investigation in the original research questions. Thus, the search for appropriate threads was not directed accordingly, so the material in this area is possibly less rich than the material that relates to the core research questions. Nevertheless, some aspects of the discussions provided interesting findings, although overall, there were few references to a partner and their supportive or unsupportive behaviors. There was only one post in which a participant talked about her partner who also abstained from alcohol in order to support her. The woman's choice of words was interesting as it highlights a discrepancy - she has already renounced "everything", whereas her partner seemed to have a choice. He opted to abstain from alcohol but was not prepared to stop smoking.

"... nor does my husband; he always says, if you don't drink I won't either because I've given up everything already and personally, I think that's great but he does still smoke." (7_93)

The other women participating in these discussions only talked about how much they renounced alcohol (and other things that are not recommended during pregnancy) and how they managed this.. Whereas there were many comments of this nature, there were no further references to any form of partner support, i.e., an encouraging attitude either emotionally or physically.. In one discussion about the interval between discontinuation of contraception and pregnancy, the general call for both men and women to abstain from alcohol when trying to conceive is addressed. This claim is subsequently put into perspective in this quote:

"Of course it would be sensible to stop drinking alcohol if you want to get pregnant (your partner too) - but we are all only human..." (4_21)

It was interesting to follow a thread created by a pregnant woman who had chosen to remain abstinent during pregnancy but, who after an argument with her partner impulsively engaged in alcohol consumption.

"I had such a terrible row with my boyfriend today. And it was so intense that I got really upset, smoked 2 cigarettes and drank a glass of 5.9 % alc./vol. strawberry champagne because I felt so frustrated." (5_8)

In the subsequent discussion however, the focus was only on the pregnant woman, her responsibilities and "guilt". Aspects such as shared

responsibility in a relationship and the unsupportive behavior displayed by the partner in the context of the conflict were left unmentioned. This reflects a typical attitude expressed in forum posts. It was usually left up to the woman to assume the main responsibility for a healthy pregnancy, even if the root causes of alcohol use laid within the relationship or the socio-cultural environment.

A question about the possible effects of a father's alcohol consumption was briefly raised in one discussion:

"What actually happens if the father is an alcoholic? I hope it's not a stupid question, but it's something I began to wonder about while I was reading" (7_68)

One important point here is, that again, the discussion refers to "alcoholics", endorsing the classification previously made by members of the forum when referring to a pregnant woman who consumes alcohol as an "alcoholic-mother". At the same time, this most closely reflects society's view that moderate alcohol consumption is acceptable, whereas anything above those "acceptable" levels or outside of "acceptable" situations represents a disorder-like behavior. So only "alcoholics" - without defining what is meant by this term - and the possible effects of their behavior on reproductivity are addressed. Further into the discussion, there was brief reference to alcohol use by men and that it did not seem to have any negative effects on the offspring (and reference was made to an article from the German Medical Journal - *Deutsches Ärzteblatt*). The subject of domestic violence under the influence of alcohol, especially against pregnant women, was neglected. Subsequently, the discussion steered towards the subject of potentially harmful behaviors displayed by (pregnant) women which was expanded on - now adding the topic of smoking to alcohol consumption.

Critique of the "zero alcohol during pregnancy" recommendation

In some discussions, especially those that focused on emancipated pregnancy and parenthood, criticism was voiced about the implementation of the "zero alcohol during pregnancy" recommendation; in particular, with regard to the use of what were subjectively perceived as intimidating elements, such as imposing a ban rather than encouraging personal responsibility. This was experienced as a kind of incapacitation, which was associated with a fearful attribution of responsibility for the well-being and health of the child.

"Instead of explaining about which amounts of alcohol are considered risky and what the risks are, a complete ban has been imposed on us. We are deprived of our freedom of choice and are made to feel as if the fetus in our tummy is permanently at risk of dying." (9_14)

Even in forums without a specific focus, some of the women indicated the need for an evidence-based approach to education, and information about consumption levels and the associated risks.

"I understand it's difficult with terms like 'much' and 'little' because of subjectivity. But at the same time, most studies have actually defined 'moderate consumption'. So it should also be possible to spread information about the definition of 'moderate amounts'." (2_24)

One person adds that societal circumstances which make it difficult to remain abstinent may also be masked by an excessive attribution of responsibility to each individual pregnant woman.

"It seems that the 'mother blaming' strategy is at work here. People tend to blame mothers for problems that are actually social issues (poverty, cuts to psychological counselling services, etc.). That means the focus is on individual mothers who are seen as the cause of the problem." (8_18)

Discussion

To the authors' knowledge, this is the first study that explores all aspects of the concepts circulating in online forums with regard to the "zero alcohol during pregnancy" recommendation in Germany. The aim of the study was to identify and investigate reported experiences and views on maternal drinking in terms of public stigma and self-stigma. Based on analysis of forum discussions, it can be deduced that the current practical implementation of the "zero alcohol during pregnancy" recommendation may subvert alcohol health literacy. It appears that by focusing too narrowly on total abstinence, the current method of communicating the "zero alcohol" recommendation may be undermining important dialogue between pregnant women and health professionals and thereby eroding critical health literacy, which not only emphasizes individual skills required to maintain good health, but also draws attention to the social determinants of alcohol use (Okan et al., 2020). This could prevent women from asking specific questions or talking about a personal desire to consume alcohol, possibly ultimately resulting in "hidden" consumption. Rather, a medical visit should provide a safe place to talk openly about alcohol consumption during pregnancy, thus promoting alcohol health literacy. From an ethical perspective, like Gavaghan (2009), we believe a paternalistic attitude i. e. not clearly communicating risks in order to avoid misunderstandings, can lead to even more severe consequences. This practice may undermine alcohol health literacy related to pregnancy and beyond. This is particularly critical, since health care professionals not only provide printed information, but also inform people about making healthy choices relating to alcohol use during pregnancy (Tsang et al., 2022).

With regard to alcohol health literacy, our analysis further reveals that there was poor understanding of the concept of alcohol content and standard drinks. This was illustrated in discussions about very small amounts of alcohol, where it appeared that alcohol content and consequently, the associated risks were greatly overestimated. Therefore, a nuanced discussion about the alcohol content in foods and drinks - as well as the effects thereof - would help to promote healthy pregnancies by facilitating a better understanding and encouraging better choices. This is also about creating space for health education and obviously does not mean talking about "safe levels of consumption". Here, Danish health risk communication (Danish Health Authority, 2023) should be brought into play as it provides detailed information about the health risks associated with alcohol consumption during pregnancy and also emphasizes that there is no conclusive evidence that defines a safe level of consumption. Thus, the Danish Ministry of Health explains why they too recommend not to drink alcohol during pregnancy. However, more concrete knowledge would be helpful for women and reduce anxiety or the risk of adopting self-stigmatizing ways of thinking if, for example, accidental consumption occurs. This is important because self-stigma can lead to reduced self-efficacy and create barriers to seeking professional support (Hanschmidt et al., 2017; Probst et al., 2015). It is important, that while the responsibility for the discussion on alcohol-related health harms clearly lies with health professionals, they often lack the relevant knowledge themselves (Chiodo et al., 2019; Stiegler et al., 2016). With a focus on harm reduction, we recommend three strategies be pursued: First, health professionals must be better educated on the health risks of alcohol, not just during pregnancy but generally; this includes raising awareness about the causes and dangers of stigma. Second, by reframing the current abstinence-based recommendation, stigma and self-stigmatization could be reduced; this, in turn, could have a positive effect on the number of pregnant people using support services, including (psychological) counseling. Reframing should therefore address pregnant women and those planning a pregnancy, and emphasize the fact that it is not easy to remain abstinent, that it's not simply a "matter of course" and can be challenging and requires effort. A slogan like this, "Are you planning your pregnancy without alcohol? Get the support you deserve here!" could normalize the need for support and open up communication on this topic. Finally, it is

fundamentally important to change the public's attitude towards alcohol, which makes a second message essential: "Less alcohol is always better for your physical health." as was recently adopted in the new recommendations on drinking, issued by the German Centre for Addiction Issues. (Deutsche Hauptstelle für Suchtfragen e. V., 2023).

