

ORIGINAL RESEARCH ARTICLE

The predictive value of common symptoms in early pregnancy for complications later in pregnancy and at birth

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Abstract

Introduction: The aim was to investigate whether common pregnancy-related symptoms—nausea, vomiting, back pain, pelvic girdle pain, pelvic cavity pain, vaginal bleeding, itching of vulva, pregnancy itching, leg cramps, uterine contractions and varicose veins—in the first trimester of pregnancy add to the identification of women at high risk of future pregnancy and birth complications.

Material and methods: Survey data linked to national register data. All women booking an appointment for a first prenatal visit in one of 192 randomly selected General Practices in East Denmark in the period April 2015–August 2016. The General Practices included 1491 women to this prospective study. Two outcomes, pregnancy complications and birth complications, were collected from the Danish Medical Birth Register.

Results: Among the 1413 included women, 199 (14%) experienced complications in later pregnancy. The most serious complication, miscarriage, was experienced by 65 women (4.6%). Other common pregnancy complications were gestational diabetes mellitus ($n = 11$, 0.8%), gestational hypertension without proteinuria ($n = 34$, 2.4%), mild to moderate preeclampsia ($n = 34$, 2.4%) and gestational itching with effect on liver ($n = 17$, 1.2%). Women who experienced pelvic girdle pain, pelvic cavity pain or vaginal bleeding in the first trimester of pregnancy had a higher risk of pregnancy complications later on in later pregnancy. None of the other examined symptoms showed associations to pregnancy complications. No associations were found between pregnancy-related physical symptoms in first trimester and birth complications.

Conclusions: Symptoms in early pregnancy do not add much information about the risk of pregnancy or birth complications, although pain and bleeding may give reason for some concern. This is an important message to women experiencing these common symptoms and to their caregivers.

Abbreviations: CI, confidence interval; GP, General practice; ICD-10, International Classification of Diseases 10th Revision; MBR, medical birth register; OR, odds ratio.

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KEYWORDS

birth complications, cohort, first trimester, general practice, pelvic cavity pain, pelvic girdle pain, pregnancy, pregnancy complications, vaginal bleeding

1 | INTRODUCTION

The onset of pregnancy has a number of well-known challenges and symptoms that can be of concern to pregnant women. Symptoms such as nausea, vomiting, pelvic cavity pain, girdle pain, back pain, sleep disturbances and depression¹⁻⁵ are frequent, underreported and undertreated, maybe because of their common nature or the belief that they are normal, self-limiting symptoms of pregnancy. However, there is a rise in interest in these symptoms because of their considerable frequency and morbidity.^{1,6} Approximately 80% of women experience nausea, and vomiting affects 35%–40% in the first trimester.^{2,7-12} Symptoms such as vulvar itching, vaginal infections, vaginal bleeding, pelvic cavity pain and pelvic girdle pain have been observed with frequencies of 25%–60%.¹³⁻²⁰ Furthermore, sleep complaints are common, even in the first trimester, and are associated with both physical and mental symptoms,²¹ which are often not identified or treated.²²⁻²⁵ In a previous study we demonstrated that back pain and pelvic cavity pain in the first trimester are associated with postpartum depression.²⁶ In continuation of this observation, we now aim to investigate whether these common symptoms (nausea, vomiting, back pain, pelvic girdle pain, pelvic cavity pain, vaginal bleeding, itching of vulva, pregnancy itching, leg cramps, uterine contractions and varicose veins) in early pregnancy may be predictive of more general complications in pregnancy and birth, and, hence, are indicative of a need for increased attention.

2 | MATERIAL AND METHODS

2.1 | Study design

A prospective cohort study, following pregnant women from the first General Practice (GP) consultation in early pregnancy to childbirth.

2.2 | Setting

The healthcare system in Denmark is tax-funded and care is free of charge for patients. The majority of Danes are registered with a GP who functions as a gatekeeper to specialist secondary care. Citizens are entitled to see a regular GP of their own choosing and thereby register with a practice.

