BMJ Global Health

Scaling pleasure-based sexual and reproductive health: an impact and economic modelling study in 99 low- and middle-income countries

Brad Wong ,[1] Ophelia Chatterjee,[2] Bryce Everett ,[1] Sara De Meyer,[3] Katie Newby ,[4] Beyonce Karungi,[5] Fatmah Suleyman,[6] Sesilia Shirima,[6] Eloïse Cowan ,[7] Precious Chima Nwaogbo,[8] Laura Ramos Tomás ,[9] Georgina Page,[10] Mamolefe Petlane,[11] Anne Philpott[12]

To cite: Wong B, Chatterjee O, Everett B, *et al*. Scaling pleasure-based sexual and reproductive health: an impact and economic modelling study in 99 low- and middle-income countries. *BMJ Glob Health* 2026;**11**:e024479. doi:10.1136/bmjgh-2026-024479

Handling editor Gang Qin

► Additional supplemental material is published online only. To view, please visit the journal online (https://doi.org/10.1136/bmjgh-2026-024479).

Received 30 March 2026
Accepted 12 July 2026

Check for updates

© Author(s) (or their employer(s)) 2026. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ Group.

For numbered affiliations see end of article.

Correspondence to
Dr Brad Wong;
brad@mettalytics.com

ABSTRACT

Introduction Pleasure is a key reason why people have sex. Yet many sexual and reproductive health (SRH) programmes do not consider the fundamental role of pleasure, focusing primarily on the prevention of pregnancy and sexually transmitted infections. Moreover, there is limited policy-ready evidence on pleasure-based sexual and reproductive healthcare (PBSRH), including implementation guidance, costs, impacts and return on investment at scale.

Methods We conducted semi-structured interviews with nine PBSRH providers to characterise the incremental activities required to implement PBSRH relative to conventional SRH. Using activity-based costing, we estimated the costs of integrating pleasure principles into existing SRH programmes for 15–24-year-olds in 99 low- and middle-income countries (LMICs) over 2026–2035. We focused on a narrow behavioural pathway - increased condom use - and projected its effects on (1) Unintended pregnancies, abortions, maternal and child mortality using methods consistent with Guttmacher's *Adding it Up* approach and (2) HIV outcomes using the Goals-Spectrum application. We undertook a prospective, societal benefit-cost analysis to estimate global, regional and country-level return on investment.

Results Eighteen incremental activities are commonly undertaken when integrating pleasure into SRH programmes. The estimated incremental cost of these activities for 15–24 year olds in LMICs is $1.6 billion (95% CI $1.1 to $2.2) over 10 years. This is expected to lead to 30.7 million (95% CI 17.8 to 41.1) additional years of condom use, averting 4.3 million pregnancies (95% CI 2.1 to 6.7) and 2.1 million abortions (95% CI 1.1 to 3.4). PBSRH integration would avert 92 318 deaths by 2050 (95% CI 47 965 to 139 835), ~80% relating to women and children. The expected return on investment is $22.9 (95% CI $13.8 to $37.6) in benefits per $1 of incremental cost. The largest benefits and returns are in Sub-Saharan Africa and Latin America and the Caribbean.

Conclusion PBSRH is a cost-effective and high-return intervention to support global SRHR and HIV/AIDS goals for young people in LMICs.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Economic evaluations of sexual and reproductive health (SRH) interventions in low- and middle-income countries (LMICs) consistently demonstrate cost-effectiveness, with 462 studies to date focusing predominantly on HIV/AIDS, reproductive cancers and maternal health services. However, none have examined pleasure-based approaches or quantified the costs and health impacts of integrating pleasure into routine SRH programmes.

WHAT THIS STUDY ADDS

⇒ To our knowledge, this is the first study to describe the operational activities required to integrate pleasure-based sexual and reproductive healthcare into conventional programmes. We estimate that doing so across 99 LMICs would cost $1.6 billion over 10 years, avert over 92 000 deaths and return roughly $23 in benefits per $1 spent.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ These findings provide policy-ready evidence that pleasure-based approaches could improve the efficiency of existing SRH programmes, informing investment decisions by governments and donors amid constrained global health funding.

INTRODUCTION

The 2018 *Guttmacher-Lancet* Commission on Sexual and Reproductive Health and Rights (SRHRs) described sexual health as not merely the absence of disease, but one in which satisfaction and pleasure were key elements.[1] Yet SRHR programmes have historically been designed and evaluated primarily around the prevention of pregnancy, sexually transmitted infections and HIV, with pleasure, sexual satisfaction and positive sexuality underrepresented in service packages, guidelines and

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

SRHR research,[1–4] despite being integral to why many people have sex.[5 6]

An emerging body of evidence shows that integrating pleasure into SRHR interventions can strengthen outcomes central to women's health. Several studies have demonstrated higher condom use when pleasure-inclusive approaches are used in sexual and reproductive health (SRH) programmes and HIV prevention communication.[4–10] Improvements in sexual communication, knowledge and self-efficacy also emerge across contexts: research in Kenya found that a pleasure-oriented SRH chatbot supported more sex-positive dialogue and safer sex practices, while qualitative work with pleasure-based sexual and reproductive healthcare (PBSRH) implementers in Central, East and Southern Africa and India reported similar benefits.[8 9] Additionally, concerns about how contraception affects sexual pleasure are a significant factor in discontinuation decisions, with concerns as prevalent as cost or access.[7]

The WHO and the World Association for Sexual Health have called for greater attention to sexual pleasure in condom promotion and other SRHR programming.[11 12] However, despite growing normative support, the nature of operational changes, associated costs and population-level health impacts of PBSRH remain poorly characterised. There is little evidence to guide governments, donors and implementers on whether integrating pleasure-framing into SRHR would yield sufficient benefits to justify investment at scale.

