

Is Male Circumcision a Violence against Men? A Systematic Review and Meta-Analysis

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Abstract: The influence of circumcision on sexual functions is still the topic of discussion. The purpose of the present study was to test the hypothesis of increased sexual dysfunction in circumcised men through a review of the literature and to perform a detailed synthesis of the available evidence in order to guide patients, parents and decision-makers on male circumcision. Searches were performed in the MEDLINE (PUBMED) and COCHRANE databases. Keywords were circumcision in combination with "sensitivity, erectile, ejaculation, orgasm, desire, satisfaction, or sex". All publication types indexed in databases and English languages were accepted until 2019. The SATAT 11 software was employed for data analysis. 5 studies were included in the meta- analysis. All studies results were divided into five subgroups to evaluate the effect of circumcision on premature ejaculation (PE), sexual desire, erectile dysfunction (ED), orgasm difficulty and dyspareunia. There were no significant differences in PE (RR: 0.97; 95% CI: 0.87 1.08) and orgasm difficulty (RR: 0.83; 95% CI: 0.60 1.15) between circumcised and uncircumcised group. However, ED (RR: 0.77; 95% CI: 0.53 1.1) and pain during intercourse (RR: 0.89; 95% CI: 0.67 1.2) and sexual desire (RR: 0.93; 95% CI: 0.81 1.06) between two groups. These results suggest that circumcision is unlikely to adversely affect male sexual status. Well-designed and prospective randomized control trial studies are required for a further understanding of this issue.

Keywords: Male, Circumcision, Violence, Sexuality, Meta-Analysis, Review.

INTRODUCTION

Literally from Latin, circumcision means "to cut around." Male circumcision is the surgical removal of a part or all of the penile foreskin (1). Circumcision is the most common surgery in many countries. In most cases, the cause is religious beliefs and cultural necessity of the community, but in other cases, clinical necessity is also considered as another cause.

Male Circumcision (MC) in the History

The essence of circumcision is not mentioned in the Qur'an, but it is referred to in the hadiths and it is recommended in the Sunni beliefs that circumcision is mustahab and it is also mentioned that circumcision is not necessary for converting to Islam. Before Islam, circumcision was obligatory in Judaism, while it does not exist as a religious order Christianity (2).

Circumcision before the 19th century was largely religious and traditional, but then, with the clarification of its medical benefits (health-treatment), it was scientifically advised and developed in some of the advanced countries (3).

Removing a part or all of an infant's healthy penile prepuce/foreskin – i.e. non-therapeutic circumcision – precipitates strong debate surrounding sexuality, ethics, and human rights (4).

The influence of circumcision on sexual functions is still the topic of discussion. The purpose of the present study was to test the hypothesis of increased sexual dysfunction in circumcised men through a review of the literature and to perform a detailed synthesis of the available evidence in order to guide patients, parents and decision-makers on male circumcision.

METHODS

Search Strategy and Study Selection

Published studies were identified by searching electronic databases. We searched two databases: PUBMED, COCHRANE until 30 December 2019. Exploded index terms (MeSH) were "Circumcision, male" in combination with "Sexual dysfunction", "Sexual arousal disorder", "Premature ejaculation", "Erectile dysfunction", "Orgasm disorder", and "Sexual satisfaction". Randomized control trial and systematic review publication types indexed in databases and English languages were accepted.

Data Extraction and Quality Assessment

Only studies that compared sexual status with male circumcision were included (Figure 1). All relevant studies identified from the search strategy were used for detailed assessment. Additionally, studies among men who had sex with other men were excluded because the sexual function criteria were unclear for such evaluations. Data were independently extracted from the included studies by two investigators. The extracted data included data sources, eligibility, methods, participant characteristics, interventions and results. The quality of these eligible citations was assessed using the Newcastle-Ottawa Scale.

Data Synthesis and Analysis

The effect of circumcision on five subgroups (Pain during intercourse (dyspareunia)/ premature ejaculation (PE)/ Erectile dysfunction (ED) / Difficulty of orgasm/ sexual desire) was estimated using risk ratios (RR) and confidence intervals (CIs). The STATA 11 software (Stata Statistical Software: Release 11. College Station, TX: StataCorp LP) was used to analysis the RRs for dichotomous variables and the mean differences (MD) for continuous variables. The Mantel–Haenszel type

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method was used to estimate the pooled RRs. The proportion of heterogeneity across the studies was tested using the I² index. If I²<50%, the variation of the studies was considered to be homogenous and the fixed- effect model was adopted. If I² ≥ 50%, the

variation of studies was considered as significantly heterogeneous and the random- effect model was adopted. All p-values were two- tailed, and a<.05 was considered statistically significant.

