

Abstract

1
2 Women usually conceptualize pregnancy as a normal physiological state. In contrast, formal
3 maternity care provision tends to be focused on pathology and risk. The authors aim to explore
4 the extent to which childbearing women apply a sickness lens to pregnancy. We have therefore
5 examined antenatal problems spontaneously reported by 4,000 UK and Norwegian women who
6 responded to the international social media-based Babies Born Better survey. We coded and
7 classified the free-text comments of the respondents as either complaint or disease. We found
8 striking differences in the rates and types of problems reported by the women. We discuss our
9 findings by applying different perspectives of medicalization and of lay and biomedical
10 knowledge.

11

12 *Keywords:* B3 survey, pregnancy complaints, self-reported, lay knowledge, authoritative
13 knowledge, medicalization

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15 Health problems in pregnancy are common. Some health problems are defined by health-
16 care professionals and professional guidelines as biomedical diseases. Most of women's health
17 problems in pregnancy are conceptualized as "minor discomforts" (Coutts, 1998) because they
18 do not appear to signal underlying disease and cannot be verified via objective measures or
19 alleviated with standard medical treatments. Doctors tend to rank medically unexplained
20 symptoms below biomedical diagnoses in the hierarchy of illnesses (Album, 1991). This framing
21 supervalues professional concepts of what is important and reinforces the fact that health-care
22 professionals are responsible for deciding which needs are legitimate for treatment (Lian, 2000).
23 It does not acknowledge that many of these so-called minor health problems are highly
24 problematic and disabling for pregnant women. In many countries, including Norway, pregnant
25 women who experience health problems that can be defined as diseases, with biomedical
26 diagnoses, are eligible for medical treatment, social benefits, and sick leave from work, whereas
27 pregnant women who experience health problems without a medically sanctioned diagnosis can
28 struggle to be eligible for treatment and exemption from their daily duties (Fredriksen et al.,
29 2013).

30 It is striking that certain disorders of pregnancy are more or less legitimate as conditions
31 over time and across countries. Two examples are pelvic girdle pain (PGP) and gestational
32 diabetes (GD). PGP was first reported in medical textbooks in the 18th century; thereafter it
33 appeared and disappeared periodically. In Norway, it has been a well-known condition since the
34 1980s, when lay women launched a patient organization with the aim of research into PGP and
35 improved medical treatment and social welfare for women with PGP. In the UK, however, the
36 condition was very infrequently reported prior to 2004; since 2012 it has appeared far more often
37 in the literature. Internationally, there has been a steady increase in research over the last three

38 decades. GD was first reported in the literature in 1946, and there has been a stable rise in related
39 research over the last two decades. Debate persists over the balance of benefits and risks in
40 testing all women for GD and over the efficacy of current treatment regimens (Hartling et al.,
41 2012). In both Norway and the UK, women are offered a GD test if they have certain risk
42 factors.

43 The aim of our study has been to explore differences and similarities in the type and
44 framing of health problems reported by pregnant women living in similar socio-cultural settings
45 (Norway and the UK) and to discuss those differences and similarities by applying sociological
46 theory on health and sickness. We chose pelvic girdle pain and gestational diabetes as specific
47 anchors for to underpin the differences between “condition” and “disease” due to their fluid
48 legitimacy over time.

49 This issue is of importance to an audience of researchers and health-care professionals
50 internationally, because our study reveals through two examples that different and parallel
51 medicalization processes of pregnancy may influence the perception and management of
52 pregnant women’s health at both a societal and an individual level and that this applies cross-
53 culturally.

