REVIEW ARTICLE

Psychological, psychosocial, and psychosexual aspects of penile circumcision

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Policy statements on penile circumcision have focused primarily on disease, dysfunction, or sensation, with relatively little consideration of psychological and psychosocial implications of the procedure. There has also been minimal consideration of potential qualitative changes in the subjective experience of sexual activity following changes in penile anatomy (foreskin removal) or associated sexual biomechanics. We present a critical overview of literature on the psychological, psychosocial, and psychosexual implications of penile circumcision. We give consideration to differences among circumcisions performed in infancy, childhood, or adulthood. We also discuss potential psychosocial effects on parents electing, or failing to elect, circumcision for their children. We propose a framework for policy considerations and future research, recognizing that cultural context is particularly salient for the narratives individuals construct around penile circumcision, including both affected individuals and medical professionals who perform the surgeries. We argue that additional attention should be paid to the potential for long-term effects of the procedure that may not be properly considered when the patient is an infant or child.

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INTRODUCTION

The primary focus of research on penile circumcision (partial or total removal of the penile prepuce, or foreskin) has remained related to issues of hygiene and disease (for gender identity inclusivity, the terms penile circumcision, or genitally intact (GI) person, are used, in place of older terminology such as male circumcision, or GI man. When summarizing articles, the terms used by authors of those articles are preserved for clarity). The 2012 American Academy of Pediatrics [1] technical report contains over five pages on the effects of circumcision on risk of disease in men and their sexual partners, compared with two-thirds of one page on all of: sexual function, sexual satisfaction, and sexual sensitivity. There was no discussion of psychological or psychosocial effects of penile circumcision in either circumcised children or adults, nor of effects in parents electing circumcision for their children. There was no discussion of potential changes in subjective sexual experiences or behaviors, nor partner reactions to such changes. This paper focuses on the existing—sparse and inconsistent—literature on psychological and psychosocial correlates as well as potential effects of penile circumcision on the individual, on parents who have authorized penile circumcision, and on future sexual partners. As for psychosexual aspects, the focus will be on subjective experiences of sexual activity and potential changes in these related to circumcision, other than penile sensitivity or sexual dysfunction as defined by conventional clinical-diagnostic criteria (addressed elsewhere in this journal issue), including changes in solo and partnered sexual activity.

The research on psychological, psychosocial, and psychosexual aspects of circumcision is relatively sparse, generally has small sample sizes, or consists of observational studies where there is no clear comparison or control group. Most studies do not reach moderate quality in terms of the GRADE approach [2], and even those studies with relatively strong designs, such as randomized control trials, pertain only to limited circumstances (e.g., circumcision as performed in adulthood in specific populations) and may rely on inadequate measurements (e.g., non-validated survey questions, as in [3]; for discussion, see [4]). Nevertheless, we suggest that an absence of high quality data regarding various aspects of circumcision does not mean these considerations should be ignored (the GRADE approach, which stands for Grading of Recommendations, Assessment, Development, and Evaluations, is a subjective yet clear framework that authors can use to rate the quality of evidence they utilize in arriving at particular outcomes. GRADE ratings have four levels of certainty, ranging from "very low" to "high" and are based on criteria that strengthen or weaken that certainty). We discuss an integrative model for framing future research that emphasizes the importance of cultural context and narrative in the individual psychological and psychosocial sequalae of circumcision, in policy formation, and in the guidance medical providers offer to individuals and parents.

