

## ARTICLE



# Potentially under-recognized late-stage physical and psychosexual complications of non-therapeutic neonatal penile circumcision: a qualitative and quantitative analysis of self-reports from an online community forum

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The removal of non-pathogenic foreskin from the penis of healthy neonates and infants for non-religious reasons is routinely practiced in many parts of the world. High level data from well-designed randomized controlled trials of circumcision in neonates and infants does not guide clinical practice. Reliable counts of immediate and short term circumcision complications are difficult to estimate. Emerging evidence suggests routine neonatal circumcision could lead to long term psychological, physical, and sexual complications in some men. The stigma associated with discussing circumcision complications creates a prevalence paradox where the presence of significant circumcision complications is higher than reported. Prior to the Internet, there were very few forums for men from diverse communities, who were troubled about their circumcision status, to discuss and compare stories. To investigate the long term consequences of circumcision, we reviewed 135 posts from 109 individual users participating in a circumcision grief subsection of Reddit, an internet discussion board. We identified three major categories of complications: physical such as pain during erections and lost sensitivity, psychological such as anxiety and violation of autonomy, and sexual such as feeling that the sexual experience was negatively altered or being unable to complete a sexual experience. We also identified a “discovery process” where some men described coming into awareness of their circumcision status. These findings suggest that neonatal circumcision can have significant adverse consequences for adult men. The removal of normal foreskin tissue should be limited to adult men who choose the procedure for cosmetic reasons or when medically indicated.

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## INTRODUCTION

Non-therapeutic neonatal penile circumcision (NTNPC) refers to the removal of non-pathogenic foreskin from the penis of healthy neonates. In most cases, NTNPC is performed for religious reasons in Western countries, however, in the United States it is a widespread non-religious cultural practice [1]. Approximately 55% of all male infants born in U.S. hospitals from 2003 to 2016 underwent NTNPC prior to discharge, making it the most common pediatric surgical practice in the United States [2, 3].

Multiple retrospective studies designed to provide evidence regarding health-related benefits and risks, with potential relevance to inform debates about continuing, restricting, or expanding NTNPC, have been published [4–9]. However, high level data as defined by the United States Preventive Services Taskforce (USPSTF) task force as coming from well-designed and well-conducted studies in primary care populations, are not part of the evidence that guides the clinical practice of NTNPC (see Appendix). In a Cochrane review from 2012, for example, researchers were unable to identify any randomized controlled

trials on the use of NTNPC for the prevention of UTIs in male infants [10, 11].

Most studies of NTNPC frame the procedure primarily from the cultural perspective of the United States as a long-accepted hygienic and cultural intervention for a variety of health and social outcomes. The actual number of circumcisions needed to treat or prevent a condition are not consistently recognized. Alternative treatments and prevention methods that do not require surgery are also often omitted. A meta-analysis with one cohort study and several retrospective studies suggests that circumcising 111 infants will prevent one urinary tract infection (UTI), a condition that is more common in females and treatable in both sexes, in most instances, without loss of genital tissue [5]. Prevention of phimosis and balanitis are additionally cited as health benefits of NTNPC [12, 13]. However, both phimosis and balanitis (inflammation around the head of the penis) are conditions that can usually be treated or prevented without circumcision by use of topical ointments or steroid creams, when necessary, or in some cases by tissue-sparing preputioplasty [14–19]. Moreover, true phimosis (a

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pathological inability to retract the foreskin) should be distinguished from congenital phimosis (the natural adherence of the penile foreskin to the glans in most male babies at birth); the latter does not require treatment as such, and typically resolves over time on its own.

Recommendations to continue and expand circumcision in infants and children have emerged in response to studies on adult men in countries where the benefits from medicalized adult circumcision are being studied [20]. Three randomized trials in sub-Saharan Africa concluded that men who are circumcised as adults are less likely to acquire HIV from an infected female partner in contexts with high rates of heterosexually transmitted HIV and a low baseline prevalence of circumcision [21–23]. A fourth trial looking at male-to-female transmission of HIV, by contrast, was stopped early for futility, as the female partners of men in the circumcision arm of the trial were contracting HIV at a higher rate [24]. It must be considered whether it is appropriate to apply data on HIV prevention in adult men from African countries with particular epidemiological environments to infants and neonates in countries with far different HIV dynamics and public health infrastructures.