This study aims to address these evidence gaps. Drawing on semi-structured interviews with nine PBSRH providers, collectively delivering services in nine countries and reaching more than 15 million people annually including via online and social media messaging, we described the additional activities that are typically implemented when integrating pleasure into conventional SRH programming. Focusing on a narrow behavioural change that was available from the meta-analytic evidence - increased condom use[4] - we estimated the incremental costs, health benefits and return on investment of integrating pleasure components into existing SRH programmes for 15–24 year-olds in 99 low- and middle-income countries (LMICs).

Our focus on young people reflects the fact that they account for a substantial, disproportionate share of unmet need for modern contraception,[13] face elevated risks of HIV acquisition in high-burden settings[14] and are often least well served by current SRH services.[15] Additionally, there is evidence that young people are particularly vocal about the role of pleasure[3 16] in sexual health. Because most people with an unmet need for modern contraception live in LMICs, improving SRHR in these contexts is central to global progress.[13]

Our results are particularly important in the context of recent funding cuts to global SRH and HIV/AIDS programming.[17] Our study presents new policy-relevant evidence based on cost-effectiveness, complementing normative endorsement of PBSRH. In doing so, it responds directly to the *Guttmacher–Lancet* Commission's acknowledgement that research around pleasure in SRH is limited, while speaking to governments' need for interventions that are both rights-affirming and good value for money in the current constrained fiscal context.

METHODS

Intervention specification

We conducted an activity assessment, health impact modelling and benefit-cost analysis of integrating pleasure into existing SRH programmes targeting young people aged 15–24 across 99 LMICs. Activities, costs and benefits were assessed against a counterfactual of standard, non-pleasure-based SRH programmes at current coverage levels over an implementation period, 2026–2035. The intervention scenario assumes all individuals exposed to SRH messaging and programmes are instead exposed to PBSRH messaging and programmes.

Because direct cross-country data on SRH programme coverage are scarce, we approximated SRH coverage using the midpoint of plausible lower and upper bounds. The lower bound assumed coverage equal to the proportion of women with met need for modern contraception. The upper bound was derived from meta-analyses of the effect of SRH exposure on modern contraceptive use[18 19] and country-specific modern contraceptive prevalence. Our primary analysis used the midpoint between these bounds.

These incremental activities, their costs and the benefits that follow form a single causal chain linking the three components of our analysis. The activities are the operational means by which PBSRH makes SRH services more engaging, acceptable and sustained; the resulting increase in condom use is translated into averted unintended pregnancies, abortions and maternal, child and HIV/AIDS outcomes and these health gains are assigned monetary value in the benefit–cost analysis. PBSRH programming therefore augments rather than replaces existing SRH programming, building on services already considered cost-effective.

Activities undertaken to integrate pleasure into SRH programmes

To identify additional activities required to integrate pleasure-based components into SRH programming, we conducted semi-structured interviews with organisations with practical PBSRH experience. Providers were purposively sampled from The Pleasure Project's network to ensure diversity of regions and delivery models; the final sample comprised nine organisations operating in nine countries (online supplemental methods S1). All participating individuals - predominantly in management positions - were informed about the purpose of the study.

Interviews followed a structured guide covering hypothesised areas of incremental activity, with open-ended questions to identify additional tasks. Responses were qualitatively coded and grouped into thematic clusters,

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

which were refined into a schematic of incremental activities and activity areas. This schematic was returned to interviewees for validation.

A detailed narrative description of each activity area, including practical implications for implementers, is provided in online supplemental materials S2.

Costs of integrating pleasure into SRH programmes

We estimated incremental programme costs using an activity-based costing framework across 99 LMICs for 2026–2035, with all costs expressed in 2025 US$. Providers estimated additional time required for each incremental activity, and these effort estimates were mapped to six workforce cadres (eg, management, communications specialists, trainers, community health workers, community facilitators, monitoring and evaluation staff). Cadre-specific salary rates were derived from published sources and online wage-reporting portals (online supplemental materials S2), converted into country-specific cost estimates, and divided by assumed programme reach to obtain per-beneficiary unit costs.

To reflect variation by scale, costs were estimated for three programme sizes (10 000, 100 000 and 1 000 000 beneficiaries) and projected to 2035 using country-specific income growth rates[20] and discount rates.[21] Total programme costs over 2026–2035 were calculated by multiplying per-beneficiary unit costs by the projected number of people exposed to SRH programmes, using the medium scale as the central scenario (online supplemental methods S2).

For condom commodities, we conservatively assumed that all condom users (new users induced by PBSRH and existing users) would adopt more expensive, specially designed, user-preferred condoms. Unit prices were taken from UNAIDS[22] and projected using the same income-growth indices and discount factors as personnel costs. Total PBSRH integration costs were the sum of programme and commodity components across countries and years.

Health impact modelling

We developed a deterministic, static, population-based model to estimate the impact of increased condom use on pregnancies, pregnancy-related outcomes and maternal and child mortality across 99 LMICs, and combined these estimates with HIV outputs from the Goals-Spectrum HIV model, a deterministic compartmental model developed by Avenir Health (online supplemental materials S3).

The impact of PBSRH on condom use was parameterised using the effect size from the Zaneva *et al* meta-analysis (Cohen's d=0.37),[4] converted to an OR[23] to quantify the proportional increase in condom use among women avoiding pregnancy, using a population-attributable fraction approach. These relative effects were applied to country- and year-specific populations aged 15–24 years using UN demographic projections[24] to produce estimates of increased condom uptake.

Pregnancy and fertility impacts followed the structure of the Guttmacher *Adding It Up* analyses.[13 15 25] Changes in condom use were mapped to unintended pregnancies averted using annual pregnancy probabilities without modern contraception, adjusted for external (male) condom failure. Pregnancies were distributed into live births, induced abortions (with and without health professional support, referred to as safe and unsafe, respectively, hereafter), miscarriages and stillbirths using region-specific outcome proportions, and births averted were further separated into those prevented and those delayed to older ages.[26] PBSRH exposure was assumed to affect condom use within the same year only, with no contraceptive impacts assumed beyond 2035. Exact parameters and calculations are reported in online supplemental materials S3.