By law, pregnant women are invited to a minimum of three prenatal GP consultations in pregnancy weeks 6–10, 25 and 32. A fourth postnatal care consultation takes place 8 weeks after delivery. The first prenatal visit is attended by almost all pregnant women who wish to keep their pregnancy. In this consultation a thorough

Key message

Women who experienced pelvic girdle pain, pelvic cavity pain or vaginal bleeding in the first trimester of pregnancy had a higher risk of later pregnancy complications, but we found no significant associations between any early pregnancy symptoms and birth complications.

and structured record is established (the Pregnancy Health Record), which is then sent to midwives and the hospital department.

2.3 | Participants

All GPs working in The Capital Region and Region Zealand, two of the five Danish administrative regions, were eligible to participate. A detailed description of the recruitment process can be found elsewhere.²¹ All women booking an appointment for a first prenatal visit in the participating 192 GP practices between April 1, 2015 and August 15, 2016 were eligible for participation. All women were given oral and written information about the project and were enrolled when signing a consent form.

2.4 | Data and material

The data was collected by means of the Pregnancy Health Record and an electronic patient questionnaire. The Pregnancy Health Record is a standardized national two-page paper form that is initiated and completed by the GP at the first prenatal care visit. The electronic questionnaire developed for this study was sent by e-mail after the first prenatal care visit. The questionnaire was in Danish. Questionnaires were re-issued to non-responders after 2 weeks. If they still did not respond, an e-mail and text message were sent.

The questionnaire inquired into pregnancy-related symptoms: nausea, vomiting, back pain, pelvic girdle pain, pelvic cavity pain, vaginal bleeding, itching of vulva, pregnancy itching, leg cramps, uterine contractions, varicose veins and sleep problems. It contained anatomic pictures, for example with arrows pointing to the location of pelvic girdle pain. Responses were categorized as “yes” or “no”.

Other information was used to adjust for potential confounding and was for this purpose arranged into three thematically ordered blocks.

Section I—“Sociodemographic” contains: age, children living at home (no, yes), marital status (married/cohabiting/other, living

alone), education (none, short, middle, long), occupation (employed, unemployed, student, other), income (<39,000 €, 40,000–79,999 €, 80,000–119,999 €, ≥120,000 €, do not want to answer) and substance use during pregnancy (smoking, drinking alcohol, use of other drugs) (none, at least one).

Section II—“Physical and mental health” contains: self-rated health (very good/good, fair/poor/very poor), self-rated fitness (very good/good, fair/poor/very poor), previous psychological difficulties (no, yes/no healthcare, yes with healthcare), high depression score (Major depression index ≥21): (no, yes), high anxiety score (Anxiety stress scale ≥50): (no, yes), sleep problems (no, yes) and medical doctor-reported mental diseases: (no, yes), heart disease, lung disease, thyroid disease, diabetes, epilepsy, recurrent urinary tract infections (none, at least one).

Section III—“Reproductive background” contains: parity (0, 1, more than one), previous miscarriages and abortions (0, 1, more than one) and in vitro fertilization (no, yes). Data about substance use, reported mental diseases and somatic diseases and reproductive background were obtained from the Pregnancy Health Record; all other data were from the questionnaires.

2.5 | Outcome

This study investigates two outcomes: (1) whether the woman experienced serious pregnancy complications, and (2) whether the woman experienced serious birth complications. We used The Danish Medical Birth Register (MBR)²⁷ to identify those women in our cohort who experienced serious pregnancy or birth complications. When people in Denmark are evaluated or treated in hospital, their contact will be registered with one or several International Classification of Diseases 10th Revision (ICD-10) diagnosis codes, used for reimbursements and statistics. We used the unique personal identification number assigned to all individuals residing in Denmark and date of delivery to link the study data to the data from the MBR. Pregnancy complications are defined by the following ICD-10 codes: DO 10.0–36.1, birth complications by DO 60.1–75.8 and procedure code for acute cesarean MKCA 10A and E. A detailed breakdown of the above diagnoses is found in Table S1. The occurrence of ICD-10 diagnosis codes can be found in the MBR. We recorded miscarriages as pregnancy complications and stillbirths as birth complications. Withdrawal of consent before answering the first questionnaire was an exclusion criterion for the analysis of pregnancy complications. In addition, miscarriage was an exclusion criterion for the analysis of birth complications.

