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| RESEARCH ARTICLE

Reproductive Health in Inflammatory Bowel Disease: From Fertility to Maternal–Fetal Outcomes — Determinants, Preconceptional Considerations, and Therapeutic Exposure

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| ABSTRACT
Inflammatory bowel disease (IBD) — chiefly Crohn's disease (CD) and ulcerative colitis (UC) — frequently affects women of reproductive age. Disease activity, treatment, surgery, and nutritional status may all influence fertility, family planning, preconception preparation, and maternal–fetal outcomes. Data from North Africa remain limited. The study objective was to evaluate the reproductive health of women with IBD and to identify determinants of impaired conception and adverse pregnancy outcomes, with particular attention to the role of disease activity at conception. Observational, ambispective, multicentre, longitudinal cohort study including 460 women aged 18–45 years with CD or UC, followed at Sétif and El Eulma. Sociodemographic, clinical, surgical, nutritional, biological, therapeutic, and reproductive data were collected. Factors associated with infertility and adverse obstetric outcomes were assessed by multivariable logistic regression. Mean age was 31.5 ± 5.2 years; 223 women (48.5%) had CD and 237 (51.5%) had UC. A pregnancy project was reported by 289 women (62.8%), of whom 218 (75.4%) conceived. In total, 275 pregnancies were analysed; active disease was present at conception in 49 cases (17.8%). A composite adverse outcome occurred in 63 pregnancies (22.9%). IBD activity at conception was significantly associated with an increased risk of adverse outcome (adjusted OR 3.41; 95% CI 1.71–6.80; p<0.001). The exploratory model had an AUC of 0.67 (bootstrap 95% CI 0.59–0.76). IBD activity at the time of conception is the principal modifiable determinant of adverse pregnancy outcomes. These findings support a structured preconception strategy targeting disease remission, nutritional and therapeutic optimisation, and coordinated gastroenterology–obstetric care.

| KEYWORDS
IBD; Crohn's disease; ulcerative colitis; fertility; pregnancy; preconception; inflammatory activity; maternal–fetal outcomes; Algeria

| ARTICLE INFORMATION
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1. Introduction
Inflammatory bowel disease (IBD) principally Crohn's disease (CD) and ulcerative colitis (UC) frequently affects women of reproductive age. Its management raises questions of contraception, fertility, pregnancy, and parenthood. Reproductive health, however, depends on multiple factors, including disease activity, treatment, surgery, nutritional status, and patients' own perceptions of IBD [Nielsen et al., 2024; Mahadevan et al., 2026; Brenner et al., 2016].

Biological fertility is broadly preserved in women with IBD but may be reduced after certain pelvic surgeries, particularly proctocolectomy with ileo-anal pouch anastomosis, partly owing to postoperative adhesions [Sun et al., 2022; Narula et al., 2014]. Voluntary deferral of pregnancy driven by fear of disease or treatment must also be distinguished from true biological infertility [Brenner et al., 2026; Nguyen et al., 2016].

Disease activity is a major determinant of reproductive prognosis. Active disease may be accompanied by malnutrition, anaemia, and micronutrient deficiencies, and is associated with an increased risk of complications such as preterm birth and fetal growth restriction [Nielsen et al., 2024; Mahadevan et al., 2026; Mahadevan et al., 2019; Narula et al., 2014]. Conversely, conception during remission is associated with better maternal–fetal outcomes [Nielsen et al., 2024; Mahadevan et al., 2026].

Pregnancy is now considered achievable for the majority of women with IBD. The goal is to plan conception during a period of controlled disease and to maintain effective treatment when necessary. Available data are broadly reassuring regarding biologic therapies, particularly anti-TNF agents, although data remain more limited for some newer molecules [Mahadevan et al., 2026; Julsgaard et al., 2016; Gordon et al., 2024].

Preconception consultation allows assessment of disease activity, optimisation of treatment, correction of nutritional deficiencies, and discussion of reproductive risk. It is now recommended within international management strategies [Moens et al., 2022; Narula et al., 2024].

Despite these advances, data on the reproductive health of women with IBD remain limited in North Africa, particularly regarding access to preconception counselling and the determinants of conception and obstetric outcomes.

The objective of our study was to investigate the factors influencing reproductive health, pregnancy planning, conception, and maternal–fetal outcomes among Algerian women with inflammatory bowel disease, with particular emphasis on infertility, contraceptive use, delayed pregnancy plans, preconception counselling, disease activity, previous surgery, nutritional status, and IBD treatments.

We hypothesized that active IBD, previous pelvic surgery, and nutritional abnormalities would be associated with impaired reproductive health, delayed conception, and an increased risk of adverse maternal–fetal outcomes among Algerian women with inflammatory bowel disease.

2. Methods

2.1. Study design and period

An ambispective, multicentre, longitudinal cohort study was conducted from January 2020 to January 2026 among women with IBD. Retrospective data collection and prospective follow-up covered disease course, treatment, reproductive health, and maternal–fetal outcomes. The study complied with the Declaration of Helsinki and the STROBE recommendations.

