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CLINICAL ARTICLE

Gynecology

The global burden of disease due to benign gynecological conditions: A call to action

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Abstract

Objective: Focusing on low- and middle-income countries (LMICs), this article uses data from the Global Burden of Disease (GBD) database to highlight the burden of morbidity due to benign gynecological conditions (BGCs).

Methods: We analyzed 2019 morbidity data for all BGCs, measured as years lost to disability (YLDs). Disease burden was calculated for individual conditions, BGCs overall, and percentages of overall disease burden from all conditions. The same data extraction was performed for malaria, tuberculosis, and HIV/AIDS for comparison. The data were subcategorized by age and World Bank income level.

Results: BGCs are major causes of disease morbidity worldwide. For women aged 15 years and over in high-income countries (HICs), 3 588 157 YLDs (3.94% of all YLDs) were due to BGC. In LMICs, 18 242 989 YLDs (5.35% of all YLDs) were due to BGCs. The highest burden of BGCs is seen during the reproductive years where conditions driven or exacerbated by reproductive hormones are the major causes of morbidity. In LMICs, for women aged 15–49, 14 574 100 YLDs (7.75% of all YLDs) were due to BGCs, declining to 3 152 313 YLDs (3.04%) in women aged 50–69 and 529 399 YLDs (1.06%) in women age 70+.

Conclusion: These data demonstrate a huge burden of morbidity due to BGCs. There is an urgent need for international stakeholders to prioritize the treatment and prevention of BGCs.

KEYWORDS
abortion, global women's health, gynecology, inequality, menstrual, morbidity, reproductive health

1 | INTRODUCTION

The last 30 years have seen significant progress in global women's health with much of the focus on maternal health and cervical cancer. Benign gynecological conditions (BGCs), particularly in low- and middle-income countries (LMICs), are causing a large burden of unrecognized morbidity, preventable suffering, and poor quality of life for women and girls. Although the Sustainable Development Goals (SDGs) have broadened the scope of women's health priorities to include issues such as gender equality, there remains serious neglect of BGCs.[1]

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Since 1990, the Global Burden of Disease (GBD) database has demonstrated a gradual shift towards non-communicable diseases (NCDs), such as BGCs, as major causes of morbidity.[2] The consequences of BGCs extend beyond immediate symptoms. Menstrual disorders, for example, are strongly associated with girls' absenteeism from school.[3] This exacerbates pre-existing gender disparities in educational attainment, reducing a woman's opportunities for economic security and autonomy across her life course. There is a complex interplay between reproductive health events and the risk of developing chronic disease.[4] Prioritizing the management of BGCs could therefore help to address certain modifiable risk factors for other NCDs, which are of major public health concern.[5]

To elevate gynecological conditions as global health priorities, the magnitude of the problem must be highlighted. One goal of the GBD database is to quantify disease burden and draw attention to otherwise low-profile, "unpopular" diseases, inform policy, and improve population health.[6] Outside of the GBD database, there is a dearth of epidemiological BGC data.

The aim of this study was to use GBD data to estimate the global burden of BGCs in terms of morbidity, measured through years lost to disability (YLDs).

2 | MATERIALS AND METHODS

This paper examined data from 2019 relating to BGCs included in the GBD database derived from surveys, censuses, vital statistics, and other health-related data (such as hospital admissions). Data described were based on 2019 YLD estimates from the Institute of Health Metrics & Evaluation (IHME) Global Health Data Exchange, which form the basis of the GBD study. The data were accessed from the free-to-access database (www.healthdata.org) provided by IHME. YLDs are a widely used measure of the burden of living with a disease or disability in years, i.e., the disease morbidity. It is a component of disability-adjusted life years (DALYs), where DALYs are the sum of years of potential life lost due to premature mortality and years of productive life lost due to disability. DALYs measure mortality and morbidity, whereas YLDs measure morbidity alone. YLDs are calculated by multiplying the disorder prevalence by the short- or long-term loss of health associated with that disability (disability weight) in a given population. Disability weights reflect the magnitude of health loss associated with specific health outcomes and are developed through detailed surveys of the general public. The different "weights" signify disability severity on a scale from 0 to 1, where 0 equals a state of full health and 1 equals death; for example, 0.020 for mild lower back pain, and 0.187 for blindness.[7] In the 2019 GBD database, symptoms attributed to BGC diagnoses, for example endometriosis, were included with mild abdominopelvic pain weighted as 0.011, and severe restrictive abdominopelvic pain as 0.324.[7] Thus, YLDs are particularly useful to illustrate disease burden of non-fatal conditions, which nevertheless have significant health consequences.

