Received: 9 August 2024 | Revised: 31 May 2025 | Accepted: 3 June 2025

DOI: 10.1002/ijgo.70332

SYSTEMATIC REVIEW

Gynecology

Long-term cosmetic and quality of life outcomes after surgery for genital, anogenital, or urogenital injuries resulting from childhood sexual abuse: A scoping review

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Funding information
Académie de Recherche et d'Enseignement Supérieur (ARES-Belgium), Grant/Award Number: COOP-CONV-20-009

Abstract

Background: Although the physical, psychological, physiological, and sexual consequences of childhood sexual abuse have been extensively studied, there remains a gap in understanding with regard to the long-term impacts of restorative surgery following such trauma.

Objectives: To identify and analyze studies that investigate the long-term cosmetic and quality of life outcomes resulting from genital, anogenital, or urogenital injuries following childhood sexual assault and reconstructive surgery.

Search Strategy: Conforming to PRISMA-ScR guidelines, PubMed, Embase, Scopus, CINAHL, and PsycInfo were searched.

Selection Criteria: Eligible studies included female victims of childhood sexual violence occurring before the age of 10, who also underwent genital, urogenital, or anogenital reconstructive surgery. In addition, studies needed to report at least 6-month postoperative follow-up outcomes for inclusion in this review.

Data Collection and Analysis: Patient demographics and long-term follow-up outcomes were extracted by two independent authors using Covidence.

Main Results: The search identified 962 articles, and 12 met the inclusion criteria. Most patients were dissatisfied with the cosmetic appearance of their external genitalia but satisfied with urinary and fecal continence. There was limited information on chronic pain, sexual and psychological impact of it.

Conclusion: This scoping review underscored the absence of long-term and standardized follow-up protocols for individuals who undergo reconstructive surgery following childhood sexual abuse. Addressing this gap is crucial to effectively incorporate these data so as to improve personalized care and the assessment of long-term quality of life.

KEYWORDS
anogenital surgery, child sexual abuse, follow-up, long-term outcomes, scoping review, urogenital genital

1 | INTRODUCTION

Childhood sexual abuse (CSA) is a serious and widespread concern, with considerable physical, psychological, and sexual consequences for its victims.[1] Extensive research has consistently shown the profound impact of CSA, underscoring its adverse effects on the physical and mental well-being of survivors.[2] Moreover, without holistic victim support alongside individual resilience, complex post-traumatic stress disorder (C-PTSD) emerges in the presence of difficulties in emotional regulation, persistent negative self-views, and interpersonal problems[3,4]

Sexual abuse has the potential to result in the development of genital lesions, including abrasions, lacerations, ulcerations, and infections, with long-lasting consequences for individual health.[5,6] A more in-depth exploration is needed to comprehend the long-term outcomes following surgical intervention for genital lesions caused by CSA.

Post-surgical consequences for genital lesions stemming from CSA are of significant importance. Insight into these outcomes can offer valuable perspectives on the health repercussions of CSA, thereby contributing to the formulation of effective treatment and intervention strategies for survivors.[7] Furthermore, it can help healthcare professionals to obtain a better understanding of the specific needs and challenges survivors face.

Although the psychological effects of CSA are reasonably well documented, the long-term impacts on physical health, particularly concerning surgical outcomes for genital lesions resulting from CSA, are still not fully understood.[8] It is crucial to identify criteria for assessing both physical and psychological sequelae, which need to be considered in future studies aiming to provide victims' long-term support.

The objectives of this scoping review were: to identify studies reporting the long-term assessment following genital, anogenital, or urogenital reconstructive surgery stemming from CSA and to describe the long-term outcomes evaluated, including criteria related to appearance (cosmetic) and quality of life (QoL).

2 | METHODS

This scoping review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).[9] This study received input from a diverse team of experts, including methodologists, healthcare professionals (surgeons, gynecologists, forensic pathologists, psychologists, and physiotherapists), and staff members from the Traumatic Sexual Violence Practice at Panzi Hospital (Panzi, Democratic Republic of the Congo), the Université Evangélique en Afrique (UEA) in Democratic Republic of the Congo, University of Liège (Belgium), and the University of Wisconsin School of Medicine and Public Health in USA.

2.1 | Eligibility criteria

This scoping review focused on studies involving female victims of CSA (occurring before the age of 10) who underwent genital, urogenital, or anogenital reconstructive surgery at the time of the assault. Studies needed to report at least 6-month postoperative follow-up outcomes to be included in this review. We included all studies reporting genital sexual violence, regardless of the context (intra-family or community sexual abuse, in or out of war conflict).

We considered published primary research studies that met the eligibility criteria without imposing date restrictions. Additionally, our selection was limited to articles published in English and French, as our study team reviewers were proficient in both languages. Conference abstracts, literature reviews (both narrative and systematic), news articles, study protocol commentaries, letters, guidelines, and books were excluded.