54 **Background**

55 Women’s pregnancy has been constructed and handled differently across classes,
56 cultures, and eras (Blom, 1988; Johannisson, 1996; Lupton, 2012a), and social constructions of
57 pregnancy as a state of health or illness fluctuate in tandem with shifting social constructions of
58 femininity (Johannisson, 1996). For example, in the 19th century women from the higher social
59 classes of many countries were regarded as weak and fragile, and pregnancy was approached as a

60 sickness for which the treatment placed strong emphasis on rest (Johannisson, 1996). But after
61 the 1930s, in parallel with falling birth rates and falling mortality and morbidity rates among
62 women, a new ideal of the healthy, strong and fertile woman emerged (Johannisson, 1996;
63 Lupton, 2012a). This health construction of pregnancy was challenged in the 1960s and 1970s by
64 policies for universal hospitalization for childbirth and the need for regular medical surveillance
65 in pregnancy “just in case” (Lupton, 2012b; Vallgård, 1996). However, the pendulum has
66 swung again to an extent. In both Norway and the UK, the health authorities currently state that
67 healthy pregnant women are not sick and should not be considered as ill (NICE, 2008;
68 Norwegian Directorate of Health, 2018). The emphasis at the policy level, therefore, is on
69 reducing the over-medicalization of normal physiological pregnancy. Indeed, policy in Norway
70 explicitly limits the number of medical consultations for women having a healthy pregnancy and
71 encourages pregnant women to maintain their own health and well-being, and that of their fetus,
72 by exercising and keeping fit (Norwegian Directorate for Health, 2018). This health and fitness
73 construction of pregnancy is also reflected in the antenatal maternity leave policy of both
74 countries. Pregnant women are meant to continue working as usual until three weeks before
75 delivery in Norway. In the UK, paid maternity leave can start up to eleven weeks before term,
76 although women can choose to stop working later in order to save paid maternity leave for the
77 period after the birth. Thus, at a policy level, pregnancy has been re-normalized and is no longer
78 viewed as a limitation in women’s lives (Ravn, 2004). In this context, it is a paradox that as
79 many as 75% of Norwegian women take a period of sick leave during pregnancy (Dørheim et al.,
80 2013).

81 Norway and the UK have comparable health-care systems for pregnancy care. In Norway,
82 pregnant women are entitled to regular consultations with a midwife or a general practitioner.

83 The woman may choose to see a midwife, a general practitioner, or a combination of these two
84 professionals for her pregnancy care. Practitioners in both professions provide referrals to
85 specialists if needed. In the UK, most healthy pregnant women see a midwife for all of their
86 routine antenatal visits, although they can also choose to see an obstetrician. Women with
87 pregnancy complications are usually booked with an obstetrician, but many of their health
88 consultations may still be attended by a midwife. The basic program offered to all women in
89 both countries comprises a minimum of eight consultations over the course of the pregnancy,
90 including one ultrasound screening for fetal abnormality during weeks 17 to 19 in Norway and
91 two in the UK (at booking for fetal gestation and at 16 weeks to screen for fetal abnormality). All
92 care is free of charge. The midwives' or doctors' consultations comprise health checks,
93 information, advice, and support. The woman may bring a companion of her choice to her check-
94 ups if she wants. In both countries, women who are unable to continue working because it may
95 be harmful to their health or that of their baby have the right by law to be assigned other work
96 tasks or to receive pregnancy benefits. In Norway, women who experience pregnancy-related
97 health problems may also be eligible specifically for physiotherapy. The midwife, general
98 practitioner, obstetrician, and physiotherapist have complementary roles and responsibilities vis-
99 à-vis the pregnant woman, but they do not necessarily work in an interdisciplinary team. In the
100 UK, access to any health-care professional that the woman or her fetus/neonate requires is free
101 and is usually actioned by a referral from the lead maternity-care professional (midwife or
102 obstetrician). Sometimes the general practitioner is the referring practitioner.

103 The authors of this study have used PGP and GD as examples of a pregnancy-related
104 complaint and disease, respectively. PGP is a poorly understood and ill-defined condition that is
105 characterized by pain in the lumbar and pelvic region, which commonly decreases women's

106 capacity for everyday activities such as walking, standing and bending (Bastiaanssen et al., 2005;
107 Vleeming et al., 2008). The diagnosis is often based solely on the woman's own reports of pain
108 and disability. Both its prevalence and its etiology are unclear, and its reported prevalence varies
109 from 4% to 76% globally (Gutke et al., 2018; Vleeming et al., 2008).