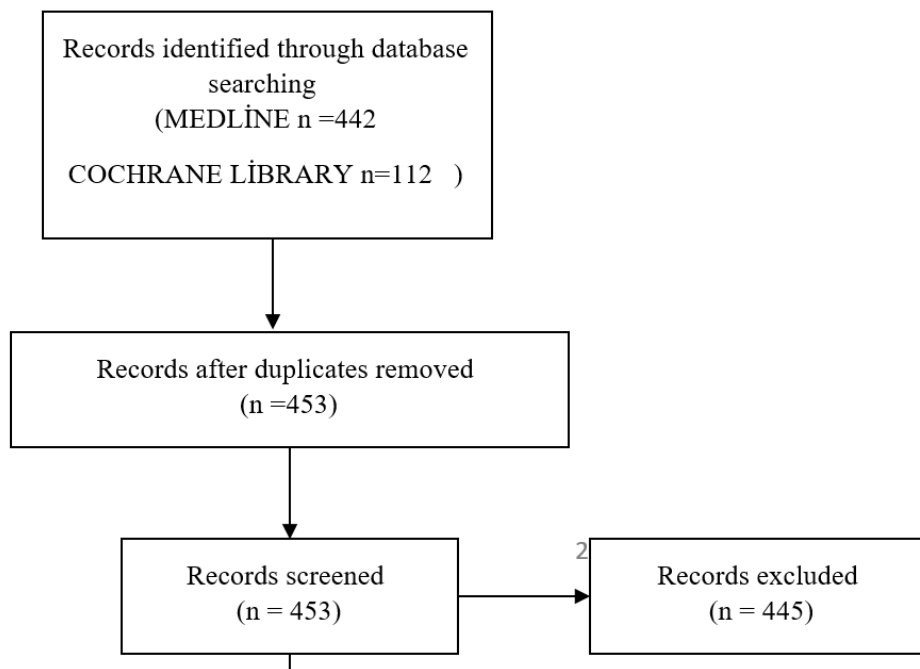


Figure 1: Study flow (PRISMA) diagram.

Table 1: Characteristics of the eligible studies.

Study	Country	Desing	Study Size	Outcomes Analyzed
Morris and Krieger (2013)	Australia	a systematic review	19,542 uncircumcised and 20,931 circumcised.	The highest-quality studies suggest that medical male circumcision has no adverse effect on sexual function, sensitivity, sexual sensation, or satisfaction.
Tian et al (2013)	China	a systematic review and meta-analysis	9317 circumcised and 9423 uncircumcised	no significant differences in sexual desire, dyspareunia, premature ejaculation, ejaculation latency time, erectile dysfunctions and orgasm difficulties
Kigozi et all (2008)	Uganda	RCT	2210 circumcised and 2246 uncircumcised	no difficulty with penetration and no pain on intercourse/ no differences between the study arms in penetration or dyspareunia at later visits. Sexual satisfaction; no trend in satisfaction among circumcised men
Krieger et all (2011)	Kenya	RCT	1391 circumcised 1393 uncircumcised	Adult male circumcision was not associated with sexual dysfunction. Circumcised men reported increased penile sensitivity and enhanced ease of reaching orgasm.
Nordstrom et all (2017)	Kenya	Large populationbased cohort	1588 circumcised 1598 uncircumcised	Voluntary medical male circumcision has no significant detrimental effect or might have beneficial effects on male sexual function and satisfaction.

RESULTS

Description of Eligible Papers

A total of 554 studies were searched, 445 of which were excluded for various reasons (Fig.1). At last, 5 studies evaluating the effect of circumcision and sexuality were included (Table 1). The rate of heterogeneity in this study was 95.3%, which is in the range of studies with high heterogeneity. As a result, we used a random effects model in the meta-analysis. In a systematic review, a total of 5 studies entered the meta-analysis process (table 1). The total population of the study was 69639, divided into case (circumcised) and control (uncircumcised) groups.

Pain during Intercourse (Dyspareunia)

Dyspareunia is defined as pain during or after sex and is more often observed in women than in men. Dyspareunia data were available from five of the included studies. The lowest logarithm of the relative risk was Nordstrom et al study -0.04 and the highest was Morris et al. Study 0.115. The difference in dyspareunia incidence between the circumcised and uncircumcised groups was not significant (RR: 0.89; 95% CI: 0.67 1.2) (figure 2).

Premature ejaculation (PE)

In our meta-analysis, five included studies that focused on this issue. There were no statistically significant differences between the circumcised and the control groups (RR: 0.97; 95% CI: 0.87 1.08) (figure 3).

