



Tensions around risks in pregnancy: A typology of women's experiences of surveillance medicine



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ABSTRACT

The experience of pregnancy is currently driven by the development of surveillance medicine focused on the monitoring of a wide range of risks. Research usually relies on binary categories opposing women accepting medical surveillance to those resisting it. Recent studies have however underlined the complexity of women's experiences, as well as the ambivalence of their attitudes toward medical procedures and recommendations. Based on 47 qualitative semi-structured interviews conducted in Switzerland between 2008 and 2009, this paper presents the diversity of pregnant women's experiences of surveillance medicine through the description of four contrasting groups: "endorsing surveillance medicine", "coping with risks", "striving for certainty" and "questioning surveillance medicine". Taking into account various risks related to pregnancy, these empirically-grounded groups are discussed in relation to the cultural dynamics of contemporary risk discourses.

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Introduction

Today, standard prenatal care is illustrative of surveillance medicine focused on the identification and monitoring of risks (Armstrong, 1995). Challenging the boundary between the normal and the pathological, surveillance medicine has transformed the a priori normal pregnancy into a permanent at-risk condition requiring medical intervention to assess maternal and fetal health (Bessett, 2010). Prenatal care routinely monitors a range of risks, primarily through ultrasound and regular blood and urine tests. Fetus anomalies, such as Down syndrome, and risk factors in the mother are tested. At the same time, prenatal care introduces iatrogenic risks: diagnostic procedures, such as amniocentesis or chorionicentesis, induce miscarriage in a small number of cases (around 1%) (Faris & Alfirevic, 2007). Furthermore, recommendations regarding alcohol and tobacco consumption, as well as food that could transmit infections to the mother and possibly to the fetus (such as toxoplasmosis and listeria), reinforce the risk-focused approach to pregnancy. As a result, "the pregnant woman is surrounded by a complex network of discourses and practices directed at the surveillance and regulation of her body" (Lupton, 1999b: 59–60). This paper aims to produce an understanding of low-risk

pregnant women's experiences of surveillance medicine by emphasizing the contrasting manners in which the issue of risk shapes their attitudes and decisions regarding prenatal care.

Pregnancy surveillance and tensions associated with risks

Pregnant women's experiences are shaped by the contemporary pervasiveness of risk discourses associated with expecting a baby, and the practices related to these discourses. The risk society's emphasis on a wide range of future adverse outcomes (Beck, 1992) heightens individual concerns regarding appropriate attitudes toward standard life stages, such as pregnancy. There is indeed a large body of expert knowledge on pregnancy, which defines practices for risk control (Lupton, 1999b). These medical resources, supporting rationally-oriented action, are considered beneficial and therefore taken-for-granted. However, the application of systematic and overarching surveillance generates interrogations among those who are expected to endorse it (Massé, 2007). In concrete situations, individual attitudes and decisions are likely to be shaped by contrasting interpretations of risks.

The routinization of prenatal screening exacerbates future parents' awareness of the chances the fetus could be affected by a range of malformations or diseases. Therefore, knowledge of risk fosters anxiety (Reid et al., 2009) and emphasizes the limits of control (Burton-Jeangros, Cavalli, Gouilhers, & Hammer, 2013). Parents are increasingly confronted with decisions entailing

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uncertainty and ethical dilemmas (Getz & Kirkengen, 2003; Rapp, 1999; Rothman, 1998). Tensions regarding screening have been particularly documented in connection to chromosomal anomaly surveillance. Indeed, women oscillate between wanting information on potential genetic defects and hoping to be reassured, on the one hand, and anticipating that such information would lead to difficult moral decisions regarding the continuation of a pregnancy if an anomaly is detected, on the other hand (Aune & Möller, 2012; Garcia, Timmermans, & van Leeuwen, 2008). Norms regarding tobacco and alcohol use during pregnancy are frequently challenged by women, on the grounds of drinking and smoking having had apparently a limited impact among previous generations or of their own past safe experience (Guyon et al., 2007; Raymond, Beer, Glazebrook, & Kapil, 2009). Likewise, the abundant and frequent contradictions in recommendations regarding food allow some women to justify their resistance to this advice. At the same time, these recommendations generate guilty feelings in cases of self-indulgent behaviors (Burton-Jeangros, 2011; Copelton, 2007; Root & Browner, 2001). Insofar as surveillance medicine reinforces the obligation to anticipate adverse outcomes, the salience of risk in prenatal care epitomizes the “existential anxiety” that “derives from the capacity – and, indeed, the necessity – for the individual to think ahead, to anticipate future possibilities counterfactually in relationship to present action” (Giddens, 1991: 47).

Women’s experiences with regard to risks are influenced by their interactions with the medical institution, especially since pregnancy has been transformed from a private event to a medically defined phenomenon (Barker, 1998; Cahill, 2001; Oakley, 1984). The medicalization theory that emerged in the 1970s emphasized the expansion of the medical jurisdiction and its disempowering effects on patients (Conrad & Schneider, 1980; Illich, 1976; Zola, 1972). The medical model has then been associated with women’s loss of confidence in their own bodies, dependency on professionals and undue anxiety (Morgan, 1998; Oakley, 1984). Critiques of the social control exerted on pregnant bodies often describe women’s experiences using binary categories such as medicalized/demedicalized, passive/active, accepting/refusing the medical model. With regard to risk surveillance, women are considered either compliant with expert recommendations, which indicates implicit domination by the medical model, or resistant when challenging authoritative medical knowledge and favoring a holistic approach to pregnancy and birth (Davis-Floyd, 1992).