Extensive research has highlighted major barriers to communication regarding the conversation about alcohol use during pregnancy that health care professionals should be having with pregnant women who attend prenatal care check-ups. (Chiodo et al., 2019; Oni et al., 2019, 2020). A qualitative study from Germany revealed various reasons for barriers in communication on this subject, such as a lack of confidence to talk about alcohol use during pregnancy and fear of deteriorating the doctor-patient relationship (Stiegler et al., 2016). According to our analysis, "silence" on the part of health care professionals, particularly the reluctance to address the risks of even small amounts of alcohol during pregnancy, appears to have detrimental effects. Avoiding communication about specific risks leaves room for interpretation; pregnant women and society in general, correlate the "zero alcohol" recommendation with abstinence, in the context of patients with alcohol use disorders. This very strict interpretation of abstinence which focuses on avoiding even the smallest amounts of "hidden alcohol" - a misconception - can, for some pregnant women, mean that they repeatedly get into situations in which they cannot meet the standards they set for themselves, thus provoking self-stigmatizing beliefs.

It is also striking that while the "zero alcohol during pregnancy" recommendation is just that, i.e., only advice given from a medical point of view, it is sometimes understood as a legal ban, despite the fact that women in Germany face no legal consequences for using alcohol during pregnancy. There is no threat of penalties or legal coercion associated with the German recommendation, yet, some - especially emancipated - women seem to frame it as a legal ban and thus perhaps also associate a punitive dimension with it. In this respect, the US provides an interesting setting, as some states have policies and laws regarding alcohol use during pregnancy classified as punitive, whereas others are supportive. Research has shown, that compared with no policies, supportive and punitive policies do have small effects on amounts and the frequency of alcohol consumption (Roberts et al., 2019). Some authors critically note that punitive policies in particular, may have negative effects on the health of the pregnant woman and the fetus (Roberts et al., 2021; Subbaraman et al., 2018). It was also highlighted that punitive policies targeting alcohol during pregnancy seem to be closer to the field of restrictive policies on reproductive rights, than to those aiming to reduce the health harms of alcohol use in the general population (Roberts et al., 2017). Little data is available from European countries. According to the authors, a review of Polish public health efforts showed that current measures are insufficient and do not meet the needs of pregnant women to remain abstinent. One main reason was that inadequate communication strategies were used to target women who did not fully reject alcohol consumption during pregnancy or who drank only moderately (Okulicz-Kozaryn, 2022). In this context, it is important to remember that punitive measures are likely increase the risk of structural stigma towards women who use alcohol during pregnancy, which is potentially counterproductive to prenatal care. While our focus was on public stigma and self-stigma, our analysis of the online data reveals rigid societal norms on "perfect" motherhood. It was noticeable how often the idea of the "perfect mother", and what it is that makes her perfect, featured in the discussions. Effortless and self-sacrificing abstinence from alcohol and everything else that the community considers potentially harmful for the child seems to be a core characteristic. In this regard, a dichotomy has been created between a "responsible mother" who does not consume alcohol and - even if only small amounts of alcohol are involved - and an "irresponsible alcoholic mother". By creating this powerful dichotomy, every woman who diverges from the ideal image is indirectly labeled as deviant and is thus vulnerable to prejudice and potential discrimination - for example, by denying that this woman can take care of her child. In a study of media portrayal of

gender in Sweden, it was also established that a “responsible mother” there, is construed to be a woman who completely abstains from alcohol (Bogren, 2011). Similar results were obtained by Day et al. (2004) in a study of British media reports on alcohol consumption during pregnancy. This could be the reason why, especially those women who strive to remain abstinent and have internalized an unachievable ideal image, develop self-stigmatizing thoughts, since probably every pregnant woman displays behavior that diverges from the ideal in some way. In extreme cases, this self-stigmatization could lead to the “why try” effect (Corrigan et al., 2016), preventing pregnant women from still wanting to abstain from drinking alcohol or from seeking help. Since the “why try” effect is an internal psychological phenomenon, only indirect evidence was found in our data. However, online dialogue creates such a powerful image of the “perfect mother” that anyone from the online community may experience self-stigmatization, triggered simply by reading these remarks. It is important to emphasize that any disclosure made in our data, only ever referred to low or occasional alcohol use which indirectly suggests that other consumption patterns are more taboo.

Studies of other health-related lifestyle factors, such as smoking or obesity, also showed that government health campaigns actually designed to disseminate information and promote certain behaviors, may trigger dichotomous views of “good” and “bad” mothers. This further stigmatization is an unintended adverse consequence that not only undermines behavior change, but also effectively labels mothers as “good” or “bad” (Oaks, 2000). Based on the results of their meta-ethnographic analysis, Taylor et al. (2023) call for a critical examination of the unintended consequences of the current approach to public health. From the results of our analysis, it can be assumed that the “zero alcohol during pregnancy” recommendation and related health campaigns could foster this categorization and therefore also increase stigmatization.

As the analysis showed, it was reported that women reacted to the “zero alcohol during pregnancy” recommendation, by making high demands of themselves and of their behavior, e.g., avoiding even the smallest amounts of alcohol in food. In addition, resulting burdens such as feelings of inadequacy or intra-individual role conflicts were observed. It is well known that mothers and pregnant women strive to meet society’s expectations of a “good mother” by seeking and following expert advice disseminated by medical professionals, childbirth classes, and pregnancy guides (Miller, 2017). In recent years, web-based health information searches and social media have played an increasingly important role in this regard, both internationally (Bäckström et al., 2022; Lupton, 2016; Taştekin Ouyaba & İnfal Kesim, 2021) and in Germany (Jaks et al., 2019; Wallwiener et al., 2016). Being a “good mother” often means putting children first. As per societal norms, a mother should be child-centered and self-sacrificing (Hays, 1996; Lamar et al., 2019; May, 2008), which can be classified as an unfulfillable “ideology of the expectant mother” (Copelton, 2007). In line with this, signs for the prevalence of social stigma, were found in an analysis of alcohol-related tweets (X, formerly known as Twitter) in the form of negative sentiments and critical attitudes targeting mothers who drink alcohol (Culp et al., 2022). Morality and stigma play an enormous role in the broader consequence of maternal consumption regarding FASD and maternal responsibility (Armstrong, 2003; Armstrong & Abel, 2000; Corrigan et al., 2017; Roozen et al., 2020). Biological concepts of addictive diseases as brain diseases can lead to inherent stigmatizing beliefs in general (Kvaale et al., 2013; Speerforck et al., 2014) and this is particularly the case with regard to alcohol consumption during pregnancy (Racine et al., 2015). This may explain one interesting finding from our study, namely that alcohol consumption during pregnancy was - in some respects - equated with addiction. Consumption was discernibly seen as a behavior of mothers with addiction, i.e., who have a biological illness. We can therefore presume, that the assumption found in our data, that strict measures are necessary to maintain abstinence and concerns about “hidden alcohol” stem from that.