Maternal and child mortality impacts were modelled by linking changes in adolescent births to age-specific mortality risks using projected country-level maternal mortality ratios and under-5 mortality, and relative risks by maternal age. Prevented births reduced maternal deaths directly; delayed births yielded additional benefits by shifting births from higher-risk adolescent ages to lower-risk young adult ages.[27] Child mortality reductions reflected lower under-5 mortality risks associated with births to older mothers,[28] and we did not include reductions in child mortality for those otherwise not born in the intervention.

Annual reductions in HIV infections and AIDS-related deaths attributable to increased condom use from PBSRH were estimated for men and women using the Goals-Spectrum application. Benefits were captured to 2050 to capture the longer-term consequences of behavioural change established within the intervention window.

Benefit-cost analysis

We valued three categories of benefits generated by PBSRH: maternal deaths averted, child deaths averted and AIDS-related deaths averted. Maternal and AIDS mortality effects were valued using a common value-of-statistical life (VSL) applied uniformly across LMICs, while child mortality benefits were valued using the same VSL scaled by a factor of 1.5 to reflect higher valuation of child survival.[29 30] Annual VSL estimates for 2025–2050 were generated using global, population-weighted GDP per capita projections for analysis countries, a standard VSL-to-income ratio of 160 and an income elasticity of 1.5.[31] Full valuation parameters, discounting procedures and aggregation methods are described in online supplemental methods S4.

Probabilistic sensitivity analysis

Uncertainty was quantified using probabilistic sensitivity analysis with 10 000 Monte Carlo simulations, jointly varying key parameters for coverage, behavioural effects, fertility, mortality, valuation, discounting and unit costs according to empirically informed or bounded

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

distributions. Additional detail is reported in online supplemental methods S5.

Patient and public involvement

Patients and members of the public were not directly involved in the design, conduct or reporting of this research. The study drew on interviews with organisations delivering pleasure-based SRH services, several of which are represented among the study authors.

RESULTS

Activities undertaken to integrate pleasure into SRH programmes

We identified 18 specific incremental activities across five activity areas: stakeholder engagement (2 activities), communications and advocacy (6 activities), monitoring and evaluation (1 activity), training (3 activities) and service delivery (6 activities). The complete set of 18 activities, each with a description of how it differs from standard SRH practice, is available in online supplemental materials S2.

Within stakeholder engagement, providers reported needing to engage government stakeholders and various gatekeepers (parents, religious leaders and schools) to explain PBSRH and ensure buy-in. These efforts were generally more intensive than conventional, risk-based SRH programmes with which stakeholders were already familiar.

Providers reported substantial additional effort in communications and advocacy. Some activities surrounding localisation and testing required more effort because pleasure-based messaging is less developed than longstanding risk-based messaging. Once developed, organisations reported needing additional resources to meet greater audience engagement with pleasure-based content, producing more physical and digital assets and holding more public fora such as conferences. Providers also noted more work was required to manage online backlash and algorithmic shadow-banning of PBSRH content.

Monitoring and evaluation required modest incremental effort, mainly to incorporate indicators more reflective of sexual well-being alongside standard metrics such as reach and commodities delivered.

Training activities were expanded to ensure that organisation staff, peer educators and frontline workers understood pleasure concepts and could communicate them confidently to stakeholders and beneficiary groups. Values-clarification and attitude transformation workshops were frequently highlighted as important for improving acceptability of PBSRH messaging among key delivery partners.

Service delivery was typically described as modestly more time-intensive. Group discussions were allocated additional time to allow for greater participation given the engaging nature of the content, and SRH counselling sessions were reported to be slightly longer (by around 1–5 min) to include pleasure framing. Several providers also expanded their commodity mix to offer a wider range of condoms and lubricants, which were often more costly than standard SRH products.

Beyond their direct cost implications, these activities carry practical lessons for providers integrating pleasure into existing SRH programmes. The provider interviews indicate that the shift is less about creating a new, vertical programme than about deepening and reframing work organisations already do across five areas: stakeholder engagement, communications and advocacy, monitoring and evaluation, training and service delivery. In practice this means a heavier initial lift (eg, securing acceptance and legitimacy through early, sustained engagement with ministries, gatekeepers and communities and investing in staff training and values clarification) followed by incremental effort across two key aspects of programming: richer, more dialogic service encounters and the continuous production of pleasure-inclusive content, whose greater engagement itself generates additional engagement with services, and at times, the navigation of platform censorship. Larger, episodic investments such as overhauls of creative content and curriculum revisions recur roughly every 3 years; and because there is not yet a mature ecosystem of shared pleasure-positive content, curricula and digital assets, much current spending reflects one-off contextualisation that future adopters may increasingly meet through adaptation rather than redevelopment. A detailed, interview-grounded description of each activity area, its practical implications for implementers and how the activities map onto the annual versus episodic cost structure (including the stakeholder and gatekeeper engagement, regulatory navigation and digital-platform challenges involved in introducing pleasure-inclusive programming) is provided in online supplemental materials S2.

Costs of integrating pleasure into SRH programmes

The cost of integrating pleasure into SRH programmes is estimated at $1.6 (95% CI $1.1 to $2.2) billion (2025 US$) over 2026–2035. Across the five activity areas, the highest costs are for service delivery at $1.1 (95% CI $0.7 to $1.6) billion and communications and advocacy at $303 (95% CI $192 to $483) million. By region, the highest costs are expected in East Asia and the Pacific at $710 (95% CI $492 to $1027) million, followed by Latin America and the Caribbean (LAC) at $482 (95% CI $349 to $646) million. See online supplemental materials S2 for full regional disaggregation by activity category.

