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REVIEW

Quality of life in andrology: A scoping review of original human studies

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Summary *Background: Andrological and male urologic conditions can reshape daily life in ways that are not captured by laboratory, anatomical or technical endpoints. Fertility plans, sexual confidence, body image, continence, intimate relationships and the burden of treatment may all matter as much as symptom relief.*

Objective: To map original human studies reporting quality of life (QoL) or closely related patient-reported outcomes across eight clinical topics: male infertility, erectile dysfunction, ejaculatory dysfunction, Peyronie disease, hypogonadism, varicocele, penile cancer and ejaculation-sparing surgery for benign prostatic obstruction (BPO).

Methods: PubMed/MEDLINE, Scopus and Embase were searched from inception to 11 September 2026 for the original six andrology topics. A targeted PubMed and backward-citation update through 18 October 2026 added penile cancer and ejaculation-sparing BPO surgery. Eligible reports were randomized studies, observational cohorts, registries, cross-sectional or case-control studies, qualitative studies and instrument-development work in adult men. For penile cancer, QoL had to be analyzed directly, including explicit QoL-focused multidomain assessments or life satisfaction; sexual, urinary, aesthetic or reconstructive outcomes alone were deemed insufficient. In the BPO domain, surgery had to be explicitly ejaculation-sparing and QoL had to be measured directly. Reviews, meta-analyses, guidelines, editorials, case reports and non-human studies were excluded from the evidence map. Two reviewers independently screened and charted eligible reports.

Results: Sixty-five original reports were included: seven instrument-development or validation studies and 58 condition-focused reports. Infertility and sexual dysfunction affected distress, confidence, intimacy and couple dynamics; Peyronie disease added a prominent burden from body image and deformity; and testosterone trials showed more consistent effects on sexual activity than on global vitality. Varicocele remained poorly studied from the patient's perspective. Twenty penile-cancer reports directly analyzed global QoL, QoL-focused domains or life satisfaction; they showed a multidimensional burden but provided little comparative or longitudinal evidence. Five studies of explicitly ejaculation-sparing BPO surgery measured QoL directly; urinary bother generally improved, whereas preservation of ejaculation varied by technique and study design.

Conclusions: QoL should be treated as a core outcome, not inferred from technical success. A practical framework pairs a brief generic measure with a validated condition-specific instrument and targeted questions that reflect the intervention. Prospective studies should prespecify patient-reported endpoints, use clinically meaningful time points and report improvement, stability and deterioration separately.

KEY WORDS: *Andrology; Quality of life; Patient-reported outcomes; Male infertility; Sexual dysfunction; Peyronie disease; Hypogonadism; Varicocele; Penile cancer; Benign prostatic obstruction; Ejaculation-sparing surgery.*

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INTRODUCTION

Many conditions encountered in andrology are not immediately life-threatening, yet they reach into some of the most private parts of a man's life. They can change plans for fatherhood, sexual identity, confidence, intimate relationships and willingness to accept treatment.

The World Health Organization describes *quality of life* (QoL) as a person's perception of his position in life within his cultural and value context (1). That definition is

especially useful here because a semen analysis, erection score, penile measurement or hormone concentration cannot by itself tell us how a patient is living with the condition. Guidance on male infertility therefore supports a comprehensive urological assessment and counselling that extends beyond semen parameters (2), while guidance on male sexual dysfunction places informed, individualized decisions above a narrower definition of success based only on function (3).

The same tension is present in other aspects of male sexual and urologic care. In Peyronie disease, treatment decisions depend on the man's priorities, the effect of deformity on intercourse and the distress attached to it (4). In hypogonadism, symptoms, expected benefit, adverse effects, treatment burden and personal preference must be considered alongside testosterone values (5). Surgery for lower urinary tract symptoms attributed to benign prostatic hyperplasia can produce substantial relief, but its value to an individual patient also depends on recovery, continence, ejaculation and durability (6). Penile cancer makes the trade-off even more visible: oncological control is paramount, but organ preservation, urinary function, body image, sexuality and psychological adjustment remain central to survivorship (7).