110 In contrast with PGP, GD is an example of a biomedically defined disease that can be
111 diagnosed via objective measures. GD is characterized by high blood sugar levels (glucose) that
112 develop during pregnancy. Blood sugar levels can be measured by way of fasting plasma glucose
113 levels or by performing a glucose tolerance test in a blood sample. In Norway, if the results are
114 above 5.3 mmol/litre in a fasting test or between 9.0 and 11.0 mmol/litre after two hours, the
115 woman is diagnosed with GD (Norwegian Directorate of Health, 2018). The prevalence of GD in
116 Norway has increased from 4.5% in 2015 to 5.0% as of 2018 (Medical Birth Registry of
117 Norway, 2020). The rate cited in the UK is also 5.0%, but this is based on a different threshold
118 for diagnosis: a fasting plasma glucose level of 5.6 mmol/litre or above or a two-hour plasma
119 glucose level of 7.8 mmol/litre or above (NICE, 2015). Disputes over the value of screening, the
120 threshold for treatment and the solutions for GD have meant that some health systems routinely
121 screen and treat all women for GD while others do not.

122 **Methods**

123 To answer the research questions, we used research participants' self-reported responses
124 on two open-ended questions about problems in pregnancy. We used data from two high-income
125 countries, Norway, and the UK, taken from version 1 of the international Babies Born Better
126 (B3) survey.

127 **Data Collection**

128 The B3 survey is a mixed-methods web-based questionnaire designed to identify the
129 factors that underpin women’s positive experiences of maternity care globally. The B3 project
130 was developed within the framework of the EU COST networking action (IS0907) *Childbirth*
131 *Cultures, Concerns and Consequences: Creating a dynamic EU framework for optimal maternity*
132 *care*.

133 The survey was launched internationally through social media in 2014 and was open for
134 responses until 2015. Women were eligible for inclusion if they had given birth up to five years
135 before they completed the survey (2009 to 2015). The questionnaire comprised 19 questions with
136 sub-questions and was divided into six sections. The first three sections required fixed responses
137 related to demographics and clinical factors. The subsequent two sections invited open responses
138 and were designed to elicit the respondents’ views of positive factors and suggestions for change
139 after their experience of care. One of the sections was titled “About your pregnancy and the birth
140 of your youngest child” and comprised six questions. The answers to two of the questions in this
141 section (“Were there any problems with that pregnancy?” and “If yes, please tell us what those
142 problems were”) served as the basis for this study.

143 **Sampling**

144 We included all of the Norwegian and UK research participants who answered yes to the
145 question relating to problems in pregnancy if they provided at least one example of their health
146 problems in either Norwegian or English. We excluded research participants who gave accounts
147 of problems that clearly did not relate to their pregnancy. Additionally, we excluded research
148 participants if it was impossible to understand the meaning of their response.

149 **Description of the Data**

150 The survey did not provide any explanation or definition of “problem in pregnancy”, so it
151 was up to the research participants to decide what they perceived as being a problem. The
152 responses varied from a single word to longer accounts consisting of several sentences. Some of
153 the research participants reported only one problem while others reported up to seven different
154 problems.

155 **Procedure for Analysis**

156 Prior to undertaking the analysis, we agreed on several strategies and codes. For example,
157 we decided that every problem related to pelvic girdle problems would be coded as “pelvic girdle
158 pain” (PGP). The codes were partly based on literature addressing women’s problems in
159 pregnancy (Helsenorge.no, 2019; Kamysheva et al., 2009; Lukasse et al., 2009; Nazik &
160 Eryilmaz, 2014; Yikar & Nazik, 2019) and partly developed inductively by the authors from the
161 material. The two authors who performed the coding process (ABVN and TSE) are both
162 midwives and researchers within the field of maternity care. We developed the codes as we were
163 working our way systematically through the material. Occasionally, we discovered that a code
164 did not work very well, and we went back and recoded some of the material.