PSYCHOLOGICAL EFFECTS OF THE PAIN OF INFANT CIRCUMCISION

One aspect of circumcision that is theoretically relevant to psychological outcomes is its status as a skin-breaking surgical procedure. As with any such procedure, it has the potential to

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elicit experiences of pain at various points throughout the operation and during the period of healing, depending on the type and effectiveness of the analgesic strategies pursued (if any). Although not widely and properly addressed in various policy documents, there are a number of psychological effects of pain on infant development [5]. Infants who have had penile circumcision have been found to be more sensitized to subsequent pain of routine vaccination three months later [6]. In a different study using correlational methods, Miani et al. [7] conducted a cross-sectional survey of adults in the US and found statistically significant associations between socio-affective processing in adult men circumcised as infants, compared with genitally intact (GI) men. They hypothesized that the experience of neonatal pain from circumcision (most of the men in the study were circumcised as newborns prior to widespread use of analgesia) may affect attachment and psychosocial development, specifically with regards to personality traits, empathy, interpersonal trust, sexual libido, sociosexuality (e.g., high numbers of sexual partners), stress, and sensation seeking. Their results demonstrated that men circumcised as infants reported higher levels of insecure attachment and emotional instability, higher sexual libido and greater sociosexuality, along with higher stress and risk-taking behavior, although trust and empathy were not strongly correlated. They also acknowledge a sociocultural confound: even though in the US population normative routine infant circumcision cuts across many sociocultural groups, GI adults may come from quite different cultural backgrounds, with different parenting and concomitantly different proportions of attachment styles, than those circumcised as infants.

A seemingly contrary finding was reported by Ullmann et al. [8], who found no statistically significant correlations with circumcision and multiple neurobiological factors associated with trauma including subjective stress perception, anxiety, depressiveness, nor any differences in activity in the long-term limbic-hypothalamic-pituitary-adrenal axis. However, this study has been critiqued by Boyle [9] for having too small of a sample size (11 uncircumcised, 9 circumcised) to draw meaningful conclusions from the null findings: Boyle presents calculations suggesting that the study was underpowered, particularly with regard to infant penile circumcision performed with analgesia vs. without analgesia (3 circumcised without, 6 with). Further studies in this area are required with adequate sample sizes based on a priori power calculations.

Emerging recommendations are for new analgesic strategies incorporating pharmacological with non-pharmacological methods such as sensorial saturation, that may ameliorate negative effects of pain [10]. It is also recommended that potentially painful interventions be avoided in the neonatal period where feasible. For example, the American Academy of Pediatrics' own 2016 policy statement on the Prevention and Management of Procedural Pain in the Neonate: An Update states:

> The prevention and alleviation of pain in neonates, particularly preterm infants, is important not only because it is ethical but also because exposure to repeated painful stimuli early in life is known to have short- and long-term adverse sequelae. These sequelae include physiologic instability, altered brain development, and abnormal neurodevelopment, somatosensory, and stress response systems, which can persist into childhood [11].

In the context of frequent and severe medical interventions (e.g., lumbar puncture, catheter insertion, tracheal intubation, and other common procedures associated with neonatal intensive care units) with neonates, early neonatal pain may have a significant impact on neurobiological development. Thus, while there is literature that addresses the ways in which pain experienced by neonates not only has negative short- and long-term psychological consequences, policymaking documents on neonatal circumcision do not address the fact that such pain is not adequately nor regularly controlled for during the procedure, and that failure to control for pain can have lasting effects on the child, possibly into adulthood.

POTENTIAL LONG-TERM IMPLICATIONS OF CULTURAL/RELIGIOUS CIRCUMCISION PERFORMED IN CHILDHOOD

Gollaher [12] documents a wide range of historical and contemporary cultures where penile circumcision is routinely practiced in religious and cultural traditions on persons of a wide range of ages from infancy through puberty. There is disagreement among scholars about the kinds of psychological outcomes that are likely to follow from circumcision at different life-stages, depending on the cultural context and individual attributes of the child (see Box 1 for discussion).