The burden begins well before an operation or prescription. Male reproductive disorders arise within a broad etiological setting; evidence linking environmental and occupational pesticide exposure with impaired reproductive outcomes (8), including findings for pyrethroids and organophosphates (9), illustrates the uncertainty that patients may need to absorb. Men living with infertility describe secrecy, stigma, threatened masculinity and a need for counselling directed to them rather than only to the couple (10). In sexual medicine, consensus definitions likewise separate a symptom from the distress and interpersonal consequences it causes (11).

Patient-reported outcome measures (PROMs) are therefore not decorative additions. They need to be chosen when a study is designed, with the construct, instrument, schedule and analytical role specified in advance (12).

Despite this clinical importance, the original evidence is scattered across papers dealing with reproductive medicine, sexual medicine, oncology, endocrinology and functional urology. Different specialties often use the same term – QoL – for different constructs, while clinically important concerns may be hidden inside sexual-function, symptom-bother or mental-health scales. We therefore conducted a scoping review restricted to original human studies. Our aims were to map what has been measured across eight clinical topics, identify where technical success and patient-experienced benefit diverge, and propose a practical approach to QoL assessment that can be used in research and routine care.

Methods

Review design and reporting framework

The review was designed and reported in accordance with the *PRISMA extension for Scoping Reviews* (PRISMA-ScR) (13) and current JBI methodological guidance (14). A scoping design was chosen because the purpose was to map a heterogeneous literature, clarify how patient experience had been measured and identify evidence gaps, rather than to estimate a single pooled treatment effect. Eligibility and charting were structured using the Population-Concept-Context framework.

Information sources and search strategy

The core search covered PubMed/MEDLINE, Scopus and Embase from database inception to 11 September 2026. It combined controlled vocabulary and free-text terms for male infertility, erectile dysfunction, ejaculatory disorders, Peyronie disease, hypogonadism and varicocele with terms for QoL, health-related QoL, patient-reported outcomes, psychosocial burden, psychological distress, well-being and sexual satisfaction. Database syntax was adapted to each platform. Reference lists of eligible full texts were searched manually.

After the scope was broadened, a targeted PubMed search and backward-citation search were performed through 18 October 2026 for penile cancer and ejaculation-sparing surgery for BPO. The same original-study eligibility rules were used.

The PubMed strategy combined *Medical Subject Headings* (MeSH) and free-text terms using Boolean operators: (((((("male infertility"[Title] OR "male factor infertility"[Title] OR "male subfertility"[Title] OR "infertile men"[Title] OR "men with infertility"[Title] OR azoosperm*[Title] OR oligozoosperm*[Title] OR "erectile dysfunction"[Title] OR "premature ejaculation"[Title] OR "delayed ejaculation"[Title] OR anejaculation[Title] OR "retrograde ejaculation"[Title] OR "ejaculatory dysfunction"[Title] OR "ejaculatory disorder"[Title] OR "ejaculatory disorders"[Title] OR Peyronie*[Title] OR "male hypogonadism"[Title] OR "late-onset hypogonadism"[Title] OR "testosterone deficiency"[Title] OR varicocele[Title]) AND ("quality of life"[Title] OR HRQoL[Title] OR "sexual quality of life"[Title] OR psychosocial[Title] OR "psychological distress"[Title] OR wellbeing[Title] OR "well-being"[Title] OR "life satisfaction"[Title] OR "sexual satisfaction"[Title])) OR (("male infertility"[Title] OR "infertile men"[Title] OR "men with infertility"[Title] OR azoosperm*[Title] OR Peyronie*[Title]) AND (depression[Title] OR anxiety[Title]))) OR ((FertiQoL[Title/ Abstract] OR "International Index of Erectile Function"[Title] OR "Male Sexual Health Questionnaire"[Title] OR "Peyronie Disease Questionnaire"[Title] OR "Premature Ejaculation Diagnostic Tool"[Title] OR "Sexual Quality of Life-Male"[Title]) AND (valid*[Title] OR develop*[Title] OR psychometric*[Title] OR scale[Title] OR assessment[Title]))).

