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Mind the knowledge gap: hormonal birth control and risk perception among young Norwegian women

First Author

Laura Andrea Johnsen Ødegården, MSc Societal Safety, University of Stavanger, Norway. E-mail: laura.odegarden@gmail.com

Second Author

Kristin Sørung Scharffscher, Associate professor in Societal Safety, University of Stavanger, Norway. E-mail: kristin.s.scharffscher@uis.no

Background: The study is motivated by a recent decline in the sales of hormonal contraception coupled with an increase in the abortion rate and sales of emergency contraception among young Norwegian women. This trend coincides with negative framing of the use of hormonal contraception on social media platforms. This study examines young Norwegian women's risk perception associated with hormonal contraception, the information sources they use and trust, and how these factors influence their contraceptive choices.
Methods: Our theoretical perspective is anchored in the psychometric paradigm, heuristics and social amplification of risk, and the collected data comprise of qualitative interviews, a survey, and a document analysis.
Results: Our findings suggest that young Norwegian women have a high perceived risk linked to the use of hormonal contraception, particularly with regard to common side effects such as depression/low mood and hormonal imbalances. This can be linked to notions of dread, unknown and/or delayed consequences, and unfairness, coupled with representativeness and availability heuristics. With limited input from healthcare providers, young women turn to friends and social media for guidance - often without openly admitting to it. In informal settings, advice to stop using hormonal contraception is common.
Conclusions: Social media and friends can amplify concerns about the harmful side effects of hormonal contraception. This may explain the recent decline in hormonal contraception use coupled with rising abortion rates among young Norwegian women.

Keywords: Health risk, hormonal contraception, risk perception, women's health, social media, societal safety.

Introduction

In recent years, concerns about hormonal contraception have emerged on social media while abortion rates and sales of emergency contraception has risen among young Norwegian women (Apotekforeningen, 2023; Folkehelseinstituttet, 2024; Løkeland-Stai, 2024; Rønning, 2024). This shift has been narrated as a public health concern (Folkehelseinsituttet, 2024; NRK, 2023), yet research has failed to address why young women are opting out of hormonal contraception.

To our knowledge, a Finnish study from 2015 was the first to examine the relationship between risk perception and the use of hormonal contraception. Our study is however the first to explore the issue in Norway and still one of very few conducted internationally, despite recent developments as explored in this paper. Given the widespread use of hormonal contraception, our findings are relevant beyond Norway and motivates further research in other contexts. The study includes a survey with 263 Norwegian women aged 18-25, a group interview with four Norwegian women in the same age group, and individual interviews with four healthcare professionals with experience in contraceptive counselling, as well as a journalist.

Hormonal Contraception and Side Effects

Hormonal contraception includes birth control pills, mini pills, hormonal intrauterine devices (IUDs), contraceptive patches, contraceptive vaginal rings, contraceptive injections, contraceptive implants, and emergency contraception. It is divided into two categories: combined contraception and contraception with only progestogen. Hormonal contraception containing only progestogen includes hormonal IUDs, progestogen-only pills (also known as mini pills[1]), contraceptive implants, and contraceptive injections. Combined hormonal contraceptives containing both oestrogen and progestogen include contraceptive rings, contraceptive patches, and combination birth control pills (Kløkstad et al., 2022).

Hormonal contraception is a pharmaceutical product and, as such, has various side effects. Side effects