2.2 | Search strategy

With the assistance of a research librarian (SV), a comprehensive search was conducted for published literature in the following databases: Medline (PubMed interface, 1946 onwards), Embase (Elsevier interface, 1974 onwards), Scopus (Elsevier interface, 1974 onwards), CINAHL (EBSCOhost platform, 1981 onwards), and PsycINFO (Ovid platform, 1806 onwards). Table 1 presents the search strategy utilized in each database. All articles from the inception of these databases up to December 12, 2023 were considered. The reference lists of the articles included in the review were screened for any additional pertinent papers.

2.3 | Selection of sources of evidence

Before the first selection step, we performed a pilot test of the source selection before the team-wide selection process, which aided in refining our source selection and search strategy. The screening team (RM, MM, ZR, and JB) independently evaluated a random sample of 30 titles and abstracts, assessing them against the eligibility criteria and objectives of the scoping review. All identified citations were collated and uploaded into Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia, available at https://www.covidence.org), and duplicates were removed.

In the first selection phase, four independent researchers (RM, MM, ZR, and JB) applied the eligibility criteria to the titles and abstracts of each article. Subsequently, the full text of the retained articles was obtained and screened once more by two independent researchers (RM and JB) based on the specified criteria. Any discrepancies in the selection assessment were resolved through discussions.

TABLE 1 Search strategies for each database: Medline (Pubmed interface), Embase (Elsevier interface), PsycInfo (Ovid platform), CINAHL (EBSCOhost interface), and Scopus (Elsevier interface).

Bibliographic databases	Concept	Search
Medline (PubMed)	Child	Child[Mesh] OR Infant[Mesh] OR child OR children OR infant OR infants
	AND	
	"sexual offenses"	Sex Offenses[Mesh] OR Pedophilia[MeSH] OR "sex offenses" OR "sex offenses" OR rape OR "sexual assault" OR "sexual violence" OR "non-consensual sex" OR "sexual abuse" OR "forced sexual activity" OR "sexual molestation" OR "sexually abused" OR incest OR pedophilia OR pedophilia OR pederasty OR pederastie
	AND	
	"reconstructive surgery"	Plastic Surgery Procedures[Mesh] OR "reconstructive surgery" OR "reconstructive surgical procedure" OR surgery OR surgeries
	AND	
	"genital, anal and/or urinary lesions"	(("Sex Organs" OR "Female Genital" OR "Female Genitalia" OR "Female Reproductive System" OR "Female Accessory Sex Organs" OR vagina OR anus OR anal OR perineum OR perineal OR rectum OR rectal OR vaginal OR vulvar OR vulva) AND (injuries OR injury)) OR ((Urogenital System/injuries[Mesh] OR Genitalia, Female/injuries[Mesh] OR Anal Canal/injuries[Mesh] OR Vagina/injuries[Mesh] OR Perineum/injuries[Mesh] OR Pelvic Floor/injuries[Mesh] OR Rectum/injuries[Mesh]) OR ((Anal Canal[Mesh] OR Rectum[Mesh] OR Vagina[Mesh] OR Perineum[Mesh] OR Pelvic Floor[Mesh]) AND (Wounds and Injuries[Mesh]))))
Embase (Elsevier)	Child	'child'/exp. OR child OR 'children'/exp. OR children OR 'infant'/exp. OR infant OR 'girl'/exp. OR girl OR girls
	AND	
	"sexual offenses"	'sexual violence'/exp. OR 'sexual crime'/exp. OR 'pedophilia'/exp. OR 'sex offenses'/exp. OR 'sex offenses' OR 'sex offense'/exp. OR 'sex offense' OR 'sex offense' OR 'sex offenses' OR 'rape'/exp. OR rape OR 'sexual assault'/exp. OR, 'sexual assault' OR 'sexual assaults' OR 'sexual violence'/exp. OR 'sexual violence' OR 'sexual violences' OR 'non-consensual sex' OR 'sexual abuse'/exp. OR 'sexual abuse' OR 'sexual abuses' OR 'forced sexual activity' OR 'forced sexual activities' OR 'sexual molestation' OR 'sexually abused' OR 'incest'/exp. OR incest OR incests OR 'pedophilia'/exp. OR pedophilia OR 'pederasty'/exp. OR pederasty OR pederasties
	AND	
	"reconstructive surgery"	'reconstructive surgery'/exp. OR 'reconstructive surgery' OR surgery OR 'surgery'/exp.
	AND	
	"genital, anal and/or urinary lesions"	(('urogenital system'/exp. OR anus OR anal OR perineum OR perineal OR rectum OR rectal OR 'sex organ' OR 'sex organs' OR 'accessory sex organ' OR 'accessory sex organs' OR 'reproductive system' OR genitalia OR genital OR 'pelvic floor' OR 'genitalia'/exp. OR genitalia) AND ('female'/exp. OR female OR woman OR women)) OR 'genitalia female'/exp. OR 'genitalia female' OR vulva OR vulvar OR vagina OR vaginal OR clitoris) AND ('injury'/exp. OR injury OR injuries OR lesion OR lesions)
PsycInfo (Ovid)	Child	(child OR children OR girl OR girls OR infant OR infants).mp
	AND	
	"sexual offenses"	sexual abuse/ OR exp. sex offenses/ OR exp. pedophilia/ OR exp. sexual violence/ OR ('sex offenses' OR 'sex offense' OR 'sex offense' OR 'sex offenses' OR rape OR 'sexual assault' OR 'sexual assaults' OR 'sexual violence' OR 'sexual violences' OR 'non-consensual sex' OR 'sexual abuse' OR 'sexual abuses' OR 'forced sexual activity' OR 'forced sexual activities' OR 'sexual molestation' OR 'sexually abused' OR incest OR incests OR pedophilia OR pedophilia OR pederasty OR pederasties).mp
	AND	
	"reconstructive surgery"	exp surgery/ OR ("reconstructive surgery" OR surgery OR surgeries).mp
	AND	
	"genital, anal and/or urinary lesions"	((exp Urogenital System/ OR (anus OR anal OR perineum OR perineal OR rectum OR rectal OR "sex organ" OR "sex organs" OR "reproductive system" OR genital OR genitalia OR "pelvic floor").mp) AND (exp human females/ OR (women or girl or girls or female or woman).mp)) OR (exp Female Genitalia/ OR (vulva OR vulvar OR vagina OR vaginal OR clitoris).mp)