Contraception and fertility impacts

Our model projects 30.7 (95% CI 17.8 to 41.1) million additional years of condom use from the intervention scenario over 2026–2035. The largest gains are experienced in LAC with 12.1 (95% CI 7.4 to 15.6) million years and in Sub-Saharan Africa (SSA) with 10.6 (95% CI 5.9 to 14.8) million years. Brazil, China and India experience

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Table 1 Regional contraception and fertility impacts of integrating pleasure-based sexual and reproductive healthcare (thousands, 95% CI in brackets)

Region	Years of condom use (000s)	Unintended pregnancies averted (000s)	Abortions averted (000s)	Births averted (000s)	Births delayed (000s)
East Asia and Pacific	2845.9 (1688.5 to 3631.5)	397.4 (197.9 to 599.5)	292.6 (145.7 to 441.4)	18.2 (8.2 to 30.5)	44.7 (21.7 to 69.0)
Europe and Central Asia	590.9 (355.9 to 755.6)	84.5 (42.4 to 127.9)	61.1 (30.8 to 92.5)	4.2 (1.9 to 7.0)	10.2 (5.0 to 15.8)
Latin America and Caribbean	12 147.9 (7388.8 to 15 587.9)	1621.4 (826.7 to 2470.6)	760.6 (387.8 to 1158.9)	189.7 (87.4 to 320.1)	464.3 (231.4 to 723.2)
Middle East and North Africa	150.3 (82.8 to 211.0)	21.9 (10.2 to 35.7)	12.7 (5.9 to 20.6)	1.9 (0.8 to 3.4)	4.7 (2.2 to 7.9)
South Asia	4380.1 (2371.3 to 6175.6)	587.5 (267.3 to 958.1)	429.3 (195.3 to 700.1)	27.9 (11.8 to 49.5)	68.2 (30.7 to 113.5)
Sub-Saharan Africa	10 620.6 (5915.0 to 14 817.5)	1547.4 (723.4 to 2516.0)	584.4 (273.2 to 950.3)	218.6 (94.8 to 386.6)	535.2 (246.5 to 888.0)
Total	30 735.7 (17 773.1 to 41 073.1)	4260.1 (2085.9 to 6682.9)	2140.7 (1046.5 to 3353.4)	460.5 (205.0 to 796.5)	1127.3 (536.3 to 1808.7)

the largest absolute increase in condom users (online supplemental materials S3).

We estimate that this increase in contraception use would avert 4.3 (95% CI 2.1 to 6.7) million unintended pregnancies, leading to 2.1 million (95% CI 1.1 to 3.4) averted abortions, 465 500 (95% CI 205 000 to 796 500) births averted and 1.1 million (95% CI 536 300 to 1 808 700) births delayed. Following regional condom usage impacts, the largest fertility impacts are experienced in LAC and SSA (table 1).

Averted mortality and HIV/AIDS incidence

The reduction in unintended pregnancies is projected to avert 2695 (95% CI 1142 to 5974) maternal deaths from delayed and averted births, and 40 234 (95% CI 18 263 to 67 861) child deaths from delayed births. We do not attribute any averted child deaths to averted births. Approximately 75% of the averted maternal and child deaths are expected to occur in SSA, reflecting the region's higher baseline mortality rates (table 2). Nigeria, Brazil and Cameroon have the largest absolute reductions in maternal and child mortality (online supplemental materials S3).

HIV incidence falls as condom use increases over 2026–2035, leading to both immediate and long-term reductions in new infections and deaths. Compared with standard SRH, PBSRH is projected to avert approximately 128 000 (95% CI 74 000 to 171 000) HIV/AIDS infections, and ~49 000 (95% CI 29 000 to 66 000) deaths between 2026 and 2050 with 86% of all HIV/AIDS benefits occurring in SSA. Almost two-thirds (63%) of all averted HIV/AIDS-related deaths are for women. As seen in figure 1, HIV-related deaths averted increase each year through to

Table 2 Regional health benefits of integrating pleasure-based sexual and reproductive healthcare (95% CI in brackets)

Region	Maternal mortality averted to 2035	Child mortality averted to 2035	HIV/AIDS incidence averted to 2050	HIV/AIDS-related mortality averted to 2050
East Asia and Pacific	34 (16 to 60)	447 (206 to 725)	1455 (842 to 1945)	557 (322 to 745)
Europe and Central Asia	3 (1 to 5)	75 (35 to 120)	169 (98 to 225)	154 (89 to 206)
Latin America and Caribbean	344 (141 to 811)	7188 (3428 to 11 633)	12 707 (7348 to 16 981)	5540 (3203 to 7403)
Middle East and North Africa	3 (1 to 7)	107 (48 to 183)	18 (10 to 23)	78 (45 to 105)
South Asia	156 (72 to 278)	2225 (955 to 3890)	2104 (1217 to 2812)	801 (463 to 1070)
Sub-Saharan Africa	2155 (903 to 4819)	30 193 (13 457 to 51 919)	111 651 (64 563 to 149 203)	42 259 (24 436 to 56 472)
Total	2695 (1142 to 5974)	40 234 (18 263 to 67 861)	128 104 (74 077 to 171 190)	49 389 (28 560 to 66 000)