More recent studies examining lay accounts of risks and medical institutions have considered such dichotomous views overly simplistic and have shifted the attention to the everyday patients’ experiences and to the diversity of attitudes toward medicine (Williams & Calnan, 1996). Women may have doubts or reservations regarding genetic tests during pregnancy, but still choose to take such tests (Remennick, 2006). Furthermore, declining medical tests should not necessarily be interpreted as a challenging attitude toward medicine or an expression of resistance to the medicalization of pregnancy (Markens, Browner, & Preloran, 2010). Likewise, women’s lack of compliance with food recommendations does not always express resistance to medical recommendations, but can result from personal constructions of risk thresholds (Burton-Jeangros, 2011).

Such findings provide a more nuanced picture of the medical surveillance of pregnancy and call into question the idea of “a docile lay populace, in thrall to expansionist medicine” (Ballard & Elston, 2005: 228). Riessman (1992) shows for example that at the beginning of the twentieth century, upper class women actively contributed to the medicalization of childbirth by encouraging the use of drugs as a means to reduce pain in birth, and therefore claims that “women were not simply passive victims of medical ascendancy” (Riessman, 1992: 123). The acknowledgment of lay

individuals’ autonomy (Christiaens & van Teijlingen, 2009; Conrad, 1992) suggests that women can be active, critical and reflexive agents who demonstrate consumerist behaviors in the management of pregnancy and birth (Lupton, 1999b; Markens et al., 2010). The concept of “biomedicalization” (Clarke et al., 2010) identifies this environment, in which medical technologies and discourses generate “new forms of self-regulation and self-disciplinary measures” (Riska, 2010: 155) extending well beyond medical encounters. Consideration of pregnant women’s agency calls for acknowledging the co-existence of diverse attitudes, ranging between the extremes of strict resistance to active endorsement of the medical model. According to this perspective, risk discourses conveyed by the medical profession and other channels (Lupton, 1999b) are integrated by pregnant women in various ways. This suggests that risk surveillance is currently a multidirectional process, in which different segments of society are actively engaged (Clarke et al., 2010).

Indeed, broader sociocultural expectations toward future mothers also affect their experiences with pregnancy surveillance. These expectations might contribute to their ambivalent attitudes toward risk monitoring. Patient’s autonomy and normalization of screening (Aune & Möller, 2012) imply that women’s choices are imbued with increased moral imperatives because the pregnancy outcome bears upon them (Armstrong, 1995; Press & Browner, 1997). The “individualised risk model of pregnancy” (Williams et al., 2005: 1990) accentuates the responsibility of mothers-to-be to ensure that their fetus is healthy (Markens et al., 2010; Remennick, 2006). In the United States, policies related to drinking alcohol during pregnancy, even in small doses, illustrate such an ideology of self control and personal responsibility (Armstrong, 2003; Kukla, 2010). The self-surveillance of pregnant women induced by prenatal tests and daily life norms (Bessett, 2010; Markens, Browner, & Press, 1997; Root & Browner, 2001) is further reinforced by comments formulated in daily social interactions (Burton-Jeangros, 2011). Consequently, tensions also potentially arise between individual choices and moral connotations reflecting social expectations globally adverse to risk (Beck, 1992).

The pervasiveness of risk in the contemporary experience of pregnancy and birth, as well as the ambivalence surrounding surveillance medicine have often been discussed. Nevertheless, the diversity of pregnant women’s attitudes toward risks has received less attention so far. Whereas several studies have addressed the extent to which risk has become a central issue for high-risk pregnant women (Lee et al., 2012), the case of normal pregnancies also needs to be examined. Indeed, it can be assumed that low risk pregnancies can best illustrate the current tensions generated by risk discourses in everyday life.

Some scholars have stressed the need to further investigate the “complex continuum of views toward biomedicine, with most women falling on neither extreme of full acceptance or complete rejection of medical authority” (Markens, Browner, & Press, 1999: 368). Informed and reflexive future mothers are expected to select strategies – with regard to medical tests and daily behaviors – that minimize risks. However, the process of risk surveillance almost inevitably makes them aware of the elusive control that they actually have over unwanted outcomes. Based on qualitative interviews conducted in Switzerland (Manai, Burton-Jeangros, & Elger, 2010), this paper aims to provide a better understanding of how low-risk women actually respond to omnipresent risk discourses and practices fostered by the medical institution, as well as by the wider social environment. We offer an empirically-grounded typology of pregnant women’s experiences of surveillance medicine that simultaneously considers medical screening and recommendations regarding risks in daily life. We examine the range in attitudes toward pregnancy surveillance with regard to two specific

aspects, emerging as central issues in our data and congruent with elements discussed in the literature: the salience of risks and the strategies adopted to respond to these risks. These analyses offer important insights on the extent to which risk discourses conveyed by surveillance medicine shape women's experiences of normal pregnancies, reflecting the fact that in most situations individuals now have to deal with the pervasiveness of risk thinking.

Research setting and methods

Swiss prenatal care can be described as medicalized. Pregnant women must subscribe to a private health insurance scheme, which reimburses 7 visits and 2 ultrasounds during a normal pregnancy (Manai et al., 2010). Prenatal screening for Down syndrome is performed routinely, and prenatal diagnosis is suggested to women whose test results indicate a probability of Down syndrome higher than 1/380. Health professionals are obliged to inform their patients of the risks associated with alcohol and tobacco use and the consumption of certain foods during pregnancy. At the time of data collection, toxoplasmosis screening was proposed to all pregnant women and was routinely performed on those not immune to the disease. Most pregnant women are followed by an ob-gyn working in private practice, with midwives supervising approximately 1 out of 10 pregnancies.