2.6 | Statistical analyses

Characteristics of the study population were compared between women with and those without pregnancy and birth complications, using chi-square tests. Logistic regression analysis was used to test the associations between the early pregnancy-related symptoms

and serious complications later in pregnancy and at birth. These associations were assessed as odds ratios (OR) unadjusted, adjusted for each of three blocks individually, and adjusted for all three blocks simultaneously. The purpose of these stepwise adjustments was to see whether the additional information could explain the associations apparent in the unadjusted assessment. A p -value <0.05 was considered statistically significant. The statistical analyses were performed with SAS version 9.4 (SAS Institute).

2.7 | Ethics statement

The study was registered at the Danish Data Protection Agency (Journal 2014-41-3018). According to Danish regulations (no. 593 of June 14, 2011), this study does not need approval from a health research ethics committee because it is based solely on register data and questionnaires.

3 | RESULTS

A total of 1491 pregnant women gave informed consent to participate in the study at their first prenatal care visit. A total of 78 women were excluded from the analysis (29 had a miscarriage before answering the questionnaire, four declined, 20 did not answer and 25 could not be linked to the MBR) (Figure 1).

Among the 1413 included women, 199 (14%) experienced complications in later pregnancy. The most serious complication, miscarriage, was experienced by 65 women (4.6%). Other common pregnancy complications were gestational diabetes mellitus ($n = 11$, 0.8%), gestational hypertension without proteinuria ($n = 34$, 2.4%),

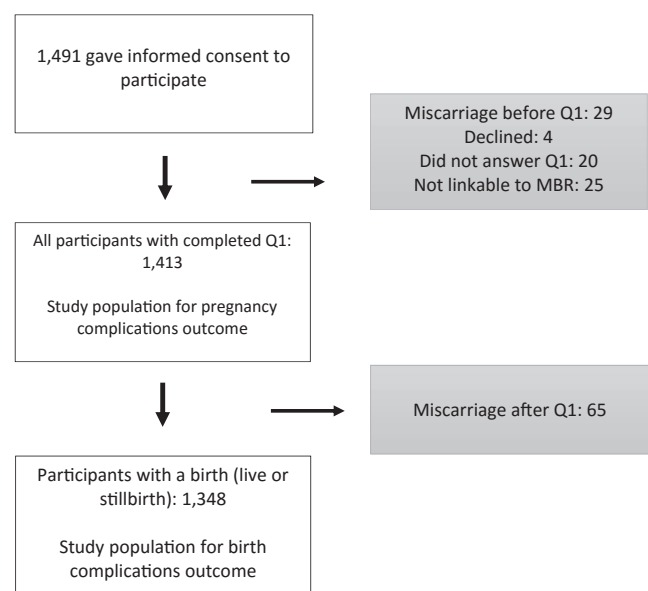


FIGURE 1 Flowchart of the population with possible pregnancy and/or birth complications.

TABLE 1 Baseline characteristics of the women in the study and their associations with pregnancy complications and birth complications