2.2. Participating centres

The cohort comprised 460 women recruited from four centres in the Sétif region: Sétif University Hospital (CHU de Sétif, n=220), the El Eulma Mother–Child Specialised Hospital (EHS Mère-Enfant, n=105), El Eulma General Hospital (EPH d'El Eulma, n=85), and the Sétif Public Health Establishment (EPSP de Sétif, n=50). Each patient was counted only once, according to her main centre of inclusion.

2.3. Population and variables

The cohort comprised 460 women aged 18–45 years, including 244 (53.0%) with CD and 216 (47.0%) with UC. IBD activity at inclusion was classified as controlled disease (345 women, 75.0%) or active disease (115 women, 25.0%).

To avoid conflating reproductive and obstetric health, the cohort was organised into three analytical levels:

Level 1 — overall cohort: the 460 women.

Level 2 — reproductive sub-cohort: the 275 women (59.8%) reporting an active pregnancy project during the study period, used for the analysis of conception and fertility.

Level 3 — obstetric sub-cohort: the 231 women who achieved at least one pregnancy, used as the principal population for the analysis of maternal, fetal, and neonatal outcomes.

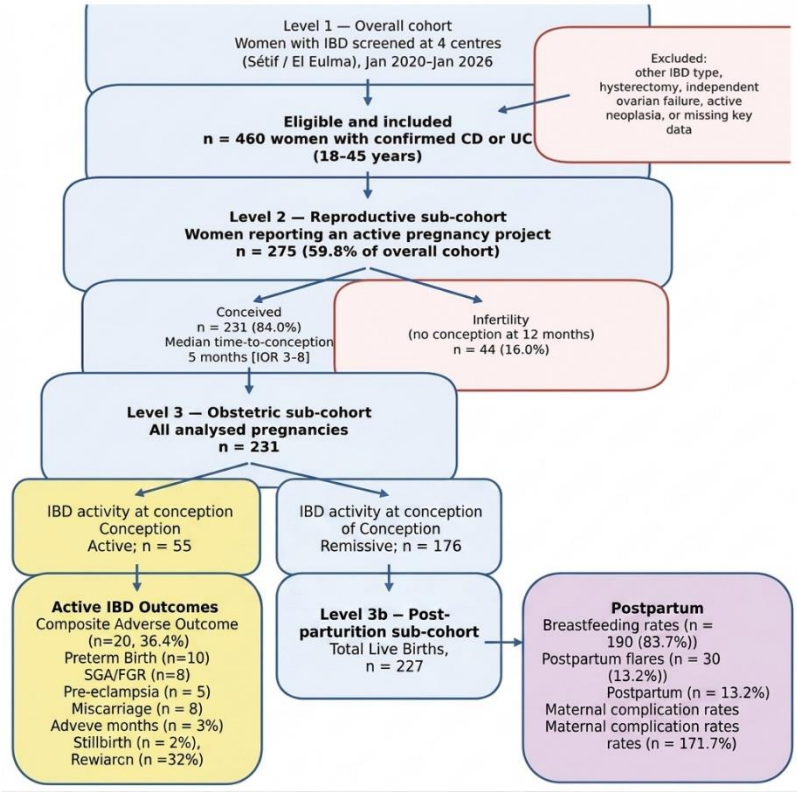

Figure 1. Three-level analytical structure of the cohort, from overall inclusion to the composite adverse pregnancy outcome.

2.4. Data collected and follow-up

Sociodemographic, clinical, biological, nutritional, therapeutic, surgical, and reproductive data were collected. IBD activity was assessed using available validated scores (CDAI for CD, Mayo score for UC). Treatments and history of pelvic surgery were specifically documented.

The parental project, contraception, preconception counselling, and reproductive history were assessed. Infertility was defined as the absence of conception after 12 months of regular unprotected intercourse, distinguishing voluntary deferral of the parental project from true biological infertility. Among the 460 patients, 275 (59.8%) had a pregnancy project, of whom 231 (84.0%) achieved a pregnancy. Preconception consultation had been performed in 128/275 (46.5%). Use of assisted reproductive technology (ART) was also documented.

The 231 pregnancies were analysed according to IBD activity at conception, treatment, flares during pregnancy, obstetric complications, and fetal/neonatal outcomes. The unit of analysis was the pregnancy, accounting for the dependence of observations in women with multiple pregnancies.

2.5. Inclusion and exclusion criteria

Women aged 18–45 years with confirmed CD or UC, followed at the participating centres, and with sufficient clinical and reproductive data were included. Patients with another type of IBD, hysterectomy, independent ovarian failure, active neoplasia, or missing essential data were excluded.

2.6. Statistical analysis

Clinically relevant variables were selected a priori. Data were described as mean ± standard deviation or median [IQR], and counts (%). Comparisons used the χ^2/Fisher's exact test or Student's t-test/Mann–Whitney test as appropriate. Factors associated with failure to conceive and with adverse pregnancy outcome (APO) were examined by logistic regression, adjusted for major confounders. Mixed-effects analysis by centre and sensitivity analyses were performed where relevant. Results were expressed as OR/adjusted OR (aOR) with 95% confidence intervals. Statistical significance was set at $p < 0.05$.

2.7. Ethics, conflicts of interest, funding, and contributions

The study complied with the Declaration of Helsinki. Data were anonymised and kept confidential, with consent obtained where required. Conflicts of interest: none. Funding: no external funding.