(Continues)

TABLE 1 (Continued)

Bibliographic databases	Concept	Search
CINAHL (EBSCOhost)	Child	(MH "Child+") OR child OR children OR infant OR infants OR girls OR girl
	AND	
	"sexual offenses"	(MH "Sexual Abuse+") OR (MH "Sexual Trauma+") OR "sex offense" OR "sex offenses" OR "sexual offense" OR "sexual offenses" OR "sex offenders" OR "sexual offenders" "sex offender" OR "sexual offender" OR rape OR "sexual assault" OR "sexual assaults" OR "sexual violence" OR "non-consensual sex" OR "forced sexual activity" OR "forced sexual activities" OR "sexual molestation" OR "sexually abused" OR incest OR pedophilia OR pedophilia OR pederasty OR pederasties OR "sexual violence"
	AND	
	"reconstructive surgery"	(MH "Surgery, Operative+") OR "reconstructive surgery" OR surgery OR surgical OR (MH "Wounds and Injuries+")
	AND	
	"genital, anal and/or urinary lesions"	(((MH "Urogenital System+") OR (MH "Anus") OR anus OR anal OR perineum OR perineal OR rectum OR rectal OR "sex organ" OR "sex organs" OR "accessory sex organ" OR "accessory sex organs" OR "reproductive system" OR genitalia OR genital OR "pelvic floor") AND (female OR woman OR women OR (MH "Female")) OR ((MH "Genitalia, Female+") OR "genitalia female" OR vulva OR vulvar OR vagina OR vaginal OR clitoris) OR (MH "Female Genital Mutilation")) AND (injury OR injuries OR lesion OR lesions OR trauma)
SCOPUS (Elsevier)	Child	TITLE-ABS-KEY(child OR children OR infant OR infants OR girl OR girls)
	AND	
	"sexual offenses"	TITLE-ABS-KEY("sex offenses" OR pedophilia OR "sex offense" OR "sex offense" OR "sex offenses" OR rape OR "sexual assault" OR "sexual assaults" OR "sexual violence" OR "sexual violences" OR "non-consensual sex" OR "sexual abuse" OR "forced sexual activity" OR "forced sexual activities" OR "sexual molestation" OR "sexually abused" OR incest OR pedophilia OR pedophilia OR pederasty OR pederastie OR "sexual crime")
	AND	
	"reconstructive surgery"	TITLE-ABS-KEY(surgery OR surgeries OR surgical)
	AND	
	"genital, anal and/or urinary lesions"	TITLE-ABS-KEY((genitalia OR urogenital OR anus OR anal OR perineum OR perineal OR rectum OR rectal OR "sex organ" OR "sex organs" OR "reproductive system" OR "reproductive organ" OR "reproductive organs" OR genital OR genitalia OR "pelvic floor" OR vulva OR vulvar OR vagina OR vaginal OR clitoris) AND (injury OR injuries OR lesion OR lesions OR trauma))

2.4 | Data extraction

The following data were extracted from the included studies: (1) study demographics (first author, year of publication, country, study design); (2) description of the sexual aggression (nature of the aggression and identity of offenders); (3) description of the target population (number of children considered, number affected by sexual assault and undergoing reconstructive surgery, age at the time of sexual assault, gender of the victims, description of females undergoing reconstructive surgery after sexual assault); (4) description of lesions in females undergoing reconstructive surgery (injured organs and types of injuries); and (5) the methods utilized to assess long-term outcomes and subsequent findings (urinary incontinence, fecal incontinence, sexual QoL, pelvic pain, and psychological effects).