Semi-structured interviews were conducted by the authors (RH and CBJ) and Samuele Cavalli with 50 pregnant women in 2008 and 2009. They were recruited using team members' social networks, small posters placed within private ob-gyn and midwife offices, small posters placed within commercial centers, and displays on internet sites associated with family issues. We purposively selected only normal pregnancies, meaning that, at the time of the interview, participants did not experience complications or high risk factors posing some threat to either maternal or fetal health. The majority of the interviews were conducted during the second trimester (most women were between 16 and 28 weeks pregnant). The interviewees were aged 24–41 (average age: 33 years). Half were expecting their first baby and one third their second baby, with an average birth order (referring to the rank of the child to be born from the current pregnancy) of 1.64. Sixteen of the 50 interviewees had medical antecedents; we defined these as complications in a previous pregnancy that resulted in experiencing an actual loss or a high risk of loss of the fetus. In our sample, 12 women had experienced at least one miscarriage, one a medical termination of pregnancy, one an ectopic pregnancy, one a placental detachment, and one preeclampsia. Well-educated women are overrepresented in the sample because more than half of the participants had a university degree. We therefore cannot claim that these interviewees are representative of all pregnant women in Switzerland, this is further addressed in the Discussion.

The interviews lasted on average 75 min. They focused on women's experiences with pregnancy and assessments of follow-up. Transcripts of the audio-taped interviews, conducted in French, were coded using the Atlas.ti software. The research protocol and the interview schedule were approved by the local Ethics board for ambulatory clinical research.

The analysis followed the basic principles of qualitative data coding (Glaser & Strauss, 1967). As a preliminary step, we familiarized ourselves with the interview transcriptions through multiple readings. Four major themes then emerged as significant analytical dimensions: the experience with standard medical screening, particularly procedures for Down syndrome and toxoplasmosis; the experience with recommendations regarding daily behaviors, including alcohol, tobacco and food consumption; attitudes toward information related to risks (originating from various

sources); relationships with health professionals (ob-gyns and midwives). For each dimension, we first performed open coding to outline preliminary descriptive categories. These were then refined into subcodes through discussion between authors. These dimensions served as criteria for performing a systematic and iterative comparison to identify similarities and differences across interviews.

As a result of this process, groups of cases could be constituted along combinations of meaningful relationships between the analyzed dimensions. For most interviews, agreement regarding the placement of the interview in one distinctive group was easily reached. For 10 interviews, a discussion was necessary for assignment to a group. We excluded three of them: in one case, the interview content proved to be too confusing, and the two other interviews represented cases situated in between groups, meaning that we could not clearly assign them to one group rather than another. The remaining 7 interviews could eventually be attributed to a group despite marginal differences from other cases. After progressively refining our grouping strategies, we finally defined four groups – termed “endorsing surveillance medicine”, “coping with risks”, “striving for certainty” and “questioning surveillance medicine” – that met both the criterion for homogeneity within each group and that for heterogeneity across groups (Kluge, 2000). These groups are mutually exclusive since each of the 47 interviews was assigned to one of them. They form an empirically-grounded typology, in the sense that it reduces “the complexity of the natural world by focusing attention on a usually small number of elements or issues of interest to the researcher” (Schneider & Conrad, 1981: 212).

Results

This section describes the main features of the four groups of women we identified, along the different meaningful combinations of the analyzed dimensions (experience with standard medical screening and recommendations regarding daily behaviors, attitudes toward information related to risks and relationships with health professionals). Although each group is made up of interviews encapsulating its logic at various degrees, it is illustrated below by the most significant cases. In addition, we describe each group in terms of women's age, birth order, and medical antecedents, since these factors are considered to influence the experience of pregnancy (Bayrampour, Heaman, Duncan, & Tough, 2012; Lee et al., 2012). Interviews' quotes used in this paper were translated from French into English. The interviewees' names are pseudonyms.

Endorsing surveillance medicine

The first group of women we identified endorsed the standard medical follow-up. These 14 women were 34 years old on average, with an average birth order of 1.6. Four had experienced medical antecedents, namely miscarriages. These mothers-to-be saw prenatal tests as a “routine” and took them up without questioning: “I don't wonder much to be honest, for I trust medical staff to do the necessary tests [...] I fully trust the standards” (Axelle). They appreciated that their pregnancy was managed within a clearly defined medical framework: “it's reassuring, it's nice to be taken care of, I'm in a protocol, it really is a routine, there are some stages, I find it pleasant to be in this” (Alicia). They thus expressed their confidence in standard medical screening. Their personal engagement in surveillance was limited but could not be considered as passive insofar as they opted for a delegation of risk management to specialists.

All these women attended an ob-gyn – most of them had not seriously considered attending a midwife – and reported being satisfied with the quality of the medical follow-up. Some of them

emphasized the comfort of not having to wonder about the follow-up, grounded in their trust in the ob-gyn's medical skills and technical competence: "he will perform the procedures, the minimum that is required... he's rigorous, I know he will check what needs to be checked" (Virginie).

Women in this group stressed that they had few questions to ask and that they could easily obtain the information they wanted from their doctor. Even if some regretted poor communication with him/her or his/her limited relational competence, none had considered changing doctor – a possibility allowed in the Swiss health care system. These women relied heavily on their ob-gyn and considered him or her an expert, that is, the person best placed to judge the adequate level of information to be provided: "he doesn't overwhelm me with information, he doesn't give me much, I have the impression I can understand the essential, as for me, that's largely enough, I fairly rely on people's professionalism" (Paola). More broadly, these interviewees were characterized by a limited cognitive investment with regard to their pregnancy, as well as the content of medical follow-up. They clearly stated that they were neither interested in nor in need of further information, whether regarding the stages of fetal development, specific types of food to be avoided or their precise Down syndrome risk. Satisfied with standard information provided during medical visits, they did not see any purpose in consulting books, magazines or internet sites.