Eligibility criteria

The population comprised adult men with one of the selected conditions and male partners in couple-based studies when results for men could be separated. The concept was QoL or another outcome reported directly by the patient that reflected lived experience, including well-being, psychological distress, satisfaction, bother, body image, relationship impact, sexual function, urinary impact, treatment burden or decisional regret. Eligibility was intentionally narrower for the two surgically focused additions. In penile cancer, a report had to analyze QoL

Table 1.
Eligibility framework.

Element	Included	Excluded
Population	Adult men with a selected andrological condition; men with penile cancer or undergoing explicitly ejaculation-sparing BPO surgery; male partners in couple studies	Paediatric populations; female-only samples
Concept	QoL and related patient-reported outcomes in the original six topics. Penile cancer: direct QoL assessment, including explicitly QoL-focused domains or life satisfaction. Ejaculation-sparing BPO surgery: an explicit QoL endpoint.	Laboratory, anatomical or clinician-rated outcomes alone. In the two added topics, sexual, urinary or technical outcomes without direct QoL assessment; BPO satisfaction or regret alone.
Context	Male infertility; erectile dysfunction; ejaculatory disorders; Peyronie disease; hypogonadism; varicocele; penile cancer; ejaculation-sparing surgery for BPO	Other domains without a separable eligible outcome; broad BPO surgery without an explicit ejaculation-sparing strategy
Evidence type	Original randomized, cohort, registry, cross-sectional, case-control, qualitative and validation studies	Reviews, meta-analyses, guidelines, opinions, case reports and non-human studies

directly, using a global or health-related QoL instrument, an explicitly QoL-focused multidomain assessment or a life-satisfaction measure; sexual function, urinary function, genital appearance, reconstruction or technical outcome alone was deemed insufficient. In the BPO domain, the intervention had to be described as ejaculation-sparing or ejaculation-preserving, and the report had to analyze an explicit QoL measure such as IPSS-QoL, a Life Quality Index or another named QoL instrument. Ejaculation rate, semen volume, IPSS, erectile function or a narrative assertion of better QoL without direct QoL measurement was also considered insufficient.

The context covered the eight prespecified topics and their medical, minimally invasive, radiotherapeutic or surgical management.

Eligible designs were randomized controlled trials and prospective or retrospective observational studies, including registries, cross-sectional and case-control studies, qualitative research, and studies developing or validating a relevant instrument. We excluded systematic and narrative reviews, meta-analyses, guidelines, consensus papers without separable original data, conference abstracts, letters, case reports, editorials, non-English reports, non-human studies and reports confined to laboratory, anatomical, technical, clinician-rated or purely functional outcomes. Secondary syntheses were used only for citation chasing and to frame the discussion; they were never counted among the included results.

Screening, selection and data charting

Two reviewers independently screened records in *Covidence Systematic Review Management* (*Veritas Health Innovation, Melbourne, Australia*). Duplicates were removed before title and abstract screening. Potentially eligible articles underwent full-text assessment, and disagreements were resolved by discussion with a third reviewer. Records found through the targeted update or citation searching were assessed against the same criteria. Two reviewers independently charted the clinical topic, design, population, treatment where relevant, PROM or patient-reported construct, assessment time points and principal finding. Disagreements were resolved by consensus. Because the studies differed substantially in design, population, intervention, instrument and timing, findings were organized descriptively by clinical topic. Formal risk-of-bias scores were not used to determine eligibility, although design limitations were considered when interpreting the evidence.

Results

Study selection

The core database search yielded 1,121 records. After 284 duplicates were removed, 837 titles and abstracts were screened and 758 were excluded. Seventy-nine full texts were assessed; 39 were excluded and 40 original reports met the criteria for the initial six topics (15-54). The targeted PubMed and citation update added five eligible original studies of ejaculation-sparing BPO surgery (55-59) and 20 reports in penile cancer that directly analyzed global QoL, QoL-focused domains or life satisfaction (60-79). The final evidence maps therefore contained 65 original human reports. Penile-cancer studies limited to sexual, urinary, aesthetic, reconstructive or other functional outcomes, broad BPO surgical studies, reports without direct QoL measurement, reviews and meta-analyses were excluded from this count.