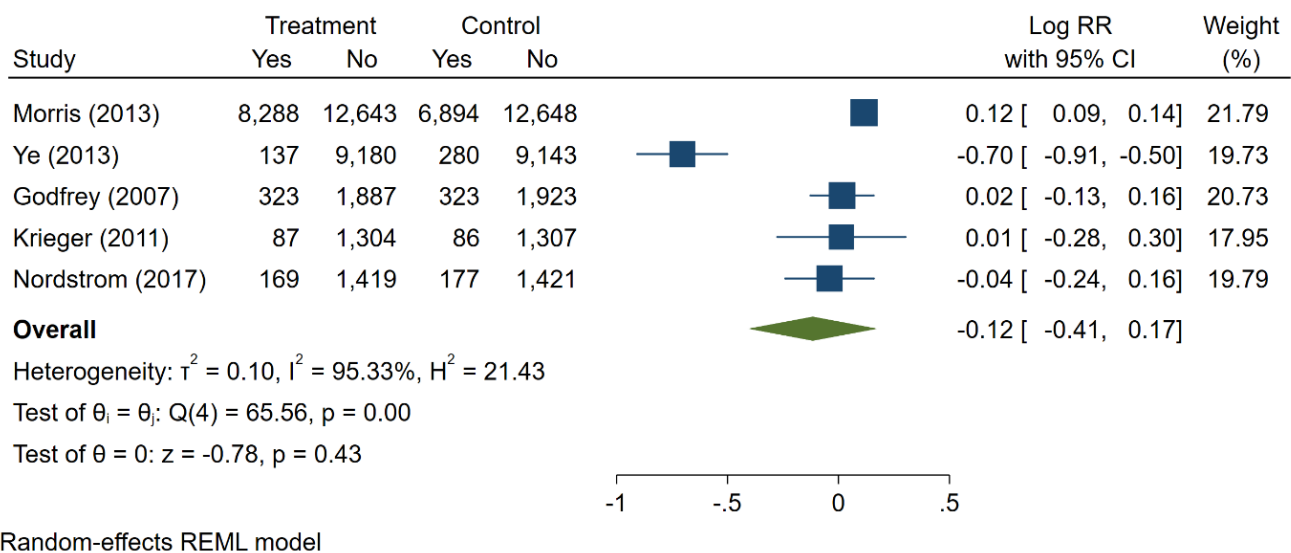


Figure 2: Dyspareunia in circumcised and uncircumcised men. The logarithm of the RR of dyspareunia based on random effects effects model.

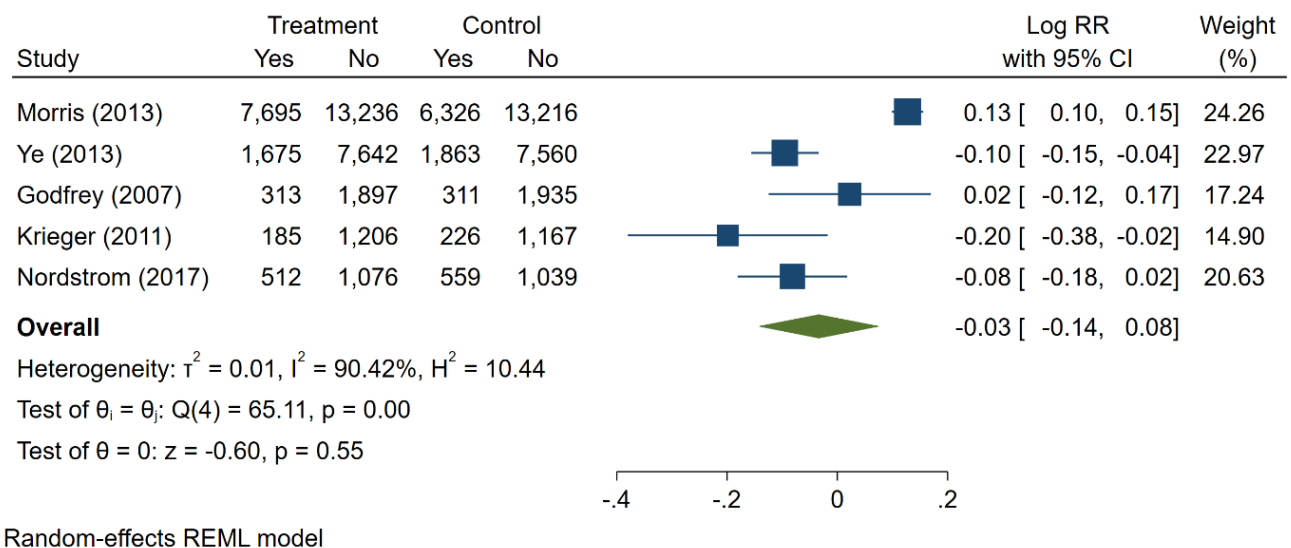
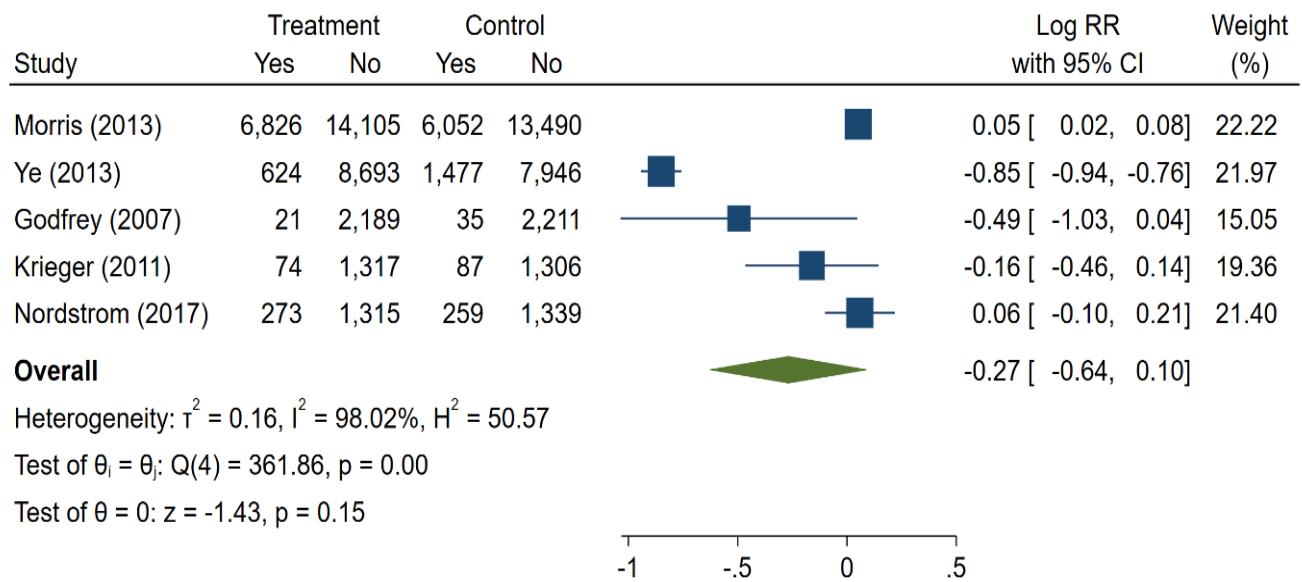