165 First, we read the full text of the research participants’ responses to get an overview of
166 the data. Then we started to condense and organize the data by applying line-by-line coding
167 (Saldaña, 2016). We coded every problem in each response based on the content. For example,
168 we coded antenatal psychosis as “psychosis” and “I was very tired during my whole pregnancy”
169 as “fatigue”. When migraine was reported as a problem, we did not change it and thus coded it as
170 “migraine”, whilst “the baby didn't grow for the six last weeks of my pregnancy, so I had to have
171 a scan every week” we coded as “intrauterine growth restriction” (IUGR). We aimed to remain
172 close to the wording the research participants used in their responses when we did the coding.

173 For example, if the research participant used the word “hyperemesis”, we did not change it.
174 Similarly, if the research participant used the word “sickness” to refer to either morning sickness
175 or heavy morning sickness, we did not assess the seriousness of the state but applied the code
176 “sickness” in either case.

177 In the second step of the coding process, we categorized the reported health problems as
178 either complaint (C) or disease (D). The basis for our development of these two categories was
179 research literature, textbooks, diagnosis registers and the authors’ knowledge of and insights into
180 the subject matter. Category C related to conditions, which in the literature are treated as
181 common (trivial, non-serious) symptoms, unpleasant symptoms, minor symptoms, or so-called
182 normal pregnancy discomfort (Helsenorge.no, 2019; Kamysheva et al., 2009; Lukasse et al.,
183 2009; Nazik & Eryilmaz, 2014; NICE, 2008; Yikar & Nazik, 2019). Category D related to
184 conditions, which are currently generally accepted as medical disorders or diseases (Table 1).
185 These include pregnancy-specific and other medical conditions reported by the research
186 participants.

187 *[Table 1 near here]*

188 The authors imported the coded material into version 26 of the SPSS statistical package
189 for Windows (SPSS, Inc., Chicago, USA) and summarized all of the reported complaints and
190 diseases as the total number of complaints or diseases per each research participant. We applied
191 descriptive statistics to explore the proportions of complaints (C) and diseases (D) in the
192 samples.

193 **Research Ethics**

194 Ethics approval for the B3 survey study was granted by the Ethics Committee of the University
195 of Central Lancashire (UCLAN) in the UK (Ethics Committee BuSH 222). An application to the
196 Regional Committee for Medical and Health Research Ethics (REC) resulted in the decision that
197 the project did not require ethical clearance in Norway (application ref: 2017/1582). In the
198 present study we used an anonymized dataset. The study was approved by the Norwegian Data
199 Inspectorate (NSD) (ref: 60547/3/HJ/RH).

200 **Results**

201 The total number of women responding to the B3 survey was 8,479 in Norway and 2,140 in the
202 UK. More women in the Norwegian sample reported problems in pregnancy than in the UK
203 sample: 43%, (3,456/8,479) versus 31% (604/2,140). Altogether, 4,060 women (3,456 in the
204 Norwegian sample and 604 in the UK sample) reported at least one health problem related to
205 pregnancy and were included in this study. However, the two groups of respondents were similar
206 in terms of parity and age (Table 2).

207 *[Table 2 near here]*

208 Each of the research participants from the Norwegian sample reported one to seven health
209 problems in pregnancy (for a total 5,763 entries), whereas the UK research participants reported
210 one to four health problems each (for a total of 821 entries). Most of the research participants
211 who had given birth in Norway reported up to four health problems, and the majority of the
212 research participants who had given birth in the UK reported up to two health problems.

213 Table 3 shows the proportions of complaints and diseases among research participants
214 reporting problematic conditions. Of the UK entries, 19.9% were coded as complaints and 80.1%
215 as diseases. In contrast, 63.8% of the Norwegian entries were coded as complaints and 36.2% as

216 diseases. In the UK material, the distribution of complaints and diseases is fairly equal between
 217 research participants who had given birth for the first time (primipara) and research participants
 218 who had given birth to more than one child (multipara). In contrast, the Norwegian material
 219 shows that the primiparous participants reported more diseases and multiparous participants
 220 reported more complaints.