Study characteristics

Seven reports developed or evaluated patient-reported instruments (15-20, 68). The remaining 58 reports were condition focused: 11 addressed male infertility (21-31), 11 erectile or ejaculatory dysfunction (32-42), five Peyronie disease (43-47), five hypogonadism (48-52), two varicocele (53, 54), five ejaculation-sparing BPO surgery (55-59), and 19 penile cancer (60-67, 69-79). Designs ranged from small cross-sectional series and prospective cohorts to multicentre randomized trials and a nationwide administrative cohort. Tables 2-8 summarize the design and measurement profile of each topic and provide the corresponding references.

Across the evidence, function was often used as a shorthand for QoL. Erectile scores, penile curvature, testosterone levels, urinary flow or semen variables may be associated with well-being, but they do not directly measure emotional recovery, effects on the couple, body image or the acceptability of treatment.

The measurement studies in Table 2 show both the value and the limits of the available PROMs: most are sensitive within one clinical topic, while few provide a complete account of the patient's broader life.

Table 2.
Original studies developing or validating core patient-reported instruments.

Domain	Study	Design/population	Measure	Contribution
Erectile dysfunction	Rosen et al. (16)	Multinational psychometric validation	IIEF	Captures erectile, orgasmic, desire, intercourse-satisfaction and overall-satisfaction domains; responsive to treatment.
Infertility	Boivin et al. (15)	International development and validation	FertiQoL	Provides fertility-specific emotional, mind-body, relational, social, environmental and treatment-module scores.
Male sexual health	Rosen et al. (17)	Development and validation	MSHQ	Extends assessment beyond erection to ejaculation, satisfaction and related bother.
Ejaculatory dysfunction	Abraham et al. (18)	Psychometric validation	SQOL-M	Measures effects of premature or delayed ejaculation on confidence, relationships and sexual QoL.
Premature ejaculation	Symonds et al. (19)	Development and validation	PEDT	Operationalizes control, frequency, minimal stimulation, distress and interpersonal difficulty.
Peyronie disease	Hellstrom et al. (20)	Multicentre psychometric validation	PDQ	Validates symptom, penile-pain and bother domains specific to Peyronie disease.
Penile cancer	Draeger et al. (68)	Cross-sectional measurement and clinical survey; 76 men after local treatment	EORTC QLQ-C30 plus HRO-PE29	Adds penile-cancer-specific functional and symptom scales; independent validation of HRO-PE29 remains necessary. Also charted in Table 8; counted once.

FertiQoL: Fertility Quality of Life; IIEF: International Index of Erectile Function; MSHQ: Male Sexual Health Questionnaire; PDQ: Peyronie's Disease Questionnaire; PEDT: Premature Ejaculation Diagnostic Tool; SQOL-M: Sexual Quality of Life–Male.

Male infertility

The infertility studies consistently located QoL within the couple's experience and the course of treatment rather than within the semen analysis alone.

In 1,000 Italian couples, health-status patterns differed between men and women and according to the need for assisted reproduction (22). Among men, psychological distress independently predicted poorer QoL (21), while resilience appeared protective (23). Partners did not necessarily experience the same intensity or type of burden (24), and a study on a male-specific measure brought identity and disclosure concerns into view (25). In longitudinal studies, QoL worsened across successive phases of assisted reproduction and after previous treatment failure (26). A male-factor diagnosis, limited partner support and longer infertility duration were also associated with poorer QoL (27).

The burden also changed over time. In a cohort of 816

Table 3.
Original patient-reported studies in male infertility.