Nine categories of BGCs were analyzed: uterine fibroids, polycystic ovary syndrome (PCOS), female infertility, genital prolapse, endometriosis, miscarriage and abortion, ectopic pregnancy, pelvic inflammatory diseases (PID) (including gonococcal conditions, chlamydial conditions, and *Trichomonas*), and "other gynecological diseases". This "other" group included conditions broadly split into two categories: "menstrual" and "non-menstrual" (Table 1).

The nine BGC categories were searched with the "GBD Results Tool" using YLDs as the indicator. Stratified analysis was undertaken by gynecological condition, age group, and income category. Our analysis included all women aged 15 years and older, split into four age categories: 15+, 15–49, 50–69 and 70+.

For each condition and age group, point estimates for the absolute numbers of YLDs and values for upper and lower 95% confidence intervals were extracted. These absolute values were used to determine the degree to which BGCs conditions contributed to the all-cause burden of YLDs for women (as %). For example, mathematically this can be expressed as:

For an individual BGCs in women age 15–49:

$$\%\,\mathrm{YLD\_BGCs} = \frac{\mathrm{YLDc}_{15-49}}{\mathrm{YLD}_{15-49}} \times 100$$

where YLDc represents the years of life lost due to disability of each BGC condition for each age group, and YLD represents the years of life lost due to disability for all causes together.

For an individual BGCs for all women age 15+:

$$\%\,\mathrm{YLD\_BGCs} = \frac{\mathrm{YLDc}_{15-49} + \mathrm{YLDc}_{50-49} + \mathrm{YLDc}_{70+}}{\mathrm{YLD}_{15-49} + \mathrm{YLD}_{50-49} + \mathrm{YLD}_{70+}} \times 100$$

In some BGCs, the value for the group 70+ is zero (e.g. maternal abortion and miscarriage or ectopic pregnancy). Malignant gynecological diseases were excluded.

The same search was conducted for malaria, tuberculosis (TB), and HIV/AIDS, for comparative purposes as they are considered major global health priorities. Analysis by income category was by World Bank income classifications (Appendix S1). Statistical analysis was conducted using Microsoft Excel and 95% confidence intervals were taken straight from the GBD database.

Ethics committee approval was not sought for this study as it involves data within the public domain and does not involve any data collected from human participants. Informed consent was also not required for this study for this reason.

3 | RESULTS

Worldwide, for women aged 15+, BGCs accounted for 21 831 147 YLDs (5.05% of all YLDs). In HICs, 3 588 157 YLDs (3.95%) were due to BGCs. Across LMICs, 18 242 989 YLDs (5.35%) were due to BGCs. Based on these figures, 84% of the overall global burden of morbidity due to BGCs is found in LMICs (Table 2).

The highest absolute burden of disease due to BGCs was in LMICs, where 88 832 382 (5.54%) were due to BGCs. In upper-middle-income countries, BGCs accounted for 7 217 408 YLDs (4.67%).

TABLE 1 Diseases included in "other gynecological diseases" category of Global Burden of Disease database by the *International Statistical Classification of Diseases and Related Health Problems*, 10th Revision (ICD 10) classification.

"Other gynecological conditions"	
Menstrual conditions	ICD 10 code
Absent, scanty, rare menstruation	N91-95.9
Excessive, frequent and irregular menstruation	
Other abnormal bleeding (postcoital, contact bleeding)	
Menstrual pain and vaginismus	
Menopausal and perimenopausal disorders (postmenopausal bleeding, climacteric states, atrophic vaginitis)	
Non-menstrual conditions	ICD 10 code
Vulvovaginal candidiasis	B37.3–37.49
Inflammatory disorders of breast, non-malignant breast lumps, fat necrosis of breast, galactorrhea, breast atrophy, mastodynia, nipple disorders	N61–64.9
Inflammatory diseases of cervix (cervicitis)	N72
Bartholin's duct disorders, e.g., cyst abscess. Vaginal and vulval inflammatory conditions; acute and chronic vulvovaginitis; vulval and vaginal ulceration. Infectious ulceration—e.g., herpetic/tuberculous. Autoimmune ulceration eg. Behçet's	N75-N77.8
Non-inflammatory disorders of ovary, fallopian tube, broad ligament; ovarian cysts; hematosalpinx. Endometrial polyps, cervical polyps, vulval and vaginal polyps.	N83-N8 N88-N90.9
Endometrial hyperplasia, hematometra	
Cervical ectropion	
Non-inflammatory cervical disorders: stenosis, leukoplakia, cervical incompetence. Non-inflammatory vaginal disorders, e.g., atrophic vaginitis, vaginal stenosis, and adhesions. Hymenal disorders. Pessary ulcers. Non-inflammatory vulval disorders: vulvar dysplasia, atrophy, cysts	