Contributions: all authors participated in study design, drafting/revision, and approved the final version

3. Results

3.1. General cohort characteristics

Among the 460 women included, 244 (53.0%) had CD and 216 (47.0%) had UC. Mean age was 31.1 ± 6.0 years and median IBD duration was 6 years [IQR: 3–10]. Active disease was present in 25.0% of patients. Digestive surgery had been performed in 20.9%, including pelvic surgery in 8.3%.

Table 1. Sociodemographic and clinical characteristics of the cohort

Variable	n	%
Total sample	460	100
Age, mean ± SD, years	31.1 ± 6.0	—
Age ≥35 years	104	22.6
Married	372	80.9
Single	88	19.1
Crohn's disease	244	53.0
Ulcerative colitis	216	47.0
Disease duration ≥5 years	281	61.1
Active disease	115	25.0
Prior digestive surgery	96	20.9
Pelvic surgery	38	8.3
Anaemia	122	26.5
Iron deficiency	151	32.8
Vitamin D deficiency	183	39.8
Vitamin B12 deficiency	54	11.7
Folate deficiency	43	9.3
Hypoalbuminaemia	49	10.7

3.2. Phenotypic characteristics of IBD

CD accounted for 53.0% of cases, with predominant ileocolonic involvement (42.6%). A stricturing/fistulising phenotype was found in 29.1% of patients. For UC, pancolitis was the predominant form (42.1%). Extra-intestinal manifestations were present in 18.0% of women.

3.3. Reproductive project

A pregnancy project was reported by 275/460 (59.8%) patients. These women were younger than those without a parental project (29.8 ± 5.2 vs 33.1 ± 6.5 years; p<0.001). The project was similar between CD and UC (60.2% vs 59.3%; p=0.84).

3.4. Contraception

During follow-up, 334 women (72.6%) had used at least one contraceptive method, while 126 (27.4%) reported no contraception.

Table 2. Contraceptive methods used during follow-up

Method	n	% of total
Oral contraception	158	34.3
Intrauterine device (IUD)	61	13.3
Condom	54	11.7
Progestin-only	31	6.7
Implant	18	3.9
Natural methods	12	2.6
No contraception	126	27.4

Fear related to IBD or its treatment was reported by 118 women (25.7%). This fear was more frequently reported among patients exposed to biologic therapy and those with a history of severe flare.

3.5. Preconception consultation

Among the 275 women with a pregnancy project, 128 (46.5%) had received a structured preconception consultation. This mainly comprised assessment of IBD activity (92.2%), therapeutic reassessment (86.7%), and nutritional work-up (81.3%). It was more frequent at Sétif University Hospital than at the other centres (56.8% vs 37.4%; p<0.001).

3.6. Fertility and conception

Among the 275 women with a pregnancy project, 231 (84.0%) conceived. Median time-to-conception was 5 months [IQR: 3–8]. Conception was more frequent with controlled IBD than with active disease (88.8% vs 69.1%; p=0.002), with a shorter time-to-conception (4 vs 8 months).

3.7. Factors associated with failure to conceive at 12 months

On univariable analysis, age ≥35 years, active IBD, surgical history, anaemia, and iron deficiency were associated with reduced conception. Pelvic surgery showed the strongest association (OR 6.35; 95% CI 2.38–16.95; p<0.001). Conversely, preconception consultation was associated with better conception (OR 0.37; 95% CI 0.18–0.77; p=0.007).

Table 3. Univariable analysis of factors associated with failure to conceive

Factor	Conceived n=231, n (%)	Infertility n=44, n (%)	Crude OR	95% CI	p
Age ≥35 years	36 (15.6)	16 (36.4)	3.08	1.48–6.40	0.002
Crohn's disease	119 (51.5)	28 (63.6)	1.65	0.84–3.25	0.145
Active disease	37 (16.0)	16 (36.4)	2.99	1.43–6.24	0.004
Digestive surgery	34 (14.7)	15 (34.1)	3.00	1.42–6.34	0.004
Pelvic surgery	9 (3.9)	9 (20.5)	6.35	2.38–16.95	<0.001
Anaemia	51 (22.1)	17 (38.6)	2.22	1.10–4.48	0.026
Iron deficiency	63 (27.3)	20 (45.5)	2.22	1.12–4.41	0.021
Preconception consultation	116 (50.2)	12 (27.3)	0.37	0.18–0.77	0.007

3.8. Multivariable analysis of factors associated with failure to conceive

After multivariable adjustment, pelvic surgery remained the factor most strongly associated with failure to conceive (aOR 4.72; 95% CI 1.55–14.36; p=0.006), followed by active IBD (aOR 2.47; 95% CI 1.08–5.63; p=0.032). Preconception consultation was associated with reduced odds of failure to conceive (aOR 0.45; 95% CI 0.21–0.96; p=0.039).