Study	Design/population	QoL/PROM focus	Main finding	Interpretive value
Ragni et al. [22]	Cross-sectional; 1,000 Italian infertile couples	Generic HRQoL; treatment need	Men generally reported better HRQoL than women, but treatment intensity and couple context influenced burden.	Large couple sample; cross-sectional.
Chachamovich et al. [21]	Cross-sectional; 162 men	Distress and fertility-related QoL	Depressive and anxiety symptoms were stronger QoL correlates than many biomedical variables.	Supports mental-health screening.
Herrmann et al. [23]	Cross-sectional couples study	Resilience, distress and QoL	Resilience behaved as a protective factor against infertility-specific distress and impaired QoL.	Identifies a modifiable coping domain.
Huppelschoten et al. [24]	Cross-sectional couples study	FertiQoL and emotional status	Partner-level assessment exposed different and sometimes discordant support needs.	Supports dyadic measurement.
Schanz et al. [25]	Instrument-development cohort	Male infertility-specific QoL	Male-specific identity and disclosure concerns were missed by generic health scales.	Broadens construct coverage.
Agostini et al. [26]	Longitudinal assisted-reproduction cohort; 85 couples	SF-36 across treatment phases	QoL declined across treatment; previous failures had an adverse effect irrespective of sex.	Supports repeated dyadic assessment.
Asazawa et al. [27]	Cross-sectional Japanese cohort	QoL and clinical/social predictors	Male-factor diagnosis, limited partner support and longer infertility duration predicted poorer QoL.	Highlights social context.
Schmidt et al. [28]	Prospective cohort; persistent treatment without delivery	Communication, coping and fertility stress	Difficult partner communication predicted high stress; active-confronting coping was protective in men.	Identifies relational intervention targets.
Peterson et al. [29]	Cross-sectional IVF couple cohort	Coping with infertility stress	Men and women used different coping patterns despite sharing the same treatment context.	Supports sex-specific and dyadic analysis.
Fisher et al. [30]	Five-year follow-up of men diagnosed as infertile	Health, well-being and life satisfaction	Global adjustment was often preserved, but infertility remained relevant to well-being and parenthood attitudes.	Adds a long-term perspective.
Yildirim Kopuk et al. [31]	Cross-sectional pre-biopsy study; 134 cases, 164 controls	Anxiety, depression, self-esteem and IIEF5	Azoospermia was associated with worse psychological and sexual scores before invasive assessment.	Shows burden at diagnosis.

HRQoL: health-related quality of life; PROM: patient-reported outcome measure.

participants without a delivery after 12 months of treatment, difficult couple communication predicted greater marital-domain fertility stress in men, whereas active-confronting coping was protective (28). Men and women referred for in vitro fertilization used different coping strategies (29). Five years after diagnosis, some men continued to report effects on well-being and attitudes toward parenthood even when overall life satisfaction was largely preserved (30). Before testicular biopsy, men with azoospermia had more anxiety and depression, lower self-esteem and poorer erectile function than fertile controls (31). Together, these findings support assessment at diagnosis, after unsuccessful treatment, before invasive testing and during longer follow-up, with each partner's experience recorded separately.

Erectile and ejaculatory dysfunction

Erectile dysfunction was associated with depressive symptoms (33), and a placebo-controlled sildenafil trial in men with depressive features found improvement in both sexual function and mood when erectile treatment succeeded (34). In premature ejaculation, perceived control, distress, satisfaction and interpersonal difficulty were at least as important to many patients as latency. Patient-partner observations (35), multinational survey findings (36) and qualitative interviews (37) repeatedly described loss of confidence, avoidance and impaired intimacy, while only a minority of men sought professional help.

A randomized, placebo-controlled, single-blind study measured the IIEF, MSHQ-EjD and SQOL-M together and reported improvement across erectile function, ejaculation and sexual QoL (38). Its short follow-up and lack of independent replication limit certainty, but the design usefully showed that one intervention can affect several parts of sexual health. Larger population studies linked erectile dysfunction with age, vascular disease, comorbidity and psychosocial factors (32, 39), while beliefs about masculinity were associated with poorer QoL (40). Trials of sildenafil and dapoxetine further showed why successful intercourse, satisfaction, perceived control and interpersonal distress should be considered alongside physiological endpoints (41, 42).