In fact, many clinicians, researchers and some members of the public adopt ideas about mental illness from the biopsychosocial model, which highlights that human health is shaped by complex interrelationships between biological, psychological and social factors (Barnett et al., 2018; Ochterbeck et al., 2023). It must be remembered, that for a long time, addiction was seen as a “malady of the weak-willed”. Developments in the field of neuroscience played a significant role in the paradigm shift and today, addiction is believed to be a biological disease. Nevertheless, both concepts are still found in the population today. This, among other things, is shown by surveys on stigma (Andersson & Harkness, 2018; Kilian et al., 2021). Interestingly, there seem to be specific cultural schemata, namely beliefs about illness, that influence which concept is more likely to be accepted and how it is interpreted (Andersson & Harkness, 2018). This can cause multiple formal logics to develop. In our analysis we found a dichotomy between constructions of the woman with addiction who is considered an irresponsible mother and constructions as the responsible, self-disciplined mother. Although it seems that the participants have dichotomously classified the two concepts, they are not fully complementary in their respective inner logic; in some respects, they actually appear to contradict one another. Interestingly, this dichotomy is also reflected in prior research that indicates health care professionals tend to neglect low to moderate consumption as they consider alcohol dependence unlikely in certain groups and consequently are less likely to address the topic of alcohol in these contexts (Dozet et al., 2021; Oni et al., 2020; Stiegler et al., 2016). Similarly, in the discussions analyzed, particular emphasis was placed on the personal responsibility of individual women who were not considered to be “addicted”, but thought to be consuming alcohol at low to moderate levels. This is also the case in many German-language campaigns on the prevention of alcohol consumption in general and on alcohol consumption during pregnancy. On the other hand, the responsibility of the partner or social environment was rarely discussed or addressed in the data we analyzed. This is also denounced by authors who complain that in contemporary public health there is a strong focus on personal responsibility and choices, which leads to punitive blame being directed at the individual, while broad social influences and inequalities are neglected (Bell et al., 2011). A recent meta-ethnographic analysis also concludes that alcohol use during pregnancy cannot be viewed in isolation, i.e., as an individual behavior disconnected from women’s social circumstances and culture (Taylor et al., 2023). However, given the role of alcohol as a risk factor for intimate partner violence (Crane et al., 2016; Foran & O’Leary, 2008) - and in particular against women during pregnancy - the topic of alcohol use is important for everyone. At the same time, it seems contradictory to shift the responsibility onto women when there are practically no restrictions on the availability of alcohol in Germany (Kilian et al., 2023). In Germany, the concept of alcohol as an ordinary commodity is widely accepted and alcohol is largely unregulated (Babor et al., 2022), while certain alcohol-related behaviors are strongly rejected and condemned (Kummetat et al., 2022). This applies not only to women during pregnancy but also to people with alcohol use disorders (AUDs).

In the data, there were explicit references to the current application of the “zero alcohol during pregnancy” recommendation and how it is perceived to reflect a “mother blaming” attitude. This highlights reduced confidence among some people in our study, around a supportive public health measure, aimed at reducing alcohol use during pregnancy. This also matches up with the critique of feminist researchers who have noted an increasing focus on the individual behavior of mothers in pregnancy care since the last quarter of the 20th century (Kaur & Ricciardelli, 2020; Richardson et al., 2014). This trend is also reflected in broader research efforts on the developmental origins of health and illness. The research findings generated by these efforts are leading to a shift in clinical focus, public policing, and media attention to maternal behaviors (Sharp et al., 2018). There is little data on the behavior of men who are already parents or whose partners are pregnant, especially regarding alcohol consumption. A study of fathers from

England showed that while 31.7 % of former smokers stopped smoking due to fatherhood, only 17 % of fathers abstained from alcohol consumption during pregnancy (Shawe et al., 2019). A cohort study from Finland showed no significant reduction in alcohol consumption by fathers during pregnancy (Voutilainen et al., 2022). One review summarizes that although the transition to fatherhood is seen as a “teachable moment” regarding alcohol use, this behavior is rarely the subject of research (Dimova et al., 2021). This is consistent with our findings which reflect that little attention is paid to men’s responsibilities and behaviors – both in discussions about what triggers consumption and in the realities of pregnant women’s lives.

Strengths and Limitations: The use of data generated independently from the research process was well-suited to analyze the sensitive topic of alcohol consumption during pregnancy by minimizing social desirability bias, which can be triggered in topic-specific interviews involving researchers. One benefit of using data from online discussions is that strong opinions and perspectives are commonly expressed in anonymous online forums. This helped facilitate a more detailed investigation of processes of relating to stigma and self-stigma. Nevertheless, there are some caveats. Our findings are limited in that they stem from a qualitative sample. The sample neither reflected the total population of women in Germany, nor were we able to describe the characteristics of our sample, as it was possible to post anonymously in the online forums. It is likely that in particular, women who belong to minorities, e.g., migrant women, are not well represented, especially those with limited written language proficiency. In addition, the views of young people may be under-represented as their preferred channels of online communication, e.g. social media (TikTok, Instagram, etc.), were not included in our sampling process. It would have been preferable to have more information about the women who participated in the online discussions, such as social background and data on alcohol consumption patterns before and during pregnancy. However, this is not necessary for an initial understanding of the stigmatizing and self-stigmatizing dynamics in discussion forums, which was the objective of our research. Due to the lack of socio-demographic data, it was not possible to explore the concept of intersectional stigma. Further studies on this important aspect would be beneficial.

As the research project took several years to complete and our data consisted of online posts, mainly written during a 3-year period, ending in February 2019, it is important to reflect on whether our research findings can still be considered relevant at the time of publication. However, there is research which shows that stigmatizing beliefs towards AUD in Germany have remained unchanged over many years (Schomerus et al., 2014, 2022). While this research does not specifically focus on the stigmatization of women during pregnancy, we do not expect any divergent trends. This is supported by the absence of any significant shift in alcohol policy (Kilian et al., 2023) and the return to traditional gender roles, which has been exacerbated in Germany during the COVID-19 pandemic (Hipp & Bünning, 2021). Similarly, FASD is gradually becoming better known in Germany, yet the risks associated with alcohol during pregnancy are still underestimated, not only within society as a whole but also among healthcare professionals.

Anonymous online communication may provoke judgmental statements; more drastic wording is used in posts directed at people who think or act differently and may also lead to prejudice (Rier, 2007; Schlosser, 2020) which we elaborated on in a previous study, part of which was published elsewhere (Binder et al., 2022). Since mothers were the main focus of the analysis and central to the main research questions, the role of the partner was not comprehensively considered in the sampling process with regard to data saturation. This means that the material is probably not quite as rich as in these areas. We believe that these caveats provide important starting points for future research on this topic.