In low-income countries (LICs) 2 175 175 YLDs (8.11%) were due to BGCs (Appendix S2).

Across LMICs, within BGCs categories, "other gynecological diseases" accounted for the highest number of all YLDs (13 608 444 [3.99%]), followed by endometriosis (1 970 577 YLDs [0.57%]), fibroids (998 398 YLDs [0.29%]), female infertility (620 283 YLDs [0.18%]), PCOS (400 301 YLDs [0.11%]), PID (313 622 YLDs [0.09%]), and genital prolapse (290 089 YLDs [0.09%]) (Table 2, Figure 1).

In LMICs, for women age 15+, overall, 18 242 989 YLDs (5.3%) were due to BGCs. The highest percentage was in women of reproductive age (15–49); in this group, 14 574 100 YLDs (7.75%) were due to BGCs. This percentage declined with age; in women aged 50–69, 3 152 313 YLDs (3.04%) were due to BGCs and in the 70+ age group, the figure was 529 399 YLDs (1.06%) (Table 3).

In women aged 15–49, "other gynecological diseases" which, crucially, include menstrual – ectopic pregnancy, miscarriage, and abortion – accounted for 41 290 YLDs, only 0.02% of all YLDs (Table 3).

Across HICs, in the 15–49 age group, BGCs account for 2 358 422 YLDs (6.71%), of which "other gynecological diseases" contributed the largest number of YLDs (1 732 640 [4.87%]) followed by endometriosis (255 990 YLDs [0.72%]) (Appendix S2).

In LMICs for women aged 50–59, 3 152 313 YLDs (3.04% of YLDs) were due to BGCs, with "other gynecological diseases" having the largest contribution, accounting for 2 621 660 YLDs (2.53%). Fibroids were the second largest BGC contributor, accounting for 245 052 YLDs (0.24%) (Table 3). These results are in line with the same age category in HICs, where a total of 916 957 YLDs (3.14%) were due to BGCs, of which 776 817 YLDs (2.64% of all YLDs) were due to "other gynecological diseases" and 78 502 YLDs (0.21%) were due to fibroids (Appendix S2).

Across LMICs, 529 399 YLDs (1.07% of all YLDs) in women aged 70+ were due to BGCs: 0.92% due to "other gynecological diseases", 50 521 YLDs (0.1%) from genital prolapse, 17 907 YLDs (0.04%) from fibroids and 6514 YLDs (0.01%) from PID (Table 3). As a proportion of all-cause morbidity, genital prolapse increased with decreasing income classification and was a particular problem in LICs where it accounted for 2959 YLDs (0.14%) of all-cause YLDs in women aged 70+. In upper-middle- and lower-middle-income countries, 28 345 YLDs and 19 174 YLDs, respectively (0.1% of all YLDs), were due to genital prolapse in women aged 70+. In HICs, genital prolapse accounted for 30 411 YLDs (0.12% of all YLDs) in women aged 70+ (Appendix S2).

For comparison, YLDs resulting from BGCs in LMICs for women aged 15+ (18 242 989 YLDs [5.3% of all YLDs]) were greater than the combined morbidity from malaria, TB, and HIV/AIDS, which accounted for 4 552 233 YLDs (1.34% of all YLDs). In LICs, 1 357 649 YLDs (5.02% of all YLDs) were due to malaria, TB, and HIV/AIDs whereas BGCs accounted for 2 140 193 YLDs (8.11% of all YLDs) (Figure 2). In sub-Saharan Africa 3 645 680 YLDs (8.65% of YLDs) resulted from BGCs, compared with 1 671 927 YLDs (3.88% of all YLDs) due to HIV/AIDS, 737 241 YLDs (1.71% YLDs) due to malaria, and 464 782 YLDs (1.08% YLDs) resulting from TB – a total of 6.67% (Figure 3).