One central feature of these women's attitudes was their overall relaxed experience of pregnancy, unlike those of the two following groups. With the exception of slight worries reported in very few occasions, they did not express any particular anxiety regarding the various risks surrounding pregnancy: "as long as it's ok, one doesn't wonder" (Jeanne). In general, prenatal tests were merely perceived as a means of ensuring that "everything's fine". This rather confident attitude regarding a proper course of pregnancy was well illustrated by their attitude toward Down syndrome screening. They reported calmly waiting for the results, only seeking confirmation that there was nothing to be alarmed about. They fully endorsed the probabilistic logic of the procedure because being told to be at low-risk reassured them. Such calm attitudes also shaped their surveillance of risks in daily life. They insisted on the idea that they strived to maintain a "normal" life as much as possible and that being pregnant should not cause important changes. Overall, most did not challenge basic recommendations regarding food, alcohol and tobacco consumption. They stressed that they were not worried about these lifestyle principles, claiming that such rules should not become a source of anxiety: "one shouldn't change too much her way of living, one shouldn't be too much focused on risks and stop living" (Jeanne).

In summary (see Table 1), prenatal risks were not very salient for mothers-to-be in the "endorsing surveillance medicine" group. The issue of risk remained a rather abstract possibility while these

women followed prenatal screening and daily behaviors recommendations without questioning them. In addition to the confidence in the medical model, trust in the ob-gyn's judgment is a distinctive feature of the interviewees belonging to this group. In particular, this trust explains their satisfaction with the standard information received from their doctor.

Coping with risks

The second group of women, labeled "coping with risks", did not challenge medical follow-up but differed fundamentally from the previous group as these interviewees reported being worried about the course of pregnancy, which generated an important ambivalence between a demand for tight surveillance and the anxiety induced by risk discourses and monitoring. The 7 women included in this group were younger on average (31 years) and were characterized by the lowest average birth order (1.4). None of them reported medical antecedents. Their pregnancy experience appeared to be deeply shaped by the issue of risk, since they tended to anticipate negative events that could happen at various stages, expressing preoccupations regarding fetal viability, miscarriage, fetal anomalies or premature delivery, even though nothing concrete could substantiate their worry. Undergoing routine prenatal tests such as Down syndrome screening, toxoplasmosis tests or morphological ultrasounds was a true cause for concern. Thus, these women exhibited a substantial level of anxiety associated with potential negative outcomes of medical screening. Although some described the wait for results as a very trying experience, the stress induced by medical tests was experienced as a necessary evil. "My first concern is my baby's health, so if one says that you have to do an exam, well that means you have to do it, I don't think they amuse themselves to do it... for nothing... no, I wouldn't turn down [a test]" (Daphnée). As this quotation demonstrates, compliance with surveillance medicine reflected a substantial concern for fetal health.

These women endorsed the probabilistic logic of Down syndrome screening since they did not ask for an amniocentesis when told that they were at low-risk. However, the possibility of amniocentesis was in their minds or had been discussed at the very outset of the pregnancy, or even before becoming pregnant. Contrary to women in the first group who were reassured by screening results, in this group, declining amniocentesis was grounded in the reasoning that risks of miscarriage associated with amniocentesis were not worth running when compared with the low probability of having a fetus affected by Down syndrome. Therefore, ambivalence strongly underlay their attitudes regarding the risks emphasized by standard medical screening:

"There's a positive and a negative side, the positive side is that one is controlled, followed up and that in a certain sense it's

Table 1
Typology of surveillance medicine experiences.

Dimensions/groups	Endorsing surveillance medicine	Coping with risks	Striving for certainty	Questioning surveillance medicine
Experience with standard medical screening	Confidence in standard medical screening	Anxiety associated with potential negative outcomes of medical screening	Concerns with limits of probabilistic screening	Ambivalence toward standard medical screening
Experience with recommendations regarding daily behaviors	Confidence in recommendations regarding daily behaviors	Concerns over obtaining accurate recommendations regarding daily behaviors	Concerns over obtaining recommendations for a wide range of behaviors	Distance from recommendations regarding daily behaviors
Attitudes toward information related to risks	Satisfaction with standard information provided by the ob-gyn	Ambivalence toward information	Demand for additional medical information	Avoidance of medical information
Relationships with health professionals	Trust in ob-gyn's judgment	Reassurance from ob-gyn desired	Demand for ob-gyn's expertise	Trust in midwife's judgment

reassuring to get through stages and to think that everything's all right, but all these stages are also a source of anxiety and it makes the pregnancy very medicalized... and I find it's a source of stress" (Nathalie).

Although they all valued prenatal screening, they also stated that the repetition of tests throughout pregnancy (such as blood and urine tests, ultrasounds) acted as a continuous reminder of the issue of risk and kept raising further concerns. As a result, medical follow-up was characterized by a never-ending tension between reassurance and anxiety.

Ambivalent feelings also applied to any information on risks during pregnancy, which turned out to be a double-edged resource. In addition to information gathered from mass media or through discussions with friends, internet forums were indicated as being especially stressful: "this is a place where all women pour out their anxieties and I think one shouldn't go there too much since after a while you get scared of things of which you don't think" (Nathalie). Seeking or receiving information from various and numerous sources resulted in the formation of a non-coherent body of advice, which increased the level of concern rather than easing it. For example, Daphnée had invested a lot of time in obtaining information at the outset of her pregnancy but put all the books aside for her own peace of mind when her pregnancy was medically confirmed: "I couldn't read them since then it generated some anxieties... and thinking that what I want now is to live my pregnancy".

Anxiety induced by risk discourses was particularly salient in regard with daily behaviors. Women's motivations to adopt correct practices usually met with contradictory recommendations and complex rules. Imperatives for healthy behaviors were therefore experienced as a burden. Their concern with food consumption was especially related to a demand for regular medical tests:

"We must pay attention, and it becomes clear that many foods contain unpasteurized milk, contain... we don't know what exactly, therefore... we have to wash vegetables, it has become a puzzling problem, when you go to friends' houses... so it's still reassuring to have my blood test every month and to be told where I am" (Daphnée).