Table 4. Multivariable model of factors associated with failure to conceive

Variable	Adjusted OR	95% CI	p
Age ≥35 years	2.41	1.08–5.39	0.032
Active IBD	2.47	1.08–5.63	0.032
Digestive surgery	2.18	1.00–4.77	0.049
Pelvic surgery	4.72	1.55–14.36	0.006
Anaemia	1.58	0.72–3.47	0.252
Iron deficiency	1.63	0.78–3.41	0.194
Preconception consultation	0.45	0.21–0.96	0.039

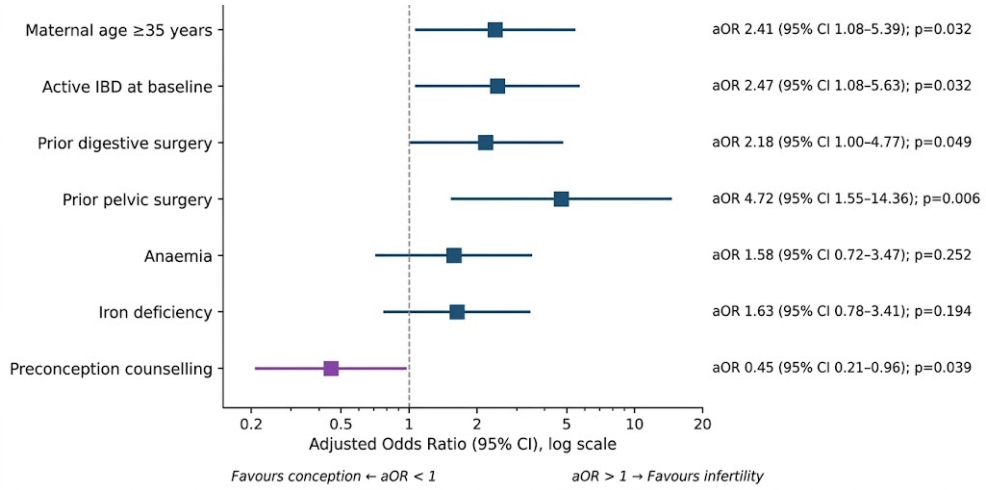

Figure 2. Multivariable model of factors associated with failure to conceive at 12 months.

3.9. Characteristics of the 231 women who achieved a pregnancy

Among the 231 pregnancies, 176 (76.2%) occurred during remission/low activity and 55 (23.8%) with active IBD. Exposure to biologic therapy at conception concerned 48 women (20.8%); of these, 29 were exposed to an anti-TNF agent, 11 to vedolizumab, and 8 to ustekinumab.

3.10. IBD course during pregnancy

An IBD flare during pregnancy occurred in 38 women (16.5%): 17/176 (9.7%) among women in remission or with low activity at conception, versus 21/55 (38.2%) among women with active disease at conception ($p<0.001$). Hospitalisation for a digestive flare was required in 14 patients (6.1%). Systemic corticosteroid therapy during pregnancy was used in 27 women (11.7%).

3.11. Maternal–fetal outcomes

Among the 231 pregnancies, 64 (27.7%) presented at least one component of the composite adverse pregnancy outcome.

Table 5. Main maternal–fetal outcomes

Outcome	n	%
Composite adverse outcome	64	27.7
Miscarriage	22	9.5
Preterm birth <37 weeks	31	13.4
Preterm birth <34 weeks	11	4.8
SGA / FGR	24	10.4
Pre-eclampsia	13	5.6
Stillbirth	3	1.3
Caesarean section	76	32.9
Neonatal admission	27	11.7

The different components could coexist within the same pregnancy and are therefore not additive.

3.12. Outcomes according to IBD activity at conception

The composite adverse outcome was significantly more frequent with active IBD at conception (47.3% vs 21.6%; p<0.001). Preterm birth and SGA/FGR were also more frequent with active disease (18.2% vs 11.9% and 18.2% vs 8.0%, respectively).

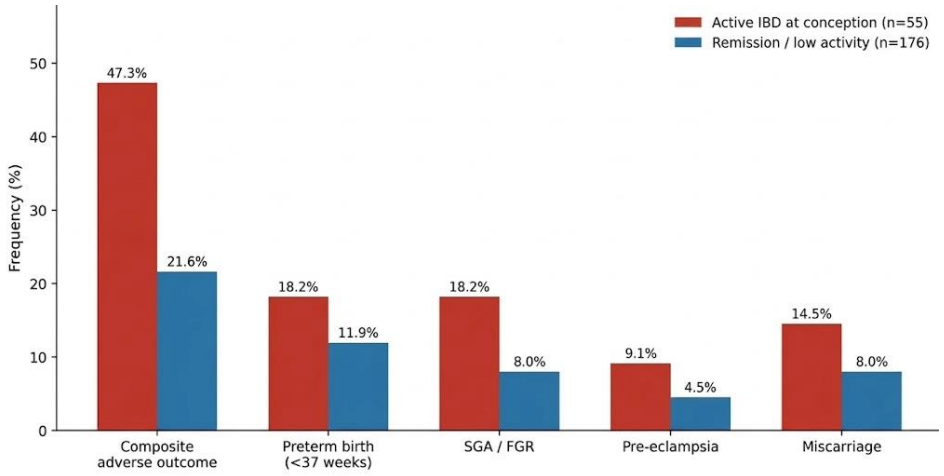

Figure 3. Pregnancy outcomes by IBD activity status at conception.

3.13. Univariable determinants of adverse pregnancy outcome

On univariable analysis, age ≥35 years, active IBD, surgical history, anaemia, hypoalbuminaemia, and biologic therapy were associated with an increased risk of composite adverse outcome. Preconception consultation was associated with a reduced risk.