HPV related disease and penile cancer are also less likely in circumcised men according to data collected from heterogenous populations prior to the availability of the HPV vaccine [25–27]. A meta-analysis of mostly retrospective data has determined that men who underwent NTNPC have a significantly reduced risk of penile cancer as adults [27]; to put this risk reduction in perspective, according to research cited in a report from the American Academy of Pediatrics, between 909 and 322,000 circumcisions would be required to prevent one case of penile cancer [28]. In most developed countries, the absolute risk of this condition is exceedingly rare, and is mitigated by other risk factors and (treatable) phimosis and may be further reduced with HPV vaccination [27].

Reliable counts of immediate and short term complications of circumcision are difficult to estimate, given discrepancies in record-keeping, definitions, and diagnostic methods [29]. However, estimates regarding complications or other adverse outcomes associated with NTNPC, specifically, as performed in clinical context by a medically trained operator, vary greatly and include hemorrhage, excessive/unintended skin loss, injury to the glans or meatus, pain during the surgery and during the period of wound-healing [30], and, rarely, penile amputation, necrotizing fasciitis, and death [14, 31, 32]. Finally, new evidence is emerging suggesting that NTNPC may be associated with longer-term physical, sexual, and psychological complications in some men [33–35].

The existing literature on such potential long-term complications of NTNPC is very sparse, given that follow-up for the procedure is neither exhaustive nor systematic and typically does not last beyond early childhood at the latest. A lack of systematic, quantitative data, however, does not preclude the possibility of gaining insights through purposive sampling methods and qualitative exploration of the experiences of individuals affected by non-therapeutic genital procedures. For example, an analysis of comments on YouTube videos was successful in identifying common themes in perceptions surrounding female genital cutting [36].

In this study, we systematically analyze postings of men on the social media site Reddit who participate anonymously in forums called subreddit. In this case, we explored the subreddit “circumcision grief” which is dedicated to topics involving circumcision complications that the posters regard as being either a likely or, in some cases, certain result of their foreskin removal as a neonate or child [37].

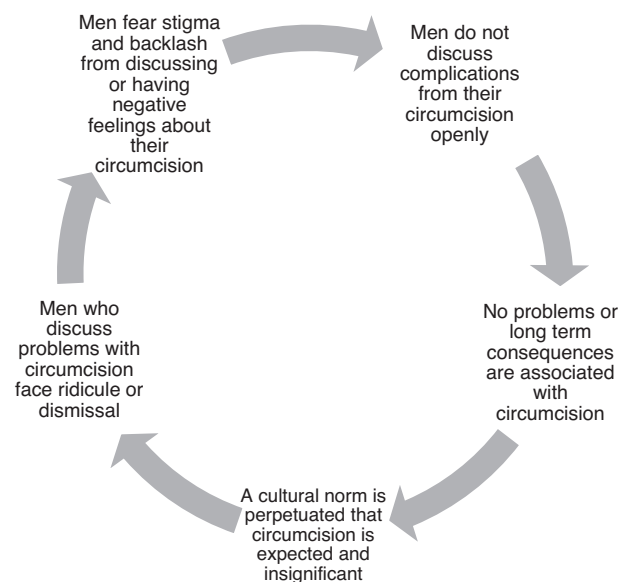
Discussion of penile problems and circumcision complications typically are stigmatized in practicing cultures. Prior to the introduction of the Internet, there were very few forums for men from diverse communities, who were troubled about their

circumcision status or its consequences, to find each other and compare stories and perspectives. Moreover, gender-related and other cultural norms likely discourage widespread discussion of men’s sexual problems related to circumcision. The data used in this study were only discoverable due to the availability and anonymity of certain Internet forums and communications. We suggest that a general lack of awareness of late stage complications of circumcision could be due to a phenomenon called the “Prevalence Paradox” [38, 39] (see Fig. 1). The prevalence paradox describes a discrepancy, wherein there can be a reasonably high prevalence of a stigmatized condition without corresponding general knowledge that the condition is a problem. Because discussion of long-term or late-stage complications resulting from circumcision is stigmatized, it is not spoken about. This leads to an impression that such complications do not exist or are too rare to be worth mentioning, which furthers the stigma of speaking about them (see Fig. 1).