Figure 3: PE in circumcised and uncircumcised men. PE, premature ejaculation. The logarithm of the relative risk of dyspareunia based on random effects model.

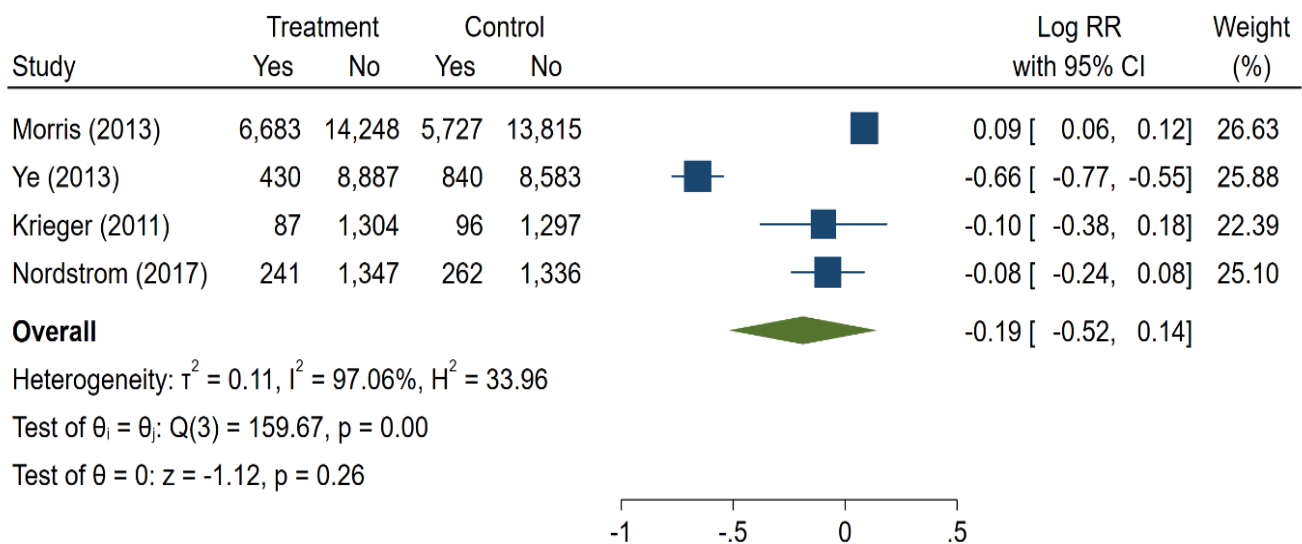
Erectile Dysfunction (ED)

Morbidities of ED or 'trouble keeping an erection' in both the circumcised and uncircumcised group were presented in five of the included studies. Although the incidence of ED was variable between the studies, there was no significant difference in ED between the circumcised and uncircumcised groups (RR: 0.77; 95% CI: 0.53 1.1) (figure 4).



Random-effects REML model

Figure 4: ED in circumcised and uncircumcised men. ED, erectile dysfunction. The logarithm of the relative risk of dyspareunia based on random effects model.