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

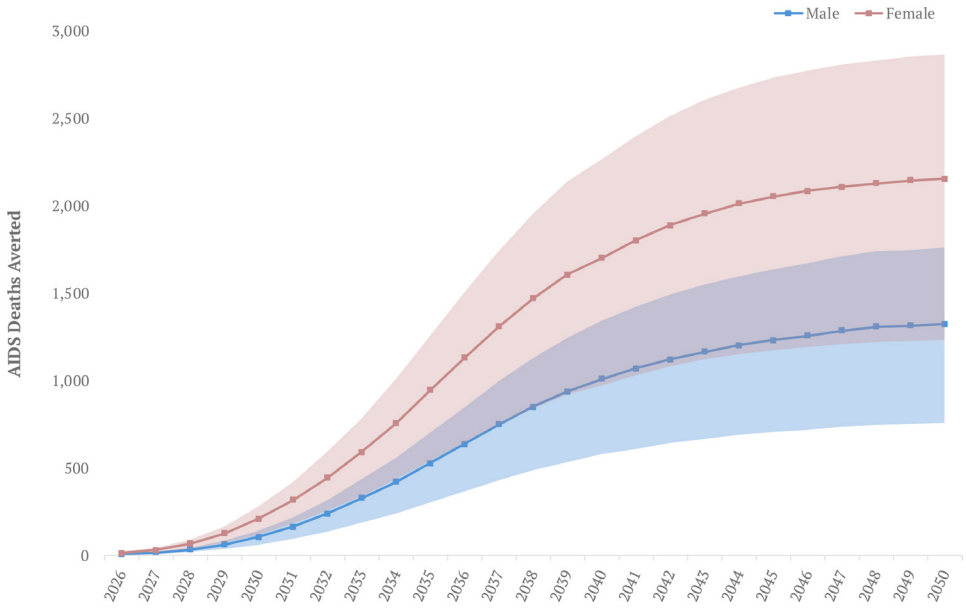

Figure 1 HIV/AIDS-related deaths averted by integrating pleasure-based components into standard sexual and reproductive health (SRH) programmes, 2026–2050. Projected AIDS-related deaths averted under pleasure-based sexual and reproductive healthcare (PBSRH) programming relative to a counterfactual of standard, non-pleasure-based SRH at current coverage across 99 low- and middle-income countries. Reductions arise from increased condom use among people aged 15–24, which was scaled to the 15–49 population and applied within the Goals-Spectrum model's general heterosexual-transmission framework to estimate HIV incidence and AIDS mortality for men and women; benefits were tracked to 2050 to capture the longer-term consequences of behaviour change established during the 2026–2035 intervention period. Deaths averted increase over time because infections prevented during 2026–2035 remove individuals from the future pool who would otherwise acquire HIV, progress to AIDS and die in subsequent years. Shaded regions represent 95% CIs from a probabilistic sensitivity analysis of 10 000 Monte Carlo simulations jointly varying relative parameters. Across 2026–2050, PBSRH is projected to avert approximately 49 000 (95% CI 29 000 to 66 000) HIV/AIDS deaths.

2050, reflecting the fact that infections prevented during 2026–2035 remove individuals from the future pool who would otherwise acquire HIV, progress to AIDS, and die in subsequent decades. At a country level, the largest impacts are experienced in South Africa and Mozambique, which together represent about half of the total HIV/AIDS-related mortality reduction (online supplemental materials S3).

Benefit-cost analysis

The results indicate that the total benefits of integrating pleasure into SRH would be $35.7 (95% CI $21.3 to $60.9) billion over 2026–2035. Assessed against the total costs of $1.6 billion (95% CI $1.1 to $2.2), the benefit-cost ratio (BCR) is 22.9 (95% CI 13.8 to 37.6). There is large heterogeneity in returns across regions (table 3). The largest return is seen in SSA with a BCR of 200.6 (95% CI 109.9 to 313.0), an order-of-magnitude higher than the next region, LAC, with a BCR of 12.1 (95% CI 6.1 to 20.8). In contrast, the BCR in East Asia and the Pacific is 0.5 (95% CI 0.2 to 0.8), indicating that PBSRH integration does not deliver higher benefits than costs, though this is primarily due to the low BCR for China (see Discussion).

Probabilistic sensitivity analysis

We conducted a probabilistic sensitivity analysis to characterise uncertainty across outcomes (online supplemental methods S5). Our estimated BCR exceeds 15

Table 3 Regional benefits, costs and benefit-cost ratios from pleasure-based sexual and reproductive healthcare integration (95% CI in brackets)

Region	Benefits (US$ millions)	Costs (US$ millions)	Benefit-cost ratio
East Asia and Pacific	356.5 (180.3 to 602.3)	709.5 (491.8 to 1026.8)	0.5 (0.2 to 0.8)
Europe and Central Asia	76.3 (41.0 to 120.0)	25.2 (17.9 to 34.6)	3.0 (1.6 to 4.8)
Latin America and Caribbean	5838.5 (2950.8 to 9886.6)	482.2 (349.4 to 645.8)	12.1 (6.1 to 20.8)
Middle East and North Africa	80.0 (37.5 to 143.6)	19.9 (14.1 to 27.6)	4.0 (1.9 to 7.0)
South Asia	1363.2 (575.6 to 2646.2)	182.1 (126.6 to 262.9)	7.5 (3.3 to 13.4)
Sub-Saharan Africa	28 024.5 (14 211.4 to 47 049.5)	139.7 (97.9 to 195.0)	200.6 (109.9 to 313.0)
Total	35 739.0 (21 346.4 to 60 901.3)	1558.6 (1101.9 to 2187.9)	22.9 (13.8 to 37.6)

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

in approximately 95% of simulations and 20 in around 69%, indicating a high probability that PBSRH integration represents a highly efficient policy option relative to commonly used thresholds for investments advancing the Sustainable Development Goals.[32]

DISCUSSION

To our knowledge, this is the first study to systematically describe the incremental activities required to integrate PBSRH into SRH programmes, providing operational detail that complements the limited research on the role of pleasure in SRH outcomes. It is also the first population-wide economic evaluation of PBSRH in LMICs, despite the existence of at least 462 full economic evaluations of conventional SRH interventions[33] and longstanding recognition of pleasure as integral to sexual health.[2 4 11] Our analysis begins to fill a notable gap between the growing normative consensus on the importance of including pleasure in SRH programming[1 12 34] and the evidence base available to guide PBSRH implementation and investment decisions.