On a global scale, religious tradition is the most common cultural reason for penile circumcision. Of the estimated one-third of persons who have had penile circumcision worldwide, almost two-thirds are estimated to be Muslim [13]. Circumcision over age one is common in many Muslim countries, typically as part of a coming-of-age ceremony in mid- to late-childhood or early adolescence (prior to age 13) [14]. Despite circumcision after infancy being more common than infant circumcision worldwide, we have not been able to find a large comparative study that examines the psychological effects of infant penile circumcision compared with childhood or adolescent circumcision, controlling for relevant confounds (e.g., therapeutic vs. non-therapeutic indication, different circumcision methods or providers, and so on). Review articles that explore this theme often rely on anecdotes whose generalizability is not known, or very limited data (e.g., small sample sizes), and are largely theoretical or speculative, sometimes veering into psychoanalytic interpretations [15, 16].

While some authors argue against parentally-decided cultural circumcision, its ubiquity in many cultures and religious traditions means that *not* being circumcised may involve being perceived as being outside one's cultural tradition and/or the religious traditions of one's family of origin. Changing (or leaving) a religious tradition can have mixed effects [17, 18]. For some it may involve a feeling of freedom or increased authenticity, while for others it can involve a feeling of alienation or disconnectedness from one's roots. Across cultures, religious mindsets and behavior may persist after explicit religious deidentification; and, deidentification with a religious tradition from one's family of origin may involve an emotional struggle. How the state of being culturally or religiously circumcised—or non-circumcised—is likely to affect an

Box 1. Psychological and psychosocial effects by adulthood of religious and/or culturally sanctioned penile circumcision performed in late childhood or adolescence

There is disagreement among scholars of circumcision and genital cutting regarding the potential for adverse psychological effects persisting into adulthood of religious and/or culturally sanctioned circumcision performed in late childhood or adolescence. Boyle et al. [67] note that when performed on older children, the potential trauma of circumcision may be substantially greater than the trauma of infant circumcision, as children have a sense of self and bodily integrity as well as a developed narrative memory. Thus, they will remember the pain, may experience fear, and may view and remember the event as physical and/or sexual assault. However, other scholars argue that cultural penile circumcision is often associated with traditions of masculinity which may mitigate the experience of psychological distress or potential unhappiness about being circumcised. Lee [68] and Gilmore [41] argue that performing and enduring such rituals can create culturally desired traits of masculinity including stoicism and fearlessness. Other psychological effects may include a weakening of the bond between boys and their mothers in favor of socialization into the community of men. In this context, positive recollections by adults of peripubertal circumcision may be seen as a result of satisfaction with performing or fulfilling cultural expectations of masculinity (and/or alleviating negative experiences of teasing or taunting from peers for being "uncircumcised," which is considered to be incompatible with being a "real man" according to the norms of many practicing societies).

individual psychologically will depend on numerous factors: how closely one personally identifies with the cultural or religious community into which one was born; the range of opportunities for finding a sense of belonging outside of that community (or in a different community); how strictly norms around circumcision are enforced in terms of social sanctions for deviating from community expectations, and so on. Future research should seek to study these individual-difference and sociocultural/contextual variables in a more systematic manner.

Sociocultural considerations

As Bañuelos Marco and García Heil [19] have argued, the "objective" effects of circumcision on psychosexual outcomes are difficult to study, because the procedure "affects a wide variety of people that confront sexuality differently due to their sociocultural and historical backgroun;" therefore, "individuals can either perceive their circumcision status as a blessing or a curse depending on the values and preferences of the different communities or social environments where they belong" along with their own individual values, which may or may not align with the majority views of their community. Consistent with this view, Bossio and Pukall [20] provided evidence from a sample of primarily US American and Canadian men that it was men's attitudes about being circumcised, more so than their actual circumcision status, that predicted body-image concerns and impairments in sexual functioning. A significant factor in how adults perceive the effects of their own circumcision may be the culturally-inflected narratives they employ for understanding or interpreting their circumcision status.