Random-effects REML model

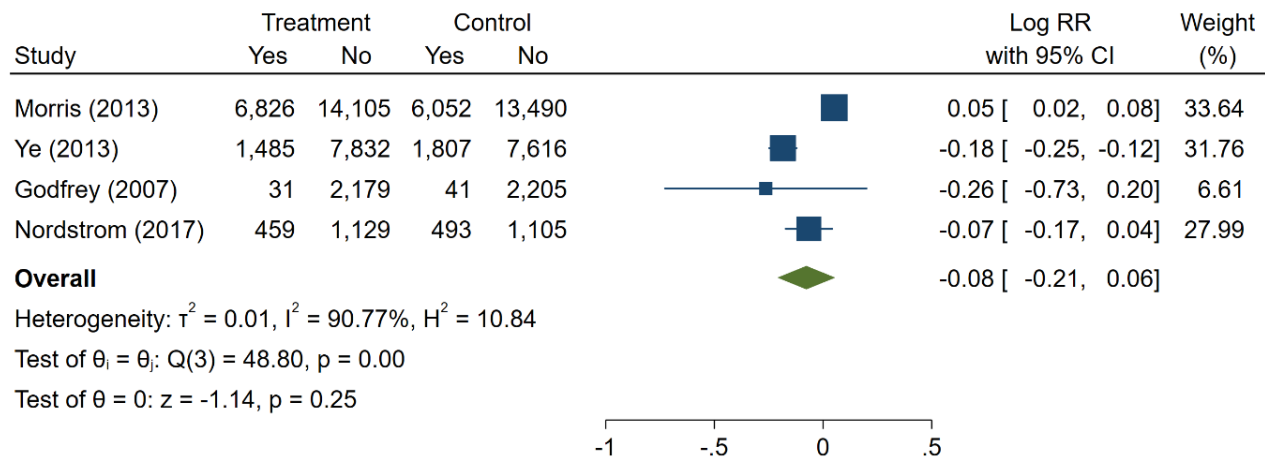
Figure 5: Orgasm difficulty in circumcised and uncircumcised men. The logarithm of the relative risk of dyspareunia based on random effects model.

Difficulty of Orgasm

Between the circumcised and uncircumcised groups, orgasm difficulties and the inability to ejaculate were examined in five studies. There were no statistically significant differences between the circumcised and the control groups (RR: 0.83; 95% CI: 0.60 1.15) (figure 5).

Sexual Desire

Five of the five studies that provided clear data were case-control studies. There was no difference between the prevalence of low or reduced sexual desire (RR: 0.93; 95% CI: 0.81 1.06 (figure 6).



Random-effects REML model

Figure 6: Sexual desire in circumcised and uncircumcised men. The logarithm of the relative risk of dyspareunia based on random effects model.

DISCUSSION

Prevalence of Male Circumcision

The true global MC prevalence is not known precisely and can only be estimated. Approximately 68% are Muslim, 0.8% are Jewish, and 13% are men in the United States who are not Muslim or Jewish (5). The literature review by the AAP and a large detailed study by CDC showed 1.4 million MCs from 2001 to 2010 (93% in newborns) (6). For many countries, no data were available for MC prevalence. Therefore we prepared an estimate of MC, performed for religious or cultural reasons or medical treatments. MC is virtually universal in Jewish and Muslim populations (7-9). The researchers summed the number of circumcised males in each country to obtain a total number of circumcised males globally. Dividing the latter by the former yielded an estimate of the percentage of males globally who are circumcised such as Australia 26.6, Brazil 1.3, Canada 31.9, China 14.0, Jordan 98.8, Kuwait 86.4, Japan 9.0, Iran 99.7, Saudi Arabia 97.1, South Africa 44.7, and Turkey 98.6 (10).

How, where, and when did Male Circumcision Start?

The exact time when male circumcision began is unknown. It developed independently in several cultures which had no obvious links, e.g. in Africa and the Pacific Islands. It was practiced among ancient Semitic people, including Egyptians and Jews. Male circumcision may be known as a mean to reduce banalities or infection and irritation of the foreskin and glans penis in dry sandy regions or where hygiene was difficult (11).

The American Academy of Pediatrics (AAP) published a statement in 1999 that prevented physicians from performing routine circumcision, but in some cases, circumcision is indicated. AAP believes in

general that the benefits and harms of circumcision are equal and that the family should decide on it (12).

Like all medical and health procedures male circumcision also raises some issues regarding human right. In line with internationally accepted ethical and human rights principles, UNAIDS/WHO is of the view that no surgical (or health) intervention should be performed on anyone if it results in adverse outcomes in terms of health or the integrity of the body, and where there is no expectation of health benefit. Nor should any surgical intervention be performed on anyone without informed consent. As male circumcision involves surgery and the removal of a part of the body, it should only be performed if: (a) participants should be fully informed of the possible risks and benefits of the procedure ;(b) participants give their fully informed consent; (c) the procedure can be performed under fully hygienic conditions by adequately trained and well-equipped practitioners with appropriate postoperative follow-up (11).

The current scientific evidence shows that MC has no adverse effect on sexual function, sensitivity, or pleasure, nor is there reliable evidence for any long-term adverse psychological effect of MC. Finally, pain that may be associated with the procedure during the first week of life can be negligible when local anesthesia is used (13).