	Pregnancy complications (n = 1413)				Birth complications (n = 1348)				All (n = 1413)		
	NO		YES		NO		YES		P-value	n	%
	n	%	n	%	n	%	n	%			
Age											
≤25 years	154	12.7	24	12.1	152	13.1	17	9.19	0.37	178	12.6
26–30 years	424	34.9	62	31.2	403	34.7	69	37.3		486	34.4
31–35 years	413	34.0	62	31.2	389	33.5	68	36.8		475	33.6
≥36 years	223	18.4	51	25.6	219	18.8	31	16.8		274	19.4
Children living at home											
Yes	481	39.6	101	50.8	448	38.5	99	53.5	0.0001	582	41.2
No	733	60.4	98	49.3	715	61.5	86	46.5		831	58.8
Marital status											
Married/cohabiting/other	1165	96.0	194	97.5	1115	95.9	180	97.3	0.35	54	3.8
Living alone	49	4.0	5	2.5	48	4.1	5	2.7			
Education											
None	315	26.0	52	26.1	302	26.0	51	27.6	0.74	367	26.0
Short	148	12.2	27	13.6	143	12.3	27	14.6		175	12.4
Middle	463	38.1	76	38.2	444	38.2	67	36.2		539	38.2
Long	288	23.7	44	22.1	274	23.6	40	21.6		332	23.5
Occupation											
Employed	904	74.5	153	76.9	869	74.7	135	73.0	0.95	1057	74.8
Unemployed	66	5.4	9	4.5	63	5.4	10	5.4		75	5.3
Student	170	14.0	26	13.1	160	13.8	27	14.6		196	13.9
Other	74	6.1	11	5.5	71	6.1	13	7.0		85	6.0
Income (€)											
<39,999	151	12.4	24	12.0	139	12.0	25	13.5	0.87	175	12.4
40,000–79,999	359	29.6	70	35.1	353	30.4	53	28.7		429	30.4
80,000–119,999	402	33.1	63	31.7	389	33.5	61	33.0		465	32.9
≥120,000	129	10.6	19	9.6	123	10.6	17	9.2		148	10.5
Do not want to answer	173	14.3	23	11.6	159	13.7	29	15.7		196	13.9
Self-rated health											
Very good/good	966	79.6	154	77.4	913	78.5	152	82.1	0.26	1120	79.3
Fair/poor/very poor	248	20.4	45	22.6	250	21.5	33	17.8		293	20.7

TABLE 1 (Continued)

	Pregnancy complications (n = 1413)				Birth complications (n = 1348)				All (n = 1413)		
	NO		YES		NO		YES		P-value	n	%
	n	%	n	%	n	%	n	%			
Self-rated fitness											
Very good/good	348	28.8	53	26.6	332	28.6	57	30.8	0.53	402	28.5
Fair/poor/very poor	865	71.3	146	73.4	831	71.5	128	69.2		1011	71.6
Substance use											
None	1121	92.3	190	95.5	1074	92.4	174	94.1	0.41	1311	92.8
At least one	93	7.7	9	4.5	89	7.7	11	6.0		102	7.2
MD reported somatic diseases											
None	977	80.5	159	79.9	942	81.0	142	76.8	0.18	1136	80.4
At least one	237	19.5	40	20.1	221	19.0	43	23.2		277	19.6
In vitro fertilization											
No	1095	90.2	178	89.5	1051	90.4	162	87.6	0.24	1273	90.1
Yes	119	9.8	21	10.6	112	9.6	23	12.4		140	9.9
Previous abortions											
None	759	62.5	122	61.3	734	63.1	108	58.4	0.38	881	62.4
One	321	26.4	43	21.6	297	25.5	56	30.3		364	25.8
More than one	134	11.0	34	17.0	132	11.4	21	11.4		168	11.9
Parity											
None	529	43.6	106	53.3	487	41.9	111	60.0	<0.0001	635	44.9
One	473	39.0	55	27.6	453	39.0	59	32.0		528	37.3
More than one	212	17.5	38	19.1	223	19.1	15	8.1		250	17.79
Psychiatric disease											
No	1128	92.9	181	91.0	1074	92.3	175	94.6	0.28	1309	92.6
Yes	86	7.1	18	9.0	89	7.7	10	5.4		104	7.3
Previous psychological difficulties											
No	613	50.5	108	54.3	592	50.9	91	49.2	0.87	721	51.0
Yes, no healthcare	243	20.0	35	17.6	228	19.6	36	19.5		278	19.7
Yes, with healthcare	358	29.5	56	28.1	343	29.5	58	31.4		414	29.3
Depression (MDI ≥ 21)											
No	1041	85.8	161	80.9	987	84.9	155	83.8	0.70	1202	85.1
Yes	173	14.3	38	19.1	176	15.1	30	16.2		211	14.9