Table 6. Univariable analysis of factors associated with the composite adverse outcome

Factor	APO n=64, n (%)	No APO n=167, n (%)	Crude OR	95% CI	p
Age ≥35 years	20 (31.3)	25 (15.0)	2.58	1.30–5.13	0.006
Crohn's disease	38 (59.4)	81 (48.5)	1.55	0.85–2.84	0.153
Active IBD	26 (40.6)	29 (17.4)	3.24	1.67–6.30	<0.001
Digestive surgery	20 (31.3)	23 (13.8)	2.83	1.37–5.85	0.005
Pelvic surgery	8 (12.5)	7 (4.2)	3.26	1.15–9.24	0.027
Anaemia	24 (37.5)	30 (18.0)	2.73	1.42–5.25	0.003
Hypoalbuminaemia	10 (15.6)	8 (4.8)	3.69	1.37–9.96	0.010
Biologic therapy at conception	19 (29.7)	29 (17.4)	2.01	1.01–4.00	0.046
Preconception consultation	24 (37.5)	93 (55.7)	0.48	0.26–0.89	0.018

3.14. Multivariable analysis of adverse pregnancy outcome

Active IBD at conception was independently associated with an adverse pregnancy outcome (aOR 2.76; 95% CI 1.34–5.67; p=0.006). Age ≥35 years, digestive surgery, anaemia, and hypoalbuminaemia also increased the risk. Biologic therapy was no longer significant after adjustment, whereas preconception consultation remained associated with a reduced risk (aOR 0.51; 95% CI 0.27–0.98; p=0.043).

Table 7. Final multivariable model

Factor	aOR	95% CI	p
Age ≥35 years	2.14	1.02–4.49	0.044
Active IBD at conception	2.76	1.34–5.67	0.006
Prior digestive surgery	2.21	1.01–4.83	0.047
Anaemia	2.08	1.01–4.30	0.048
Hypoalbuminaemia	2.89	1.01–8.25	0.048
Biologic therapy at conception	1.36	0.64–2.89	0.423
Preconception consultation	0.51	0.27–0.98	0.043

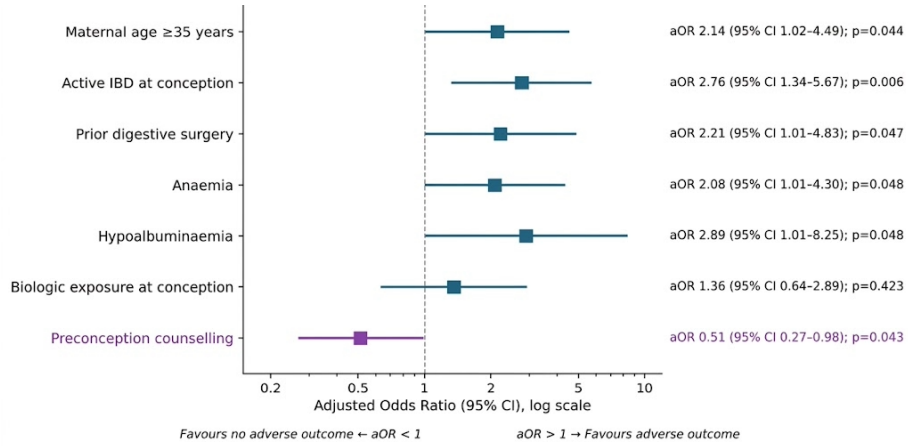

Figure 4. Multivariable model of factors associated with the composite adverse pregnancy outcome.

3.15. Analysis of individual components

IBD activity at conception was most strongly associated with SGA/FGR (aOR 2.62; 95% CI 1.04–6.59), while the association with preterm birth was in the same direction but not statistically significant (aOR 2.11; 95% CI 0.86–5.18).

Table 8. Associations between IBD activity and main obstetric outcomes

Outcome	Active IBD n=55	Remission/low activity n=176	aOR	95% CI
Preterm birth <37 weeks	10 (18.2%)	21 (11.9%)	2.11	0.86–5.18
SGA / FGR	10 (18.2%)	14 (8.0%)	2.62	1.04–6.59
Pre-eclampsia	5 (9.1%)	8 (4.5%)	1.93	0.60–6.18
Miscarriage	8 (14.5%)	14 (8.0%)	1.72	0.66–4.50

3.16. Effect of IBD type

The incidence of the composite adverse outcome was slightly higher among women with Crohn's disease (30.3%) than among those with ulcerative colitis (24.6%), without statistical significance. After stratification by IBD type, the association between inflammatory activity and adverse outcomes remained observed in both subgroups. These findings suggest that, in this cohort, disease activity at the time of conception may carry greater prognostic weight than IBD type alone.

3.17. Effect of surgical history

Women with a history of digestive surgery showed a higher frequency of adverse pregnancy outcomes than those without surgical history (46.5% vs 23.1%; p=0.006). After adjustment, this association persisted but was attenuated (aOR 2.21; 95% CI 1.01–4.83; p=0.047). Pelvic surgery was particularly associated with difficulty conceiving (aOR 4.72; 95% CI 1.55–14.36; p=0.006); its association with obstetric complications was less precise, given the small number of women affected.