2.5 | Variable definitions

Childhood sexual abuse

This refers to the involvement of a child under the age of 18 in any sexual activity that they do not fully comprehend or consent to, as well as any sexual exploitation, abuse, or harm inflicted upon them by another person[10]

Specifically, being under the age of 10 significantly influences both the likelihood and nature of injuries resulting from CSA. Young children, particularly those who are prepubescent, are more vulnerable to certain physical traumas due to their anatomical and developmental characteristics.[11] Their developing anatomy increases the risk of specific injuries, such as mucosal tears and severe wounds. Additionally, the age at which abuse occurs

can have lasting psychological and behavioral effects that persist into adulthood.[12]

Female genital cosmetic assessment

This refers to the evaluation of the physical appearance and body image following reconstructive surgery to repair lesions caused by sexual abuse.[13]

Quality of life

Quality of life is a multidimensional construct encompassing various aspects of well-being, including physical, psychological, and social functioning.[14]

3 | RESULTS

3.1 | Selection of sources

The initial literature search identified 962 articles, of which 346 were duplicates. The remaining 616 citations were screened for inclusion. After screening, 107 studies were retained for full-text review, of which 12 were included in the final analysis according to selection criteria. No additional studies were added after reviewing the bibliographic reference lists of the retained studies for analysis. Figure 1 shows a PRISMA-ScR flow diagram illustrating the search process.

3.2 | Characteristics of source evidence

Study characteristics and content on child sexual abuse

Table 2 presents details of each study's characteristics. Regarding study designs, 3 (25.0%) were case reports, 1 (8.3%) was a case series, 4 (33.3%) were retrospective cohort studies, and 4 (33.3%) were prospective cohort studies.

The studies have a geographical scope encompassing four continents: the Americas ($n=4$; USA and Uruguay), Europe ($n=2$; Hungary and Turkey), Asia ($n=1$; India), Oceania ($n=1$; Australia), and Africa ($n=3$; Nigeria, South Africa, and Democratic Republic of the Congo).

All 12 selected studies documented instances of CSA. Among them, two emphasized cases involving accidents and sexual violence.[15,16] One study detailed an unusual case of genital trauma caused by penetration from a dog's penis.[17] Notably, only one study reported CSA occurring within the context of war.[18]

Patient characteristics

Patient demographic and clinical characteristics are described in Table 2. A total of 582 patients were included, consisting of 517 (89%) females and 65 (11%) males. Among these patients, 90 (15%) underwent reconstructive surgery.

All studies documented genital trauma in girls following sexual abuse, except for four that included a mixed population of boys and girls. The age range of the populations varied from 2 months to 9 years, and all studies reported reconstructive surgery for repairs to urogenital, genital and anogenital injuries. Lesions have been reported in the external and internal genital organs (including the labia majora, labia minora, hymen, perineum, vaginal fourchette, and vaginal wall), urinary tract (urethra and bladder), anal tract (anus and rectum), and deep pelvic region (Douglas pouch) (Table 2).

One study highlighted the association of urogenital lesions with genital and anogenital injuries.[18] Only four studies reported mixed genital injuries in boys and girls.[16,19–21]

Long-term outcomes following surgery for genital injury

Seven (58.3%) of the 12 included studies concluded their long-term follow-up of survivors before they reached puberty (Table 3). A shorter assessment period after surgery, lasting only 6 months, was noted in one study.[22] The longest postoperative follow-up period extended to 10 years.[16] Several aspects of the long-term follow-up after surgery were identified as pertinent, including the cosmetic aspects of the external genitalia, psychological factors, and details regarding QoL. Only 2/12 (17%) studies specified[14,16] the validated tools and measures they utilized.

External genital appearance after surgery

The cosmetic outcomes were the primary and most evaluated aspect during the long-term follow-up after reconstructive surgery (Table 3). While all articles reported the findings upon assessment of the external genitalia, comprehensive details regarding the assessment procedure, specific organs evaluated, or the tools utilized for this assessment were not consistently provided.

Patient and surgeon satisfaction was reported in most (7/12 [58.3%]) studies. Surgeons were satisfied with the external macroscopic appearance of the vulva following reconstruction and rated the cosmetic outcome as excellent.

Postoperative complications were reported in of 17/90 (19%) patients. Of the five studies that noted cosmetic dissatisfaction, four reported notable complications such as perineal scarring (6/90 [6.6%] patients), perianal skin avulsion (1/90 [1.1%]), inadequate scarring and labial fusion (2/90 [2.2%]), hymen angularity