Circumcision experienced as bodily harm or violation

In a study of 1008 circumcised men (self-selected internet sample), Hammond and Carmack [21] found numerous survey respondents who viewed circumcision as a type of bodily infringement or assault with diverse associations, including feeling distanced from religion (for both Jewish and Muslim men), impeding sexual relationships, and causes of distrust of the medical profession. A majority of the men had not revealed their dissatisfaction to their parents. It is important to note that the study, by design, focused on the experiences of individuals who felt harmed by circumcision, and those who are active in online anti-circumcision communities. As such, it offers insight into potential negative associations that a subset of individuals have toward their circumcisions, but these outcomes may not be representative of all those who have been circumcised. Authors such as Watson and Golden [22] use terminology such as "male circumcision grief," "body-loss grief," and the language of trauma-informed therapy to refer to circumcision. Such a framing, if used in attitude surveys of circumcised individuals, plausibly may foster a narrative of harm that amplifies (or even creates) negative effects of being circumcised. From a methodological standpoint, researchers must take care to design questions that do not "lead" participants in one direction or another when attempting to determine participant attitudes toward circumcision or its implications (e.g., with respect to body image).

Outside of a research context, for example, in advocacy materials, it is possible that framing circumcision as a harm or "mutilation" may similarly cause distress in circumcised individuals who would otherwise not be inclined to interpret their circumcised state in such a negative light. Alternatively, such a framing may, in some cases, provide terminology or concepts that help the individual make sense of grief or experiences of harm they already felt, but did not previously have the words to express. An analogous argument has been made in the context of ritual female genital cutting, for example, where the language of "mutilation" plausibly causes some women to regard the cutting more negatively than they otherwise would, while, for other women, it gives them a concept with which they can articulate the dissatisfaction they feel [23].

Further research on female genital cutting (FGC) also emphasizes the importance of cultural context and narrative on the ways in which people contextualize their experience of and feelings toward their genital modifications. As Earp, Sardi, and Jellison [24] and others [25–28] note, while cultures that do not routinely practice FGC regularly regard the practice as inherently harmful, most women who have actually undergone the procedure do not regard themselves as having been harmed overall by the cutting and do not interpret the alteration of their genitals as "mutilation" (the term preferred by The World Health Organization) [29]. Again, the ways in which individuals feel about their bodies, modified or unmodified, is likely to be mediated by such factors as the prevalence of the modification within their cultural group, locally dominant attitudes toward the modification and associated practices, the degree of exposure one has to alternative interpretations of the modification (e.g., as an "enhancement" or "mutilation"), and individual differences in psychological attitudes, including one's tendencies toward cultural conformity versus independence.

As it stands, few studies have attempted to systematically capture specific causes of psychological distress that some circumcised individuals – including those who attempt non-surgical "foreskin restoration" – report feeling. Özer and Timmermans [30] and Hammond [31] have noted that one of the main concerns of foreskin restorers have been that their feelings about circumcision have not been taken seriously by medical professionals and the culture at large. In dismissing these men's feelings and perceptions about their circumcised state, a message may be communicated that having been genitally altered without one's consent is not legitimate grounds for distress or resentment (unless the surgery was "botched" or there were specific complications: i.e., that the problem is "all in their heads"). While it is certainly possible that some individuals may misattribute certain problems to their circumcision, such an interpretation should not simply be assumed.

Nevertheless, future studies examining the psychosocial effects of, or associations with, circumcision status should attempt to control for potential confounds including individual differences in psychological traits or psychiatric conditions. In some cases of highly negative attitudes or distress about being circumcised, an individual may be dealing with one of a number of issues that are not primarily due to circumcision but which nevertheless become associated with, or attributed to, their circumcision status. Alternatively, some individuals who are in touch with their emotions in a generally adaptive way, or who are inclined to question received social norms in a critical manner, may be disturbed by circumcision, while those who tend toward emotional suppression may be more inclined to report a lack of concern over circumcision. Such individual differences in psychological attributes as they relate to circumcision satisfaction have not been well-studied.