Conclusion

Given that pregnancy is associated with moralising and potentially stigmatising beliefs, it is not surprising that alcohol use during pregnancy is subject to stigmatization and self-stigmatization in online discussions. Public health communications in Germany describing the “zero alcohol during pregnancy” recommendation state “Even the consumption of small amounts of alcohol during pregnancy can severely disrupt the physical and mental development of your child.” (Federal Centre for Health Education, 2022). This kind of wording can foster stigmatization and self-stigmatization of women who consume alcohol during pregnancy by creating a dichotomy of “good” and “bad” behavior. However, we argue that the key message of this advice, i.e., that any amount of alcohol during pregnancy constitutes a potential health risk to the baby, should be maintained. Moreover, our findings highlight that it is imperative to convey abstinence messaging in an appropriately informative, balanced and rational - rather than emotional - manner, to avoid unintended negative consequences such as stigmatization. In addition, our findings indicate there is a need to promote alcohol health literacy within society at large (Manthey et al., 2023) and to implement cost-effective alcohol control policies to reduce exposure to alcohol in day-to-day life and lead to an overall reduction of alcohol consumption (Babor et al., 2022; World Health Organization, 2021). Ultimately, our research highlights the need for discussions about alcohol consumption, especially in medical settings, such as routine health check-ups, and in particular with women of childbearing age. This requires training healthcare professionals and reducing barriers, including but not limited to the fear of stigmatization (Hanschmidt et al., 2017). Therefore, tailored interventions should be developed to enable women to remain abstinent during pregnancy. The stigma towards pregnant women must be considered when framing these discussions. Most importantly, possible negative consequences caused by stigmatization must be factored into the development of prevention and intervention programs; this can be achieved by including those most vulnerable to stigmatization in that process.