## METHODS

To investigate potential long term consequences of NTNPC, we reviewed all posts from the “circumcision grief” subsection of Reddit, an internet discussion board [37]. The process of obtaining data from online, publicly available data sources was reviewed by the University of Michigan Institutional Review Board and deemed exempt from regulation. No authors reported a conflict of interest. One author (MU) reviewed all 651 posts in the subreddit from 08/28/20 to 02/28/21 and included posts with a direct report of a circumcision that happened to the poster with a resulting/associated psychological, physical, or sexual issue, for further analysis. Also included were posts that contained a mention of new awareness, realization, or discovery that the poster had been circumcised. For posts related to psychological, physical, or sexual complications the researchers limited analysis to posts that spoke about specific personal issues from the first-person perspective with the use of an “I” statement. Posters who self-identified as being outside the United States or not circumcised were not included. Additionally, cross posts from other subreddits and posts from transgender individuals were not included. Two authors (MU and FA) reviewed a sample of 25% of posts for inclusion and exclusion and had a 96.32% agreement rate in applying the exclusion criteria. After applying the exclusion criteria, 135 posts remained for analysis. These remaining posts consisted of entries written by 109 individuals and two posts with unknown authors whose profiles had been deleted since their posting.

Based on prior studies and a review of 50% of the 135 posts, a list of overall themes was developed which eventually resulted in the formation



**Fig. 1** Prevalence paradox of circumcision complications.

**Table 1.** Selected quotes exemplifying each coded circumcision complication with percentages of the total and the subgroup.