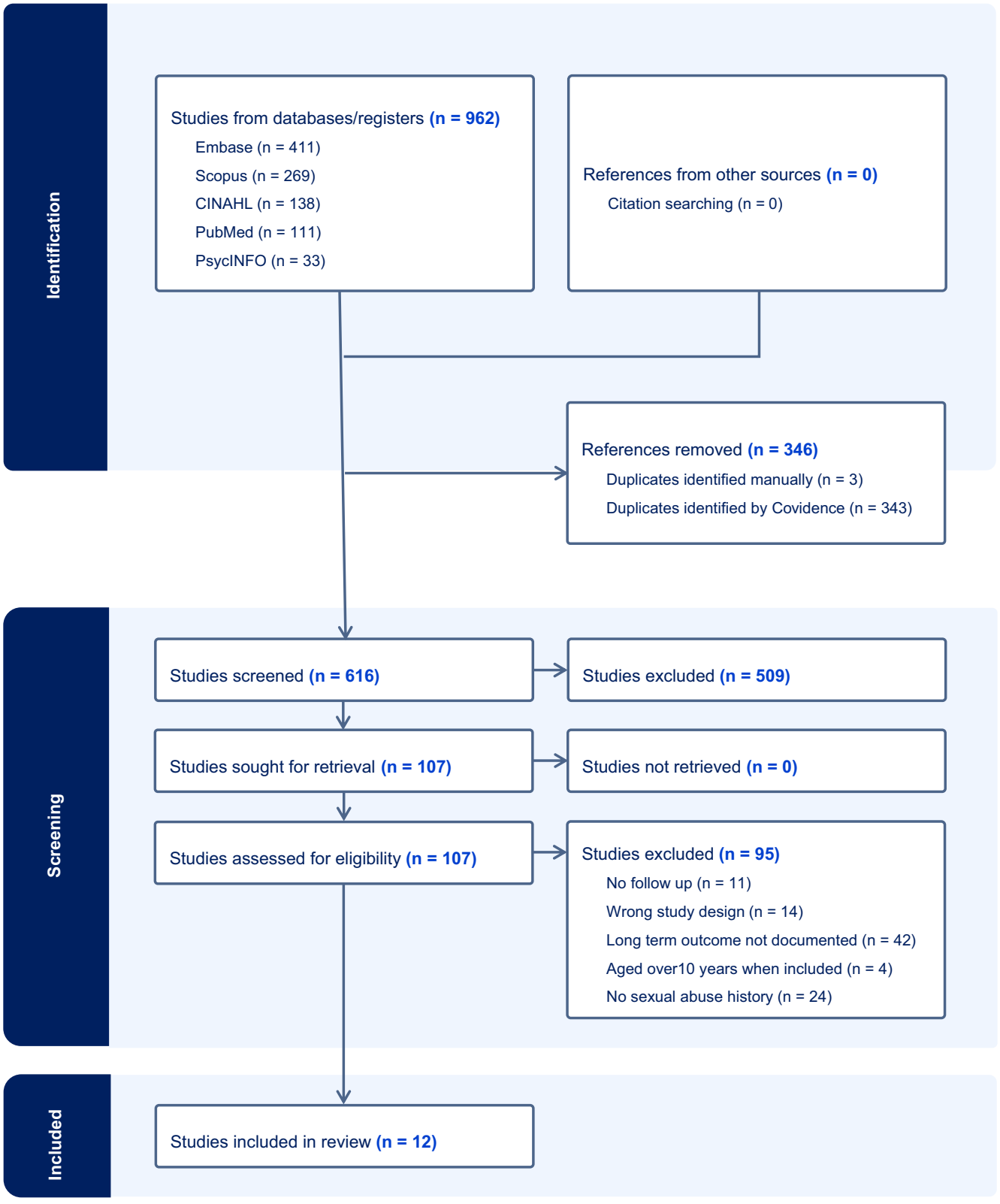

FIGURE 1 Flow diagram illustrating the selection process.

(1/90 [1.1%]),[19] deep hymenal fissures in the posterior rim (1/90 [1.1%]),[23] perineal infection (2/90 [2.2%]),[21] and postoperative issues such as hyperpigmentation and wound breakdown (1/90 [1.1%]).[22]

Two articles reported dissatisfaction with fecal continence among operated cases: one case of recto-vaginal fistula with associated incontinence (1/90 [1.1%] patients)[16] and two cases of encopresis (2/90 [2.2%] patients).[21].

TABLE 2 Characteristics of included studies.