TABLE 2 The prevalence of self-reported pregnancy-related physical symptoms, classified by later pregnancy and birth complications in the same pregnancy among the pregnant women in first trimester

	Pregnancy complication (n = 1413)				Birth complications (n = 1348)				All	
	NO		YES		NO		YES			
	n	%	n	%	n	%	n	%	n	%
Pregnancy symptoms										
Nausea	1073	88.4	170	85.4	1032	88.7	162	87.6	1243	88.0
Vomiting	488	40.2	77	38.7	464	39.9	85	46.0	565	40.0
Back pain	454	37.4	78	39.2	425	36.5	81	43.8	532	37.7
Pelvic girdle pain	388	32.0	84	42.2	381	32.8	70	37.8	472	33.4
Pelvic cavity pain	665	54.8	129	64.8	643	55.3	109	58.9	794	56.2
Vaginal bleeding	201	16.6	46	23.1	188	16.2	36	19.5	247	17.2
Itching of vulva	226	18.6	35	17.6	215	18.5	38	20.5	261	18.5
Pregnancy itching	209	17.2	26	13.1	199	17.1	30	16.2	235	16.6
Leg cramp	123	10.1	17	8.5	116	6.0	18	9.7	140	9.911
Uterine contractions	57	4.7	7	3.5	55	4.3	8	4.32	64	4.5
Varicose veins	34	2.8	5	2.5					39	2.8

Note: Due to low numbers, varicose veins could not be reported as birth complications.

One study exploring sub-chorionic hematomas among pregnant women with vaginal bleeding showed that the ratio of pregnancy loss was higher among women who had nonspecific pelvic pain.³⁰ Pain symptoms with a different etiology are, however, likely to be prevalent, which makes pelvic pain less useful as a clinical predictor.

Our finding that vaginal bleeding in early pregnancy is a risk factor for adverse obstetric and perinatal outcome is well known. Women with vaginal bleeding have twice the risk of low birthweight³¹ and an increased risk of antepartum hemorrhage, preterm rupture of membranes, preterm delivery, intrauterine growth restriction and perinatal mortality.^{32,33} Therefore, it is highly appropriate to refer pregnant women experiencing vaginal bleeding to ultrasound to check up for extrauterine pregnancy or ongoing or missed miscarriage, as stipulated in current Danish guidelines.³⁴

This study offered a unique opportunity to identify the source population, because almost all pregnant women in Denmark contact their GP in early pregnancy, and first pregnancy consultations are registered in a national database based on reimbursement data provided by GPs.³⁵ Great effort was put into recruiting and obtaining responses from the pregnant women, and no exclusion criteria were used in recruitment.³⁵ A recruitment bias might be present, as the GPs might not have recruited all available women, and women who did not read Danish well might not have participated. This deviation from a representative sample of pregnant women in Denmark affects prevalence data but should not affect the studied associations between symptoms and outcomes. Still, this pregnancy study offered a unique opportunity to identify the source population because almost all pregnant women in Denmark contact their GP in early pregnancy, and first pregnancy consultations are registered in a national database based on reimbursement data provided by GPs.