Code	n (%) <sup>a</sup>	Representative quote
<b>Discovery Process</b>	43 (8.63)	"When I was 17 I decided to look into what being circumcised was. When I looked into it I was horrified."
<b>Non-infant Circumcision</b>	8 (1.61)	"I feel very stupid for consenting to circumcision when I was 13"
<b>Physical Complications</b>	50 (10.04)	
Frenulum Missing	10 (2.01) (20.00)	"Then there's my frenulum which was also taken which I don't understand they say they cut off my foreskin because it's cleaner, then why cut off my frenulum?"
Keratinization of the Glans	5 (1.00) (10.00)	"As the years went by my glans got more and more desensitized which I think is what has lead to my current difficulties."
Large or Abnormal Scar/Scarring	9 (1.81) (18.00)	"I was cut high and tight so that erections hurt and almost half of my penis is covered in the scar."
Neuromas	1 (0.20) (2.00)	"Eventually it was determined that I have amputation neuromas; abnormal nerve regrowth, that is prone to causing problems."
Skin Bridges	3 (0.60) (6.00)	"Well I had skin bridges as a complication from circumcision."
Lost Sensitivity	17 (3.41) (34.00)	"I realized that there was almost no way I could get all that sensitivity back."
Pain from Erection/Too Little Skin	4 (0.80) (8.00)	"I used to feel like the skin of my shaft was ready to tear at the scar line every time I got a full erection."
<b>Psychological Complications</b>	322 (64.66)	
Anxiety and Anxiety Related Symptoms	5 (1.00) (1.55)	"My anxiety is through the roof 24/7 because of this shit and I can't bond/relate/talk to the opposite sex."
Body Image Distortion or Body Perception has Changed	19 (3.82) (5.90)	"My circumcision was botched and it has negatively impacted my self image for my entire life."
Body Integrity Compromised	24 (4.82) (7.45)	"I'm not normal because I have a body Modification that I could not have and did not consent to."
Depression and Depression Related Symptoms	25 (5.02) (7.76)	"I've been dealing with anxiety and depression because of my circumcision for years."
Effects on Relationship with Parents and/or Doctors	32 (6.43) (9.94)	"For years, I was very upset with my parents, my Father especially, for getting me circumcised." "I'm pissed at the doctors who claim to be ethical in their practice, but see nothing wrong with routinely amputating parts off of infants with no medical necessity."
Externally Directed Emotional Distress	29 (5.82) (9.00)	"I dont want to live on a planet where it is common to destroy the most sensitive part of a babys penis before he has any knowledge of the world around him."
Feelings of Inadequacy and/or Insecurity	14 (2.81) (4.35)	"I can't come to terms with that I will never be as good as a intact person"
Internally Directed Emotional Distress	48 (9.64) (14.91)	"It's nice to see I am not alone here in feeling grief and sadness from being mutilated by my parents."
Jealousy and Comparison to Others	12 (2.41) (3.73)	"I feel jealous to think that other men had the right to a whole body and I wasn't given the thought."
Obsessive Thoughts	18 (3.61) (5.56)	"Its very hard to get through life with this thought being on my mind all day, its so hard to make it through just one day of doing mundane tasks that I don't want to do while my mind runs wild thinking about circumcision."
Suicidal Thoughts and/or Thoughts of Self-Harm	18 (3.61) (5.56)	"Nobody is willing to understand how much it hurts or how it feels to know others got lucky for no good reason while you yourself were mutilated for no good reason. I might kill myself."
Trauma and PTSD	10 (2.01) (3.11)	"I used to have recurring nightmares several times a week, and still sometimes do, about being strapped to a board and some man in white cutting on my penis."
Triggered Thoughts	14 (2.81) (4.35)	"every time I have to use the restroom I am reminded of a crime that was committed against me in infancy, that no one cares about."
Unable to Bond or Have Relationship with Partner	13 (2.61) (4.04)	"I'm a 20 year old man born in 2000 and I have noticed ever since I realized all the harmful effects of circumcision I have found it extremely difficult to perform sexually and form an emotional connection with a woman."
Violation of Bodily Autonomy	41 (8.23) (12.73)	"I feel like I've been violently/sexually violated and gaslighted."
<b>Sexual Complications</b>	75 (15.06)	
Cannot Orgasm or Mild/Decreased Orgasm	13 (2.61) (17.33)	"My first consensual sex experience was underwhelming. I felt some warmth on the shaft, the numbness (later pain) where the scars are (circular band and where the frenulum would have been), and a little bit of sensation on the chewed-gum looking piece of flesh that was my frenulum. I couldn't orgasm, and lost erection."
Feeling that Sexual Experience Was or Would be Incomplete	31 (6.22) (41.33)	"I will never have as much sexual pleasure as a man with intact genitalia because the most sensitive parts of mine have been removed."
Absent or Decreased Sexual Sensation	19 (3.82) (25.33)	"I've felt a decrease in sensation with all 3 of the sexual relationships that I have been in and have been harboring resentment toward them over there decision to have this done."
Pain During Sexual Activity	5 (1.00) (6.67)	"The dryness and roughness that circumcision caused to my glans actually causes discomfort (and sometimes pain) during intimacy for me Because of circumcision, I could never actually enjoy sex."
Difficulties Performing Sexually	7 (1.41) (2.17)	"Sex is so unfulfilling that I usually fail to get a boner when I'm with a girl, or maybe its just the knowledge that my penis is so damaged and desensitised from my circumcision at age 4 for "phimosis" that I just don't get excited anymore."