Study ID	Country	Study design	Description of the sexual aggression: Nature of the aggression (identity of offenders)	Description of the population: Number of victims (number sexually assaulted who underwent reconstructive surgery)	Description of the population: Age when abused	Description of the population: Gender of the population	Description of lesions in females undergoing reconstructive surgery: Injured organs	Description of lesions in females undergoing reconstructive surgery: Types of injuries
McCann et al. (1993)	USA	Longitudinal study	Sexual assault or accident (unknown and known perpetrators)	3 (1)	Between 4 and 8 years	Female	Anus, perineal body	Deeper, third-degree injury
Heppenstall-Heger et al. (2003)	USA	Longitudinal study	Sexual assault (known perpetrators: fathers, stepfathers, or live-in boyfriends; neighbors and acquaintances; extended family members)	94 (6)	Mean age of females: 69.56 months Mean age of males: 61.43 months	Female and male	Anus, hymen, labia, posterior fourchette	Anal trauma
Csorba et al. (2010)	Hungary	Case report	Sexual assault (known perpetrator: father)	1 (1)	18 months	Female	Perineal body, vagina, vulva	Rupture of the perineum and the lower part of the vagina; rectum not effected
Ekenze et al. (2011)	Nigeria	Case report	Sexual assault (unknown perpetrators)	1 (1)	8 years	Female	Anus, labia, rectum, vagina	Large recto-vaginal fistula; perineal body was repaired, and the anus sphincter restored
Sham et al. (2013)	India	Prospective study	Sexual assault (perpetrators not specified)	5 (5)	Between 4 and 9 year	Female and male	Anus, labia, perineal body, vagina, others	Anogenital injuries, classified as third and fourth degree, managed surgically
Mukwege et al. (2016)	Democratic Republic of Congo	Retrospective study	Sexual assault (perpetrators not specified, but children living in a war zone)	205 (21)	Under 5 years	Female	Anus, perineal body, rectum vagina, vulva	Urogenital and anogenital injuries
Rodríguez Almada et al. (2019)	Uruguay	Case report	Sexual assault (known perpetrator: dog's penis)	1 (1)	6 years	Female	Anus	Anal injury
Brisighelli et al. (2020)	South Africa	Case series	Sexual assault (perpetrators not specified)	3 (3)	Between 2 months and 8 years	Female	Anus, perineal body, rectum, vagina	Fourth-degree perineal tear

(Continues)

TABLE 2 (Continued)

Study ID	Country	Study design	Description of the sexual aggression: Nature of the aggression (identity of offenders)	Description of the population: Number of victims (number sexually assaulted who underwent reconstructive surgery)	Description of the population: Age when abused	Description of the population: Gender of the population	Description of lesions in females undergoing reconstructive surgery: Injured organs	Description of lesions in females undergoing reconstructive surgery: Types of injuries
van As et al. (2001)	South Africa	Retrospective study	Sexual assault (unknown and known perpetrators: neighbors, family friends/acquaintances, father, cousins, uncles, brothers, mother's or sister's boyfriend, stepfathers, lodgers and babysitters) Included single assailant and more than one assailant in six cases (gang-rape, ranging from two to six assailants)	200 (27)	Mean age: 6.3 years	Female and male	Anus, hymen, perineal body, rectum	Third- and fourth-degree perineal tear
McCann et al. (1992)	USA	Longitudinal study	Sexual assault (known perpetrator: father)	4 (1)	Between 4 months and 9 years	Female	Posterior fourchette, vaginal ring	Deeper third-degree perineal tear
Wynne et al. (1980)	Australia	Retrospective study	Sexual assault (unknown perpetrators)	24 (13)	Mean age: 6 years	Female	Anus, perineal body, rectum, vagina	Muscles torn, third degree, extending into the rectum
Öztürk et al. (2003)	Turkey	Retrospective study	Sexual assault or accident (unknown and known perpetrators)	41 (10)	Mean age 7 ± 3.4 years (range 3–14 years)	Female and male	Anus, hymen, perineal body, rectum, vagina	Hymen, vagina, and intraperitoneal organ injured

TABLE 3 Description of long-term outcomes assessed following reconstructive surgery.

			Quality of life				
Study ID	**Follow-up period**	**Cosmetic note (s)**	**Fecal incontinence**	**Urinary incontinence**	**Perineal pain**	**Sexual**	**Psychological**
McCann et al. (1993)	Up to 14 months/ before puberty	Assessed with satisfaction; no more injuries were observed during anoscopy, and no sign of trauma found to the genitalia	Vague[a]	Did not report pre- or post-surgical intervention	Not assessed[b]	Not assessed	Not assessed
Heppenstall-Heger et al. (2003)	Through puberty	Good healing in most cases; some anatomic changes (labia fusions, vascular changes, scarring, hymen angularity)	Vague	Did not report pre- or post-surgical intervention	Not assessed	Not assessed	Not assessed
Csorba et al. (2010)	18 months/ before puberty	The perineum healed with scarcely detectable scar tissue; a deep fissure in the posterior rim of the hymen could be visible (between 5 and 7 o'clock)	Vague	Vague	Not assessed	Not assessed	Vague
Ekenze et al. (2011)	12 months/after puberty	Reported adequate healing	Anorectal passage achieved; patient is doing well with no complications	Did not report pre- or post-surgical intervention	Not assessed	Not assessed	Psychological evaluation was conducted by the clinical psychology unit (no further details were provided)
Sham et al. (2013)	24 months/ before puberty	Ranging from a 2- to 4-y follow-up, all of the patients' parents were satisfied with the cosmetic and functional results of the anogenital injury repair	The findings for continence are excellent (100%)	Upon follow-up, no female patients had vaginal stenosis or urinary issues	Not assessed	Not assessed	Two children exhibited depression and anxiety, but all improved with consistent child psychologist counseling over 4–6 months
Mukwege et al. (2016)	Median 10.4 months (range 2–133)/ before puberty	Over 90% of victims who underwent surgery had full perineal cosmetic recovery	Fecal incontinence examined and staged in all patients both prior to and following surgery using Kelly's classification	"Urinary incontinence was assessed by examining undergarment soiling before and after surgery, with a 1–5 satisfaction scale post-treatment"	Not assessed	Not assessed	All of the patients benefited from supportive psychotherapy (duration of psychotherapy not specified)
Rodríguez Almada et al. (2019)	8 years/after puberty	Complete healing of the anal lesion	Good healing, according to the doctor and forensic pathologist	Not assessed	Not assessed	Not assessed	The psychosocial assessment, conducted by the girl's pediatric psychiatrist and doctor, showed she performs well in school