[1] *In some countries, a distinction is made between progestogen-only pills and mini pills, but in English medical literature, these terms are typically used interchangeably.*

from hormonal contraception are most prominent during the first three months of use (Barlindhaug, 2021, p. 5). Some side effects may vary, depending on whether it is a combined hormonal contraception or only contains progestogen. Generally, rare and serious side effects include blood clots, breast cancer, cervical cancer, and cardiovascular diseases. Relatively common but less serious side effects - clinically referred to as harmless[2]- include mood swings, low mood, anxiety, decreased libido, acne, and changes in menstrual flow and patterns (Kløkstad et al., 2022, chap. 1). Depression and low mood have been suspected side effects since the first birth control pill came onto the market in the USA in 1960, but research is still lacking to establish a causal relationship (Anderson, 1970; Christin-Maitre, 2013). In fact, the research on the side effects of hormonal contraception is limited to the point where it can be difficult for a medical professional to determine whether a patient's reported symptom is a side effect or due to other factors. This means that reliable statistics are also lacking, as many side effects remain undiagnosed. In such cases, doctors are often advised to let the woman try other forms of hormonal contraception, which may be practical but also creates a much more diffuse picture of causal relationships (Kløkstad et al., 2022, chap. 1).

Studies nevertheless suggest that both combined hormonal contraceptives and progestogen- only contraceptives may increase the risk of psychological effects in the form of depression and suicide (Skovlund et al., 2016; Skovlund et al., 2018). A long-term study from Denmark, which followed over a million women between 2000 and 2013, concluded that the use of hormonal contraception resulted in an increased risk of being diagnosed with depression. Progestogen-only contraceptives generally had a higher relative risk than combined hormonal contraceptives for an initial diagnosis of depression and subsequent first use of antidepressants (Skovlund et al. 2016, p. 1154). The risk of depression was highest among women between 15 and 19 years of age, regardless of the type (Ibid.).

According to another long-term study in Denmark, there is a clear link between hormonal contraception, suicide attempts and suicide, compared to women who do not use hormonal contraception. Again, this risk is highest among teenage girls, especially with regard to the first suicide attempt (Skovlund et al., 2018, p. 339).

The psychometric approach to risk perception

To understand how each individual relates to hormonal contraception, we need to examine internal and external factors that influence risk perception.

The psychometric paradigm, developed by Baruch Fischhoff et al. in 1978, outlines the ways in which psychological factors affect people's risk perceptions and individual differences in how we weigh benefits and risks against each other (Fischhoff et al., 1978, p. 128; Slovic, 1987, p. 281; Siegrist and Árvai, 2020, p. 2192). Such assessment processes are something we as humans carry out continuously in our lives, for example when we get behind the wheel of a car or when we need to use contraception. The following factors are considered the most important influences on risk perception: voluntary/involuntary exposure, immediate or delayed consequences, knowledge about the given risk, control over the situation, past experience (whether the risk is known or new), the extent of the consequences, and the catastrophic potential of the risk—the so-called dread factor (Fischhoff et al., 1978, p. 133; Slovic, 1987, p. 281; Wong and Yang, 2023, p. 703). In summary, we can say that our individual assessment of risk is influenced by factors divided into two main categories: dread and unknown/unpredictable consequences. Dread relates to a lack of control, potential for catastrophe, the likelihood of death, and the uneven distribution of risks and benefits (Slovic, 1987, p. 283). Unknown/unpredictable consequences pertain to the novelty of the risk, it being unobservable to the naked eye, delayed consequences, and there being little scientific knowledge available (Fischhoff et al., 1978; Slovic, 1987, p. 282; Visschers and Siegrist, 2018).

In the same study, Fischhoff et al. (1978) also found that people are somewhat willing to accept risk in a situation, activity, or technology if the situation is perceived as beneficial. Visschers and Siegrist (2018) confirm that perceived benefits influence the acceptance of risk. The more benefits that can be associated with a given risk, the higher the acceptance of the risk (p. 66). The perception of benefits also turns out to be more stable over time than the perception of risks, and can be used to predict acceptance of a given situation, activity, or technology. The perception of risks, on the other hand, is subject to constant reassessment based on new knowledge, and can vary over time. This means that people's perception of risk associated with, for instance, hormonal contraception, can change in line with access to new information (Visschers and Siegrist, 2018, p. 66).