TABLE 2 Percentage of all years lost to disability (YLDs) and absolute numbers of YLDs due to benign gynecological conditions (BGCs) in women aged 15 years and above categorized by World Bank Income Classifications (Global Burden of Disease database 2019).

	Low- and middle-income countries				High income countries	
	% All-cause YLDs		Absolute number YLDs		% All-cause YLDs	
Condition		95% CI		95% CI		95% CI
All BGCs	5.3%	(4.2–6.5%)	18 242 989	(1 087 883–28 635 205)	3.94%	(3.16–4.73%)
Ectopic pregnancy	0.0016%	(0.0011–0.002%)	5637	(2995–9139)	0.0006%	(0.0004–0.0008%)
Endometriosis	0.57%	(0.46–0.71%)	1 970 577	(1 167 282–3 140 260)	0.3%	(0.24–0.36%)
Female Infertility	0.18%	(0.08–0.33%)	620 283	(211 444–1 475 957)	0.042%	(0.01–0.08%)
Genital prolapse	0.085%	(0.052–0.12%)	290 089	(133 866–555 022)	0.08%	(0.056–0.13%)
Maternal abortion and miscarriage	0.01%	(0.007–0.013%)	35 635	(19 116–57 762)	0.002%	(0.001–0.003%)
Pelvic inflammatory diseases	0.09%	(0.04–0.14%)	313 622	(134 246–621 998)	0.046%	(0.02–0.07%)
Polycystic ovarian syndrome	0.11%	(0.06–0.18%)	400 301	(166 426–810 676)	0.17%	(0.1–0.27%)
Uterine fibroids	0.29%	(0.06–0.42%)	998 398	(465 528–1 891 361)	0.27%	(0.16–0.4%)
Other gynecological conditions	3.99%	(3.38–4.56%)	13 608 444	(8 577 924–20 073 026)	3.01%	(2.54–3.41%)
All causes	100%	–	340 692 930	(253 337 380–440 158 881)	100%	–

Abbreviation: CI, confidence interval.