<sup>a</sup>Percentages may not add to 100% as codes are not mutually exclusive

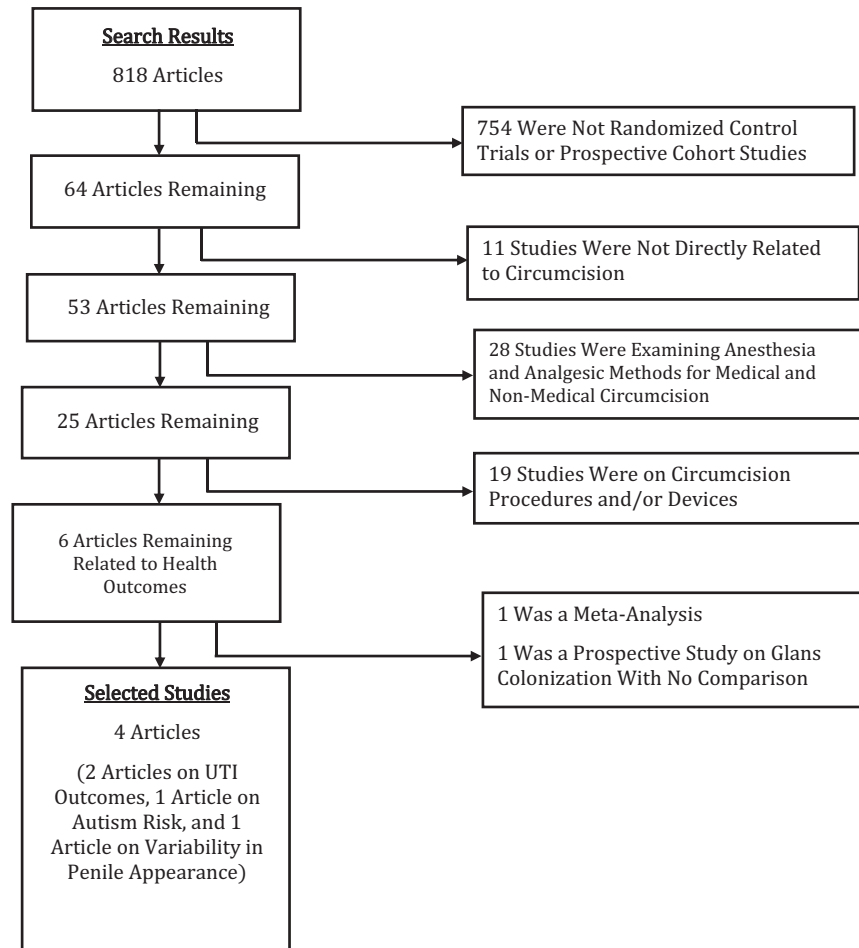


Fig. 2 PRISMA flow diagram of non-therapeutic neonatal penile circumcision evidence.

of a codebook with five overarching code categories and 24 subcodes under these main categories. The five overarching codes consisted of: (1) Psychological Complications; (2) Sexual Complications; (3) Physical Complications; (4) Non-infant Circumcision; and (5) Discovery Process. The Non-infant Circumcision and Discovery Process codes had no subcodes and were meant to indicate a non-infant circumcision and the realization process some posters described of becoming conscious of what circumcision entails and what they described as “discovering what they have lost.” A full list of the codes can also be found in Table 1 of the Results section. Once the codebook was finalized, a primary coder (MU) went through all 135 posts, coding each post individually using NVivo software. After the initial coding, a second coder (FA) applied the codebook to 25% of the 135 posts. Following this, the primary coder revised their coding process and re-coded the 135 posts using the new coding agreement. The new coding agreement was achieved by both coders working in conjunction. After the re-coding, another 25% of posts were reviewed by the second coder to ensure consistency in coding.

## RESULTS

The Reddit analysis yielded 135 posts from 109 individual user accounts expressing direct personal complications they associated with circumcision using “I” statements. See Table 1 for characteristic quotes from each type of complication. Supplementary material containing a complete list of all the “I” statements analyzed is available online. Forty three “I” statements (8.6% of posts) described a discovery or coming-into-awareness the poster experienced, e.g., a novel realization that they had been circumcised. Physical complications related to circumcision were

mentioned in 50 statements (10.4% of all posts), in addition to 322 (64.7%) mentions of psychological complications related to circumcision, and 75 (15%) mentions of sexual complications related to circumcision. The most common long-term physical complication reported was lost sensitivity perceived to be related to circumcision which accounted for 34% of all the physical complications reported and 3.4% of the total complications reported. The most common psychological complications included effects on relationships with parents and/or doctors (9.9% of psychological complications; 6.4% of total), internally directed emotional distress (14.9% of psychological complications; 9.6% of total complications), and a feeling of violation of bodily autonomy (12.7% of psychological complications; 8.2% of total complications). Within the psychological complications, 16 individuals described suicidal or self-injurious thoughts and actions stemming from the feelings they had about their circumcision. The highest reported sexual complication was the feeling that the sexual experience was or would be incomplete due to circumcision (41.3% of all the sexual complications and 6.2% of the total complications).

## DISCUSSION

This study sought to explore the long-term consequences of non-therapeutic neonatal, infant and child circumcision reported in an Internet forum subsection of Reddit where participants discuss grief and other feelings related to their circumcisions. The qualitative review of social media posts clearly demonstrates that

Table 2. PRISMA flow selected study details.