Peyronie disease

The impact of Peyronie disease extended well beyond curvature. Men described altered body image, loss of confidence, reduced sexual initiation and strain within relationships (43), and depression or distress could persist over time (44). In two phase 3 randomized trials, collagenase improved both curvature and disease-specific bother (45), illustrating the value of measuring anatomical and patient-reported outcomes together. A nationwide Swedish cohort found a higher burden of mental disorders (46), although administrative data cannot establish directionality. In a clinical cohort of 408 men, 27% screened positive for depression; partnership, self-esteem and stronger relationship scores were protective (47). A complete assessment therefore needs to cover deformity, pain, erectile function, bother, body image and mental health.

Table 4.
Original patient-reported studies in erectile and ejaculatory dysfunction.

Study	Design/population	QoL/PROM focus	Main finding	Interpretive value
Shabsigh et al. [33]	Cross-sectional clinic study	Depressive symptoms and ED	Depressive symptoms were more frequent in men with ED.	Connects function with mental health.
Seidman et al. [34]	Randomized placebo-controlled trial	Erectile function and depressive symptoms	Successful ED treatment improved sexual function and depressive symptoms in men with depressive features.	Experimental evidence; selected sample.
Patrick et al. [35]	Observational patient-partner study	Control, distress, satisfaction and relationship	Low control and personal/interpersonal distress were central for both partners.	Strong dyadic relevance.
Porst et al. [36]	Multinational population survey	Distress and help-seeking	Negative personal and relational effects coexisted with limited professional help-seeking.	Large real-world sample.
Revicki et al. [37]	Multi-country qualitative study	Patient and partner burden	Frustration, avoidance, reduced intimacy and partner effects extended beyond latency.	Rich construct elicitation.
Sansalone et al. [38]	Randomized single-blind trial; n = 177	IIEF, MSHQ-EjD, SQOL-M	Active treatment improved erectile, ejaculatory and sexual-QoL scores versus placebo.	Direct multidomain QoL evidence; needs replication.
Feldman et al. [32]	Population-based ageing cohort	ED and psychosocial correlates	Erectile dysfunction clustered with age, vascular morbidity and psychosocial factors.	Foundational epidemiological context.
Rosen et al. [39]	Multinational survey; 27,839 men	ED prevalence, comorbidity and help-seeking	Self-reported ED was common, associated with comorbidity and often untreated.	Large cross-cultural sample.
Sand et al. [40]	Multinational ED subgroup analysis	Masculinity and QoL	Threats to masculine identity were associated with worse disease-specific QoL.	Clarifies identity-mediated burden.
Goldstein et al. [41]	Multicentre placebo-controlled trials	Erection, intercourse success and satisfaction	Sildenafil improved functional and satisfaction outcomes across ED severities.	Landmark treatment evidence.
Buvat et al. [42]	Randomized phase 3 trial in 22 countries	Latency, control, distress and relationship impact	Dapoxetine improved both timing and patient-reported consequences of premature ejaculation.	Links efficacy to experienced benefit.

ED: erectile dysfunction; MSHQ-EjD: Male Sexual Health Questionnaire-Ejaculatory Dysfunction; PROM: patient-reported outcome measure.

Table 5.
Original patient-reported studies in Peyronie disease.

Domain	Study	Design/population	QoL/PROM focus	Main finding
Peyronie disease	Rosen et al. [43]	Qualitative patient-control study	Sexual and psychosocial functioning	Men described shame, altered self-image, relationship strain and sexual avoidance beyond deformity.
Peyronie disease	Nelson et al. [44]	Cross-sectional chronology study	Depression and distress	Clinically important distress could persist rather than simply resolve with time.
Peyronie disease	Gelbard et al. [45]	Two phase 3 randomized trials	Curvature plus PDQ bother	Collagenase improved curvature and patient-reported bother, pairing anatomical and experiential endpoints.
Peyronie disease	Kuja-Halkola et al. [46]	Nationwide Swedish cohort; 3.5 million men	Diagnosed mental disorders	Peyronie disease was associated with increased mental-disorder burden at population scale.
Peyronie disease	Punjani et al. [47]	Clinical cohort; 408 men	Depressive symptoms, self-esteem and relationships	Depression was common; partnership and stronger self-esteem/relationship scores were protective.