3.18. Biologic therapy and pregnancy

Biologic therapy was associated with more adverse outcomes on univariable analysis (39.6% vs 24.6%; OR 2.01; p=0.046), but this association disappeared after adjustment (aOR 1.36; p=0.423), suggesting a confounding effect related notably to IBD activity and severity.

3.19. Performance of the exploratory model and sensitivity analyses

The exploratory model had an AUC of 0.76, corrected to 0.73 after bootstrapping, with acceptable calibration (Brier score 0.17). Sensitivity analyses broadly confirmed the association between active IBD and adverse pregnancy outcome (aOR ≈ 2.6–2.7).

4. Discussion

4.1. Principal findings

This cohort of 460 women with IBD highlights three major findings: active IBD at conception was associated with an adverse outcome (aOR 2.76; 95% CI 1.34–5.67; p=0.006); pelvic surgery was associated with failure to conceive (aOR 4.72); and preconception consultation was associated with better reproductive and obstetric outcomes. The association with biologic therapy disappeared after adjustment, suggesting confounding by indication. These results reinforce the importance of IBD control and structured preconception care [Nielsen et al., 2024; Mahadevan et al., 2026; Narula et al., 2014].

4.2. General characteristics of the study population

Mean age was 31.1 ± 6.0 years, with a moderate predominance of CD (53.0%). The nutritional burden was notable: 26.5% anaemia, 32.8% iron deficiency, 39.8% vitamin D deficiency, and 10.7% hypoalbuminaemia. These abnormalities underscore the importance of preconception nutritional and biological optimisation, in line with international recommendations [Narula et al., 2014].

4.3. Reproductive project and desire for pregnancy

In our cohort, 59.8% of women had a pregnancy project. They were younger than women without an immediate parental project (29.8 vs 33.1 years; p<0.001), intuitively consistent with the progressive age-related decline in fertility, with no difference between CD and UC (60.2% vs 59.3%; p=0.84). These results suggest that the reproductive project depends more on age, personal circumstances, disease perception, and beliefs about pregnancy than on IBD phenotype alone. A systematic review of 41 studies and 7,122 patients showed that roughly one-fifth to one-third of people with IBD may choose not to have children, while about half had insufficient knowledge of pregnancy-related issues in IBD. Fears about the disease, medication, and the health of a future child are important determinants of these reproductive decisions [Brenner et al., 2026]. Fertility in IBD should therefore be considered from both a biological and a decisional standpoint.

4.4. Contraception and IBD-related fears

In our cohort, 27.4% of women used no contraception, and 25.7% expressed fears about pregnancy or treatment. These concerns are common in IBD and can influence reproductive decisions [Nguyen et al., 2016]. Contraceptive counselling and preconception counselling are therefore complementary: appropriate contraception in the absence of a pregnancy project, and preconception optimisation when parenthood is desired [Moens et al., 2022].

4.5. Preconception consultation: a potentially modifiable care gap

Only 128/275 women (46.5%) with a pregnancy project had received a preconception consultation. This mainly comprised assessment of IBD activity, therapeutic reassessment, biological and nutritional work-up, and folic acid supplementation. By contrast, vaccination status was checked in only 47.7% of patients. Consultation was associated with reduced odds of failure to conceive (aOR 0.45; 95% CI 0.21–0.96; p=0.039) and of adverse obstetric outcome (aOR 0.51; 95% CI 0.27–0.98; p=0.043). These associations should nonetheless be interpreted cautiously, given the observational design and the possibility of a healthy-user effect.

These results are nevertheless consistent with international recommendations advocating structured preconception consultation to control IBD activity, optimise treatment, and correct nutritional deficits [Julsgaard et al., 2016; Rabinowitz et al., 2026; Gordon et al., 2024], and support systematically integrating this consultation into the care pathway of women with IBD.

4.6. Fertility: an overall high conception rate

Among the 275 women with a pregnancy project, 231 (84.0%) conceived, with a median time-to-conception of 5 months [IQR 3–8], versus 8 months with active IBD and 4 months in remission. These results are consistent with ECCO recommendations, according to which fertility is broadly preserved in quiescent IBD, while disease activity may reduce it [Adamina et al., 2024]. This association could be explained by systemic inflammation, nutritional deficits, impaired general status, and, in CD, surgical history [Gordon et al., 2024; Yanai et al., 2025; Zapata et al., 2025]. Planning pregnancy during a period of stable remission therefore remains an essential objective of reproductive care in women with IBD [Farraye et al., 2017; von Elm et al., 2007].

4.7. Infertility and maternal age

In our cohort, age ≥35 years was associated with failure to conceive on univariable analysis (OR 3.08) and persisted after adjustment (aOR 2.41; 95% CI 1.08–5.39; p=0.032). This association is consistent with the progressive decline in ovarian reserve and oocyte quality with age [Moens et al., 2022]. Reproductive counselling in women with IBD should therefore jointly consider maternal age and disease control, rather than IBD alone [Mahadevan et al., 2021; van der Woude et al., 2025; Mahadevan et al., 2019].