Fairness is also a characteristic of risky situations that can influence our acceptance (Renn 2008, 107). If risks are perceived as unfair, they can also be perceived as more severe (Kasperson, 1983; Renn, 2008, p. 108). This applies, for instance, when nuclear power plants or factories with hazardous emissions are built in the vicinity of residential areas inhabited by people with limited access to political power (such as in the Three Mile Island accident in the USA in 1979). On that note, it is relevant to consider how women are

[2] *In Norway, common side effects of birth control are often clinically referred to as "harmless."*

left with all the risks associated with the use of contraceptives. Assuming, that is, that there are no health-related side effects associated with the use of condoms[3].

Heuristic understandings of risk

Heuristics can be defined as mental or cognitive shortcuts that we often take when making assessments or decisions (Aven and Thekdi, 2022, p. 135). They influence on how each person assesses the likelihood of a given risk. Some typical heuristics in such contexts are related to representativeness and availability (Kahneman et al., 1982).

A representativeness heuristic describes how we use similarities to assess the likelihood that something is representative of something else (Kahneman et al., 1982, p. 4). One example of a representativeness heuristic is when one drug resembles another drug. Despite having different side effects, it may be natural to assume that they have similar side effects due to the similarity between the drugs. Furthermore, an availability heuristic is linked to how available an event is in the memory of the person assessing a risk. Availability heuristics can make an event seem more likely if the person making the assessment can recall a relevant and recent event (ibid., p. 11). This can be illustrated with side effects of drugs, where it may be natural to consider the likelihood of side effects as higher if a friend recently experienced side effects when using the same drug. Heuristics can often be good intuitive assessments of likelihood, but they can also lead to presumptions or skewed opinions (Kahneman et al., 1982, p. 18).

Trust and the social amplification of risk

In today's society, risk regulation and management are often the responsibility of institutions, companies, or authorities. When we board a plane or are admitted to a hospital, we trust that the risk associated with aviation and hospitals has been reduced as much as practically possible. Similarly, airlines and hospitals as well as relevant regulatory agencies must appear credible in such contexts (Visschers and Siegrist, 2018, p. 68). Institutional credibility is therefore important for our collective perception of risk. We are constantly involved in processes where we, as a society or a social group, agree on a given risk and the trust in the institutions, agencies, or manufacturers involved. In such contexts, we should always look at communication and how people perceive qualities such as competence, empathy, and honesty (Renn, 2008, pp. 123–124; Visschers and Siegrist, 2018, pp. 68–69).

The Social Amplification of Risk Framework (SARF) helps explain how young women's concerns about hormonal contraception become reinforced through social media. The algorithm distributes online content of skewed personal experiences that might amplify perceptions of potential dangers (Kasperson et al., 1988; Renn, 2008; Kasperson et al., 2022). At the heart of the framework is the concept of amplification, where information about a specific risk passes through multiple stages before reaching individuals. Each of these stages – or "stations" – adjusts the information, amplifying (or, in some cases, attenuating) it through socially driven processes. While Kasperson et al. (1988) initially highlighted the importance of information received through traditional media, as well as from trusted friends and social contacts, more recent research has shown how social media has significantly intensified this dynamic (Fellenor et al., 2018, 2020). The term "echo chamber" aptly describes communication processes in which the absence of editorial oversight, combined with algorithms and personal opinions, serves to accelerate the social amplification of a given risk (Kasperson et al., 2022).

Social amplification of risk can also occur as a reaction to received risk information. Changes in behaviour or further communication can lead to what is known as secondary effects, such as activism, shifts in sales or consumption of a product, the creation of new social norms, or even changes in legislation (Kasperson et al., 1988, p. 182). These secondary effects are, in turn, perceived by society, potentially triggering another cycle of amplification and a further set of consequences. Such processes can be described as ripple effects, as they can extend far beyond the original phenomenon that initiated them (Kasperson et al., 1988, p. 182; Renn, 2008, p. 137). Such notions aptly lend themselves to the recent decrease in young Norwegian women's use of hormonal contraception, alongside soaring abortion rates and most recently, a major revision of national legislation on abortions (Regjeringen, 2024).