CRediT authorship contribution statement

Annette Binder: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Carolin Kilian:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Sara Hanke:** Writing – review & editing, Formal analysis. **Meryem Banabak:** Writing – review & editing, Formal analysis. **Clara Berkenhoff:** Writing – review & editing, Formal analysis. **Kay Uwe Petersen:** Writing – review & editing, Project administration, Formal analysis. **Anil Batra:** Writing – review & editing, Supervision, Project administration, Formal analysis.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- Andersson, M. A., & Harkness, S. K. (2018). When do biological attributions of mental illness reduce stigma? Using qualitative comparative analysis to contextualize attributions. *Society and Mental Health*, 8(3), 175–194. <https://doi.org/10.1177/2156869317733514>
- Angus, C., Holmes, J., & Meier, P. S. (2019). Comparing alcohol taxation throughout the European Union. *Addiction*, 114(8), 1489–1494. <https://doi.org/10.1111/add.14631>
- Armstrong, E. M. (2003). *Conceiving risk, bearing responsibility: Fetal alcohol syndrome & the diagnosis of moral disorder*. JHU Press.
- Armstrong, E. M., & Abel, E. L. (2000). Fetal alcohol syndrome: The origins of a moral panic. *Alcohol and Alcoholism*, 35(3), 276–282. <https://doi.org/10.1093/alcac/35.3.276>
- Babor, T. F., Casswell, S., Graham, K., Huckle, T., Livingston, M., Rehm, J., Room, R., Rossow, I., & Sornpaisarn, B. (2022). Alcohol: No ordinary commodity—A summary of the third edition. *Addiction*, 117(12), 3024–3036. <https://doi.org/10.1111/add.16003>
- Bäckström, C., Carlén, K., Larsson, V., Mårtensson, L. B., Thorstensson, S., Berglund, M., Larsson, T., Bouwmeester, B., Willhsson, M., & Larsson, M. (2022). Expecting parents' use of digital sources in preparation for parenthood in a digitalised society—A systematic review. *Digital Health*, 8. <https://doi.org/10.1177/20552076221090335>
- Barnett, A. I., Hall, W., Fry, C. L., Dilkes-Frayne, E., & Carter, A. (2018). Drug and alcohol treatment providers' views about the disease model of addiction and its impact on clinical practice: A systematic review. *Drug and Alcohol Review*, 37(6), 697–720. <https://doi.org/10.1111/dar.12632>
- Bayerisches Zentrum für Prävention und Gesundheitsförderung (ZPG) Bavarian Center for Prevention and Health Promotion. (2012). *Schwanger? Null promille! "Pregnant? Zero promille!"*. Bayerisches Zentrum für Prävention und Gesundheitsförderung (ZPG). Retrieved 10/1 from <https://www.schwanger-null-promille.de/information/>
- Bell, K., Salmon, A., & McNaughton, D. (2011). Alcohol, tobacco, obesity and the new public health. *Critical Public Health*, 21(1), 1–8. <https://doi.org/10.1080/09581596.2010.530642>
- Binder, A., Hanke, S., Petersen, K. U., Huber, C., Banabak, M., Preiser, C., & Batra, A. (2021). Meinungen zum Alkoholkonsum in der Schwangerschaft und zur diesbezüglichen ExpertInnenrolle von medizinischem Fachpersonal. *Zeitschrift für Geburtshilfe und Neonatologie*, 225(03), 216–225. <https://doi.org/10.1055/a-1299-2342>
- Binder, A., Preiser, C., Hanke, S., Banabak, M., Huber, C., Petersen, K. U., & Batra, A. (2022). Researching alcohol consumption during pregnancy. Opportunities and challenges with two methods of data acquisition. *Qualitative Health Research*, 32(12), 1809–1827. <https://doi.org/10.1177/10497323221119005>
- Blaylock, R., Trickey, H., Sanders, J., & Murphy, C. (2022). WRISK voices: A mixed-methods study of women's experiences of pregnancy-related public health advice and risk messages in the UK. *Midwifery*, 113, Article 103433. <https://doi.org/10.1016/j.midw.2022.103433>
- Bogren, A. (2011). Gender and alcohol: The Swedish press debate. *Journal of Gender Studies*, 20(2), 155–169. <https://doi.org/10.1080/09589236.2011.565196>
- Bond, J. C., Roberts, S. C., Greenfield, T. K., Korch, R., Ye, Y., & Nayak, M. B. (2010). Gender differences in public and private drinking contexts: A multi-level GENACIS analysis. *International Journal of Environmental Research and Public Health*, 7(5), 2136–2160. <https://doi.org/10.3390/ijerph7052136>
- Bronner, D. (2012). *Geschäftsbericht 2011 gemeinsamer bundesausschuss*. Berlin Retrieved from https://www.g-ba.de/downloads/17-98-3259/2012-06-19_GBA_GB%202011_WEB.pdf.
- Bruckman, A. (2002). Ethical guidelines for research online. http://www.academia.edu/download/30821087/irb_ethics_online.pdf.
- Bundeszentrale für gesundheitliche Aufklärung (BZgA). (2001). *Alkoholfrei durch die Schwangerschaft*. Köln.
- Bush, K., Kivlahan, D. R., McDonnell, M. B., Fihn, S. D., Bradley, K. A., & Project, A. C. Q. I. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*, 158(16), 1789–1795. <https://doi.org/10.1001/archinte.158.16.1789>
- Cataldo, I., Lieu, A. A., Carollo, A., Bornstein, M. H., Gabrieli, G., Lee, A., & Esposito, G. (2022). From the cradle to the web: The growth of "sharenting" - A scientometric perspective. *Human Behavior and Emerging Technologies*, 2022, 12. <https://doi.org/10.1155/2022/5607422>
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage Publications.
- Chiodo, L. M., Cosmian, C., Pereira, K., Kent, N., Sokol, R. J., & Hannigan, J. H. (2019). Prenatal alcohol screening during pregnancy by midwives and nurses. *Alcoholism: Clinical and Experimental Research*, 43(8), 1747–1758. <https://doi.org/10.1111/acer.14114>
- Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsch, N., Brown, J. S., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, 45(1), 11–27. <https://doi.org/10.1017/S0033291714000129>
- Copelton, D. A. (2007). "You are what you eat": Nutritional norms, maternal deviance, and neutralization of women's prenatal diets. *Deviant Behavior*, 28(5), 467–494. <https://doi.org/10.1080/01639620701252571>
- Corrigan, P., Lara, J. L., Shah, B. B., Mitchell, K., Simmes, D., & Jones, K. (2017). The public stigma of birth mothers of children with fetal alcohol spectrum disorders. *Alcoholism: Clinical and Experimental Research*, 41(6), 1166–1173. <https://doi.org/10.1111/acer.13381>
- Corrigan, P. W., Bink, A. B., Schmidt, A., Jones, N., & Rüsch, N. (2016). What is the impact of self-stigma? Loss of self-respect and the "why try" effect. *Journal of Mental Health*, 25(1), 10–15. <https://doi.org/10.3109/09638237.2015.1021902>
- Corrigan, P. W., Shah, B. B., Lara, J. L., Mitchell, K. T., Simmes, D., & Jones, K. L. (2018). Addressing the public health concerns of fetal alcohol spectrum disorder: Impact of stigma and health literacy. *Drug and Alcohol Dependence*, 185, 266–270. <https://doi.org/10.1016/j.drugalcdep.2017.12.027>
- Crane, C. A., Godleski, S. A., Przybyla, S. M., Schlauch, R. C., & Testa, M. (2016). The proximal effects of acute alcohol consumption on male-to-female aggression: A meta-analytic review of the experimental literature. *Trauma, Violence, & Abuse*, 17(5), 520–531. <https://doi.org/10.1177/1524838015584374>
- Culp, F., Wu, Y., Wu, D., Ren, Y., Raynor, P., Hung, P., Qiao, S., Li, X., & Eichelberger, K. (2022). *Understanding alcohol use discourse and stigma patterns in perinatal care on twitter*. Healthcare.
- Danish Health Authority. (2023). *Pregnancy and alcohol (Graviditet og alkohol)*. Retrieved 03.22. from <https://www.sst.dk/da/Viden/Foraeldreskab/Graviditet-og-foedsel/Information-til-gravide/Alkohol>.
- Das, R. (2017). Speaking about birth: Visible and silenced narratives in online discussions of childbirth. *Social Media+ Society*, 3(4), Article 2056305117735753. <https://doi.org/10.1177/2056305117735753>
- Davies, L., LeClair, K. L., Bagley, P., Blunt, H., Hinton, L., Ryan, S., & Ziebland, S. (2020). Face-to-face compared with online collected accounts of health and illness experiences: A scoping review. *Qualitative Health Research*, 30(13), 2092–2102. <https://doi.org/10.1177/1049732320935835>
- Day, K., Gough, B., & McFadden, M. (2004). "Warning! Alcohol can seriously damage your feminine health" a discourse analysis of recent British newspaper coverage of women and drinking. *Feminist Media Studies*, 4(2), 165–183. <https://doi.org/10.1080/1468077042000251238>
- DeJong, K., Olyaei, A., & Lo, J. O. (2019). Alcohol use in pregnancy. *Clinical Obstetrics and Gynecology*, 62(1), 142. <https://doi.org/10.1097/GRF.0000000000000414>
- Deutsche Hauptstelle für Suchtfragen e. V. (2023). *Empfehlungen zum umgang mit alkohol*. Retrieved 14.10.2023 from <https://www.dhs.de/service/aktuelles/meldung/neue-dhs-empfehlungen-zum-umgang-mit-alkohol>.
- Dimova, E. D., McGarry, J., McAloney-Kocaman, K., & Emslie, C. (2021). Exploring men's alcohol consumption in the context of becoming a father: A scoping review. *Drugs: Education, Prevention and Policy*, 1–12. <https://doi.org/10.1080/09687637.2021.1951669>
- Dozet, D., Burd, L., & Popova, S. (2021). Screening for alcohol use in pregnancy: A review of current practices and perspectives. *International Journal of Mental Health and Addiction*, 1–20. <https://doi.org/10.1007/s11469-021-00655-3>
- Dumas, A., Toutain, S., Hill, C., & Simmat-Durand, L. (2018). Warning about drinking during pregnancy: Lessons from the French experience. *Reproductive Health*, 15(20), 1–9. <https://doi.org/10.1186/s12978-018-0467-x>
- Erng, M. N., Reid, N., Moritz, K. M., & van Driel, M. (2023). Prenatal alcohol exposure risk perception dimensions and influencing factors: A systematic review and conceptual model. *Australian and New Zealand Journal of Public Health*, 47(3), Article 100047. <https://doi.org/10.1016/j.anzjph.2023.100047>
- Federal Centre for Health Education. (2022). *Alkohol in der Schwangerschaft Warum es wichtig ist, in der Schwangerschaft auf Alkohol zu verzichten*. Retrieved 03.22. from <https://www.kenn-dein-limit.de/alkoholverzeichnis/alkohol-in-der-schwangerschaft/>.
- Foran, H. M., & O'Leary, K. D. (2008). Alcohol and intimate partner violence: A meta-analytic review. *Clinical Psychology Review*, 28(7), 1222–1234. <https://doi.org/10.1016/j.cpr.2008.05.001>
- Franzke, A., Bechmann, A., Zimmer, M., & Ess, C. M. (2020). Internet research: Ethical guidelines 3.0. *Association of Internet Researchers*. <https://aoir.org/reports/ethics3.pdf>.
- Frazer, Z., McConnell, K., & Jansson, L. M. (2019). Treatment for substance use disorders in pregnant women: Motivators and barriers. *Drug and Alcohol Dependence*, 205, Article 107652. <https://doi.org/10.1016/j.drugalcdep.2019.107652>
- Gavaghan, C. (2009). "You can't handle the truth"; medical paternalism and prenatal alcohol use. *Journal of Medical Ethics*, 35(5), 300–303. <https://doi.org/10.1136/jme.2008.028662>
- German Centre for Addiction Issues. (2015). *Alkohol in der Schwangerschaft (Alkohol during pregnancy)*. https://www.dhs.de/fileadmin/user_upload/pdf/Broschueren/FS_Alkohol_in_der_Schwangerschaft.pdf.
- Glaser, B. G., Strauss, A. L., & Strutzel, E. (1968). The discovery of grounded theory; strategies for qualitative research. *Nursing Research*, 17(4), 364.
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Penguin Group.
- Grant, A., Morgan, M., Gallagher, D., & Mannay, D. (2020). Smoking during pregnancy, stigma and secrets: Visual methods exploration in the UK. *Women and Birth*, 33(1), 70–76. <https://doi.org/10.1016/j.wombi.2018.11.012>
- Hammarlund, R., Crapanzano, K. A., Luce, L., Mulligan, L., & Ward, K. M. (2018). Review of the effects of self-stigma and perceived social stigma on the treatment-seeking decisions of individuals with drug-and alcohol-use disorders. *Substance Abuse and Rehabilitation*, 115–136. <https://doi.org/10.2147/SAR.S183256>
- Hanschmidt, F., Manthey, J., Kraus, L., Scafato, E., Gual, A., Grimm, C., & Rehm, J. (2017). Barriers to alcohol screening among hypertensive patients and the role of stigma: Lessons for the implementation of screening and brief interventions in