4.8. Digestive and pelvic surgery: the major determinant of infertility

Digestive surgery, and especially pelvic surgery, were associated with failure to conceive (aOR 2.18 and 4.72, respectively). This association is biologically plausible, notably through adhesion formation that may impair tubal anatomy and function [Nguyen et al., 2016]. It is also recognised in ECCO guidelines and the recent international consensus [Bortoli et al., 2011]. However, surgery may also serve as a marker of IBD severity, raising the possibility of residual confounding. These findings support offering fertility counselling before pelvic surgery when feasible, without delaying surgically necessary intervention [Cornish et al., 2007].

4.9. IBD activity at conception and fertility

IBD activity was independently associated with failure to conceive (aOR 2.47; 95% CI 1.08–5.63; p=0.032). This is consistent with ECCO recommendations, according to which fertility is generally preserved in remission but may be affected by active disease [Nguyen et al., 2009]. Active IBD may impair fertility through multiple mechanisms, including digestive symptoms, fatigue, systemic inflammation, nutritional deficiencies, anaemia, reduced sexual activity, hospitalisations, and surgical interventions, sometimes with medically driven deferral of conception [Sun et al., 2022]. The association between IBD activity and fertility is therefore multifactorial and cannot be attributed to a single endocrine mechanism, reinforcing the value of planning conception during a period of stable remission [Lee et al., 2019].

4.10. Anaemia and iron deficiency

Anaemia and iron deficiency were associated with failure to conceive on univariable analysis but not after adjustment, suggesting that they may chiefly reflect the inflammatory and
nutritional burden of IBD rather than acting as independent determinants of infertility. Their detection and correction nonetheless remain essential before conception and during pregnancy [Brenner et al., 2026].

4.11. Maternal–fetal outcomes: overall frequency

Among the 231 pregnancies, 64 (27.7%) presented at least one adverse outcome. Preterm birth <37 weeks concerned 13.4%, SGA/FGR 10.4%, pre-eclampsia 5.6%, and stillbirth 1.3%. These results confirm that pregnancy is generally achievable in women with IBD, but that obstetric risk is notably influenced by inflammatory activity. International recommendations particularly highlight the risk of prematurity and low birth weight [Liu et al., 2026].

4.12. IBD activity and the composite adverse outcome

The composite adverse outcome concerned 47.3% of women with active IBD versus 21.6% of those in remission or with low activity. After adjustment, IBD activity remained the principal factor associated with the composite outcome (aOR 2.76; 95% CI 1.34–5.67; p=0.006). This central finding of our study is consistent with international data showing increased risks of prematurity, low birth weight, SGA, miscarriage, and stillbirth with active IBD [Boyd et al., 2026]. Our overall estimate falls within a range comparable to published data.

4.13. Possible mechanisms linking inflammation and obstetric complications

The association between IBD activity and obstetric complications may be explained by several mechanisms:

4.13.1. Systemic inflammation

IBD activity causes systemic inflammation that may impair placental function and vascularisation, fetal growth, and the mechanisms involved in prematurity [Mahadevan et al., 2026].

4.13.2. Malnutrition and micronutrient deficits

Chronic inflammation may promote malnutrition and deficiencies in iron, vitamin B12, folate, and vitamin D, through reduced intake or malabsorption. These deficits could contribute to obstetric risk and represent an additional mechanism underlying the impact of active IBD [Nielsen et al., 2024].

4.13.3. Vascular and placental involvement

Systemic inflammation may promote endothelial dysfunction and impaired placental perfusion, contributing to SGA/FGR. This hypothesis is consistent with the observed association between IBD activity and SGA/FGR in our cohort and in the literature [Liu et al., 2026].

4.14. SGA/FGR: the principal association

SGA/FGR was more frequent with active IBD (18.2% vs 8.0%), with a significant association after adjustment (aOR 2.62; 95% CI 1.04–6.59). This finding is consistent with international data showing an increased risk of SGA with active IBD [Brenner et al., 2026]. This association may be explained by systemic inflammation, nutritional deficiencies, and anaemia. These data underscore the importance of achieving controlled disease before conception and ensuring fetal growth surveillance.

4.15. Preterm birth

Preterm birth was more frequent with active IBD (18.2% vs 11.9%). The association remained in the same direction after adjustment (aOR 2.11; 95% CI 0.86–5.18) without reaching statistical significance. This lack of significance should be interpreted cautiously, given the small number of events and limited statistical power. It nonetheless remains consistent with international data showing an association between IBD activity and prematurity [Sun et al., 2022].

4.16. Miscarriage and stillbirth

Miscarriage concerned 9.5% of pregnancies and stillbirth 1.3%. Miscarriage was more frequent with active IBD (14.5% vs 8.0%), without a significant association after adjustment (aOR 1.72; 95% CI 0.66–4.50). This trend is consistent with published data reporting an increased risk of miscarriage with active IBD [Cornish et al., 2007]. The lack of significance in our cohort may be explained by the small number of events. Stillbirth, with only three cases, did not allow a robust estimate.

4.17. Crohn's disease versus ulcerative colitis

The composite adverse outcome was slightly more frequent with CD than with UC (30.3% vs 24.6%), without a significant difference. These results suggest that IBD activity at conception may be more determinant than IBD type, although phenotype-related differences have been reported in the literature [Mahadevan et al., 2001]. The absence of a significant difference in our cohort may also be explained by limited statistical power.