Within such a context, establishing a close relationship with the ob-gyn was regarded as a means to reduce anxiety as much as possible and to keep risk discourses at distance. These women wanted him/her to provide reassurance through not only medical tests or expert knowledge but also dialog. Such expectations regarding specialized expertise explained why they never considered a midwife follow-up. Their doctor was called to aid them in filtering the diversity of information on risks. These women were indeed particularly worried about the accuracy of recommendations regarding daily life behaviors. Some expected to be told exactly which pieces of information that they had obtained were right and which ones were wrong: "I was a lot less stressed [...] she [the ob-gyn] gave me some very clear advice" (Christine). However, to various degrees, their uncertainty or concern never completely faded away, resulting in persistent feelings of ambivalence toward the information provided by the ob-gyn: "the information, he provides it to me, even if I find sometimes that he keeps it in perspective, but at the same time, he's the doctor; therefore, it might be that I worry too much" (Noémie).

This group perfectly illustrates the emotional and cognitive tensions induced by the risk discourses related to pregnancy. For these women, risks were very salient and, therefore, they expressed important concerns in regard to screening outcomes and consequences of daily behaviors (see Table 1). Their ambivalence reveals less a veiled criticism of surveillance medicine than the degree to which they were torn between a desire to know and to obtain ever more information, and the wish to live a peaceful pregnancy.

Nevertheless, none of these interviewees would have been ready to relinquish the psychological comfort provided by medical risk monitoring. These women are described as "coping with risks" as they heavily relied on prenatal tests and ob-gyns' medical advice, which supposedly provided control and reassurance. Yet they never actually succeeded in keeping risk discourses at distance.

Striving for certainty

The third group of women was characterized by a lot of investment in medical expertise, associated with an emphasis on personal commitment to eliminating risks. In comparison with the other groups, these 9 interviewees were older on average (36 years), with the highest birth order (1.9). Three of them had experienced miscarriages, one an ectopic pregnancy and one had undergone a medical termination of pregnancy. These women fully endorsed prenatal medical surveillance and emphasized the benefits of science and technology, which they hoped could provide definite answers in regard to the outcome of their pregnancy. They particularly appreciated ultrasounds, which offered a way to monitor the fetus: "As for myself, if I could have a window there [showing her belly] to be opened every now and then to see how he is, I would do it" (Anouk). They requested regular or even more frequent tests, such as blood or urine tests, from their doctor: "each time that I feel some uneasiness, that my bladder slightly hurts, I go and I say that I want to be tested for a urinary infection" (Tania). These regular exams offered some reassurance and limited fears of unexpected developments.

They usually invested time and energy in understanding the Down syndrome screening process; however, they were not necessarily reassured by the probabilistic information that it provided because it could not eliminate the very possibility of an adverse outcome. Indeed, 6 (out of 9) underwent an amniocentesis either because of an a priori decision (therefore skipping the screening procedure) or despite a screening result that did not indicate that a diagnostic test should be performed. To exclude the presence of Down syndrome, these women accepted and ran the risk of miscarrying a baby who might prove to be healthy. Such a quest for certainty strongly distinguished them from those of other groups.

These interviewees valued medical information; they were not satisfied with the standard but exceedingly general information that they could find in books dedicated to pregnancy. In general, they preferred to know about risks that might occur during pregnancy, even if this strengthened their concerns: "I like him [her ob-gyn] very much because he also manages to tell me... straight in the eyes all dangers, all the horrible things that can occur" (Françoise). As in the previous group, these women clearly favored ob-gyns and were reassured by their medical competence. They considered that midwives had a more limited expertise, emphasizing for example their lesser access to technical procedures: "the midwife could not do an ultrasound at each visit, so I wasn't convinced by such an option [a midwife follow-up]" (Françoise). Nevertheless, several acknowledged the greater capacity to listen of midwives, and some chose to contact a midwife for birth preparation courses and postpartum follow-up. These women were demanding in their interactions with their ob-gyn and asked many specific questions. They also observed that their demands, for example the detection of rare genetic diseases such as dwarfism, could not necessarily be met by the doctor. The importance attributed to medical expertise justified staying with a doctor even when his/her relational skills were considered insufficient.

Medical information was viewed as a prime resource for maximizing the baby's health through risk reduction: "I think that at least for the first baby we have to take every available piece of

information, to get as many details as possible and as much medical follow-up as possible... to be sure not to do anything wrong... this baby must really be given all the chances" (Anouk). These pregnant women also noted that their significant demands regarding information on risks brought them face to face with contradictory or limited statements from professional sources.

Their focus on control was further observed in their adoption of prudent daily behaviors. They were fairly strict with regard to recommendations related to food, alcohol and tobacco during pregnancy. Some stressed the anxiety associated with the necessity of making such frequent decisions in their daily lives: "Yes, it's an enormous preoccupation, it's an obstacle race" (Françoise). This encumbrance was associated with a focus on their personal responsibility and capacity for action: "[referring to the prevention of spina bifida] one takes vitamins that are required, one takes the products that are required, well, one tries to protect oneself with what exists, [that birth defect] is not a fatality" (Mazarine). A distinctive feature of this group of women was that they expressed concerns over obtaining recommendations for a wide range of behaviors. Indeed, they wondered about the risks associated with very specific foods, such as frozen smoked salmon, canned tuna fish, parsley used to decorate plates in restaurants or with cosmetics or hair dye use. When they could not obtain a clear recommendation, they preferred to adopt a precautionary attitude and abstain from behaviors that might entail risks.