Title	Author	Data Quality	Study Type	Outcome	Study Population	Results	Conclusion
Cohort study on circumcision of newborn boys and subsequent risk of urinary-tract infection.	To et al. [20]	Level II-2	Prospective cohort study	Hospital Admission for UTI	Eligible boys were born to residents of Ontario between April 1, 1993, and March 31, 1994. Hospital discharge data to follow up boys until March 31, 1996	The 1-year probabilities of hospital admission for UTI were 1.88 per 1000 person-years of observation (83 cases up to end of follow-up) in the circumcised cohort and 7.02 per 1000 person-years (247 cases up to end of follow-up) in the uncircumcised cohort ( $p < 0.0001$ )	195 circumcisions would be needed to prevent one hospital admission for UTI in the first year of life.
Ritual circumcision and risk of autism spectrum disorder in 0- to 9-year-old boys: national cohort study in Denmark.	Frisch and Simonsen [22]	Level II-2	National, register-based cohort study	Impact of ritual circumcision on the subsequent risk of autism spectrum disorder (ASD) in young boys	A total of 342,877 boys born between 1994 and 2003 and followed in the age span 0–9 years between 1994 and 2013	With a total of 4986 ASD cases, this study showed that regardless of cultural background circumcised boys were more likely than intact boys to develop ASD before age 10 years (HR = 1.46; 95% CI: 1.11–1.93). Risk was particularly high for infantile autism before age five years (HR = 2.06; 95% CI: 1.36–3.13).	Boys who undergo ritual circumcision may run a greater risk of developing ASD, confirmatory studies should be given priority.
Neonatal circumcision reduces the incidence of asymptomatic urinary tract infection: a large prospective study with long-term follow up using Plastibell.	Simforoosh et al. [21]	Level II-1	Prospective nonrandomized quasi-experimental format	Asymptomatic bacteriuria, confirmed with suprapubic urine aspiration	Urine cultures in 3000 neonatal circumcisions. In the control group, 1000 uncircumcised cases	Crude Asymptomatic bacteria rates without adjustment, no detailed analysis	0% asymptomatic bacteria in circumcised neonates, 2% in uncircumcised neonates.
Variability in penile appearance and penile findings: a prospective study.	Van Howe [23]	Level III	Prospective case series Comparing genital findings at examinations of circumcised and uncircumcised boys less than 3 years old	Exam results	468 boys 92.3% circumcised, 7.7% uncircumcised whose consultation with a physician included a genital exam in a primary care pediatric practice	Crude Rates of glans coverage, adhesions, skin bridges, captured debris	Significant variations in appearance of circumcised boys, findings more common than in retrospective studies.



some men are experiencing a complex constellation of negative psychological, physical, and sexual associations that lead to significant emotional distress directed both internally and externally. The posts also reveal a discovery phenomenon wherein men discover the physical and psychological manifestations of the decisions made by others to modify their genitals. This realization, which has also been reported in the literatures on non-therapeutic genital procedures performed on infants or children with intersex traits and female-typical (endosex) anatomy, is often accompanied by anger directed at parents and physicians and leads to a sense of isolation [40, 41]. This “discovery process” is accompanied by feelings of violation. Some men feel they did not choose circumcision as a body modification for themselves, as they were infants when the procedure occurred, and view circumcision as a breach of consent. The feeling of nonconsensual violation leading to significant complications is experienced as an irrevocable harm in these men, who describe associated familial discord, depressive and anxiety symptoms, inability to achieve a satisfying sexual life, and in a small number of cases, ideation related to self-harm and suicide. The frequency or magnitude of long-lasting consequences of NTNPC in the population cannot be determined from this study but it is clear that some men are experiencing deep psychological pain from their circumcisions.

### LIMITATIONS

The social media posts are from a highly select subgroup of men who have voluntarily chosen to discuss this issue publicly and do not represent the population. Although the posts suggest depression, anxiety and suicidal ideation, independent clinical diagnosis of any of these conditions is not possible, nor cannot it be ruled out that, in some cases, a pre-existing or independent psychological issue has been misattributed to circumcision [42].