Premature Ejaculation (PE)

A systematic review and meta-analysis, twelve studies were included in the meta-analysis was done on a total of 10019 circumcised and 11570 uncircumcised men, the difficulty of orgasm, erectile dysfunction (ED) and pain during intercourse were also assessed because PE was usually discussed along with these subjects. There were no significant differences in PE (odds ratio [OR], 0.90; 95% confidence interval CI), 0.72-1.13; $p = .37$) and orgasm (OR, 1.04; 95% CI, 0.89-

1.21; $p = .65$) between circumcised and uncircumcised group. However, ED (OR, 0.42; 95% CI, 0.22-0.78; $p = .40$) and pain during intercourse (OR, CI, 0.17-0.76; $p = .007$) was more prevalent in the circumcised group. Based on these findings, circumcision does not have an effect on PE (14). In a clinical trial, 31.8% of cases had a PE problem before circumcision, and this rate dropped to 13.6% after circumcision (15). Again circumcision skin is directly or indirectly related to PE methods effective in the treatment of circumcised PE have been reported by researchers (16). These on the contrary, in a survey with 600 Korean men circumcision was not associated with PE (17). In a meta-analysis of the relationship between the prevalence of PE, there is no relationship between circumcision and circumcision (18). Based on the belief that an uncircumcised penis is more sensitive circumcision PE treatment. In a study evaluating 216 patients the PE ratio was higher in this group than in the healthy population reportedly (19). Adverse self-reported outcomes associated with foreskin removal in adulthood include impaired erectile functioning (20-22), orgasm difficulties (21, 23), decreased masturbatory functioning (24) (loss in pleasure and increase in difficulty (an increase in penile pain) (25), a loss of penile sensitivity with age and lower subjective ratings of penile sensitivity (26). However, other studies have found no significant differences in self-reported sexual functioning following adult circumcision (9, 27).

The absence of significant differences between pre- and post-operative frequencies of PE is also consistent with the recent literature on this matter, inferring that circumcision is not an effective option for the treatment of PE (21, 28). In a recent paper, has shown that the tissue extracted by circumcision had intensive free nerve endings, yet the density of this histological finding had no relation with PE (29). The study was examined the effects of circumcision on the sexual health of 10 173 enrolled men but provided no evidence regarding the effects on sexual sensitivity (30). Conversely, Masood et al. reported a 38% improvement in penile sensation after circumcision (31). In the study by Senkul et al. the study has evaluated an increase in the ejaculatory latency time after circumcision (32). The study by Shen et al. reported mild or moderate erectile dysfunction after circumcision (20). However, this pattern differed across ethnic groups and suggests the influence of social factors.

Senol et al. employed a pre-post study design, measuring penile pudendal evoked potentials (PEPs) in a sample of 43 men who were willing to undergo circumcision for (unspecified) nonmedical reasons. PEPs were assessed by placing a cathode at the base of the penis and an anode on an unspecified spot on the distal side of the penile shaft. At a minimum of 12 weeks following surgery, the mean PEP latency increased by a mean of 2.75 ms, which was statistically significant (33).

Sexual Function and Sensitivity

Richters et al. reported that circumcised men were less likely than intact men to report pain during sex and

trouble maintaining an erection (30). These findings are consistent with a recent systematic review conducted by Morris and Krieger that explored sexual functioning, sensitivity, and sexual satisfaction in men as a function of their circumcision status (34).

Non-significant differences were found for erectile dysfunction, pain, problems in obtaining an orgasm, satisfaction and difficult ejaculation in circumcised compared with uncircumcised males. Premature ejaculation was decreased, drive and penile sensitivity were increased in the circumcised participants (35). Before versus after circumcision Sexual function in following nonmedical circumcision, difficult ejaculation was non-significantly changed. Erectile dysfunction, pain, premature ejaculation and problems in obtaining an orgasm were decreased. Drive, penile sensitivity and satisfaction were increased (35).

The glans of the circumcised penis was significantly less sensitive than the glans of the intact penis. The fine-touch pressure threshold of the most sensitive part of the circumcised penis (the ventral circumcision scar) was higher (less sensitive) than those of eight different locations on the intact foreskin. The authors concluded that the most sensitive parts of the penis are contained within the foreskin and are thus removed during circumcision (36). No difference in penile sensitivity was observed between circumcised and intact men; however, circumcised men were more sensitive to touch on the forearm than intact men, indicating that perhaps there may be long-term changes in sensory processing (37).

Popular conjecture holds that the circumcised penis is less sensitive than its unaltered counterpart. One might expect lower penile sensitivity to negatively impact sexual functioning, yet—counter intuitively—circumcision is often performed in adult men with the intent to ameliorate sexual dysfunction and thus improve sexual functioning (38). Documented improvements in self-reported sexual functioning following adult circumcision include better erectile functioning (15, 39), greater ease of orgasm (40), less pain during intercourse (21, 31), increased overall satisfaction with sexual functioning, and improvement in the sexual problem that precipitated the circumcision (39).

Among 5000 Ugandan participants, circumcised men reported significantly less pain on intercourse than uncircumcised men (27). Women who had experienced sex with both circumcised and uncircumcised partners in a US study reported a strong preference for circumcised over uncircumcised sexual partners, both for aesthetic reasons and for various sexual activities, while in another US study circumcised men reported more varied sexual experience than uncircumcised men (41). On the other hand, a survey of women recruited through magazines and anti-circumcision websites found a great preference for uncircumcised men, 34 and in a New Zealand study, women reported more vaginal dryness during intercourse with circumcised men (42). The studies uniformly found that circumcision had no overall adverse effect on penile sensitivity, sexual

arousal, sexual sensation, erectile function, orgasm difficulties, sexual satisfaction, pleasure, or pain during penetration. Support for these conclusions was provided by a meta-analysis. Impairment in one or more parameters was reported in 10 of the 13 studies (34). Circumcised men reported more partners and were more likely to report frequent orgasm difficulties after adjustment for potential confounding factors, and women with circumcised spouses more often reported incomplete sexual needs fulfillment and frequent sexual function difficulties overall, notably orgasm difficulties and dyspareunia (23). The more frequent orgasm difficulties of circumcised men and their partners are not only a concern from a sexual pleasure perspective. The ability to achieve orgasm is a major determinant of overall sexual life satisfaction and marital satisfaction.