(Continues)

TABLE 3 (Continued)

Study ID	Follow-up period	Cosmetic note (s)	Quality of life				
			Fecal incontinence	Urinary incontinence	Perineal pain	Sexual	Psychological
Brisighelli et al. (2020)	At least 12 months/ before puberty	Good cosmetic outcome	Good bowel control results	Not assessed	Not assessed	Not assessed	Psychological support (no further details were provided)
van As et al. (2001)	8 years	Reported two cases of perineal infection	Encopresis (2 cases)	Dysuria (4 cases), temporary urinary incontinence (4 cases)	Not assessed	Not assessed	Not assessed
McCann et al. (1992)	12 months	A perineal tear appeared during surgical healing	No incontinence of stool	Not assessed	Not assessed	Not assessed	Vague
Wynne et al. (1980)	6 months/before puberty	Good cosmetic outcome: wound breakdown noted	Fecal incontinence not encountered; control of liquid stool and flatus not assessed	Not assessed	Not assessed	Not assessed	Vague
Öztürk et al. (2003)	10 years	Good cosmetic outcome	One case of rectovaginal fistula post repair	Not assessed	Not assessed	Not assessed	Not assessed

[a]Vague—not clear.
[b]Not assessed—not measured.

QoL assessment

In 9/12 (75%) articles,[16–18,20–22,24–26] QoL was evaluated, with two specifically examining urinary incontinence.[18,21] All nine studies reported on the condition of fecal incontinence. However, the details of the observation and the tools used were not specified. Despite the focus on the external assessment of genitalia in all studies, none addressed other pelvic floor disorders.

Although some anatomical changes such as fibrosis and labial fusion[19] were mentioned as possible sources of pain without any details about assessment, only 1/12 studies (8%) vaguely reported this condition. In general, no study has clearly or objectively specified pelvic or perineal pain.

Psychological assessment

Psychological follow-up is mentioned in 5/12 (41.7%) of the studies.[17,18,20,24,25] However, there was no information on the type of psychological follow-up, the reason for this follow-up, and the post-follow-up progression was specified.

4 | DISCUSSION

This scoping review aimed to identify and analyze gaps in studies reporting on the long-term follow-up of victims of CSA who underwent genital reconstructive surgery to repair sexual abuse injuries. An overview and summary of the 12 studies are presented in this review.

The issue of CSA is a global problem that transcends borders.[27] This review reveals that instances of rape with extreme violence leading to trauma to the pelvi-perineal organs are pervasive in Europe, America, Africa, Asia, and Oceania. Most cases occur in peaceful contexts, with the exception of one paper[18] that discusses such incidents in the context of war in the Democratic Republic of Congo. The global occurrence of this issue reflects what is going on in the background in our societies, which can be exacerbated by war conflict.

Understanding the enduring outcomes of genital injury surgery in individuals who have experienced CSA is crucial for medical interventions and to enhance the QoL of survivors.[28] Consequently, follow-up measures are imperative.[29,30]

This review highlights the need to improve the assessment of follow-up outcomes endured by victims. The lack of standardization in follow-up protocols, in terms of both timing and assessed components, is evident in reviewed papers. The timing of follow-up varied from 6 months to 10 years, primarily during the pre-pubertal stage. While the surgery was generally deemed satisfactory in most of the studies, the assessment focused solely on the external appearance of the external genitalia, lacking specified, replicable elements for comparison. The findings suggest potential complications during follow-up.[29]

The impact of childhood sexual assault on the QoL of girls and women, particularly in the context of genital injuries and surgical interventions, is a complex and multifaceted issue. Flores et al.[4] showed that survivors of CSA are more likely to experience depression and poor QoL in later years. Additionally, sexual activity and sexuality are crucial components of women's overall well-being, and genital injuries from obstetric trauma or surgical interventions can significantly impact QoL and contribute to personal and interpersonal stress. Furthermore, studies have indicated that CSA, including genital penetration, oral, or anal assaults, can lead to lower marital satisfaction in women.[31,32] In the specific context of genital injuries and surgical interventions, it is essential to consider the potential long-term implications for survivors of childhood sexual assault. For instance, research has highlighted the importance of assessing preoperative QoL to identify candidates for surgical treatment of genital prolapse, emphasizing the need to understand the broader impact of such interventions on survivors' well-being.[33] Moreover, the experience of urinary and fecal incontinence due to urogenital or colorectal fistulas among women exposed to sexual violence can significantly affect their QoL, highlighting the need for systematic investigation and appropriate treatment in such cases.[34] It is important to note that the impact of childhood sexual assault and genital injuries on the QoL of girls and women is influenced by various factors, including mental health, gynecologic health, and health-related QoL.[35]