Integrating pleasure principles into youth-focused SRH programmes in LMICs could yield substantial health gains. We estimate 30.7 million additional condom user-years over 2026–2035, averting 4.3 million unintended pregnancies, 2.1 million abortions and approximately 92 000 deaths by 2050. The central scenario projects US$35.7 billion in benefits at a cost of US$1.6 billion, corresponding to a BCR of 22.9:1.

This high return is possible because the intervention leverages infrastructure, systems and staffing already required for SRH. It consists mainly of modest, front-loaded investments in training and stakeholder engagement, plus recurring expenditures on communications, M&E and service delivery. The principal shift is the framing and content of interactions with participants and relevant stakeholders. PBSRH therefore represents a quality improvement to existing services that can increase contraceptive uptake without substantial new fixed costs.

In a tightening funding landscape, our findings suggest that integrating PBSRH may be an efficient way to strengthen existing systems. In our central scenario, transitioning to PBSRH costs US$1.6 billion and generates an incremental cost of US$51 per additional modern method user per year. By comparison, the 2024 *Guttmacher* investment case estimates that fully meeting unmet demand requires US$62 per additional user.[13] PBSRH therefore offers a way to unlock additional contraceptive uptake and continuation among those already in contact with the system, at a lower marginal cost than scaling commodities and infrastructure alone.

Regional patterns in benefits and costs were heterogeneous. BCRs were highest in SSA, where high baseline health burdens mean that even modest condom-use gains translate into large health benefits. By contrast, the East Asia and Pacific region shows an overall BCR below 1, driven largely by China. In China, the combination of relatively high contraceptive met need, lower health burdens and high intervention costs means PBSRH yields a country-specific BCR of 0.2. Excluding China, the regional BCR for the remaining East Asia and Pacific countries rises to 2.4.

The analysis has several important limitations. First, we focused on a relatively narrow behavioural pathway: increased condom use. We did not explicitly model potential impacts of PBSRH on uptake, switching or continuation of other modern methods. If pleasure-framing also improves the acceptability and continuation of these methods - as emerging evidence suggests[4 7] - our estimates are likely conservative. Second, we quantified only a subset of the benefits and did not include broader gains in autonomy, dignity, sexual satisfaction, nor downstream benefits such as improved girls' schooling or demographic dividend impacts from lower fertility.[35] Additionally, by restricting infectious disease impacts to HIV, we omit the costs associated with other sexually transmitted infections. Inclusion of these effects would increase benefits, again suggesting that our return on investment results could be plausibly interpreted as conservative. Third, while this study emphasises women's and adolescent girls' health outcomes, this reflects data availability rather than the intended scope of PBSRH, which is designed to engage people of all genders. Our analysis may insufficiently capture the benefits of PBSRH for men and gender-diverse people, including the potential to redistribute responsibility for contraception, pregnancy prevention and safer sex away from women alone. Finally, as a multi-country modelling study, our estimates are necessarily built on cross-national data and average effects, and the substantial heterogeneity we observed across regions and countries underscores the value of country-level analyses; incorporating national programme structures, costs and epidemiology in future work would generate the more granular, policy-relevant evidence that national governments and donors need to act on these findings.

For implementers, our findings underscore that transitioning to PBSRH is not simply a matter of inserting a few new phrases into counselling scripts, but of rebalancing programme effort towards communication, localisation and relationship-building. Providers consistently described an "up-front lift" in developing and testing pleasure-inclusive content: compared with long-established risk-based messaging, pleasure-framed materials required more formative research, user testing, translation and refinement to ensure that tone, imagery and language were acceptable to young people, as well as to gatekeepers. They reported additional work to translate global resources, commission new imagery and audiovisual materials where stock content was inadequate or stigmatising, and adjust digital platforms to remain both sex-positive and compliant with platform rules and national regulations. These activities represent a shift from a predominantly didactic model of SRH communication to one grounded in co-design, audience segmentation and ongoing feedback.

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

The analysis also highlights that pleasure-centred work requires competencies in stakeholder engagement, digital rights and risk management. Programmes described negotiations with regulatory bodies to secure approval for materials and parallel engagement with parents and gatekeepers to create "social licence" for talking about sexuality and pleasure with young people. These processes demanded careful planning to avoid backlash and to protect staff and participants. Implementers reported similar challenges in digital spaces: algorithmic censorship of anatomically correct images or sex-positive language led to account suspensions and content takedowns, forcing redesigns and appeals.

Translating these findings into practice will also require deliberate strategies to address the socio-cultural, political and legal barriers described above. Several practical steps follow from our interviews. First, the gatekeeper engagement that providers identified as more intensive than in conventional programmes is likely most effective when undertaken early and continuously rather than only at the point of delivery, so that the "social licence" for pleasure-inclusive work is established before services begin. Second, the values-clarification and attitude-transformation workshops that providers highlighted for delivery staff could be extended to policymakers, parents and community gatekeepers, whose acceptance strongly shapes what can be delivered. Third, programmes can reduce political and legal risk by anchoring pleasure-based messaging in existing national health and rights mandates and in the normative endorsements of the WHO, the World Association for Sexual Health and the Guttmacher-Lancet Commission and by securing approval of materials from relevant regulatory bodies; over time, reflecting pleasure in national SRH guidelines and provider training standards would help shift it from a contested addition to an accepted element of routine care. Finally, the digital barriers we observed call for proactive mitigation (including clear processes for appealing account suspensions and content takedowns and safeguards to protect staff and young people from online backlash) rather than reactive responses after content is removed. These steps are necessarily context-specific and are likely to be most demanding in more restrictive legal and policy environments where adaptation and coalition-building with community and youth organisations become especially important. Documenting which of these approaches succeed across different legal and cultural contexts is an important priority for future implementation research.