In short, these women made a point of eliminating risks during pregnancy through extensive surveillance, emphasizing the importance of delivering a healthy child. This attitude was described by Anouk in the following terms: "I want to have a perfect child"; others discussed it in terms of avoiding having a handicapped child. While risks were very salient for them, they emphasized the limits of probabilistic screening and strived for certainty through the use of medical technologies, a reliance on specialized knowledge and restrictions in daily behaviors (see Table 1). In particular, they insisted on their own role with regard to risk monitoring. At the same time, in many ways, these women were aware of the difficulties associated with the elimination of risks. The tension between their aspirations – seeking as definite as possible answers – and the reality – uncertainty still exists – clearly exacerbated their anxiety related to pregnancy.

Questioning surveillance medicine

In the fourth group labeled "questioning surveillance medicine", women expressed a critical stance toward the medical model of pregnancy and maintained some distance with the standard surveillance of risks. These 17 interviewees were rather young (average: 32 years) and had an average birth order of 1.7. Four of them had experienced miscarriages and one preeclampsia.

Contrary to those of other groups, these women overtly questioned medical surveillance in terms of performing excessive monitoring and intervention on pregnant women, as well as in terms of its undue focus on risks. They would rather have fewer than the usual number of medical tests and were critical of the medical follow-up, noting in particular that it entails too many medical procedures. Ultrasound scans were challenged not only because of their limited medical interest, but also because they generated unnecessary anxiety by highlighting potential risks that did not materialize. Some of these interviewees challenged more generally the relevance of prenatal screening, referring to the experiences of women who had not been diagnosed with Down syndrome despite a "suspicious" screening result. Others raised ethical issues in connection to medical surveillance, or questioned the social meaning of screening. For example, some claimed that the emphasis on Down syndrome over other conditions that cannot

be screened, such as autism, was not justified. Still others wondered about the risks of eugenics associated with genetic screening. Nevertheless, these women were ambivalent since all of them had accepted standard screening procedures and recognized that a minimum level or risk surveillance was needed, however they had difficulty defining it.

Regarding Down syndrome screening, a common feature was their lack of precise information or vocabulary to discuss the issue during the interview. They were usually hesitant in their descriptions of the procedure and could not remember their own probability or the threshold at which an amniocentesis was recommended. This limited cognitive investment in screening was associated with an overall positive feeling regarding the pregnancy. Regardless of medical results, these interviewees were confident that their baby was fine and insisted that they were not worried, even though some admitted being a little bit tense just before getting the screening results. Most had not seriously considered the option of amniocentesis.

Many chose to be supervised by a midwife, in parallel with or, most often, in substitution of ob-gyn supervision. Several expressed fairly vivid criticisms regarding their encounters with doctors who did not devote sufficient time to visits and focused excessively on technical aspects and medical risks, as expressed by Kim, quoting her doctor: "yes, the baby's okay, yes, your blood test... well, it's over, good-bye, I'll see you next month". In contrast, midwives were valued for offering a global approach to pregnancy; "contrary to the doctors, they take into account the emotional and human sides of childbearing" (Armelle). This resulted in less stressful encounters around pregnancy, as described by Lucy for her first visit with a midwife; "you're welcomed like someone who's living a beautiful adventure and who's not ill". These women did not particularly value access to specialized information: "I don't want to know, I tell myself everything's fine, I let go, I'm not looking for information" (Lucy). To them, medical surveillance and the provision of information on risks contradicted with their embodied experience of pregnancy, as illustrated by Elodie who had no doubt that her pregnancy was going well: "I'd rather not go too deeply into, no, I don't ask many questions (...) I'd probably panic if I knew [all the potential adverse outcomes], I want to experience the joys of pregnancy". Being attended by a midwife was therefore associated with a different conception of becoming a mother, in which enjoying one's pregnancy with confidence in fetal health was paramount.

Recommendations regarding daily behaviors generated mixed reactions among these women: some were critical of the constraints that they represented, whereas others considered it normal to adjust their behaviors. When they reported deviations from food recommendations, their consequences were minimized: "sometimes I did eat salad while I shouldn't have; well, I wasn't totally focused on this" (Justine). They also felt that they were able to manage such situations: Jennifer talked about taking "calculated risks" in that regard. This distance from medical recommendations was further evident in their comments on alcohol consumption, particularly when they challenged the new "zero alcohol" campaigns. In that respect too, they exhibited their willingness to keep risk discourses at bay, emphasizing the importance of enjoying their pregnancy.

These women questioned the pervasiveness of risk discourses and the provision of unnecessary information through medical surveillance (see Table 1). Whereas they were aware of risks related to pregnancy, they strived to limit their salience to preserve their own well-being. More than others, they took for granted the health of the baby and normal pregnancy progress. Adopting an alternative follow-up based on trust in midwives allowed them to focus on their embodied experience, rather than being exposed to the ill

effects of risk discourses. Yet, their criticisms toward the medical model remained limited. They were indeed torn between their conviction that their pregnancy was progressing well and acknowledging that risk surveillance may be useful in case of problems. All of these participants had accepted standard screening procedures and several opted to be followed by a midwife once they had received medical confirmation that their pregnancy was developing as expected. Although not totally absent in their case, anxiety was clearly less prevalent than in other groups. Questioning the standard medical surveillance, they preferred to avoid medical information and minimized the relevance of risk discourses for themselves.