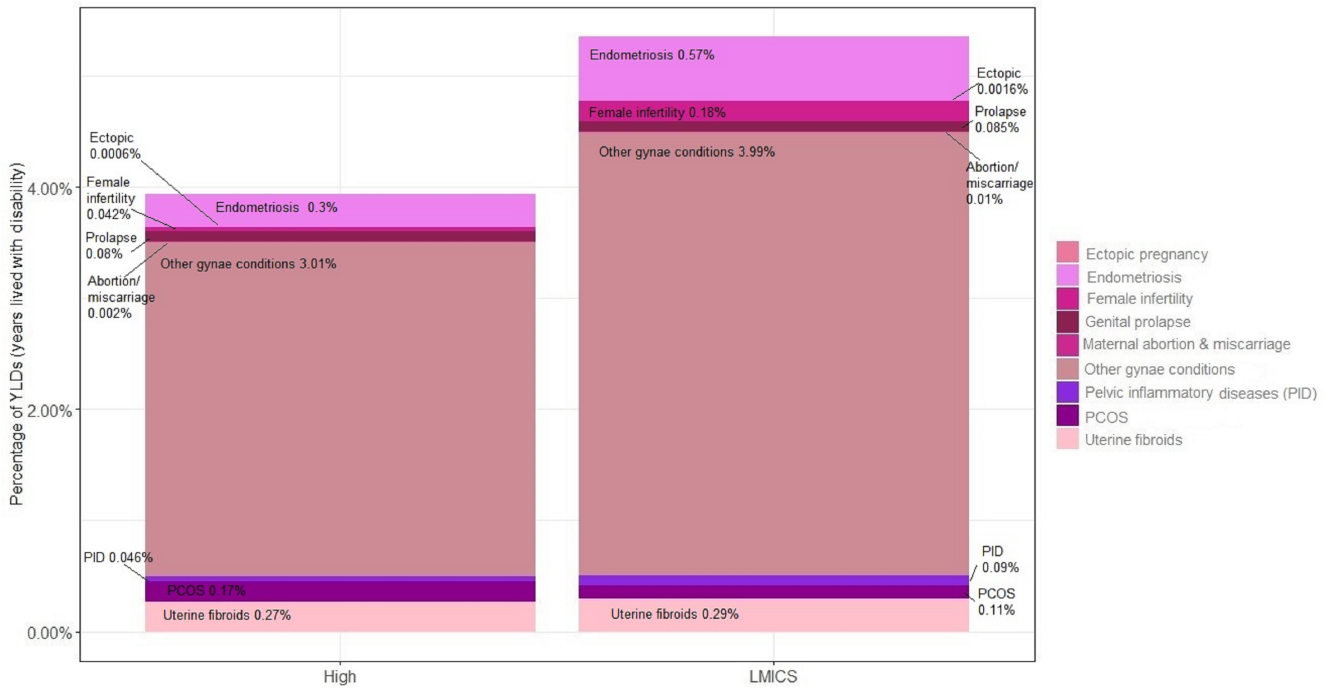

FIGURE 1 Percentage of years lost to disability (YLDs) by individual benign gynecological conditions for women aged 15+, according to groups of income levels (Global Burden of Disease database, 2019).

4 | DISCUSSION

Using the GBD data, we found that the morbidity from BGCs was higher in LMICs than in HICs (50.35% vs. 3.94%). In LMICs, in women of reproductive years, 7.75% of morbidity was due to BGCs, likely due to conditions driven or exacerbated by reproductive hormones. Morbidity due to BGCs impacted across the life course. This was most notable in LMICs where the morbidity due to BGCs outweighed that of multiple other conditions which are major global health priorities. For example, globally, 5.06% of all YLDs were due to BGCs,

		Global			
Absolute number YLDs		% All-cause YLDs		Absolute number YLDs	
	95% CI		95% CI		95% CI
3588157	(2142820–5573575)	5.05%	(4.0–6.13%)	21831147	(13021651–34208781)
612	(326–992)	0.001%	(0.001–0.0018%)	6249	(3322–10132)
273451	(165758–427074)	0.51%	(0.41–0.63%)	2244029	(1333040–3567335)
38581	(10106–94781)	0.15%	(0.06–0.28%)	658864	(221550–1570739)
81077	(38010–153569)	0.08%	(0.05–0.12%)	371166	(171876–708591)
2413	(1270–3853)	0.008%	(0.006–0.01%)	38049	(20386–61615)
42460	(18157–85688)	0.082%	(0.04–0.12%)	356083	(152403–707686)
161747	(70931–319974)	0.13%	(0.07–0.2%)	562049	(237358–1130650)
247861	(112671–471164)	0.28%	(0.18–0.42%)	1246259	(2362525–578200)
2739951	(1725588–4016477)	3.78%	(3.2–4.31%)	16348395	(10303513–24089504)
90997971	(67883877–117653435)	100%	–	431690901	(321021257–557812317)

outweighing the combined global YLDs from malaria, TB, and HIV/AIDS, which was 1.08%. This finding is consistent across all income groups.

For specific gynecological conditions, the leading cause of morbidity varied between age and income classification; however, the data showed low morbidity after ectopic pregnancy and miscarriage. This is likely due to their potentially fatal consequences.

To the best of our knowledge, this is the first attempt to estimate the global burden of disease for BGCs. Prior studies have focused on surgical conditions including malignancy[8] or used the GBD database to examine broader priorities.[9] The main benefit of using the database is that it contains information for every country and incorporates data from research studies, as well as hospital episode statistics and health registries.

This study's limitations relate to the GBD database and the lack of primary data for some regions.[2] For example, LMIC data have mostly been extrapolated from small-scale studies or models based on hospital statistics from HICs. Additionally, several important BGCs are absent, including female urinary incontinence and vesico- and recto-vaginal (obstetric) fistulae, which have severe detrimental effects on quality of life.[10] Because of these limitations, it is likely that the disease burden due to BGCs is underestimated.

Another problem is the lack of universally accepted diagnostic criteria for gynecological conditions, For example, endometriosis statistics in the GBD database include diagnosis by laparoscopy, pathology, self-reported symptoms, and hospital admissions.[7] Delays in the diagnosis of endometriosis are widely experienced in HICs due to stigma, and the under-prioritization of women's health issues. In LMICs this is compounded by a huge unmet need for access to surgical services such as laparoscopy.[11] In addition, while some menstrual dysfunction may be captured by a diagnosis of fibroids, PCOS, endometriosis and "other gynecological conditions", the true morbidity associated with these could be many magnitudes greater than captured by the database.

To address the global burden of BGCs and their broader socioeconomic consequences, a sustained focus is required to make them a global political priority. This means funding for programs focused on prevention, early identification, and prioritization of the management of BGCs by policymakers, governments, and non-governmental organizations (NGOs).