These implementation lessons have important implications for health systems. Providers described that once staff and communities had worked through initial discomfort, pleasure-based framing often made SRH conversations more honest, less stigmatising and more aligned with the realities of young men and women's sexual lives. Peer- and community-led discussion spaces that had been created to talk about pleasurable safe sex frequently evolved into broader forums for addressing gender norms, relationship dynamics and mental health. For donors and governments, investing in PBSRH is not only an efficiency play but also a route to strengthening the "relational infrastructure" of SRH: the skills, norms, attitudes and trust that enable and empower individuals to articulate what they want from sex and from contraception. In this sense, PBSRH can be viewed as both a targeted intervention and a stress test for whether SRH systems are capable of delivering the kind of rights-based, person-centred care the *Guttmacher–Lancet* Commission envisages.

Author affiliations
[1]Mettalytics, Federal, New South Wales, Australia
[2]Independent Researcher, Marseille, France
[3]The Pleasure Project, Santiago, Chile
[4]University of Hertfordshire, Hatfield, UK
[5]Transgender Equality Uganda, Kampala, Uganda
[6]Young & Alive Initiative, Dar es Salaam, Tanzania, United Republic of
[7]DKT International, Washington, DC, District of Columbia, USA
[8]DKT International, Lagos, Nigeria
[9]TabuTabu, Rio de Janeiro, Brazil
[10]MSI Reproductive Choices, London, UK
[11]Sesotho Media and Development, Maseru, Lesotho
[12]The Pleasure Project, Dorset, UK

Acknowledgements The authors thank Sarah Hand (Avert), Mahmoud Garga (IPPF) and Liz Tremlett (Amplify Change) for their thoughtful input and engagement during the development of this study. They contributed to discussions and provided feedback on aspects of the work but were not involved in the analysis or decision to publish.

Contributors BW, OC, SDM and AP conceptualised the study. BW, OC and BE conducted the formal data analysis and directly accessed and verified the underlying data. OC led data collection from participating provider organisations. KN, BK, FS, SS, EC, PN, LRT, GP and MP contributed organisation-specific data. BW, BE and OC drafted the initial manuscript. SDM, KN, BK, FS, SS, EC, PN, LRT, GP, MP and AP critically reviewed the manuscript and provided substantive intellectual input. All authors approved the final version of the manuscript and agree to be accountable for all aspects of the work. BW had final responsibility for the decision to submit for publication. BW is responsible for the overall content as guarantor. ChatGPT (OpenAI, GPT-5) was used to improve the clarity and readability of the manuscript. It was not used for data analysis, interpretation or generation of scientific conclusions. All AI-generated text was reviewed and edited by the authors, who accept full responsibility for the final content.

Funding The Pleasure Project received funding from Vitol Foundation and The Case for Her to commission this study. The Pleasure Project contributed to the development of the terms of reference and the initial conceptualisation of the study, facilitated introductions to organisations within its community of practice and provided comments on draft versions of the manuscript. Data management and analysis were conducted independently by BW, BE and OC, who had full access to all underlying data and verified the analyses. Other co-authors contributed organisation-specific data or provided input on interpretation. Vitol Foundation and The Case for Her had no role in study design, data collection, data analysis, data interpretation, writing of the report or the decision to submit for publication. BW had final responsibility for the decision to submit for publication.

Competing interests BW reports funding from The Pleasure Project to support this study. AP is the Co-Director of The Pleasure Project, and SDM is a consultant to The Pleasure Project. KN reports grants from the NIHR Public Health Research programme outside the submitted work. KN also serves as an unpaid committee member of the European Health Psychology Society Specialist Interest Group in Digital Health and Computer Tailoring, an unpaid member of the WHO Sexual and Reproductive Health Research Project Review Panel (RP2) and an unpaid member of the Health and Care Research Wales Integrated Funding Scheme. LRT reports that TabuTabu received a mini grant from The Pleasure Project as part of the Pleasure Fellowship programme and that TabuTabu and The Pleasure Project jointly applied for and received funding from the Packard Foundation outside the submitted work. All other authors declare no competing interests.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. The statistical code used to generate the findings of this study is available from the corresponding author upon reasonable request for non-commercial research purposes. Provider-level data contributed by participating organisations cannot be made publicly available because of data sharing agreements and confidentiality restrictions. Publicly available input datasets used in the modelling are accessible through their original sources as cited. No individual-level participant data were collected in this study.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages) and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: https://creativecommons.org/licenses/by-nc/4.0/.

Author note The reflexivity statement for this paper is linked as an online supplemental file 2.

ORCID iDs
Brad Wong https://orcid.org/0000-0002-8704-6225
Bryce Everett https://orcid.org/0009-0003-1764-2122
Katie Newby https://orcid.org/0000-0002-9348-0116
Eloïse Cowan https://orcid.org/0009-0005-4606-4274
Laura Ramos Tomás https://orcid.org/0009-0000-6024-4830