With circumcision, the researchers have noticed a relevant increase in the frequency of ED, Delayed orgasm, and Pain with inter-course (21).

Among men, the only behavioral difference was that circumcised men were more likely than uncircumcised men to report a lifetime history of 10 or more sex partners. Considering all sexual function difficulties together revealed no difference, but circumcised men were three times more likely than uncircumcised men to experience frequent orgasm difficulties which, according to an international expert panel, are either psychogenic or due to reduced penile sensitivity (23, 43).

The majority of studies in recent literature do not indicate any adverse effect on male sexual satisfaction. A consistent finding is a prolongation of ejaculatory latency time; this may be an advantage in younger men where quick ejaculation is very frequent. The effect of prolonged ejaculatory latency time has not been investigated in relation to circumcision status in older men (24, 37, 44, 45).

Although a slightly larger proportion of circumcised men reported erectile difficulties, this was of borderline statistical significance after adjusting for confounding socio demographic characteristics (46). Although the Ugandan trial found no effect of male circumcision on female sexual satisfaction (40). Interestingly, a recent review reported no significant differences in penile sensitivity as a function of circumcision status (34).

Logic suggests that amputation of the foreskin with its abundance of sensory nerve endings and specialized end organs entails reduced penile sensitivity. Some authors maintain that there is either no difference in penile sensitivity between circumcised and uncircumcised men (47) or that the reduced sensitivity is advantageous because it prolongs the intra vaginal ejaculation latency time (27, 33). In Turkey, 42 men without penile pathology reported longer intra vaginal ejaculation latency times after circumcision (32), and the reduced penile sensitivity was confirmed by increased post-circumcision pudendal nerve evoked potentials,

which the authors attributed to the loss of sensory receptors (33). Five locations on the uncircumcised penis that are routinely removed at circumcision were found to be more sensitive than the ventral circumcision scar, the most sensitive part of the circumcised penis (36). In another US survey, 139 women who had a sexual experience with both circumcised and uncircumcised men reported that they more often achieved orgasm with an uncircumcised partner (24). Among 35 women in Australia, participants were more likely to have experienced vaginal dryness with circumcised partners (42). Authors in a circumcision trial in Africa reported similar or greater levels of sexual satisfaction among female partners after the spouse's circumcision (40). The glans of the circumcised penis is less sensitive to fine touch than the glans of the uncircumcised penis. The transitional region from the external to the internal prepuce is the most sensitive region of the uncircumcised penis and more sensitive than the most sensitive region of the circumcised penis. Circumcision ablates the most sensitive parts of the penis (4). With the sexual revolution of the 1960s, a growing men's movement, greater awareness of children's rights, and the advent of the internet – brings increased knowledge about beneficial functions of the prepuce and concomitant awareness of harm from non-therapeutic circumcision – many circumcised men are now seeking methods to regain their genital integrity (48).

The foreskin protects the sensitive meatus from an irritative environment, the meatus is normally a wide slit. Without foreskin the glans is exposed to urine and diapers that irritate the meatus, cause it to stenose and restrict urine flow (4). The skin that covers the glans like a hood is called prepuce or foreskin. The prepuce is a fold, half skin and half mucosa that continues in the mucosa of the glans at the balanopreputial sulcus. So the outer surface is continuous with the skin of the penis, while the inner surface is modeled on the glans adhering only at the level of the balanopreputial sulcus and the frenulum. The frenulum is a triangular mucosal fold that tends from the inner surface of the foreskin to the underside of the glans 8–10 mm behind the external urethral meatus. A short frenulum can prevent complete retraction of the foreskin and can make painful erection and tear (49). Male circumcision removes 33–50% of the penile skin, and nearly all of the penile fine-touch neuroreceptors. One small study from Masters & Johnson (1966) has been repeatedly, yet incorrectly, cited as evidence of no sensitivity loss following circumcision (50). Later, it was speculated that the removal of foreskin lessens the tactile and erogenous sensitivity of the penis (33, 36). The function of the prepuce in human sexual life is a separate debate (51).

The researchers showed there was no major difference between circumcised and uncircumcised men that reported episodes of low or lacking sexual desire in the last year. Likewise, the two groups were

equally likely to report incomplete sexual needs fulfilment in the last year. But the majority of women with circumcised reported episodes of low or lacking sexual desire in the last year. Women with circumcised spouses more often than women with uncircumcised spouses reported that their sexual needs were incompletely fulfilled (23).