PSYCHOLOGICAL AND PSYCHOSOCIAL IMPLICATIONS FOR PARENTS

A number of studies have surveyed parents about their feelings regarding their decisions surrounding the circumcision and how they arrived at their decision to authorize or decline to authorize the procedure. In earlier surveys of US (unless otherwise noted, the surveys in this section were based on data collected in the United States. While circumcision rates are on the decline as of when this article was published, it was (and is still) normative in many parts of the country) parental attitudes toward circumcision, Tiemstra in 1999 [32] and Binner et al. in 2002 [33] noted that the majority of parents surveyed about their earlier decision regarding circumcision had decided upon their choice prior to speaking with

healthcare professionals or of viewing medical-educational literature such as the current-at-the-time 1999 AAP circumcision brochure [34]. Thus, cultural and other socially relevant sources of information, rather than medical information, were vital to their decision-making processes. In a newer study from 2021, Guevara et al. [35] conducted a study with a similar survey design to Binner et al., but which only included parents who were already actively seeking a circumcision for their child. The authors found that these parents believed that the most recent AAP circumcision brochure was, in fact, helpful toward their decision-making processes. In other words, parents who already leaned toward circumcising found the current AAP brochure (which claims that the future potential health benefits of the procedure outweigh the surgical risks) helpful, possibly due to further validating their previously held beliefs. Guevara et al. also found that the father's circumcision status was rated as an "extremely important" factor in deciding to authorize circumcision for the son.

Other studies have looked at parental attitudes surrounding the satisfaction with their decisions. Adler et al. [36] noted that in their 2001 study of US parents, those who did not have their sons circumcised reported less satisfaction with their decision compared with parents who did circumcise their children. Furthermore, parents of GI males reported that they were less likely to have been asked by their healthcare providers about whether or not they wanted their children circumcised. These parents also reported that they felt they did not receive adequate information in the first place, report that they felt less respected by their medical provider, and were more likely to reconsider their decision.

Sardi and Livingston [37] note that in their study of parental decision-making surrounding neonatal circumcision in the United States, nearly a quarter of participants who were surveyed in 2009 stated that they did not believe they received accurate information or any information at all prior to their decision, but that their respondents also used a mixture of sociocultural and health-based reasons to guide their decisions.

As Meoded Danon [38] notes in their 2021 article that combines autoethnographic research with qualitative interviews among Israeli parents of children with atypical genitalia and parents of children who are GI, these parents often navigate a pregnancy and early parenthood in which medical, familial, religious, and other sociocultural factors work together in what she calls the "Israeli genital socialization process" that ultimately (re)produces gendered traditional/normative genital appearances. Thus, despite Meoded Danon's wish that her son remain genitally intact, she realized that the only way to avoid further family conflict was to allow her son to be circumcised.

Although we have not found systematic studies of parental regret after circumcision, there is an empirical literature on parental regret after certain genital operations on children with variations of sex characteristics, including hypospadias, although the methodology and results vary amongst them. For example, nearly 40% of parents surveyed in Ghidini, Sekulovic, and Castagnetti's study [39] expressed moderate-to-strong regret following surgery for distal (mild) hypospadias. Conversely, other studies demonstrated that while there was no parental regret in 55% of responses, there was moderate-to-severe regret in over 6% of responses [40]. Future studies on the potential for, or prevalence of, parental regret following a child's penile circumcision might draw inspiration from the existing literature on other procedures such as hypospadias surgery in deciding what factors to investigate (anecdotal evidence regarding parental regret abounds on a number of microblogging sites, and social media pages across Facebook, Reddit, and prenatal forums. Many of these stories focus on this regret, particularly if the parent acquires new information about the procedure or if their offspring strongly object to having been circumcised in the first place).