PDQ: Peyronie's Disease Questionnaire; PROM: patient-reported outcome measure.

Hypogonadism

Population data suggested that sexual symptoms were more informative for identifying late-onset hypogonadism than nonspecific fatigue or low mood (49). Treatment effects also differed by outcome. Testosterone replacement improved selected measures of sexual function in TIMES2 (50), and the Testosterone Trials reported clearer gains in sexual activity and desire than in the prespecified global vitality outcome (48, 51). A longer-term testosterone-gel study reported sustained benefits in sexual function and mood (52). These findings caution against treating biochemical normalization as equivalent to improved QoL; sexual function, vitality, mood and physical function should be measured and reported separately.

Varicocele

Only two eligible varicocele studies reported patient-experienced outcomes. A prospective cohort found better sexual-function scores after microsurgical repair (53), while embolization was associated with pain relief and patient satisfaction (54). Neither design permits a firm comparison with alternatives, and fertility-specific QoL was seldom assessed alongside pain, recovery and satisfaction. Varicocele therefore remains one of the clearest gaps in this evidence map.

Ejaculation-sparing surgery for benign prostatic obstruction

Five original studies evaluated QoL after a procedure explicitly designed to preserve antegrade ejaculation (55-59). The techniques included selective diode-laser vaporization, ejaculation-preserving TURP or bladder-neck resection, laser enucleation with preservation of periverumontanal or urethral structures, and ejaculation-preservation HoLEP. All analyzed a named QoL outcome – most often the IPSS QoL item or a Life Quality Index – rather than inferring QoL from urinary flow or ejaculation alone. Urinary symptoms and urinary QoL generally improved from baseline, while preservation of antegrade ejaculation ranged across techniques and populations (55-59).

The evidence remained small and methodologically uneven. Only one study used random allocation, cohorts

Table 6.
Original patient-reported studies in hypogonadism and varicocele.

Domain	Study	Design/population	QoL/PROM focus	Main finding
Hypogonadism	Wu et al. [49]	Population-based EMAS analysis	Symptoms plus testosterone	A restricted cluster of sexual symptoms best identified late-onset hypogonadism.
Hypogonadism	Jones et al. [50]	Randomized TIMES2 trial	Sexual function and health status	Selected sexual-function endpoints improved; global well-being effects were less uniform.
Hypogonadism	Snyder et al. [48]	Coordinated randomized trials	Sexual function, vitality, physical function	Sexual activity and desire improved modestly; vitality did not show the same clear benefit.
Hypogonadism	Cunningham et al. [51]	Randomized trial analysis	Sexual activity, desire and erection	Treatment increased sexual activity, desire and erectile-function scores.
Hypogonadism	Wang et al. [52]	Long-term treatment extension	Sexual function and mood	Sustained testosterone gel exposure maintained improvements in sexual function and mood.
Varicocele	Najari et al. [53]	Prospective surgical cohort	Sexual function	Sexual-function scores improved after microsurgical repair; nonrandomized design limits causality.
Varicocele	Sheehan et al. [54]	Patient-reported embolization cohort	Pain relief and satisfaction	Most men reported pain improvement and favourable satisfaction, with variable recovery.

EMAS: European Male Ageing Study; PROM: patient-reported outcome measure; TIMES2: Testosterone Replacement in Hypogonadal Men with Type 2 Diabetes and/or Metabolic Syndrome.

Table 7.
Original QoL studies of ejaculation-sparing surgery for benign prostatic obstruction.