We identified 109 individual usernames but cannot know for sure that these are all unique individuals, or that one person is posting using only one individual username. However, Reddit is neither the first nor only report of men experiencing long term consequences related to infant circumcision. In addition to previously published surveys of self-identified circumcision sufferers [33], there are also multiple Internet sites and YouTube channels on which users describe circumcision-related grief [28, 29]. Additionally, media reports have documented both suicides related to male circumcision and legal cases in which men have launched litigation against hospitals or individual doctors for their involuntary circumcisions [43–46].

### CONCLUSION

The qualitative review of social media posts suggests that some men who underwent NTNPC experience a complex mix of negative psychological, physical, and sexual effects that lead to significant emotional distress directed both internally and externally. The review also revealed a ‘discovery’ theme, previously noted as well within the literatures on intersex and (endosex) female genital operations, wherein individuals gain an awareness later in life of certain physical and psychological manifestations of a decision made by others to have their genitals cut and modified without a medical indication. This realization is often accompanied by anger, which may be directed at parents and physicians, and can result in a sense of isolation. These findings suggest that neonatal circumcision can have significant adverse consequences for adult men. Further studies to understand the prevalence of these complications will clarify and establish the magnitude of the problem. However, even the smallest prevalence of these severe complications is significant given that the procedure in question is by definition medically unnecessary, affects a person’s sexual or ‘intimate’ anatomy, and is performed without the informed consent of the affected individual.

### APPENDIX

To identify prospective randomized controlled trials and prospective cohort studies that provide Level I evidence for the benefits of routine circumcision of neonates or infants less than two years of age, the following search criteria and methods were used. A search of the literature was conducted by a health sciences informationist (GKR) in June 2021. Six discrete searches were implemented in six databases: Medline (via Ovid interface), Embase (via Embase.com), CINAHL (via EBSCOhost), Scopus, Web of Science Core Collection (via Thomson Reuters), and Cochrane Library. Search strategies used a combination of controlled vocabulary and keywords to represent medical, surgical, and cultural terms for male circumcision. This included but was not limited to search concepts representing ritual or religious circumcision. Search results were limited to the year range of 1996 to 2021 and English language articles. In the databases that allowed for age and publication type limiters, search strategies were limited to infant and newborn and by the publication types randomized controlled trial, cohort study, or prospective study. In the databases that did not allow for limiting by age or publication type, these concepts were represented as keywords or controlled vocabulary search terms. Search results (818 citations) were exported to the citation management program Zotero for processing and researchers’ review.

Our literature search yielded 818 articles. Of these, 754 articles were not randomized control trials or prospective cohort studies, 11 studies were not directly related to circumcision, 28 studies investigated anesthesia and analgesic methods for circumcision, and 19 studies examined different circumcision techniques or devices to be used during circumcision. This resulted in only six studies that examined health outcomes related to circumcision using a prospective cohort or randomized control trial study design. One of the six remaining articles included a meta-analysis with retrospective studies and was excluded [5]. One prospective study of glans colonization included only circumcised males without comparison to non-circumcised males and was excluded, leaving four studies [47]. Two of the remaining articles investigated urinary tract infection (UTI) outcomes or asymptomatic bacteriuria in circumcised versus non-circumcised boys [48, 49]. Another article explored autism risk in a large cohort study of circumcised versus non-circumcised boys in Denmark. The final article described penile appearance variability in a prospective cohort of circumcised versus non-circumcised boys [50, 51]. These results and the PRISMA Flow Diagram are presented in Fig. 2 and details on the four selected papers are provided in Table 2.

The literature search failed to identify any randomized controlled trials or prospective cohort studies that would provide Level I evidence for initiating a public health program that would advocate for routine neonatal or infant male circumcision. This finding is consistent with other attempts to identify such data [1, 5, 52].

### DATA AVAILABILITY

Additional supporting information can be found in the online version of this article at the publisher’s website.

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#### AUTHOR CONTRIBUTIONS

MU, JA, DO, JS, GKR, FA conceived and designed the analysis and wrote the paper. MU collected the data. GKR contributed analysis tools. FA and MU conducted the analysis.

#### COMPETING INTERESTS

The authors declare no competing interests.

## ADDITIONAL INFORMATION

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