Discussion and conclusion

In this paper, we developed an empirically-grounded typology of women's experiences with surveillance medicine, taking into account various risks associated with pregnancy. First, this study confirms the salience of risks with regard to the experience of low-risk pregnancy through either technical procedures (Rapp, 1999; Rothman, 1988) or recommendations regarding daily behaviors (Markens et al., 1997; Root & Browner, 2001). Such a salience of risks mirrors the cultural influence of the medical model and, in particular, surveillance medicine in the definition of pregnancy today. It is consistent with the thesis of the pervasiveness of "risk" in the interpretation of health in contemporary society (Petersen & Wilkinson, 2008) and of modern lives in general (Giddens, 1991). Our results contribute to this body of literature by showing how this salience results in various degrees of anxiety and tensions. All women expressed emotional concerns regarding the course of their pregnancies and fetal health, which varied from slight worry elicited only at particular moments to deeper and frequent, if not permanent, anxiety regarding a range of issues. While all interviewees were concerned about fetal health, they differed in how and in what intensity they expressed it. The issue of risk was less salient for women in the "endorsing surveillance medicine" group. By contrast, the expectations toward professionals expressed by women in the "coping with risks" and "striving for certainty" groups were significantly driven by the issue of risk. The issue of risk also shaped the experiences of women in the "questioning surveillance medicine" group, but in a specific manner. Their awareness of risks did not necessarily result in them feeling personally at risk, whereas in the two previous groups, knowing about risks was generating anxiety.

Second, our study reveals women's contrasting strategies to respond to risks, confirming that risks, commonly associated with danger or threat, require action (Douglas, 1992). We show how their strategies tackle the ill influence of risk discourses in different ways. Even women following the standard protocol ("endorsing surveillance medicine") should not be considered passive: the delegation of pregnancy surveillance to the medical institution can be interpreted as a pragmatic and legitimate method of addressing risks. The explicit transfer of risk surveillance to professionals allows them to experience a comparatively more relaxed pregnancy. Through this delegation, these women endorsed risk discourses while simultaneously remaining distant from them.

Strategies developed by women in the "coping with risks" group aimed at filtering their sources of information on pregnancy by focusing on their ob-gyn as the expert authority. Medical professionals were expected to help them put risk in perspective: they were perceived as the best placed persons to reassure them and to minimize the ill effects of risk discourses. Indeed, these women's concerns regarding risks stemmed primarily from sources such as discussions with friends or colleagues, handbooks for mothers-to-be, mass media and the internet. In this respect, our findings

confirm that the medical institution and practitioners are no longer the sole and prime conveyers of ideas related to risks; they have come to constitute only one source of risk discourses among many actors and institutions (Clarke et al., 2010; Conrad, 2007; Lupton, 1999b). These results call for further empirical research on the wide diffusion of health information, as one of the drivers of the changing status of medicine in society (Clarke et al., 2010). The positive and ill effects of extensive access to information on patients' well-being will need to be assessed.

Although women in the "striving for certainty" group share with the "coping with risks" group a significant concern regarding risks surrounding pregnancy, their strategies focused on maximizing control over and when possible eliminating risks. They over-invested in surveillance medicine, placing a high value on medical information on a wide range of risks and on strictly applying daily life recommendations. Above all, they strongly relied on technical expertise and medical tests, including risky diagnostic procedures, unlike women in the "coping with risks" group who were primarily seeking verbal reassurance from their doctors. As a result, women in the "striving for certainty" group did not seek to avoid risk discourses, but rather to make best use of them to reduce risks themselves.

Strategies developed by women in the "questioning surveillance medicine" group aimed at escaping from the stressful grip of risk discourses. However, they differed from those in the "coping with risks" group in two ways. First, they considered that the medical model itself was generating and fostering undue anxiety regarding the course of pregnancy and fetal health. Second, most of these women responded to risk discourses by attending a midwife to avoid a technical definition of pregnancy. This does not mean that they were less concerned by fetal health than others, but that they did not want to sacrifice their well-being for the sake of pervasive risk discourses. The most distinctive feature of this group of women is therefore their strong desire to keep risk discourses at a distance, as a means of preserving their actual positive feeling regarding the normal progress of their pregnancy. In contrast, women in the "coping with risks" group strived to keep risk discourses at distance as a means to reduce as much as possible their anxiety.

Through these different strategies, women reveal contrasting modes of responding to the issue of risk, within but also outside the medical model. While they all become active agents in the surveillance of their pregnancy, the critical stance and reflexivity of women in the "striving for certainty", "questioning medical surveillance", and "coping with risks" groups should be emphasized. In all these cases, women strived to actively deal with the risks, through either keeping some distance with the medical model or "over"-committing in this model. It is worth noting that while women in these groups aspire to be autonomous, they are at the same time very dependent on the medical profession.

Our results bring another important contribution through the articulation of the described groups with the cultural dynamics of contemporary risk discourses. Although we make no claim that our typology is exhaustive or can be generalized to other empirical contexts (see the limitations hereafter), women's accounts illustrate primary forms of cultural risk discourses. The "endorsing surveillance medicine" group demonstrates that some take the medical surveillance of pregnancy for granted. In this experience, medical risks are not perceived as a cause for concern, particularly when thought of as part of a trustful delegation to experts.

The "coping with risks" group epitomizes surveillance medicine as a catch-22 phenomenon, whereby experiences of risk are at the core of two interrelated but opposite effects – taming uncertainty and increasing anxiety – resulting in ambivalent feelings (Lupton, 1999a). Far from being a positive resource allowing for control over health, knowledge of risk is likely to heighten the personal

sense of vulnerability (Lupton, 1999a; Petersen & Wilkinson, 2008), as a result of a marked permeability to risk discourses. For example, some women reported that the negative experiences of acquaintances and detailed medical information found on the internet fostered uncertainty. For them, searching for more information to obtain reassurance continued to introduce new concerns and anxiety that could never be fully alleviated, even by medical expertise. This group illustrates a societal dynamic of risk in which fear, uncertainty and a quest for more knowledge fuel one another in a vicious circle.