221 *[Table 3 near here]*

222 There were variations within the specific categories. Table 4 provides an example of this
 223 based specifically on the reporting of PGP (classified as a complaint (C)) and GD (classified as a
 224 disease (D)).

225 *[Table 4 near here]*

226 This analysis demonstrates that 15.3% of the UK research participants reported any
 227 problems included PGP, compared to nearly half (47.9%) of participants in the Norwegian
 228 sample. In contrast, twice as many UK research participants reported GD than did Norwegian
 229 research participants (11.3% vs 5.7%). Similar proportions of PGP were reported by parity, but
 230 the rate at which GD was reported was nearly three times as high among primiparous UK
 231 participants than among primiparous Norwegian participants, and only about a third higher
 232 among multiparous participants.

233 **Discussion**

234 The main findings of our study are the differences in self-reported health problems between two
 235 samples of women in two high-income settings. A larger proportion of research participants who
 236 gave birth in Norway reported health problems in pregnancy than did those who gave birth in the
 237 UK (43% vs 31%).

238

239 The coding of conditions as complaints or diseases revealed differences, with as many as
240 80.1% of the English research participants reporting conditions that we coded as diseases and
241 19.9% reporting conditions that we coded as complaints, compared to 36.2% and 63.8%
242 respectively for the Norwegian research participants.

243 As noted above, the health-care systems for pregnant women in the UK and Norway are
244 fairly similar, so it is unlikely that these differences are driven by the health systems. It is more
245 likely that the women in the two countries and/or the maternity care providers interpret similar
246 health problems differently and give them different emphasis and legitimacy.

247 **On Diagnosis and Complaints: Lay Knowledge versus Authoritative Biomedical**
248 **Knowledge**

249 We found more frequent reporting of PGP in the Norwegian sample of women than in the UK
250 sample of women, and less frequent reporting of GD in the Norwegian sample of women than in
251 the UK sample of women. GD is a medically sanctioned diagnosis (Norwegian Directorate of
252 Health, 2018), which can be verified by objective biomedical measurements. The diagnosis is
253 based on authoritative biomedical knowledge, which changes over time and by culture, and the
254 threshold for the diagnosis is slightly lower in the UK than in Norway (NICE, 2015; Norwegian
255 Directorate of Health, 2018). However, screening and diagnosing may be associated with
256 iatrogenic harm (Illich, 1975). Some professionals view these procedures as an over-
257 medicalization of pregnancy and dispute the value of screening and the threshold for treatment
258 (Miller et al., 2016).

259 The situation for PGP is different; this condition, which is characterized as a normal
260 pregnancy complaint in most countries, has largely been neglected by biomedical expertise. As
261 mentioned above, the issue of PGP was raised in Norway in the late 1980s by women who had
262 suffered from PGP during their pregnancies or after delivery and who set up a patient
263 organization. The women struggled for acknowledgement and social rights, and their patient
264 organization attracted a great deal of attention from the media. For example, the women used
265 photos of women sitting in wheelchairs to attract the attention of the population and of health-
266 care professionals. They questioned prevailing medical views, built alliances between members
267 of their organization, researchers and health-care professionals and lobbied politicians in order to
268 gain access to treatment and social benefits (Fredriksen et al., 2013). This is an example of a lay-
269 driven medicalization process steered by patients who challenged biomedical authoritative
270 knowledge. Other researchers have described similar lay-driven medicalization processes where
271 women's embodied experiences have diverged from the experts' biomedical knowledge (Abel &
272 Browner, 1998; Kaufert, 1998). The process of lay medicalization of PGP in Norway was
273 successful from the perspective of the women; PGP has gone from being viewed as a
274 questionable condition among complaining women to a so-called real problem which is viewed
275 as eligible for treatment and sick leave if needed. In Scandinavia, increasing numbers of women
276 have been diagnosed with PGP over the last few decades; in one study, almost a third of the
277 participants from Norway and Sweden reported sick leave due to PGP during their last
278 pregnancy, whereas only 5% of the UK participants reported sick leave due to PGP during
279 pregnancy (Gutke et al., 2018).