SEXUAL FUNCTIONING AND SUBJECTIVE EXPERIENCES OF SEXUAL ACTIVITY AFFECTED BY CIRCUMCISION

As noted above, the focus in U.S. policy recommendations on circumcision with regards to sexual functioning has been on whether circumcision affects rates of sexual dysfunction (particularly with regards to premature ejaculation, and dyspareunia in both partners in penile vaginal intercourse), with little attention to sexual pleasure or the subjective experiences of sexual functioning and changes in sexual biomechanics. Review studies [41, 42] and larger scale pre- and post- circumcision experimental comparisons in adult men [43–45] tend to be limited to sexual dysfunction or at most, sexual satisfaction, partner sexual satisfaction, sexual pain, and time to orgasm. These are very broad measures of sexual function and often the questionnaires that have been used have captured little detail [46].

For example, Morris et al. [47] conclude that there is no evidence against medical circumcision in terms of sexual dysfunction including pain in penile vaginal intercourse, primarily by emphasizing studies of voluntary, adult circumcision which they regard to be of the highest quality (yet whose results cannot simply be extrapolated to circumcision of infants or children). They make only one mention of sexual functioning from the perspective of subjective sexual experience of a specific sexual function and activity that is not possible after circumcision: the gliding action of the foreskin across the glans. The authors conclude that, "No gliding would, however, occur for men with short foreskins. We could find no studies investigating this proposed phenomenon in men or their sexual partners." They then suggest that policy should be formed without consideration of this phenomenon, as there is no high grade published evidence.

Such a conclusion, however, does not follow. By analogy, an orthopedic surgeon would never recommend a procedure on a shoulder without informing the patient of the potential effects on the range of motion; if information about these effects was not available, studies would be called for. Indeed, the effectiveness of the surgery would be evaluated against standardized, objective population measures of typical range of motion and function.

Morris et al. cite one study of foreskin size, which measured just 8 cadavers and found it to be highly variable [48]. Kigozi et al. [49] have found wide variation in foreskin size, with nearly twice the surface area in the highest to lowest quartile of a sample of 965 men. Morris et al. consider the gliding of the foreskin in the context of pain in penile vaginal intercourse, but do not mention that gliding can be enjoyed as a sexual activity in and of itself [50]. We do not have data on what percentage of persons have long enough foreskins to allow for this particular manipulation of the penile skin system, nor on the percentage who find it pleasurable (e.g., as a part of masturbation). Nevertheless, circumcision results in a substantial change to the biomechanics of the penis which alters the type or range of penile motions available to the individual during sexual activities. The variable consequences of this change for subjective experiences of sexual pleasure should be carefully studied.

Harrison [51] argues that penile circumcision impacts not only adult sexuality, but that one's circumcision status results in different sexual repertoires allowing for different forms of pleasure. By noting the ways in which circumcision debates have become medicalized and scientifically reductive, Harrison argues that individuals "forget" that when parents choose for their son to be circumcised (or not) those parents are literally "… circumscribing certain types of sexual behavior for their sons, and are thus limiting exploration of other sexual possibilities of the penis". If an individual is circumcised, they cannot participate in certain types of sexual activities that involve manipulation of the foreskin itself (including the practice of "docking," which is pulling the foreskin over the glans of a partner's penis, among some men who have sex with men); these individuals must rely

on a narrower range of physical acts that conform to the contours of their penis.

In 2007, Kim and Pang [52] noted that South Korea provides a unique context to study the sexual effects of circumcision because the majority of men who are circumcised have had the procedure electively in childhood, adolescence, or adulthood (as of when their study was published). Thus, it was possible to study the self-reported changes in quality of sex life, including potential changes in erections, masturbatory pleasure, and ejaculation latency times, among others. While a total of 373 sexually active men were surveyed, 138 participants were sexually active both before and after getting circumcised as adults. Significant results from surveys completed by these participants found that sexual pleasure overall was reduced in 20% of men, increased in 6% of men, and unchanged for the others, after adult circumcision. 63% indicated masturbation got more difficult, and 37% indicated it was easier. As for the pleasure from masturbation itself, 48% indicated masturbatory pleasure decreased, 8% reported it improved, and the rest reported no change.