The researchers showed Premature ejaculation and erectile difficulties were equally frequent in the two groups. Also, occasional orgasm difficulties were equally common among circumcised and uncircumcised men. However, circumcised men were more likely than uncircumcised men to report frequent orgasm difficulties. According to an international expert panel, are either psychogenic or due to reduced penile sensitivity (43). But Sexual function difficulties overall, orgasm difficulties, lubrication insufficiency, dyspareunia and vaginismus were reported to have occurred either occasionally or frequently in the last year by women with circumcised spouses as compared with of women with uncircumcised spouses. Women with circumcised spouses had consistently at least four times greater odds of frequent dyspareunia than women with uncircumcised spouses (23).

Very few studies have reported on the effects of circumcision on sexual functioning of men's sexual partners. It has been hypothesized that the structural differences across circumcision status account for notable differences in partners' sexual experiences (e.g., mobile foreskin leads to less friction during penetrative intercourse). Indeed, the research seems to support this hypothesis for women, such that intercourse with intact partners is associated with better lubrication (particularly with longer length of intercourse (22, 52)), fewer orgasm difficulties, fewer complaints of vaginal pain (22) or discomfort, and greater ease of orgasm during penile-vaginal intercourse (52). Kigozi et al., who interviewed women in Uganda before and after their partners underwent circumcision, found no significant changes in women's self-reported sexual functioning after controlling for age, religion, and educational status. In total, 2.9% of the sample reported worse sexual satisfaction, 57.3% reported no change, and 39.8% reported an improvement in sexual functioning (40).

Most men perceived an increased ability to fulfill these sexual norms after being circumcised, 89% of men surveyed at follow-up reported: "greater ability to pleasure my partner" compared to before being circumcised. Of those who reported greater ability, 50% said it was because they could now last longer between penetration and ejaculation, 46% said it was because their partner believed the man's penis was more hygienic, and 21% said it was because their female partner felt like their penis was bigger now. (Note that more than one response to this question was permitted.) Among respondents, 58% of men said their erections were more potent now, and about half of men 51% reported having more frequent sex after they were circumcised than before; 41% of men reported that,

compared to before being circumcised, they now felt more masculine post-circumcision (none felt "less masculine" post-circumcision) (53).

Medical MC does not adversely affect sexual function, sensitivity or pleasure, as shown by a detailed systematic review of all studies (totaling 40473 men) rated by quality (34), and by a meta-analysis of common forms of sexual dysfunction (18). The conclusions were confirmed in a recent United Kingdom study of 6293 men and 8869 women (46) and a systematic review by Danish (35). A systematic literature review of histological correlates of sexual sensation showed that the sensory receptors responsible (genital corpuscles) reside in the glans, not the foreskin, meaning loss of the foreskin by MC should not diminish sexual pleasure (54). The foreskin, just as other skin on the body, contains sensory receptors that respond to touch, temperature and pain.

There was no reported significant association between erectile difficulties and circumcision, even when accounting for any age interaction (analysis available on request). Also, there was no evidence that uncircumcised men were less likely to be fellated by their partners than circumcised men. Fewer circumcised men (65.3%) than uncircumcised men (68.2%) had masturbated alone in the previous year. Another hand came to orgasm too quickly, worried during sex about whether body looked attractive, and masturbated alone in the last 12 months, there were statistically significant differences between Circumcised and Uncircumcised men (55).

CONCLUSION

Although there are across cultural, religious and health-related differences around the world, but, the pleasures of sexual intimacy and orgasm are ubiquitously considered important for well-being and health of all people around the world. In common with all studies of sensation it is difficult to make objective measurements and there are no good instruments to quantify sexual enjoyment in either partner and many studies are based on subjective responses to questions and these issues make this study difficult.

The most significant issue with respect to penile sensitivity and circumcision status is the lack of research on objective measures of penile sensitivity.

This article plans to draw attention to the current gaps in the literature, specifically the need for research focusing on the long-term effects of circumcision performed on neonates, objective measures of sexual functioning and satisfaction, the impact of circumcision status on female and especially male sexual partners of men, the impact of circumcision on the men who undergo the procedure, and factors that influence the decision to circumcise or not. Dissemination of this knowledge will help parents of infant boys make well-informed decisions when considering the circumcision status of their children and give health-care providers valuable information about long-term effects of circumcision on the urological and sexual health and

functioning of men and their sexual partners. Women have personal views toward male circumcision that are conditioned by their own backgrounds and personal experience.

On the contrary, the World Health Organization stated that there was little evidence to support the negative effect of male circumcision on sexual pleasure (5). However, a recent systematic review analyzing the highest quality studies, conducted by Morris and Krieger concluded that male circumcision has no negative effects on sexual function, sensitivity, sexual sensation, or satisfaction (34).

CONFLICT OF INTEREST

None authors declare financial interests.

DECLARATION

Ethics Approval and Consent to Participate

Not Applicable

Consent for Publication

Not Applicable

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

ES performed the review of the literatures, and was a major contributor in writing the manuscript. HS analyzed and interpreted the data for Meta-analysis. All authors read and approved the final manuscript.

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