280 In the UK, PGP has received less attention in the media and among health-care
281 professionals, despite researchers reporting more than a decade ago that women suffering from

282 PGP are dissatisfied with the lack of recognition of their condition and the consequent negative
283 labelling by professionals (Wellock & A. Crichton, 2007). A recent study reveals that UK
284 women are still far less likely to receive treatment or sick leave for PGP than Norwegian women
285 are (Gutke et al., 2018). Lay women in the UK, in contrast with lay women in Norway, have not
286 been advocating for recognition of PGP-related health problems and these health complaints
287 remain more likely to be neglected by health-care professionals in the UK than in Norway. It is
288 also more likely that pregnant women in Norway will ask for treatment and sick leave than will
289 pregnant women in the UK, where the condition is less acknowledged. The lay medicalization
290 process has not taken place in the UK. Perhaps this health problem is also more visible in
291 Norway than in the UK because the proportion of pregnant Norwegian women (85%) working
292 full-time is greater than the proportion of pregnant women working full-time in the UK (49%)
293 (Gutke et al., 2018). Moreover, unemployment rates among pregnant women are significantly
294 lower in Norway. In a recent study, Gutke et al. (2018) reported that only 2% of the Norwegian
295 participants were unemployed compared to 26% of the UK participants. Hence, our findings
296 related to self-reported PGP in Norway and the UK may be understood as resulting partly from
297 the differing attention to the condition in the two countries and partly from the impact on paid
298 work and the availability of paid sick leave.

299 On the basis of our interpretation of our findings, we argue that there are three different
300 and/or parallel medicalization processes of pregnancy. The first is a politically driven de-
301 medicalization process of pregnancy in both countries (NICE, 2015; Norwegian Directorate of
302 Health, 2018) that aims to reduce the over-medicalization of physiologically normal pregnancies.
303 This is a parallel process in Norway and the UK. Secondly, there is a biomedically driven
304 medicalization process of measurable physiological conditions, such as GD, in both countries.

305 Thirdly, there is a publicly framed lay medicalization process of so-called normal pregnancy
306 complaints such as PGP. This process has mainly been driven by Scandinavian women, which
307 has not been the case in the UK.

308 The existence of different concepts of sickness, and the consequent need for medical
309 attention and relief from employment, in countries with otherwise very similar social and
310 medical systems, raises issues about who determines the legitimacy of experience and at what
311 cost. In this case, so-called sickness is the legitimate tender. As mentioned above, doctors tend to
312 rank medically unexplained symptoms below biomedical diagnoses in the hierarchy of illnesses
313 (Album, 1991). This framing supervalues professional concepts of what is important and
314 reinforces the fact that health-care professionals are responsible for deciding which needs are
315 legitimate for treatment (Lian, 2000). It does not acknowledge that many of these so-called
316 minor health problems are highly problematic and disabling for pregnant women. Lay pressures
317 to medicalize common but uncomfortable or even disabling pregnancy conditions may be an
318 adequate solution for women in the short run; however, translating all of the hard and
319 uncomfortable aspects of the pregnancy experience into conditions that can be taken seriously
320 and, therefore, considered worthy of time away from routine work, only if they are reframed as
321 being inherently pathological raises questions about unintended consequences.