Data Collection

The data for this study were mainly collected in 2023 and comprise a document analysis, a group interview with four Norwegian women aged between 18 and 25 years, a survey with 263 Norwegian women in the same age group[4], and individual interviews with four healthcare professionals experienced in contraceptive counselling, as well as one journalist. One of the healthcare professionals was interviewed in 2024.

The group interview participants and survey respondents were recruited through social media and personal contacts in Oslo and Lillehammer. The social media platforms used for recruitment were LinkedIn, Instagram, and TikTok. The group interview was conducted in Bergen on the 8th of March 2023 and

[3] *Use of latex condoms may elicit an allergic reaction (Caminati et al., 2017).*

[4] *26 participants in the survey reported they were over 25 years old.*

lasted just over 45 minutes. Some of the women wanted to continue the discussion after the formal interview was over, and relevant statements from these informal conversations have, with the consent of the participants, been included in our data material. Based on the results from the group interview, we developed an online survey consisting of 11 questions addressing the same topics. All questions in the survey (except yes/no questions) were multiple-choice.

The four interviewed healthcare professionals were recruited via email and through existing contacts. They included a general practitioner (GP) with a pharmaceutical background (informant 5), a journalist (informant 6), a midwife (informant 7), a public health nurse (informant 8), and another GP (informant 9). All interviews were conducted on Teams, with audio recordings made using Nettskjema. Recordings were approved by the participants at the start of each interview.

All data collection was conducted in accordance with ethical standards regarding prior consent, recording, anonymity, and the storage and erasure of data. All participants were also informed that they could withdraw at any time – either before or during the interview/survey. The participants in the group interview and individual interviews were also given the option to withdraw their participation after the interview.

Consensus on Risk

The results from our survey confirm that young Norwegian women are relatively consistent in their perception of various risks associated with the use of hormonal contraception. 52.9% of respondents perceive low mood/depression as the most widespread risk of using hormonal contraception. Hormonal imbalance is perceived as the second most common risk (38%), followed by weight gain (20.9%), blood clots (19%), loss of libido (17.5%), increased menstrual problems (17.1%), and psychological issues other than low mood/depression (17.1%). The women who participated in our survey are thus more aligned in their perceived risk than they would be if they only relied on the available research-based information. The question is therefore not whether young Norwegian women have access to research-based information, but what other sources of information they rely on that reinforce the consistency of their perceived risk.

Risks mentioned in the group interview included hormonal imbalance, mental health, blood clots, migraines, unnatural menstrual cycles, mood swings, menstrual disorders, changes in attraction to a partner, decreased athletic performance, vaginal dryness, and reduced libido. Among these, the informants were most concerned about low mood/depression. Hormonal imbalance was also a significant concern. For example, one informant stated that hormones are "...signals in the body, so when you use hormonal contraception, it affects not only fertility but everything!".

The women who participated in the group interview highlighted general benefits of using hormonal contraception. They agreed that efficiently preventing pregnancy was the most significant motivation. They also considered it beneficial to use hormonal contraceptives to treat certain women's diseases, such as endometriosis. Additionally, one informant mentioned that some young girls associate hormonal contraception with clearer skin and/or enlargement of breasts. Aside from the generally perceived benefits of hormonal contraception, the informants made distinctions regarding the advantages associated with certain contraceptives. The advantage of birth control pills, for instance, was that women could avoid the pain associated with inserting an IUD. Informant 8 (public health nurse) confirmed this, as she had observed that teenage girls preferred birth control pills as a first-choice method because they perceived them as less intrusive than, for instance, hormonal IUDs.