Historical trends demonstrate that aligning neglected conditions with pre-existing agendas is a powerful way to increase attention. Maternal health became a major global health priority in the 1990s by emphasizing close links with a well-established child health agenda.[12] BGCs are closely linked to other major priorities such as maternal health, gynecological malignancies, and NCDs. For example, multiparity is a risk factor for genital prolapse, highlighted in a study from Gambia which showed high parity as the largest risk factor for pelvic organ prolapse.[13] Anemia from untreated heavy menstrual bleeding increases the risk of morbidity and mortality from postpartum hemorrhage.[14] Recent research has also begun to explore links between women's reproductive health across the life course and NCDs, which are now public health priorities worldwide. The International Collaboration for a Life Course Approach to Reproductive Health and Chronic Disease Events (InterLACE) project has pooled individual participant data from cohort and cross-sectional studies to explore how sex-hormone differences can affect the complex causal pathways for various NCDs.[4] Emerging

TABLE 3 Percentage of all years lost to disability (YLDs) and absolute numbers of YLD due to benign gynecological conditions (BGCs) in low and middle-income countries in women, by age category (Global Burden of Disease database, 2019).

	Age 15+				Age 15–49			
	% All-cause YLDs		Absolute number YLDs		% All-cause YLDs		Absolute number YLDs	
Condition		95% CI		95% CI		95% CI		95% CI
All BGCs	5.3%	(4.2–6.5%)	18242989	(1087883–28635205)	7.75%	(6.36–9.35%)	14574100	(8775399–22919082)
Ectopic pregnancy	0.0016%	(0.0011–0.002%)	5637	(2995–9139)	0.0016%	(0.0011–0.002%)	5635	(2995–9136)
Endometriosis	0.57%	(0.46–0.71%)	1970577	(1167282–3140260)	1.005%	(0.8–1.2%)	1888683	(1121678–3009031)
Female infertility	0.18%	(0.08–0.33%)	620283	(211444–1475957)	0.33%	(0.15–0.6%)	620626	(211573–1476708)
Genital prolapse	0.085%	(0.052–0.12%)	290089	(133866–555022)	0.04%	(0.03–0.07%)	93863	(43560–182954)
Maternal abortion and miscarriage	0.01%	(0.007–0.013%)	35635	(19116–57762)	0.018%	(0.012–0.02%)	35655	(19127–57793)
Pelvic inflammatory diseases	0.09%	(0.04–0.14%)	313622	(134246–621998)	0.13%	(0.08–02%)	260575	(114230–505171)
Polycystic ovarian syndrome	0.11%	(0.06–0.18%)	400301	(166426–810676)	0.2%	(0.11–0.32%)	390893	(162578–792298)
Uterine fibroids	0.29%	(0.06–0.42%)	998398	(465528–1891361)	0.39%	(0.25–0.56%)	736148	(346246–1392050)
Other gynecological conditions	3.99%	(3.38–4.56%)	13608444	(8577924–20073026)	5.6%	(4.8–6.3%)	10542018	(6753410–15493937)
All causes	100%	–	340692930	(253337380–440158881)	100%	–	187872200	(137857206–245073873)

Abbreviation: CI, confidence interval.