322 The ambivalence towards recognizing the uniqueness of the pregnant body is also
323 reflected in the way that feminist writings on the body and medicine struggle with the tension
324 between “recognition of the uniqueness of women’s embodied experience and the desire to deny
325 that any such uniqueness exists” (Lupton, 2006, p. 142). A third space might be one in which
326 notions of equity replace those of equality. Under these conditions, the physiological experiences
327 and stress of pregnant bodies could be seen as somewhat more similar to the experiences of

328 athletes than of aberrant male-normal bodies. Like an athlete, pregnant women are adjusting to
329 increased physiological loads and this can require rest and recuperation at times due to
330 physiological and rather than pathological stresses and strains. We hypothesize that a move in
331 this direction might, over time, reduce the social need to label many pregnancy discomforts as
332 illnesses.

333 **Methodological Considerations: Strengths and Limitations**

334 Our findings are based on two samples of research participants from the B3 survey: a total of
335 4,060 women who gave birth between 2009 and 2015 in Norway and the UK. Norway has the
336 highest response rate of all countries involved in the B3 survey to date. Although data collection
337 via online survey can introduce systematic bias, the pregnant population tends to be very used to
338 and engaged with online data gathering. A strength of our study is how the demographic and
339 birth location data of the participants in the B3 survey closely mirrors that of the pregnant
340 population as a whole in both countries. Although different proportions of participants reported
341 problems in pregnancy – 40% in Norway vs 28% in the UK – by parity and age (Table 2) the
342 proportions are similar for both samples of women. However, a limitation of our study is the lack
343 of more detailed sociodemographic information about the research participants. For example,
344 information about their employment status and educational background might have permitted a
345 more nuanced analysis of the results.

346 The research participants described their problems in open responses in the survey. Our
347 coding of conditions as complaints or diseases could be seen as relatively subjective, although
348 we used triangulation between different sources (Helsenorge.no, 2019; Kamysheva et al., 2009;
349 Lukasse et al., 2009; Nazik & Eryilmaz, 2014; Yikar & Nazik, 2019) and the actual data. We
350 aimed to improve validity through a rigorous coding process, which was performed by two of the

351 authors (ABVN and TSE). In our approach we sought to minimize systematic bias in the way the
352 coding was undertaken between the two countries, but there are grey zones between all of the
353 classifications used. For instance, a small one-off bleed at eight weeks of gestation could just be
354 a physiological sign of placental implantation, but chronic bleeding throughout pregnancy or a
355 large bleed at any time is much more likely to be due to underlying pathology. Our classification
356 system is therefore not precise. However, we applied it equally to both country datasets, so the
357 relative differences between them are likely to be a reflection of real differences in practice.

358 **Concluding Comments**

359 We found striking differences in the types and framing of pregnancy problems reported. The
360 health-care systems in Norway and the UK are fairly similar, so it is unlikely that the explanation
361 for these differences is driven by the health systems. It is more likely that the women in the two
362 countries and/or maternity care providers interpret similar health problems differently and give
363 them different emphasis and legitimacy. Three different and/or parallel medicalization processes
364 of pregnancy seem to exist which are expressed to a greater or lesser extent in each country: a
365 de-medicalization of pregnancy rhetoric at the policy level in both countries; a parallel
366 biomedically driven process of defining pathological boundaries for measurable physiological
367 conditions in clinical practice (as in the case of GD); and, in Norway in particular, a service-user
368 process of pathologizing so-called normal pregnancy complaints such as PGP to gain legitimacy
369 for rest and recovery in the context of social norms relating to healthy pregnancy. Our findings
370 related to differences in rates of self-reported PGP and GD in Norway and the UK may partly be
371 understood as a result of the different types of attention the two conditions are paid in the two
372 countries due to the different underlying social norms and consequences as regards what is seen
373 as a legitimate reason or imperative for rest and/or treatment during pregnancy.

374

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376

Declaration of Interest Statement

377 The authors declare they have no conflicts of interests.

378

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380

Data Availability Statement

381 The data that supports the findings of this study is available on request from the corresponding

382 author, NN. The data is not publicly available due to restrictions, e.g., its inclusion of

383 information that may compromise the privacy of research participants.