The increasing emphasis on risks related to hormonal contraception may be connected to the fact that many of the above-mentioned risks are largely unknown to women before they try contraceptives. Responses in both the group interview and the individual interviews indicate that trying new contraceptives is a demanding process, as it is impossible to predict what side effects they will experience. In addition to the risk being unknown prior to usage, this relates to a delay in consequences, and that side effects are not a physical risk that can be observed. Young women's risk perception may therefore be influenced by the fact that side effects do not appear immediately and that it is impossible to know which side effects each individual will experience. This is closely linked to the dread factor, which is amplified when young women have a wealth of information about the risks associated with hormonal contraception but do not know what they themselves will experience when using it.

In relation to representativeness heuristics and availability heuristics, informants in the group interview mentioned that they perceived birth control pills as the contraceptive with the greatest associated risk. However, they did not distinguish between different types of birth control pills and whether the risks apply to combination pills or progestogen-only pills. The risk of blood clots, for instance, may be generalised to all contraceptives, despite only being a side effect of combined hormonal contraceptives. This signals that young women's risk perception is influenced by a representativeness heuristic, as no distinction is made between different types of birth control pills. Furthermore, an availability heuristic is evident in how respondents perceived blood clots as the most widespread risk of using hormonal contraception (19%). Blood clots are a well-known,

but rare, side effect that is typically mentioned in contraceptive counselling. It is therefore not surprising that this risk is strongly remembered by the respondents. However, the survey questions were not designed to differentiate between combined hormonal contraceptives and progestogen-only contraceptives, which may explain some of the support for the perception of blood clot risk.

The Importance of Friends

Although young Norwegian girls gather information from several different sources, they quote friends as their number one information source on contraception, with social media as the runner-up. In the survey, 62.4% of respondents considered friends to be their primary source of information, while 46.6% of respondents pointed to social media as their primary source of information.

In the group interview, social media and friends were also perceived as useful sources of information on hormonal contraception. The informants found it helpful to know what other women had experienced when using different contraceptives, despite understanding that side effects are experienced individually. One informant expressed that consulting friends before trying a contraceptive could be helpful since they are a readily available source with the added benefit of practical experience. This view was shared by another informant, who believed that friends were a more useful source than healthcare professionals. Her reason being that friends had intimate knowledge of how hormonal contraception works and feels in the body.

Social media was also considered a good source of information for gaining an overview. The informants in the group interview perceived social media as central to conveying stories, experiences, and information about the risks of hormonal contraception. One informant believed that social media provides easy access to experiences with hormonal contraception, which may explain why attention to the risks of using hormonal contraception has increased in recent years. Another informant pointed out, however, that it is often the negative experiences that are highlighted on social media, with users being warned against certain contraceptives. Navigating many different experiences with contraceptives was considered somewhat challenging by the informants due to the large amount of information. Nevertheless, they believed that the information on social media could be helpful for gaining an overview of risks and a support for weighing the pros and cons of specific contraceptives.

The fact that friends and social media are the most prominent sources of information can be interpreted as a symptom of a lack of trust in risk-regulating and risk-managing institutions. The group interview supports this, as the informants expressed waning trust in health authorities. One informant in the group interview argued that the lack of focus on women's health affected the knowledge that GPs receive about hormonal contraception during their education, which in turn dictates the information GPs can provide to their patients. As the informants in the group interview considered risk communication from healthcare professionals to be both ‘hit or miss’ and generally lacking, it is reasonable to interpret that institutional credibility is affected.

Social amplification of risk is also relevant when the women in this study identify friends and social media as their most prominent sources of information. The informants in the group interview reported a change in their own risk perception as women increasingly shared experiences with various contraceptives on social media. In such forums, there is little or no editorial control, so personal opinions and attitudes drive the amplification process. Algorithms may also influence the amplification process on social media, as content is tailored to each individual's user pattern. For example, a young woman may see more content from women who have had negative experiences with hormonal contraception if she has previously viewed such content. The digital reality can thus confirm worries and become an echo chamber. At the same time, it is difficult to question women's stories about depression/low mood and hormonal imbalance related to the use of hormonal contraception, as there is a lack of research to guide the collective conversation. Changes in the sale of hormonal contraception, an increase in abortion rates, and an increase in the sale of emergency contraception can be considered secondary consequences of the social amplification of risk associated with these communication processes.