Given that the sexual effects of penile circumcision have not been thoroughly or systematically studied, much less in a methodologically sophisticated way, the apparent null effects in some populations for particular measures cannot lead to the general conclusion that circumcision does not meaningfully affect sexual experience. Rather, that there are major gaps in the literature should be noted explicitly in policy statements on penile circumcision. Unless a provider or parent has had a wide range of sexual partners who have not undergone penile circumcision, they may not have, literally, any first-hand experience in how a foreskin may feel and function in sexual activity, nor understand the variability in experience. Even a GI person themselves, without a wide range of partnered experience, may not understand this variability in foreskin morphology and mechanics.

In the meantime, changes in sexual functioning or changes affecting specific sexual behaviors, as well as changes in subjective experiences of pleasure from these activities, will undoubtedly occur [53] for at least a subset of people who have undergone penile circumcision, and also for their partner(s) [54]. How these changes are interpreted, experienced subjectively, positively or negatively evaluated, and so on, will likely differ from individual to individual. Such experiences require specific, qualitatively rich investigation and documentation to more fully understand.

By contrast, the current the lack of specificity on sexual pleasure in studies on penile circumcision is reflective of a general tendency to focus on sexual dysfunction rather than the nuances of subjective sexual pleasure. Many authors have identified this as a pervasive problem with research on sexuality, particularly female sexual pleasure [55, 56]. Informed decisions on penile circumcision, especially when made for infants and children, must be based on an understanding not only of the risks of sexual dysfunction but also of changes in biomechanical possibilities and associated subjective experiences. These changes include a loss of the gliding and rocking of the foreskin over the erect penis in manual stimulation by the person or by a sexual partner, rolling or moving of the foreskin across the glans by tongue in oral sex of the flaccid penis, in sex with a partner with a longer foreskin, penile docking, changes in the need for lubrication, and a potential "rolling" of the skin of the shaft (in masturbation, oral sex, and penetrative vaginal or anal intercourse) where motion on the shaft of the penis pulls the foreskin back and forth across the glans without or in addition to other stimulation of the glans. The irreversible change of anatomical properties, biomechanics, and related sexual activity options that some people and their partners may enjoy is an outcome of circumcision that needs to be better characterized in the medical and sexology literatures, as well as incorporated into policy documents and informed consent forms and procedures.

CONCLUSION 1: RESPONSIBLE POLICYMAKING AND INFORMED CONSENT REQUIRES CONSIDERATION OF PSYCHOLOGICAL AND PSYCHOSOCIAL IMPLICATIONS

As noted earlier in this article, the 2012 American Academy of Pediatrics (AAP) Task Force on Circumcision [1] made no mention of psychological or psychosocial effects of circumcision, among many pages focused primarily on disease. An approach to policy that is consistent with standard principles of biomedical ethics means fully informing providers, patients and in the case of minors, parents, about all potential consequences of a surgical intervention such as penile circumcision [57].

The AAP [1] only peripherally discussed male sexual sensation and sexual functioning as affected by circumcision. From a strictly functional perspective, many people will experience a change in the range of possible sexual stimulation if their foreskin has been removed, and some may experience or interpret this change in a negative manner. Such information should always be included in task force and policy documents which aim for thorough treatment of this subject, and in informed consent obtained from patients or guardians, particularly by providers who aspire to a "do no harm" practice of medicine.