4.18. History of digestive surgery and obstetric outcomes

A history of digestive surgery was associated with more adverse outcomes (46.5% vs 23.1%), with a persistent association after adjustment (aOR 2.21; 95% CI 1.01–4.83). Surgery may reflect both an anatomical consequence and, above all, more severe or complicated disease. Available data remain insufficient to establish an independent causal effect of surgery on obstetric outcomes [Bortoli et al., 2011]. This association should therefore be interpreted with caution and does not constitute proof of causality.

4.19. Biologic therapy and obstetric outcomes

An adverse outcome was observed in 39.6% of women exposed to biologic therapy versus 24.6% of unexposed women. The crude association (OR 2.01) disappeared after adjustment (aOR 1.36; 95% CI 0.64–2.89; p=0.423), suggesting confounding by indication, as biologic therapy may reflect more severe or active IBD. These results are consistent with available data, which do not show a clear increase in obstetric complications related to biologic therapy after accounting for disease activity [Julsgaard et al., 2016]. Our findings therefore do not suggest a causal link between biologic therapy and adverse outcomes, but rather emphasise the importance of controlling IBD at the time of conception.

4.20. Preconception consultation and obstetric outcomes

Preconception consultation was associated with a reduction in the odds of adverse outcome (aOR 0.51; 95% CI 0.27–0.98; p=0.043), equivalent to roughly 49% lower odds, without necessarily demonstrating a reduction in absolute risk. This association could be explained by earlier identification of active IBD, therapeutic optimisation, correction of deficiencies, and better coordination of care. The international consensus therefore recommends structured preconception care for women with IBD [Moens et al., 2022]. These results support the value of an integrated gastroenterology–obstetrics/gynaecology model of care.

4.21. Performance of the exploratory predictive model

The model had an AUC of 0.76, corrected to 0.73 after bootstrapping, with acceptable calibration and a Brier score of 0.17. Given the limited number of events (64/231), this model remains exploratory and requires external validation before any clinical use.

4.22. Sensitivity analyses

Sensitivity analyses confirmed the association between active IBD at conception and adverse outcome after exclusion of pelvic surgery (aOR 2.63; p=0.011) and of missing biological data (aOR 2.71; p=0.010). The stability of these estimates reinforces the robustness of the main finding, without excluding residual confounding.

5. Clinical Implications

Our results argue for a paradigm shift: in women with IBD, reproductive health should be regarded as a therapeutic goal in its own right, on a par with control of inflammation.

5.1. Anticipate the reproductive project
The desire for pregnancy should be systematically sought in order to guide therapeutic and reproductive strategy at an early stage.

5.2. Conceive when disease is controlled
IBD activity at conception was the principal independent determinant of adverse outcomes (aOR 2.76; 95% CI 1.34–5.67). Achieving remission before conception is therefore a priority clinical target.

5.3. Prevent avoidable infertility
Pelvic surgery was strongly associated with infertility (aOR 4.72; 95% CI 1.55–14.36). Preoperative reproductive counselling and early referral to reproductive medicine should be considered in at-risk patients.

5.4. Make preconception consultation a standard of care
It should integrate IBD activity, treatment, nutrition, deficiencies, fertility, vaccination, and obstetric factors. In our cohort, it was associated with better odds of conception and fewer adverse outcomes.

5.5. Preserve therapeutic control during pregnancy
Pregnancy should not lead to the systematic discontinuation of effective treatment. Decisions regarding biologic therapy should be individualised and multidisciplinary, prioritising durable disease control.

5.6. Ensure continuity of care
Follow-up should continue into the postpartum period, with reassessment of IBD activity, nutrition, breastfeeding, contraception, and plans for a subsequent pregnancy.

6. Clinical impact
The real challenge is no longer simply enabling pregnancy in a woman with IBD, but transforming that pregnancy into a planned, safe, prevention-centred journey:

Reproductive project → remission → planned conception → inflammatory control → maternal–fetal surveillance → postpartum care.

This approach could constitute a reproducible model of integrated care for women with IBD, particularly relevant for health systems in which preconception consultation remains insufficiently structured.

7. Conclusion
This multicentre cohort of 460 women with IBD shows that reproductive health constitutes a continuum extending from the parental project to pregnancy and maternal–fetal outcome, influenced by inflammatory activity, age, surgical history, nutritional status, and preconception preparation.

The principal prognostic signal is IBD activity at the time of conception, associated with a significant increase in the odds of adverse pregnancy outcome (aOR 2.76; 95% CI 1.34–5.67). Pelvic surgery is, in parallel, a major determinant of infertility (aOR 4.72; 95% CI 1.55–14.36). Preconception consultation is associated with better reproductive and obstetric outcomes, while the crude association between biologic therapy and adverse outcome disappears after adjustment.

These results support a paradigm shift: reproductive care should not begin with pregnancy, but before conception. In women with IBD, a favourable pregnancy is not prepared at the moment of a positive test — it is built beforehand. Controlling inflammation, preserving fertility, correcting nutritional deficits, optimising treatment, and coordinating care are the pillars of a preventive, personalised, multidisciplinary reproductive medicine. The goal is

no longer simply to enable pregnancy, but to enable conception at the best possible time, with controlled disease and the best possible chances for mother and child.

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