- European primary care settings. *Alcohol and Alcoholism*, 52(5), 572–579. <https://doi.org/10.1093/alcalc/axg032>
- Harriman, S., & Patel, J. (2014). The ethics and editorial challenges of internet-based research. *BioMed Central*, 12(124). <https://doi.org/10.1186/s12916-014-0124-3>
- Harris, B. S., Bishop, K. C., Kemeny, H. R., Walker, J. S., Rhee, E., & Kuller, J. A. (2017). Risk factors for birth defects. *Obstetrical & Gynecological Survey*, 72(2), 123–135. <https://doi.org/10.1097/OGX.0000000000000405>
- Hays, S. (1996). *The cultural contradictions of motherhood*. Yale University Press.
- Hebl, M. R., King, E. B., Glick, P., Singletary, S. L., & Kazama, S. (2007). Hostile and benevolent reactions toward pregnant women: Complementary interpersonal punishments and rewards that maintain traditional roles. *Journal of Applied Psychology*, 92(6), 1499. <https://doi.org/10.1037/0021-9010.92.6.1499>
- Heinz, A., & Daedelow, L. S. (2021). Alcohol as cultural asset—A historical, anthropological, and therapeutic perspective on alcohol consumption and its social role in western societies. *Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz*, 64(6), 646–651. <https://doi.org/10.1007/s00103-021-03327-8>
- Hemström, Ö. (2002). Attitudes toward alcohol policy in six EU countries. *Contemporary Drug Problems*, 29(3), 605–618. <https://doi.org/10.1177/009145090202900306>
- Hipp, L., & Büning, M. (2021). Parenthood women: Complementary intergenerational inequality during COVID-19? Exploratory evidence from Germany. *European Societies*, 23 (sup1), S658–S673. <https://doi.org/10.1080/14616696.2020.1833229>
- Incollingo Rodríguez, A. C., & Nagpal, T. S. (2021). The WOMBS Framework: A review and new theoretical model for investigating pregnancy-related weight stigma and its intergenerational implications. *Obesity Reviews*, 22(12), e13322. <https://doi.org/10.1111/obr.13322>
- Jaks, R., Baumann, I., Juvalta, S., & Dratva, J. (2019). Parental digital health information seeking behavior in Switzerland: A cross-sectional study. *BMC Public Health*, 19(1), 1–11. <https://doi.org/10.1186/s12889-019-6524-8>
- Jootun, D., McGhee, G., & Marland, G. R. (2009). Reflexivity: Promoting rigour in qualitative research. *Nursing Standard*, 23(23), 42–47.
- Kaur, N., & Ricciardelli, R. (2020). Negotiating risk and choice in multifetal pregnancies. *Social Science & Medicine*, 252, Article 112926. <https://doi.org/10.1016/j.socscimed.2020.112926>
- Kiefer, F., Batra, A., Bischof, G., Funke, W., Lindenmeyer, J., Mueller, S., Preuss, U. W., Schäfer, M., Thomasius, R., & Veltrop, C. (2021). S3-Leitlinie, Screening, Diagnose und Behandlung alkoholbezogener Störungen “. *Sucht*. <https://doi.org/10.1024/0939-5911/a000704>
- Kilian, C., Manthey, J., Carr, S., Hanschmidt, F., Rehm, J., Speerforck, S., & Schomerus, G. (2021a). Stigmatization of people with alcohol use disorders: An updated systematic review of population studies. *Alcoholism: Clinical and Experimental Research*, 45(5), 899–911. <https://doi.org/10.1111/acer.14598>
- Kilian, C., Manthey, J., Kraus, L., Mäkelä, P., Moskalewicz, J., Sieroslawski, J., & Rehm, J. (2021b). A new perspective on European drinking cultures: A model-based approach to determine variations in drinking practices among 19 European countries. *Addiction*, 116(8), 2016–2025. <https://doi.org/10.1111/add.15408>
- Kilian, C., Manthey, J., Neufeld, M., & Rehm, J. (2022). Affordability of alcoholic beverages in the European Union. *European Addiction Research*, 28(6), 421–424. <https://doi.org/10.1159/000527096>
- Kilian, C., Manthey, J., Rehm, J., & Kraus, L. (2023). Alkoholpolitik in Deutschland: Verpasste Chancen zur Senkung der Krankheitslast. *Sucht*, 69(4). <https://doi.org/10.1024/0939-5911/a000823>
- Kraus, L., Seitz, N.-N., Shield, K. D., Gmel, G., & Rehm, J. (2019). Quantifying harms to others due to alcohol consumption in Germany: A register-based study. *BMC Medicine*, 17, 1–9. <https://doi.org/10.1186/s12916-019-1290-0>
- Kummetat, J. L., Leonhard, A., Manthey, J., Speerforck, S., & Schomerus, G. (2022). Understanding the association between alcohol stigma and alcohol consumption within Europe: A cross-sectional exploratory study. *European Addiction Research*, 28 (6), 442–450. <https://doi.org/10.1159/000526200>
- Kuntsche, S., Knibbe, R. A., Kuntsche, E., & Gmel, G. (2011). Housewife or working mum—Each to her own? The relevance of societal factors in the association between social roles and alcohol use among mothers in 16 industrialized countries. *Addiction*, 106(11), 1925–1932. <https://doi.org/10.1111/j.1360-0443.2011.03507.x>
- Kvaale, E. P., Haslam, N., & Gottdiener, W. H. (2013). The ‘side effects’ of medicalization: A meta-analytic review of how biogenetic explanations affect stigma. *Clinical Psychology Review*, 33(6), 782–794. <https://doi.org/10.1016/j.cpr.2013.06.002>
- Lamar, M. R., Forbes, L. K., & Capasso, L. A. (2019). Helping working mothers face the challenges of an intensive mothering culture. *Journal of Mental Health Counseling*, 41 (3), 203–220.
- Lee, E., Bristow, J., Arkell, R., & Murphy, C. (2022). Beyond ‘the choice to drink’ in a UK guideline on FASD: The precautionary principle, pregnancy surveillance, and the managed woman. *Health, Risk & Society*, 24(1–2), 17–35. <https://doi.org/10.1080/13698575.2021.1998389>
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27 (1), 363–385. <https://doi.org/10.1146/annurev.soc.27.1.363>
- Lupton, D. (2016). The use and value of digital media for information about pregnancy and early motherhood: A focus group study. *BMC Pregnancy and Childbirth*, 16(1), 1–10. <https://doi.org/10.1186/s12884-016-0971-3>
- Lyall, V., Wolfson, L., Reid, N., Poole, N., Moritz, K. M., Egert, S., Browne, A. J., & Askew, D. A. (2021). “The problem is that we hear a bit of everything...”: A qualitative systematic review of factors associated with alcohol use, reduction, and abstinence in pregnancy. *International Journal of Environmental Research and Public Health*, 18(7), 3445. <https://doi.org/10.3390/ijerph18073445>
- Mamluk, L., Edwards, H. B., Savović, J., Leach, V., Jones, T., Moore, T. H., Ijaz, S., Lewis, S. J., Donovan, J. L., & Lawlor, D. (2017). Low alcohol consumption and pregnancy and childhood outcomes: Time to change guidelines indicating apparently ‘safe’ levels of alcohol during pregnancy? A systematic review and meta-analyses. *BMJ Open*, 7(7), Article e015410. <https://doi.org/10.1136/bmjopen-2016-015410>