Quality of life, specifically related to fecal continence, was judged to be good in all the studies.[16–18,20–22,24–26] However, the evaluation tool used was mentioned in only 2/12 articles. The review reveals a gap in evaluating other components linked to the complications of childhood trauma, including physical trauma to pelvi-perineal organs and psychological trauma from sexual abuse. This gap extends to pelvic floor disorders related to urinary function, sex, and chronic pelvic pain, with psychological aspects not systematically addressed despite known complications of abuse on victims' lives. Some issues show the interest of long-term follow-up after CSA. This is particularly the case for school integration after treatment, sexuality, genital image, pelvic floor behavior during childbirth, perineal health after vaginal birth, motherhood, and the relationship with their baby.

Establishing a follow-up program after surgery for genital injuries resulting from CSA is crucial for several reasons. First, the physical and psychological implications of these operations on survivors need thorough assessment to effectively address potential complications or side effects.[36] Second, assessing the psychological well-being of survivors post-surgery and providing the necessary interventions or support systems for their recovery is essential.[28] Finally, long-term follow-up can detect recurrence or additional complications that may arise after the initial operation.[37] In addition, comprehensive policy measures must be implemented to safeguard children and guarantee the fulfillment of their health rights.

To the best of the authors' knowledge, this scoping review is the first to investigate studies with long-term follow-up processes for patients who underwent surgical intervention for genital injuries arising from CSA. The aim was to identify factors that contribute to the enhancement of QoL for these patients. Notwithstanding its contributions, this review has several limitations. First, the quality of the evidence was not appraised in-depth, as our report prioritized outcomes as assessed by medical teams or lay individuals, such as parents. Second, the study did not engage in comparative analysis of varied management techniques due to inconsistent descriptions of the observed injuries. Finally, there may be limitations due to the exclusion of publications in languages other than English and French.

Future research should focus on assessing the enduring physical and psychological effects of surgery on genital injuries from CSA. These studies could offer insights into the impact of the severity of injuries on the future of these children and the effectiveness of various surgical techniques, identifying potential long-term complications or adverse effects. Additionally, research efforts should concentrate on developing and implementing trauma-informed, personalized care for individuals who have experienced CSA and undergone surgical intervention for genital injuries. Considering their unique experiences and needs, healthcare professionals have to provide appropriate care addressing both physical and emotional well-being in a multidisciplinary setting.

Furthermore, it is crucial to compare the long-term outcomes of patients undergoing surgery for genital injuries due to CSA with those who do not.[30] This comparison can elucidate the long-term implications of such surgery and provide evidence-based recommendations for treatment options. Developing a structured follow-up evaluation plan will make a significant contribution to advancing research on CSA.

5 | CONCLUSION

In conclusion, this scoping review highlighted the lack of long-term follow-up regarding chronograms when evaluating children who have undergone surgery for genital injuries sustained from sexual assault. In addition, the only aspect that was consistently assessed in the studies was the appearance of the external genitalia. However, optional assessments were conducted for the QoL components of pain, urinary and fecal continence, psychological state, and sex. Furthermore, the assessment tools used in these studies were not standardized.

Therefore, a standardized follow-up plan (including a chronogram, assessment program, documented procedure, and outcome assessment tools) is crucial to prevent long-term complications, detect them, and plan appropriate management to enhance the QoL of patients who are undergoing the physiological changes of adulthood after having been sexually abused in childhood. Implementing this holistic approach to programming and evaluation will improve the weaknesses identified in monitoring.

AUTHOR CONTRIBUTIONS

The review was conceptualized by RM, DM, FG, AB, and SV. RM, MM, ZR, JB and SV conducted searches, screenings, and extractions.

RM, SV, DM, FG, AB, and MM evaluated and discussed the findings. RM, FG, AB, MM, DM, and SV all contributed to and approved the final version of the manuscript.

FUNDING INFORMATION

We are grateful to the Académie de Recherche et d'Enseignement Supérieur (ARES-Belgium), which provided funding through the PRD-program (COOP-CONV-20-009) for the purpose of article collection and analysis.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest.

DATA AVAILABILITY STATEMENT

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

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How to cite this article: Maroyi R, Vandenput S, Goffin F, et al. Long-term cosmetic and quality of life outcomes after surgery for genital, anogenital, or urogenital injuries resulting from childhood sexual abuse: A scoping review. *Int J Gynecol Obstet*. 2025;00:1-13. doi:10.1002/ijgo.70332