CONCLUSION 2: RESEARCH FRAMEWORK

Research should include a focus on changes in subjective sexual experience and functioning in terms of the biomechanical action of the foreskin across the glans, and variations in this. As some GI people choose to have elective penile circumcision as adults, it is ethically possible to recruit a significant sample of people who are GI, and to obtain far more detailed data on their masturbation and partnered sexual activity, motion of their foreskin across the glans, and subjective experience of specific sexual activities pre- and post-circumcision. Objective measurements and self-report, as well as sexual partner reports, may be collected pre- and post-circumcision. Just as objective measures are obtained in range of motion before and after joint surgery, researchers should insist on detailed pre-post comparisons when studying elective penile circumcision in adults. However, care should be taken in evaluating satisfaction as people who elect penile circumcision as adults may not be representative. As Earp and Steinfeld note [58]

> adults who feel that their sexual experience has improved as a result of genital cutting are not randomly sampled from the population. Insofar as they "elected the cutting for themselves, they will have done so precisely because they were unsatisfied in some way with their genitals in an unmodified form; and insofar as the genital cutting offered relief from this dissatisfaction (whatever its source), one should expect subjective feelings of improvement along certain dimensions" [59]. Accordingly, "the attitudes and experiences of adults who elected genital cutting cannot and should not be extrapolated to individuals whose genitals were cut in infancy or early childhood" [59]. Unfortunately, such extrapolation is a common mistake in the literature, even among medical authorities.

Second, it is particularly important to have expansive measures that are detailed, including changes in masturbation technique and frequency, use of lubricants, changes in partnered masturbation, partner's subjective sexual experience and behaviors in oral sex, anal sex, vaginal sex, and a partner's manual stimulation of another's penis. Too often dependent variables are limited to sexual dysfunction, and an overall measure of sexual satisfaction and sexual pleasure.

CONCLUSION 3: CULTURAL HUMILITY

Attending to a narrative approach is particularly important in research on psychological and psychosocial effects of circumcision.

Such effects, in parents as well as in people who have undergone penile circumcision, are highly likely to be affected by cultural scripts and the stories individuals tell about themselves [60]. Using Triandis' [61] framework of cultural psychology and individualism/collectivism, perhaps it is more likely that a narrative of loss of autonomy will be constructed by people in a society high in individualism, compared to one high in collectivism. Likewise, in a society high in collectivism, having conformed to the cultural norm may result in less psychological distress than being outside the cultural norm.

The same sociocultural factors related to a narrative approach apply not only to parents, but to physicians' and other experts' attitudes and perspectives that they have on circumcision as well. Doğan [62] found a correlation between the dominant religious beliefs in a country and the number of scholarly articles published on circumcision in that country. Attitudes of medical doctors and beliefs about diet and health have been found to be more closely related to lay attitudes in the doctors' country of origin, than to doctors' attitudes in other countries [63]. Muller [64] also notes a range of individual factors that physicians believe affected the advice on circumcision they gave to parents. While the majority of physicians in Muller's study stated that their advice was based on medical evidence, the circumcision status of the male physicians themselves as well as the circumcision status of physicians' sons also played a large role in shaping their advice.

The importance of physicians' culture is especially clear when considering that standard medical practice for routine infant penile circumcision varies in the 2020s within even a narrow range of English-speaking countries: common in the United States where mainstream, national-level medical bodies claim the procedure has benefits that outweigh the risks, and relatively uncommon in Australia where equivalent medical bodies make no such claim and circumcision is not supported as a routine practice [65]. Indeed, of medical associations in Canada, the United States, Australia, and Britain, only the American medical bodies (e.g., AAP, U.S. Centers for Disease Control) have claimed that medical benefits of routine infant penile circumcision outweigh the risks. By contrast, European medical bodies such as the Danish Medical Association, Royal Dutch Medical Association, and Finnish Medical Association have taken strong stances against the procedure. The differing conclusions of these various bodies suggest that even expert medical opinion as expressed through official policy positions may be partly influenced by culture and national origin [66]. Thus, we argue for cultural humility in considering research, in personal decisions for and against circumcision, and especially for future medical task forces on policy recommendations.

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MT formulated the outline of the paper and wrote the initial draft, LS significantly revised and edited the paper per recommendations and comments of reviewers.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

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