- Manthey, J., Kokole, D., Riedel-Heller, S., Rowlands, G., Schäfer, I., Schomerus, G., & Soellner, R. (2023). Improving alcohol health literacy and reducing alcohol consumption: Recommendations for Germany. *Addiction Science & Clinical Practice*, 28(18). <https://doi.org/10.1186/s13722-023-00383-0>
- Manthey, J., Shield, K. D., Rylett, M., Hasan, O. S., Probst, C., & Rehm, J. (2019). Global alcohol exposure between 1990 and 2017 and forecasts until 2030: A modelling study. *The Lancet*, 393(10190), 2493–2502. [https://doi.org/10.1016/S0140-6736\(18\)32744-2](https://doi.org/10.1016/S0140-6736(18)32744-2)
- May, V. (2008). On being a good’ mother: The moral presentation of self in written life stories. *Sociology*, 42(3), 470–486. <https://doi.org/10.1177/0038038508088836>
- Miller, T. (2017). Making sense of motherhood and fatherhood: Competing moral discourses and logics of caring and work ‘choices’ in the UK. *Work-family dynamics* (pp. 105–120). Routledge.
- National Center on Birth Defects and Developmental Disabilities. (2022). *Alcohol use during pregnancy*. Centers for Disease Control and Prevention. Retrieved February 25 from <https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>
- National Health Service. (2020). *Drinking alcohol while pregnant*. <https://www.nhs.uk/pregnancy/keeping-well/drinking-alcohol-while-pregnant/>
- Oaks, L. (2000). Smoke-filled wombs and fragile fetuses: The social politics of fetal representation. *Signs: Journal of Women in Culture and Society*, 26(1), 63–108.
- Ochterbeck, D., Frense, J., & Forberger, S. (2023). International addiction researchers’ perspectives on the needs of persons with addictions, the use of neuroscientific research for prevention and treatment, and future foci in addictions research. *Addiction Research & Theory*, 1–10. <https://doi.org/10.1080/16066359.2023.2189244>
- Okan, O., Rowlands, G., Sykes, S., & Wills, J. (2020). Shaping alcohol health literacy: A systematic concept analysis and review. *HLRP: Health Literacy Research and Practice*, 4(1), e3–e20. <https://doi.org/10.3928/24748307-20191104-01>
- Okulicz-Kozaryn, K. (2022). Is public health response to the phenomenon of alcohol use during pregnancy adequate to the Polish women’s needs? *International Journal of Environmental Research and Public Health*, 19(8), 4552. <https://doi.org/10.3390/ijerph19084552>
- Olukotun, O., Mkandawire, E., Antilla, J., Alfaifa, F., Weitzel, J., Scheer, V., Olukotun, M., & Mkandawire-Valhmu, L. (2021). An analysis of reflections on researcher positionality. *Qualitative Report*, 26(5).
- Oni, H. T., Buultjens, M., Abdel-Latif, M. E., & Islam, M. M. (2019). Barriers to screening pregnant women for alcohol or other drugs: A narrative synthesis. *Women and Birth*, 32(6), 479–486. <https://doi.org/10.1016/j.wombi.2018.11.009>
- Oni, H. T., Buultjens, M., Davis, D., Abdel-Latif, M., & Islam, M. M. (2020). Barriers and facilitators in antenatal settings to screening and referral of pregnant women who use alcohol or other drugs: A qualitative study of midwives’ experience. *Midwifery*, 81, Article 102595. <https://doi.org/10.1016/j.midw.2019.102595>
- Popova, S., Lange, S., Probst, C., Gmel, G., & Rehm, J. (2017). Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: A systematic review and meta-analysis. *The Lancet Global Health*, 5(3), e290–e299. [https://doi.org/10.1016/S2214-109X\(17\)30021-9](https://doi.org/10.1016/S2214-109X(17)30021-9)
- Popova, S., Lange, S., Probst, C., Gmel, G., & Rehm, J. (2018). Global prevalence of alcohol use and binge drinking during pregnancy, and fetal alcohol spectrum disorder. *Biochemistry and Cell Biology*, 96(2), 237–240. <https://doi.org/10.1139/bcb-2017-0077>
- Probst, C., Manthey, J., Martinez, A., & Rehm, J. (2015). Alcohol use disorder severity and reported reasons not to seek treatment: A cross-sectional study in European primary care practices. *Substance Abuse Treatment, Prevention, and Policy*, 10(1), 1–10. <https://doi.org/10.1186/s13011-015-0028-z>
- Racine, E., Bell, E., Zizzo, N., & Green, C. (2015). Public discourse on the biology of alcohol addiction: Implications for stigma, self-control, essentialism, and coercive policies in pregnancy. *Neuroethics*, 8(2), 177–186. <https://doi.org/10.1007/s12152-014-9228-x>
- Rauschert, C., Möckel, J., Seitz, N.-N., Wilms, N., Olderbak, S., & Kraus, L. (2022). The use of psychoactive substances in Germany. *Deutsches Ärzteblatt International*. <https://doi.org/10.3238/arztebl.m2022.0244>
- Richardson, S. S., Daniels, C. R., Gillman, M. W., Golden, J., Kukla, R., Kuzawa, C., & Rich-Edwards, J. (2014). Society: Don’t blame the mothers. *Nature*, 512(7513), 131–132. <https://doi.org/10.1038/512131a>
- Rier, D. A. (2007). The impact of moral suasion on Internet HIV/AIDS support groups: Evidence from a discussion of seropositivity disclosure ethics. *Health Sociology Review*, 16(3–4), 237–247. <https://doi.org/10.5172/hesr.2007.16.3-4.237>
- Robert Koch Institut. (2012). *GEDA - Studie zur gesundheit in Deutschland des Robert Koch Instituts*. Robert Koch Instituts. Retrieved 14.10.2023 from https://www.rki.de/DE/Content/Gesundheitsmonitoring/Gesundheitsberichterstattung/GBEDownload/GBEDA12.pdf?__blob=publicationFile
- Roberts, S. C., Mericle, A. A., Subbaraman, M. S., Thomas, S., Treffers, R. D., Delucchi, K. L., & Kerr, W. C. (2019). State policies targeting alcohol use during pregnancy and alcohol use among pregnant women 1985–2016: Evidence from the behavioral risk factor surveillance system. *Women’s Health Issues*, 29(3), 213–221. <https://doi.org/10.1016/j.whi.2019.02.001>
- Roberts, S. C., Thomas, S., Treffers, R., & Drabble, L. (2017). Forty years of state alcohol and pregnancy policies in the USA: Best practices for public health or efforts to restrict Women’s reproductive rights? *Alcohol and Alcoholism*, 52(6), 715–721. <https://doi.org/10.1093/alcalc/axg047>
- Roberts, S. C., Thompson, T.-A., & Taylor, K. J. (2021). Dismantling the legacy of failed policy approaches to pregnant people’s use of alcohol and drugs. *International Review of Psychiatry*, 33(6), 502–513. <https://doi.org/10.1080/09540261.2021.1905616>