There were very few non-responders among those who agreed to participate, and complete data were obtained from almost all participants who were recruited to the study at the first pregnancy consultation. Furthermore, information on pregnancy and birth complications was studied using the Danish national register, the MBR. The main strength of the MBR is the exhaustive coverage of all births in Denmark.³⁶

The questionnaires were supposed to be obtained directly after the first pregnancy consultation in weeks 6–10. The fast responders may not have had time to experience any of the pregnancy-related symptoms, and women who had to receive reminders had more time to experience pregnancy-related symptoms, but less time to experience pregnancy complications, or may have left the study because of pregnancy complications. Because of this spread, there is an artificial tendency for the presence of symptoms to be associated with fewer pregnancy complications; this biases the associations conservatively. Furthermore, confounding does not seem to explain the associations that we found. We adjusted for a large set of potential confounders and this did not appear to have a significant effect compared with the unadjusted estimates. Hence, we cannot point to specific areas (ie the three thematic blocks) that confound the associations.

The women were asked to grade the severity of the symptoms if they were present, but the grading was not used in the present analysis. Perceptions of severity differ between women, making this information subjective, and fragmenting the analysis would result in weaker inference. Hence, we analyzed the mere presence of the symptom as a more robust indicator with stronger inference.

The codes in the Pregnancy Health Record do not distinguish between incident and prevalent conditions and it was, therefore,

TABLE 3 The associations between pregnancy-related physical symptoms in the first trimester, and pregnancy and birth complications

Pregnancy complications	Block I: Adjusted for age and sociodemographic characteristics			Block II: Adjusted for physical and mental health and resources			Block III: Adjusted for reproductive background			
	OR [95%CI]	P-value	OR [95%CI]	OR [95%CI]	P-value	OR [95%CI]	OR [95%CI]	P-value	OR [95%CI]	P-value
Nausea	0.77 [0.50-1.19]	0.24	0.82 [0.53-1.28]	0.39	0.76 [0.49-1.19]	0.23	0.74 [0.48-1.15]	0.19	0.75 [0.47-1.18]	0.20
Vomiting	0.94 [0.69-1.28]	0.69	0.98 [0.72-1.35]	0.91	0.95 [0.70-1.30]	0.75	0.91 [0.67-1.24]	0.55	0.96 [0.70-1.33]	0.82
Back pain	1.08 [0.79-1.47]	0.63	1.09 [0.79-1.50]	0.58	1.09 [0.79-1.49]	0.60	1.04 [0.76-1.42]	0.83	1.06 [0.76-1.47]	0.74
Pelvic girdle pain	1.55 [1.14-2.11]	0.005	1.65 [1.20-2.26]	0.002	1.55 [1.13-2.12]	0.01	1.56 [1.14-2.13]	0.005	1.62 [1.17-2.25]	0.003
Pelvic cavity pain	1.52 [1.11-2.08]	0.008	1.50 [1.09-2.07]	0.01	1.47 [1.06-2.03]	0.02	1.53 [1.11-2.10]	0.01	1.53 [1.10-2.14]	0.012
Vaginal bleeding	1.52 [1.05-2.18]	0.03	1.48 [1.02-2.13]	0.04	1.50 [1.04-2.17]	0.03	1.54 [1.07-2.21]	0.02	1.52 [1.04-2.20]	0.03
Itching of vulva	0.93 [0.63-1.38]	0.73	0.96 [0.65-1.43]	0.85	0.91 [0.61-1.36]	0.65	0.92 [0.62-1.37]	0.69	0.93 [0.62-1.39]	0.73
Pregnancy itching	0.72 [0.47-1.12]	0.15	0.71 [0.46-1.11]	0.14	0.73 [0.47-1.14]	0.16	0.72 [0.46-1.12]	0.14	0.72 [0.46-1.13]	0.15
Leg cramp	0.83 [0.49-1.41]	0.49	0.79 [0.46-1.37]	0.41	0.84 [0.49-1.45]	0.53	0.81 [0.47-1.38]	0.44	0.78 [0.45-1.36]	0.38