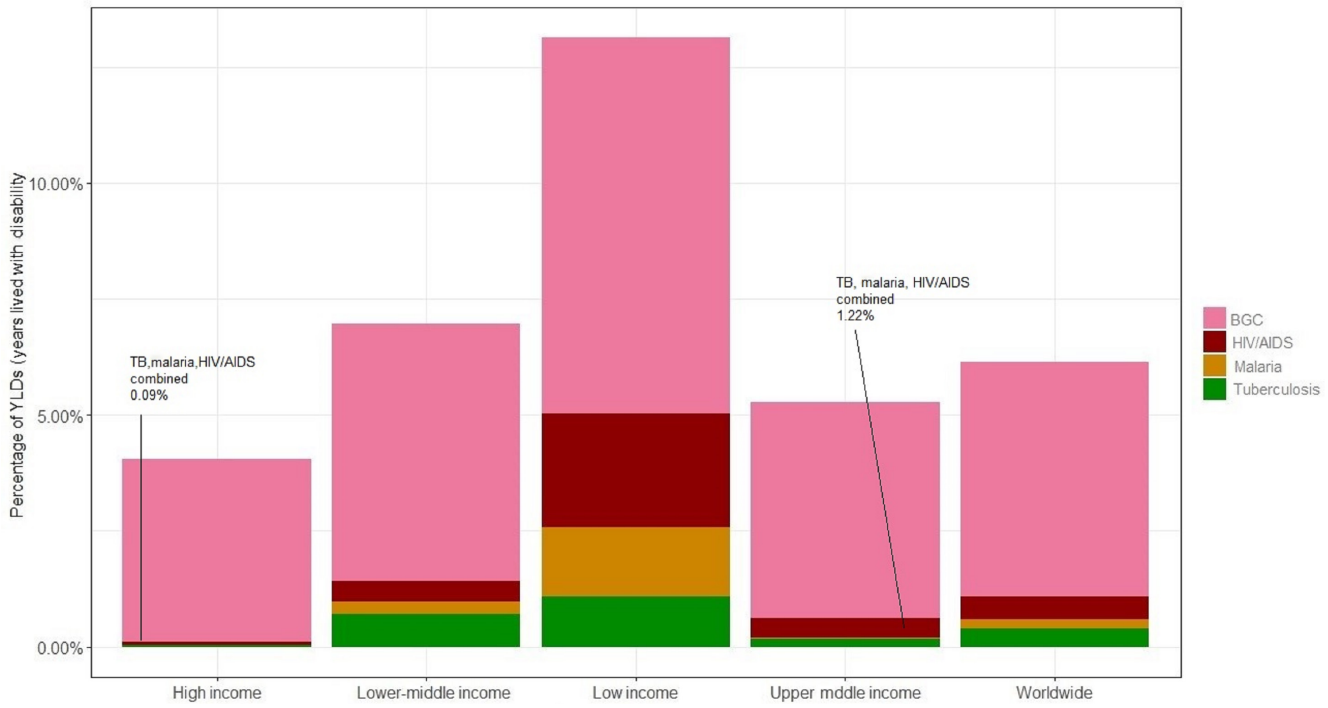

FIGURE 2 Percentage of years lost to disability (YLDs) from benign gynecological conditions, compared with HIV/AIDS, malaria, and tuberculosis in women aged 15 and above, according to World Bank income levels (Global Burden of Disease database, 2019).

evidence suggests hormonal changes relating to early menarche are associated with increased risk of type 2 diabetes mellitus[15] and cardiovascular disease (CVD). Early menopause also increases the risk of developing chronic diseases, including CVD.[16,17] Therefore, treatments to manage BGCs could be framed as essential preventive strategies for certain chronic diseases.

Age 50–69				Age 70+			
% All-cause YLDs		Absolute number YLDs		% All-cause YLD		Absolute number YLDs	
	95% CI		95% CI		95% CI		95% CI
3.04%	(2.29–3.67%)	3152313	(1789730–4918344)	1.06%	(0.85–1.32%)	529399	(321304–817664)
5.4×10^{-6}%	(3.8×10^{-6} – 6.7×10^{-6}%)	5.5	(3–9)	0	0	0	0
0.08%	(0.05–0.09%)	83361	(46462–133559)	0	0	0	0
0	0	0	0	0	0	0	0
0.14%	(0.08–0.2%)	145915	(66591–280239)	0.1%	(0.06–0.14%)	50521	(23817–92242)
5.6%	(3.6×10^{-06}–7.4×10^{-06}%)	5.8	(2.9–10)	0	0	0	0
0.04%	(0.022–0.076%)	46532	(17563–102536)	0.013%	(0.006–0.02%)	6514	(2452–14290)
0.009%	(0.006–0.014%)	9785	(4006–19134)	0	0	0	0
0.23%	(0.13–0.34%)	245052	(111643–464825)	0.036%	(0.021–0.058%)	17907	(7976–35939)
2.53%	(1.98–2.93%)	2621660	(1543457–3918030)	2.5%	(1.9–2.9%)	454455	(287057–675292)
100%	–	103518164	(77889632–133680965)	100%		49537295	(77889632–133680965)