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466 **Table 1.** Examples of the coding process; responses, initial codes, and classifications (C or D)

The research participants' self-reported problems	Initial code	Complaint (C) or Disease (D)
<p><i>"Bleeding at 8 weeks"</i></p> <p><i>"Ante partum bleeds, up to 24 weeks"</i></p> <p><i>"Bleeding from 29 weeks due to a hematoma on the placenta"</i></p> <p><i>"Bleeding throughout"</i></p> <p><i>"Frequent unexplained bleeds"</i></p>	Bleeding	D
<p><i>"She wasn't growing"</i></p> <p><i>"Baby didn't put the weight on"</i></p> <p><i>"Baby had stopped growing was small"</i></p> <p><i>"Baby's growth inexplicably slowed to the point where it was safer for him to be out"</i></p> <p><i>"IUGR - (symmetrical) small for gestational age discovered at 36.5 weeks"</i></p>	IUGR ¹	D
<p><i>"Gestational diabetes"</i></p> <p><i>"GD"</i></p> <p><i>"Gestational diabetes light"</i></p> <p><i>"Diet controlled gestational diabetes"</i></p> <p><i>"Insulin dependent gestational diabetes"</i></p>	GD ²	D
<p><i>"Bad back and sciatica"</i></p> <p><i>"Back problems"</i></p> <p><i>"My back hurt"</i></p> <p><i>"Pain in the lumbar region"</i></p> <p><i>"Pain in back and neck"</i></p>	Back pain	C
<p><i>"Pelvic girdle pain"</i></p> <p><i>"SPD"</i></p> <p><i>"Symphysis pubis dysfunction/pelvic girdle pain requiring crutches"</i></p> <p><i>"Pelvic problems"</i></p> <p><i>"Pelvic pain and problems walking"</i></p>	PGP ³	C
<p><i>"Swollen legs"</i></p> <p><i>"Generally, much water in my body"</i></p> <p><i>"Problems with losing stuff because of swollen hands"</i></p> <p><i>"I could hardly walk because my feet were so swollen"</i></p> <p><i>"Swollen ankles"</i></p>	Oedema	C

467 ¹ Intra Uterine Growth Restriction ² Gestational Diabetes ³ Pelvic Girdle Pain

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470 **Table 2.** Norwegian and UK participants with self-reported health problems in pregnancy

	Norwegian respondents, n=3456			UK respondents, n=604		
	(n)	(%)		(n)	(%)	
Primipara	1462	42.3		243	40.2	
Multipara	1994	57.7		361	59.8	
Age (years)	Mean	Median	(SD)*	Mean	Median	(SD*)
Primipara	29.3	29.0	(5.1)	31.4	32.0	(4.9)
Multipara	32.9	33.0	(4.8)	33.6	34.0	(5.1)

471 *Standard deviation

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473

474 **Table 3.** Proportions of total number of self-reported health problems coded as complaints and
 475 as diseases for all included participants

Problems reported:	Norwegian respondents' entries (n=5763)		UK respondents' entries (n=821)	
	(n)	(%)	(n)	(%)
Complaints	3679	63.8	163	19.9
Primipara	1493	40.6	57	35.0
Multipara	2186	59.4	106	65.0
Diseases	2084	36.2	658	80.1
Primipara	929	44.6	261	39.7
Multipara	1155	55.4	397	60.3

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479 **Table 4.** Examples of variation between PGP (classified as complaints) and GD (classified as
 480 disease) in the two samples for all participants reporting any problems

Total: N=4060	Norwegian responses (n=3456)		UK responses (n=604)	
	(n)	(%)	(n)	(%)
PGP* (C)	1656	47.9	93	15.3
Primipara	658	45.0	29	17.7
Multipara	998	50.1	64	11.9
GD (D)	197	5.7	68	11.3
Primipara	77	5.3	33	13.6
Multipara	120	6.0	35	9.7

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482 *PGP – every problem related to pelvic problems, no matter how the respondents reported it,
 483 was coded as pelvic girdle pain.

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