REFERENCES

1 Starrs AM, Ezeh AC, Barker G, *et al*. Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission. *Lancet* 2018;391:2642–92.
2 Philpott A, Larsson G, Singh A, *et al*. How to Navigate a Blindspot: Pleasure in Sexual and Reproductive Health and Rights Programming and Research. *Int J Sex Health* 2021;33:587–601.
3 Lameiras-Fernández M, Martínez-Román R, Carrera-Fernández MV, *et al*. Sex Education in the Spotlight: What Is Working? Systematic Review. *Int J Environ Res Public Health* 2021;18:2555.
4 Zaneva M, Philpott A, Singh A, *et al*. What is the added value of incorporating pleasure in sexual health interventions? A systematic review and meta-analysis. *PLoS One* 2022;17:e0261034.
5 Hull TH. Sexual Pleasure and Wellbeing. *Int J Sex Health* 2008;20:133–45.
6 Ford JV, Corona Vargas E, Finotelli Jr. I, *et al*. Why Pleasure Matters: Its Global Relevance for Sexual Health, Sexual Rights and Wellbeing. *Int J Sex Health* 2019;31:217–30.
7 Zaneva M, Thatte N, Philpott A, *et al*. The sex effect: the prevalence of sex life reasons for contraceptive discontinuation. A systematic review and meta-analysis. *Sex Reprod Health Matters* 2025;33:2552589.
8 Njogu J, Jaworski G, Oduor C, *et al*. Assessing acceptability and effectiveness of a pleasure-oriented sexual and reproductive health chatbot in Kenya: an exploratory mixed-methods study. *Sex Reprod Health Matters* 2023;31:2269008.
9 Mills R, Northcott K, Kovacs E, *et al*. Opening a portal to pleasure based sexual and reproductive health around the globe; a qualitative analysis and best practice development study. *Sex Reprod Health Matters* 2023;31:2275838.
10 Muschialli L, Ford JV, Gonsalves L, *et al*. Prevent with Pleasure: A systematic review of HIV public communication campaigns incorporating a pleasure-based approach. *PLOS Glob Public Health* 2025;5:e0004005.
11 Ford JV, Corona-Vargas E, Cruz M, *et al*. The World Association for Sexual Health's Declaration on Sexual Pleasure: A Technical Guide. *Int J Sex Health* 2021;33:612–42.
12 World Health Organization. Condoms. 2025. Available: https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/stis/prevention/condoms [accessed 28 Nov 2025]
13 Sully EA, Rosenberg JD, Tignor M, *et al*. Adding it up 2024: investing in sexual and reproductive health in low- and middle-income countries. 2025.
14 Murewanhema G, Musuka G, Moyo P, *et al*. HIV and adolescent girls and young women in sub-Saharan Africa: A call for expedited action to reduce new infections. *IJID Reg* 2022;5:30–2.
15 Sully EA, Biddlecom A, Darroch JE, *et al*. Adding it up: investing in sexual and reproductive health 2019. 2020.
16 Holstrom AM. Sexuality Education Goes Viral: What We Know About Online Sexual Health Information. *Am J Sex Educ* 2015;10:277–94.
17 Meyer-Rath G, Jamieson L, Mudimu E, *et al*. Who pays and what pays off in sexual and reproductive health? A review of the cost and cost-effectiveness of interventions and implications for future funding and markets. *Lancet* 2025;406:2152–67.
18 Lopez LM, Bernholc A, Chen M, *et al*. School-based interventions for improving contraceptive use in adolescents. *Cochrane Database Syst Rev* 2016;2016:CD012249.
19 Sweat MD, Denison J, Kennedy C, *et al*. Effects of condom social marketing on condom use in developing countries: a systematic review and meta-analysis, 1990-2010. *Bull World Health Organ* 2012;90:613–622A.
20 Riahi K, van Vuuren DP, Kriegler E, *et al*. The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change* 2017;42:153–68.
21 Haacker M, Hallett TB, Atun R. On discount rates for economic evaluations in global health. *Health Policy Plan* 2020;35:107–14.
22 Global HIV Prevention Coalition. Condom needs estimation tool | GPC. 2023. Available: https://hivpreventioncoalition.unaids.org/en/resources/condom-needs-estimation-tool-user-guide [Accessed 28 Nov 2025].
23 Chinn S. A simple method for converting an odds ratio to effect size for use in meta-analysis. *Stat Med* 2000;19:3127–31.
24 UN Population Division. World population prospects. Available: https://population.un.org/dataportal/home
25 Darroch JE. Adding it up: investing in contraception and maternal and newborn health, 2017—estimation methodology. Guttmacher Institute; 2018.
26 Monea E, Thomas A. The public cost of pregnancy. 2011.
27 Nove A, Matthews Z, Neal S, *et al*. Maternal mortality in adolescents compared with women of other ages: evidence from 144 countries. *Lancet Glob Health* 2014;2:e155–64.
28 Noori N, Proctor JL, Efevbera Y, *et al*. Effect of adolescent pregnancy on child mortality in 46 countries. *BMJ Glob Health* 2022;7:e007681.
29 Redfern A, Li S, Gould M, *et al*. Lessons from Applying Value of Statistical Life and Alternate Methods to Benefit–Cost Analysis to Inform Development Spending. *J Benefit Cost Anal* 2024;15:127–54.
30 Robinson LA, Raich WJ, Hammitt JK, *et al*. Valuing Children's Fatality Risk Reductions. *J Benefit Cost Anal* 2019;10:156–77.
31 Robinson LA, Hammitt JK, O'Keeffe L. Valuing Mortality Risk Reductions in Global Benefit-Cost Analysis. *J Benefit Cost Anal* 2019;10:15–50.
32 Lomborg B. Save 4.2 Million Lives and Generate $1.1 Trillion in Economic Benefits for Only $41 Billion: Introduction to the Special Issue on the Most Efficient Policies for the Sustainable Development Goals. *J Benefit Cost Anal* 2023;14:1–15.
33 Kaiser AH, Ekman B, Dimarco M, *et al*. The cost-effectiveness of sexual and reproductive health and rights interventions in low- and middle-income countries: a scoping review. *Sex Reprod Health Matters* 2021;29:1983107.
34 WAS. Declaration on sexual pleasure | the world association for sexual health (WAS). 2019. Available: https://www.worldsexualhealth.net/was-declaration-on-sexual-pleasure [Accessed 18 Apr 2025].
35 Stenberg K, Sweeny K, Axelson H, *et al*. Returns on investment in the continuum of care for reproductive, maternal, newborn, and child health. In: Black RE, Laxminarayan R, Temmerman M, *et al*., eds. *Reproductive, maternal, newborn, and child health: disease control priorities, third edition (volume 2)*. Washington (DC): The International Bank for Reconstruction and Development / The World Bank, 2016. Available: http://www.ncbi.nlm.nih.gov/books/NBK361897/

BMJ Global Health: first published as 10.1136/bmjgh-2026-024479 on 25 August 2026. Downloaded from https://gh.bmj.com on 30 September 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.