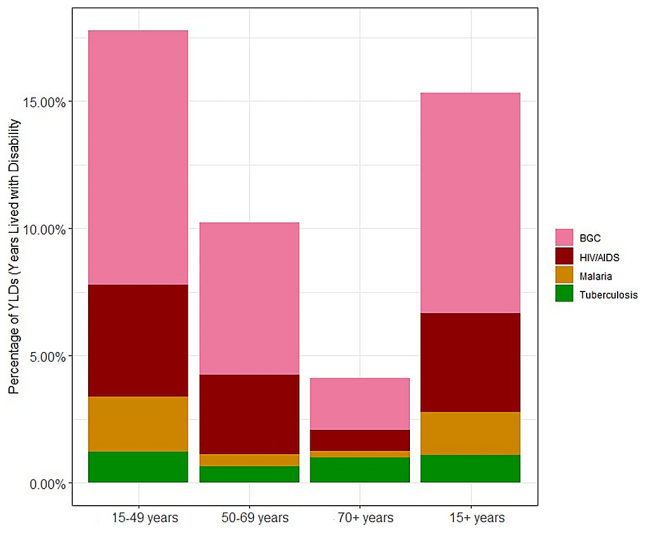

FIGURE 3 Percentage of years lost to disability (YLDs) from benign gynecological conditions, compared with HIV/AIDS, malaria, and tuberculosis in women ages 15 and above in sub-Saharan Africa (Global Burden of Disease database, 2019).

Aligning BGCs with the SDGs could also be used to elevate their importance amongst governments, policymakers and NGOs. SDG3, which states "Ensure healthy lives and promote well-being for all at all ages", contains multiple elements relevant to BGCs, including achieving health and wellbeing across the life course, addressing NCDs, improving reproductive health, and preventing suffering from preventable diseases.[18] SDG3 also recognizes that more effort is required to address neglected and emerging health issues. SDG5, which aims to "end discrimination against women and girls", is also highly relevant.[19]

There are clear ways in which healthcare professionals and policymakers can improve the care of women with BGCs, including increasing access to evidence-based conservative treatments, improving decision-making, and safe surgical intervention. Many BGCs can be managed conservatively using established treatments, such as contraception for menstrual conditions, fibroid symptoms, and pelvic pain. Improving access to newer, long-acting agents such as the levonogestrel intrauterine system (IUS) has the potential to manage symptoms and reduce the need for surgical intervention. There is also a scarcity of data on who provides care for BGCs. Survey data in 2014 showed only 45% of the multidisciplinary capacity for sexual, reproductive, maternal, and newborn health was met in 41 African countries.[20] Training sufficient numbers of providers and using task-shifting where appropriate is essential. Programs such as the Royal College of Obstetricians and Gynecologists (RCOG) "Gynaecological Health Matters", which trains healthcare workers to provide evidence-based management for BGCs, can improve the efficient use of pre-existing resources.

In line with the Lancet commission on Global Surgery,[11] governments and NGOs should improve access to appropriate surgical intervention for women with BGCs In addition to training and safe surgery interventions such as the WHO checklist, there should be a strong focus on decision-making, emphasizing the need for surgical

intervention only after unsuccessful conservative options. Healthcare professionals and professional organizations, including the RCOG and the International Federation for Gynecology and Obstetrics (FIGO), also have a role in developing universally accepted definitions for BGCs. This will help to address data collection challenges resulting from the unavailability of diagnostic techniques including laparoscopy and ultrasound in LMICs, and a lack of universally accepted diagnostic criteria for conditions. Improved data collection will demonstrate how prevention, early management, and patient-centered care for BGCs may be cost-saving, compared with late-stage intervention, aiding decision-makers to prioritize investment in gynecological services.

5 | CONCLUSION

Overall, BGCs are a hugely under-reported and under-resourced area of global women's health. This is a marker of continuing gender inequality and highlights an urgent need to prioritize holistic healthcare for women. The authors make an urgent call to action to improve the poor quality of life currently suffered by many women and girls and afford them their human right to health.

AUTHOR CONTRIBUTIONS

Dileep Wijeratne and Joanna F. E. Gibson (joint first authors): statistical analysis of data extracted from Global Burden of Disease Database; Creation of data tables and figures; contribution of written original material; review and analysis of the INTERLACE survey; analysis of disability weighting data; editing of drafts; review and final approval of the manuscript. Ranee Thakar: writing of original material for the introduction and abstract; editing; review and final approval of the manuscript. Alison Fiander: title of the paper; writing original material; editing; review of tables and figures; review and final approval of the manuscript. Elizabeth Rafii-Tabar: title of the paper; writing original material for the discussion and introduction; literature review; editing; review and final approval of the manuscript.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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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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