The Big Paradox

In contrast to the information sharing described above, the women both in the group interview and in the survey reported that they consider people with healthcare expertise to be the most credible. At the same time, it is not from these individuals that young Norwegian women get their information about hormonal contraception. Quite on the contrary, the majority of informants seek information from what they consider less credible sources, namely friends and social media. Around half (47.1%) of respondents in the survey consider social media to be the least credible source of information, with the exception of religious contacts (74.9%). Close relationships like family and friends are also considered less credible sources of information (16.7% and 14.4% respectively), but they still have more credibility than social media.

Although people with healthcare expertise are considered the most credible sources of information, one professional group stands out as less credible, in the eyes of informants. 13.3% of respondents in the

survey consider GPs to be the least credible source of information, in contrast to public health nurses (5.7%) and midwives/gynaecologists (4.2%). The group interview confirms the perception of GPs as less credible when it comes to contraceptive counselling. It was mentioned that GPs often solely focus on the benefit of preventing pregnancy and only talk about severe and rare side effects. The informants also expressed that they perceived the competence of GPs as individually determined and highly dependent on the GP's interest in hormonal contraception and women's health. One informant summed up the perception of GPs' attitudes and competence on hormonal contraception as follows: Either they don't know, or they don't care. The informants felt that GPs seem to underestimate the significance of putting a woman on hormonal contraception. Some perceived that their GP had no interest in how women's quality of life is affected by hormonal contraception and that they were more concerned with getting them out of the office with a preselected contraceptive. Individual needs were thus neglected. An informant in the group interview believed that these challenges could be related to shortcomings in medical education, in addition to the constraints that GPs experience in a time-pressured profession. Informant 7 (midwife) and informant 9 (GP) confirmed that time pressure could affect the quality of contraceptive counselling.

A paradox thus emerges: young Norwegian women seemingly have the most trust in gynaecologists and midwives but must rely on GPs whom they do not trust, while they obtain their information from sources they consider to be less credible, namely friends and social media.

Embarrassment

If the respondents in the survey were to recommend that a friend stop using hormonal contraception by referring to an information source, most would refer to healthcare professionals. 60.1% of the respondents would refer to a gynaecologist or midwife, 47.1% would refer to a GP, and 44.1% would refer to a public health nurse as a source of information. A minority of respondents would refer to friends or social media if they were advising a friend to stop using hormonal contraception (24.7% and 19.8%, respectively). This reinforces the notion that young women perceive healthcare professionals are the most credible sources of information. The women also demonstrate a critical attitude towards social media as a source of information, and the responses suggest that it may be embarrassing to use information from social media.

The respondents nevertheless believed that they are influenced by information on social media. 48.7% of the respondents believed that many are influenced by social media, and 31.9% believed that social media plays a very important role in shaping perceptions around hormonal contraception among young women. Only 0.4% believed that few people trust what is said about hormonal contraception on social media. Several of the individual interviews with healthcare professionals confirm that young women are likely influenced by information about hormonal contraception from social media. Informant 7 (midwife) and 8 (public health nurse) experienced an increasing number of inquiries from young women who were concerned about hormones or the impact on mental health when using hormonal contraception. Informant 7 reported an increase in requests for hormone-free alternatives, such as copper IUDs. Informant 8 also observed an increase in inquiries from young women who wanted to stop or take a break from using hormonal contraception. Both informants perceived that this was also related to media attention, where hormonal contraception is portrayed as unnatural and harmful.