- Roozen, S., Stutterheim, S. E., Bos, A. E., Kok, G., & Curfs, L. M. (2020). Understanding the social stigma of fetal alcohol spectrum disorders: From theory to interventions. *Foundations of Science*, 1–19. <https://doi.org/10.1007/s10699-020-09676-y>
- Schlosser, A. E. (2020). Self-disclosure versus self-presentation on social media. *Current Opinion in Psychology*, 31, 1–6. <https://doi.org/10.1016/j.copsyc.2019.06.025>
- Schomerus, G., Lucht, M., Holzinger, A., Matschinger, H., Carta, M. G., & Angermeyer, M. C. (2011). The stigma of alcohol dependence compared with other mental disorders: A review of population studies. *Alcohol and Alcoholism*, 46(2), 105–112. <https://doi.org/10.1093/alcalc/agg089>
- Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2014). Attitudes towards alcohol dependence and affected individuals: Persistence of negative stereotypes and illness beliefs between 1990 and 2011. *European Addiction Research*, 20(6), 293–299. <https://doi.org/10.1159/000362407>
- Schomerus, G., Schindler, S., Sander, C., Baumann, E., & Angermeyer, M. C. (2022). Changes in mental illness stigma over 30 years—Improvement, persistence, or deterioration? *European Psychiatry*, 65(1), e78. <https://doi.org/10.1192/j.eurpsy.2022.2337>
- Schwarz, T., & Goecke, M. (2021). Die bundesweiten Maßnahmen zur Alkoholprävention der Bundeszentrale für gesundheitliche Aufklärung (BZgA). *Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz*, 64(6), 671–678. <https://doi.org/10.1007/s00103-021-03333-w>
- Seitz, H., Lochbühler, K., Atzendorf, J., Rauschert, C., Pfeiffer-Gerschel, T., & Kraus, L. (2019). Trends des Substanzkonsums und substanzbezogener Störungen. *Deutsches Ärzteblatt International*, 116(35–36), 585–591.
- Sharp, G. C., Lawlor, D. A., & Richardson, S. S. (2018). It's the mother!: How assumptions about the causal primacy of maternal effects influence research on the developmental origins of health and disease. *Social Science & Medicine*, 213, 20–27. <https://doi.org/10.1371/journal.pone.0213897>
- Shawe, J., Patel, D., Joy, M., Howden, B., Barrett, G., & Stephenson, J. (2019). Preparation for fatherhood: A survey of men's preconception health knowledge and behaviour in England. *PLoS ONE*, 14(3), Article e0213897. <https://doi.org/10.1371/journal.pone.0213897>
- Speerforck, S., Schomerus, G., Pruess, S., & Angermeyer, M. C. (2014). Different biogenetic causal explanations and attitudes towards persons with major depression, schizophrenia and alcohol dependence: Is the concept of a chemical imbalance beneficial? *Journal of Affective Disorders*, 168, 224–228. <https://doi.org/10.1016/j.jad.2014.06.013>
- Stiegler, A., Bieber, L., Karacay, K., Wernz, F., & Batra, A. (2016). Barrieren in der Thematisierung des Tabak- und Alkoholkonsums Schwangerer in der gynäkologischen Praxis. Eine Fokusgruppenstudie mit Frauenärzten. *Das Gesundheitswesen*, 78(12), 816–821. <https://doi.org/10.1055/s-0035-1548935>
- Strauss, A. L. (1998). *Grundlagen qualitativer sozialforschung: Datenanalyse und theoriebildung in der empirischen und soziologischen forschung. 2. auflage*.
- Strübing, J. (2014). Was is't grounded theory?. *Grounded theory* (pp. 9–35). Springer.
- Subbaraman, M. S., Thomas, S., Treffers, R., Delucchi, K., Kerr, W. C., Martinez, P., & Roberts, S. C. (2018). Associations between state-level policies regarding alcohol use among pregnant women, adverse birth outcomes, and prenatal care utilization: Results from 1972 to 2013 vital statistics. *Alcoholism: Clinical and Experimental Research*, 42(8), 1511–1517. <https://doi.org/10.1111/acer.13804>
- Taştekin Ouyaba, A., & İnfal Kesim, S. (2021). The effect of the Internet on decision-making during pregnancy: A systematic review. *Archives of Women's Mental Health*, 24(2), 205–215. <https://doi.org/10.1007/s00737-020-01065-5>
- Taylor, A., Whittaker, A., Chandler, A., & Carnegie, E. (2023). Accounts of women identified as drinking at 'high risk' during pregnancy: A meta-ethnography of missing voices. *International Journal of Drug Policy*, 117, Article 104061. <https://doi.org/10.1016/j.drugpo.2023.104061>
- Taylor, S. E., & Langer, E. J. (1977). Pregnancy: A social stigma? *Sex Roles*, 3(1), 27–35.
- Toutain, S. (2011). Alcool et grossesse en France: Une nouvelle enquête à partir des forums Internet en 2009-2010. *Alcoologie et Addictologie*, 33(3), 197–204.
- Toutain, S. (2017). Concilier 'Zéro alcool pendant la grossesse' et alcoolisation ponctuelle importante des premières semaines. Une enquête qualitative sur des forums de discussion. *Bulletin Épidémiologique Hebdomadaire*, 11, 207–212.
- Tsang, T. W., Kingsland, M., Doherty, E., Anderson, A. E., Tully, B., Ward, S., Wiggers, J., & Elliott, E. J. (2022). Written information and health professionals are the information sources about alcohol use in pregnancy most often used by pregnant women. *Drug and Alcohol Review*, 41(7), 1599–1609. <https://doi.org/10.1111/dar.13512>
- Voutilainen, T., Rysä, J., Keski-Nisula, L., & Kärkkäinen, O. (2022). Self-reported alcohol consumption of pregnant women and their partners correlates both before and during pregnancy: A cohort study with 21,472 singleton pregnancies. *Alcoholism: Clinical and Experimental Research*. <https://doi.org/10.1111/acer.14806>
- Wallwiener, S., Müller, M., Doster, A., Laserer, W., Reck, C., Pauluschke-Fröhlich, J., Brucker, S. Y., Wallwiener, C. W., & Wallwiener, M. (2016). Pregnancy eHealth and mHealth: User proportions and characteristics of pregnant women using Web-based information sources—A cross-sectional study. *Archives of Gynecology and Obstetrics*, 294, 937–944. <https://doi.org/10.1007/s00404-016-4093-y>
- Wangberg, S. C. (2015). Norwegian midwives' use of screening for and brief interventions on alcohol use in pregnancy. *Sexual & Reproductive Healthcare*, 6(3), 186–190. <https://doi.org/10.1016/j.srhc.2015.03.001>
- Wegener, C., Jage-D'Aprile, F., & Plumeier, L. (2022). Motherhood in social media: Phenomena and consequences of the professionalization of mothers and their media (self-) representation. *Feminist Media Studies*, 1–17. <https://doi.org/10.1080/14680777.2022.2108479>
- WHO Europe. (2023). *No level of alcohol consumption is safe for our health*. Retrieved 03.22 from <https://www.who.int/europe/news/item/04-01-2023-no-level-of-alcohol-consumption-is-safe-for-our-health>.
- Wigginton, B., & LaFrance, M. N. (2017). *Researching stigma in online and offline spaces: Methodological lessons and challenges*. SAGE Publications Limited.
- World Health Organization. (2021). *Making the who European Region SAFER: Developments in alcohol control policies, 2010–2019*. Retrieved February 25 from file:///C:/Users/Admin/Downloads/9789289055048-eng.pdf.