Uterine contractions	0.74 [0.33-1.65]	0.46	0.80 [0.35-1.82]	0.59	0.79 [0.35-1.79]	0.57	0.76 [0.34-1.69]	0.50	0.80 [0.34-1.84]	0.59
Varicose veins*	0.89 [0.35-2.32]	0.82	0.93 [0.35-2.45]	0.88	0.89 [0.34-2.34]	0.81	0.91 [0.35-2.36]	0.84	0.84 [0.31-2.27]	0.73
Birth complications										
Variable	OR [95%CI]	P-value	OR [95%CI]	P-value	OR [95%CI]	P-value	OR [95%CI]	P-value	OR [95%CI]	P-value
Nausea	0.89 [0.56-1.43]	0.64	1.00 [0.62-1.63]	1.00	0.93 [0.57-1.50]	0.77	0.88 [0.55-1.43]	0.61	1.00 [0.61-1.65]	0.99
Vomiting	1.28 [0.94-1.75]	0.12	1.31 [0.95-1.82]	0.10	1.24 [0.90-1.70]	0.19	1.27 [0.93-1.74]	0.14	1.31 [0.94-1.82]	0.11
Back pain	1.35 [0.99-1.85]	0.06	1.36 [0.98-1.88]	0.07	1.36 [0.99-1.88]	0.06	1.34 [0.97-1.85]	0.08	1.38 [0.98-1.93]	0.06
Pelvic girdle pain	1.25 [0.91-1.72]	0.17	1.27 [0.91-1.76]	0.16	1.27 [0.92-1.77]	0.15	1.22 [0.88-1.70]	0.23	1.25 [0.89-1.76]	0.20
Pelvic cavity pain	1.16 [0.85-1.59]	0.36	1.06 [0.76-1.47]	0.73	1.01 [0.73-1.41]	0.94	1.17 [0.85-1.61]	0.34	1.01 [0.72-1.42]	0.96
Vaginal bleeding	1.25 [0.84-1.86]	0.26	1.27 [0.85-1.90]	0.25	1.22 [0.81-1.82]	0.34	1.26 [0.85-1.88]	0.25	1.26 [0.83-1.90]	0.28
Itching of vulva	1.14 [0.77-1.68]	0.51	1.17 [0.79-1.74]	0.42	1.16 [0.78-1.71]	0.47	1.12 [0.76-1.65]	0.58	1.16 [0.77-1.74]	0.47
Pregnancy itching	0.94 [0.62-1.43]	0.76	0.90 [0.59-1.39]	0.64	0.92 [0.60-1.41]	0.72	0.91 [0.60-1.39]	0.67	0.89 [0.57-1.38]	0.60
Leg cramp	0.97 [0.58-1.64]	0.92	0.93 [0.54-1.60]	0.80	0.97 [0.57-1.66]	0.92	0.95 [0.56-1.62]	0.86	0.92 [0.53-1.60]	0.7691
Uterine contractions	0.91 [0.43-1.94]	0.81	1.06 [0.48-2.30]	0.89	1.27 [0.58-2.78]	0.55	0.93 [0.43-1.99]	0.84	1.33 [0.60-2.95]	0.4885

Note: Due to low numbers, varicose veins could not be reported as birth complications.

not possible to exclude women with preexisting conditions. Our aim is to investigate the value of symptoms as indicators of need for increased attention, and pre-existing conditions are not to be neglected as targets of this care. We opted to pool the various types of complications into single outcomes of general complications or conditions that possibly need attention. Analyses on the individual complications decrease the frequencies of each of the outcomes and spread the analyses thinly over multiple outcomes. This lowers the power of the individual analysis and calls for multiple testing adjustments, which would generally lower the probability of detecting associations. However, some existing associations may be missed because of an inflated variance in the pooled outcome. As our aim is to investigate the usefulness of symptoms as signs for increased attention, regardless of mechanisms and etiology, we found it pertinent to pool the complications as we view these rather as signs of the doctor indicating there is a problem than an actual diagnosis of disease.

5 | CONCLUSION

Symptoms in early pregnancy are common and do not often signal a potential risk of severe pregnancy or birth complications, although pain and bleeding may give some cause for concern. This is a clinically important message for women experiencing symptoms and for their caregivers.

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CONFLICT OF INTEREST

None.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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