The “striving for certainty” group sheds light on the quest for definite answers regarding health through medicine, illustrating another side of the contemporary “risk culture”. These women were willing to optimize prenatal tests and medical knowledge. Their strong investment in specialized information echoes with current expectations urging pregnant women to become experts (Armstrong, 2000). Moreover, these women aimed to eliminate the risk itself, that is, the very possibility of an adverse outcome. Such a quest for certainty may indicate different motives, including the desire to have a perfect baby, extreme emotional discomfort with the idea of risk, and strong maternal involvement in rational control over one’s body. Such a pronounced intolerance to uncertainty and to the issue of risk echoes with societal pressures that consider pregnant women to be primarily responsible for fetal health (Lupton, 1999b).

The “questioning medical surveillance” group exhibits social reactions that challenge the proliferation of risk discourses and the prominence of the scientific definition of life. Feminist scholars in particular have challenged the biomedical approach to pregnancy (Barker, 1998; Davis-Floyd, 1992; Oakley, 1984). In our study, women expressed criticism toward the pervasiveness of risk in the form of overshadowing intimate and symbolic meanings of child-bearing, as well as confidence in natural bodily processes. However, such criticism does not challenge medical intervention per se, but rather, overmedicalization, particularly the inflation of risk discourses and the overuse of medical procedures. Yet, this group also emphasizes that surveillance medicine, with its focus on risks, is a powerful process from which it is difficult to create distance (Jones, 2008).

We described each group of women according to their age, birth order and medical antecedents. While the four groups did not significantly differ along these variables, a noteworthy contrast between the “striving for certainty” group and the “coping with risks” group can be highlighted. Women in the former group were older on average (36 years), had the highest birth order (1.9), and had more medical antecedents than others (5 women out of 9). This combination might explain their demand for certainty. As shown by Bayrampour et al. (2012), higher awareness of and sensitivity to risk are associated with difficulties in reproductive history. Indeed, previous complicated pregnancies are likely to limit confidence in one’s body. Low tolerance to risks might also result from advanced maternal age, associated with an increased probability of complications and chromosomal defects to the fetus (Bayrampour et al., 2012). Overall, the characteristics of women in the “striving for certainty” group fit with the notions that children are a “scarce resource” and pregnancy is a “planning project” in contemporary societies (Lupton, 1999b: 67). In this respect, a strong investment in medical expertise and technologies appears to be the most relevant strategy for them.

Conversely, the “coping with risks” group suggests that some women may experience a substantial level of anxiety without medical antecedents in reproductive history. These mothers-to-be were younger and had a lower birth order. This resonates with Searle’s (1996) finding that the perceived risk of having an abnormal baby is higher among first-time pregnant women. This is

also consistent with a possible discrepancy between the medical status of pregnancy and the pregnant woman’s own perception. Whereas women labeled as high risk may not feel themselves at risk (Bayrampour et al., 2012; Lee et al. 2012), our findings indicate that the opposite can also be true: some can experience risk as a salient issue whereas their pregnancy is normal and with no medical antecedent. This suggests that the ill effects of risk discourses might particularly affect mothers-to-be having a limited experience of medical surveillance.

Our findings should be considered in the light of several limitations. First, our study addresses only low-risk pregnancies and further research should compare the experiences described here with those of high-risk pregnancy women. Second, high-educated women were overrepresented in our sample. Consequently, our findings cannot be generalized to all pregnant women’s experiences with surveillance medicine. Nevertheless, the four groups did not differ significantly with regard to education levels. This result suggests that attitudes toward medicine and the risk issue are most diverse among highly educated women because of their cultural and symbolic resources (Rapp, 1999). However, further studies are required to focus on how pregnant women from disadvantaged background or lower education level experience risk discourses. Third, our typology is closely related to the specific features of the Swiss context. Women’s accounts might be substantially different in countries with a less medicalized follow-up, such as the Netherlands (De Vries et al., 2001). A fourth limitation concerns to what exactly the typology refers. One could claim that each type describes how a woman would experience *any* pregnancy. Another possibility is that each type only refers to the experience of a unique pregnancy, and cannot be generalized to a woman’s other pregnancies. Still another possibility is that each type describes only a specific phase of a specific pregnancy. For example, a woman classified as “coping with risks” during the initial months of pregnancy could then join the “endorsing surveillance medicine” group. Only further empirical investigation could facilitate discussion of these alternative interpretations, for example by applying the concept of career (Goffman, 1968; Thomas, 2003) to how women experience the different stages of their pregnancy in connection with the medical institution. Our empirically-grounded typology should therefore not be considered as static, but rather be envisioned through a dynamic perspective.

Despite these limitations, we think that our typology provides a useful basis to go further into the understanding of how pregnant women experience and respond to risk discourses in different manners. In particular, there is a need for future research to focus on the diversity of challenging attitudes toward surveillance medicine. It might be expected that women reflect various experiences of risk as well as various expectations toward midwives. For example, the choice of a midwife follow-up probably reflects as much ideological congruence with the midwifery model as a pragmatic means of avoiding the medical model. Further studies could bring to light to what extent the “questioning surveillance medicine” experience encompasses more than one group.

In conclusion, this paper contributes to the sociology of pregnancy by producing a better understanding of how low-risk pregnant women experience surveillance medicine. Considering that studies have often described this experience in binary categories, our empirical typology illustrates the complexity of the manners in which women respond to risk discourses today. Tensions that underlie their strategies reveal that information on risk can have unintended effects, such as increasing anxiety and/or reinforcing the medical surveillance of pregnancy. Furthermore, these experiences of pregnancy interpreted in the light of the cultural dynamics of contemporary risk discourses show that the norm of autonomy associated with risk management can place individuals in front of

moral decisions that may be difficult to come to terms with. Eventually, whatever the level of criticism expressed by women toward surveillance medicine, their attempts to minimize the pervasiveness of risk discourses remain within the frame of modern medicine.

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