Informant 7 had the impression that young women might find it embarrassing to be influenced by information from social media. The midwife observed that patients brought up concerns that had been «blown out of proportion» in the media, but when asked about the source of the information, they quoted friends. The informant suspected that young women do not want to admit that they are influenced by information from social media or influencers. Based on informant 7's experience and the responses from the survey, it is reasonable to interpret that it may be embarrassing to openly admit that one trusts digital strangers.

The Advice to Stop

More than half of the respondents in the survey reported that they had been advised to stop using hormonal contraception. A third of the respondents had also given someone advice to stop using hormonal contraception. The majority of the respondents reported that low mood/depression, other psychological issues, and hormonal imbalance (69.55%, 42.9%, and 47.6%, respectively) are the most important risks mentioned when advising others to discontinue use of hormonal contraception.

Some of the informants believed that a collective change in risk perception was related to the increasing focus on a better quality of life, which motivates women to explore alternatives. If good quality of life is a priority, common and so-called harmless side effects become threats as they can negatively affect the quality of life of young women. Alternatives include stopping hormonal contraception to see how one feels without it or trying another contraceptive – a course of action that doctors are advised to recommend and one the informants had previously experienced. However, our data indicate that such situations rarely occur in a vacuum, and are seemingly linked to a social amplification of risk. For example, an informant in the group interview recalled what can

be likened to a snowball effect, where some friends started reading up on hormonal contraception after secondary school, and curiosity about how the body had been affected by hormonal contraception spread within the group of friends. Several subsequently stopped using hormonal contraception to "be able to" distinguish between themselves and the effect of hormonal contraception.

Alone with the Responsibility

Although several contraceptives for men are under development, there are currently no contraceptive options for men besides vasectomy and condoms. In the group interview, the women expressed a dilemma related to hormonal contraception: women are responsible for controlling the consequences of sexual intercourse, as almost all contraceptives are aimed at women. Women have therefore experienced being pressured to accept the risks of hormonal contraception, as they are held accountable based on their reproductive characteristics. Women thus have limited choices and a limited degree of voluntariness when they choose to use hormonal contraception. It is therefore quite possible that feelings of injustice and lack of control influence young women's risk perception related to hormonal contraception.

Conclusion

In this article, we have found that young Norwegian women are relatively consistent in their risk perception regarding the use of hormonal contraception. Their risk perception is amplified by several factors. Firstly, the women experience uncertainty due to poor access to medical information about common side effects. Among friends and on social media, however, there is a strong focus on such side effects, which contributes to amplifying the women's perception of these risks. Secondly, young Norwegian women are influenced by representativeness heuristics and availability heuristics, for instance, when friends share their experiences of side effects from similar or the same type of contraceptive. Thirdly, the risk perception is also amplified by a lack of trust in the Norwegian healthcare system and a sense of injustice, as the women are solely responsible for preventing unwanted pregnancy.

We also found that friends and social media create a social amplification of risk, where women's changing contraceptive use in turn affect other women's perceptions and usage – theoretically described as ripple effects. More than half of those surveyed have been advised to stop using hormonal contraception – most likely by friends or on social media. It is also possible (but not documented in this study) that algorithms may create echo chambers that further amplify perceived risk. Young Norwegian women do not readily admit that they rely on friends and social media rather than medical professionals.

This study bridges the field of risk research and public health by applying risk perception theory to young women's hormonal contraceptive choices. According to our research, social media and peer networks greatly increase concerns about side effects which may explain the rising abortion rates and declining use of hormonal contraception. The results highlight the need for medical professionals to develop risk communication that validates rather than minimizes young women's concerns about side effects. They also indicate that incorporating risk perception discussions into contraceptive counselling could enhance patient trust in healthcare providers and informed contraceptive decision-making.

The trend described above was first observed in 2019 and accelerated during and after the COVID-19 pandemic (Apotekforeningen, 2023). Further research should investigate to what extent pandemic protection measures played into the dynamics examined in our study.

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