Study	Design/population	QoL/PROM focus and timing	Main finding	Interpretive value
Leonardi (2009) [55]	Pilot consecutive cohort; 52 men. Selective side-firing 980-nm diode-laser vaporization.	IPSS QoL item; baseline and planned 1, 3, 6 and 12 months. Mean follow-up 100 days; 22 men assessed at 12 months.	Mean urinary QoL score fell from 3.5 at baseline to 1.3 at 3 months and 1.2 at 12 months.	Direct urinary-condition QoL, not ejaculation-related QoL. Uncontrolled pilot with limited late follow-up.
Alloussi et al. (2014) [56]	Prospective consecutive cohort; 89 men. Ejaculation-preserving TURP and bladder-neck resection.	Life Quality Index; baseline, 3 months and at least 60 months. Follow-up: 87 men at 3 months; 63 at 60 months.	Life Quality Index improved by a mean 2.9 points at 3 months; improvement persisted at long-term follow-up. Antegrade ejaculation was reported in 79/87 men at 3 months.	Useful long-term urinary QoL data. No randomized comparator; attrition limits interpretation of durability.
Migliari et al. (2023) [57]	Single-arm series; 100 men. Low-energy Thu:YAG enucleation preserving the urethral plate.	QoL score with IPSS; MSHQ-EjD-SF for ejaculatory outcomes. Baseline and 6 months.	Median QoL score improved from 4 to 1 and IPSS from 20 to 5. Antegrade ejaculation was preserved in 92/100 men.	Pairs urinary QoL with an ejaculation-specific PROM. Six-month, non-comparative evidence does not establish superiority.
Eliwa et al. (2025) [58]	Single-centre randomized trial; 43 men randomized, 40 analyzed. Ejaculation-preserving versus standard HoLEP; prostate volume 40-80 g.	IPSS-QoL, MSHQ-EjD-SF, IIEF-5 and ICIQ-UI-SF; baseline and 1, 3 and 6 months.	Urinary QoL improved in both groups. Ejaculation-specific scores favoured preservation at 3 and 6 months; erectile scores did not differ between groups.	Direct comparative evidence separates urinary QoL from ejaculation and continence. Small sample and short follow-up preclude a global QoL superiority claim.
Giacobbe et al. (2026) [59]	Prospective single-arm series; 50 men with high-volume BPH. Low-energy pulsed Thu:YAG enucleation preserving the ventral urethral plate and ejaculatory hoods.	QoL score with IPSS; MSHQ-EjD-SF. Baseline and 6 months.	Mean QoL score improved from 4.2 to 1.2 and IPSS from 20.42 to 5.76. Antegrade ejaculation was preserved in 70%.	Extends assessment to larger prostates. Uncontrolled six-month data cannot rank techniques or establish long-term benefit.

BPH: benign prostatic hyperplasia; BPO: benign prostatic obstruction; HoLEP: holmium laser enucleation of the prostate; ICIQ-UI-SF: International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form; IIEF-5: five-item International Index of Erectile Function; IPSS: International Prostate Symptom Score; MSHQ-EjD-SF: Male Sexual Health Questionnaire-Ejaculatory Dysfunction Short Form; PROM: patient-reported outcome measure; QoL: quality of life; TURP: transurethral resection of the prostate.

were generally modest, and definitions of successful ejaculation differed. The randomized EP-HoLEP study measured IPSS-QoL together with MSHQ-EjD-SF, IIEF-5 and continence, showing why urinary QoL and preservation of ejaculation should be reported as separate outcomes (58). Long-term data were available in an ejaculation-preserving TURP cohort (56), but most laser series had shorter follow-up (55, 57, 59). Studies that reported only ejaculation rate, semen volume, urinary symptoms or a qualitative claim of better QoL were not included. Accompanying study-level Table 7 details the population, QoL instrument, timing and limitations of each report.

Penile cancer

Nineteen condition-focused reports and one measurement study directly analyzed global QoL, QoL-focused domains or life satisfaction in men with penile cancer (60-79). Most were small cross-sectional cohorts; only a few were longitudinal or comparative. The studies used a wide range of instruments, including the Bigelow-Young questionnaire, SF-36, EQ-5D-3L, 15D, the EORTC QLQ-C30, the Impact of Cancer questionnaire and study-specific QoL or life-satisfaction measures (60-67, 69-79). One report developed the HRO-PE29 penile-cancer functional and symptom scales alongside the EORTC QLQ-C30 (68). This diversity captured relevant concerns but made direct comparison difficult. Accompanying study-level Table 8 distinguishes global QoL instruments from explicitly QoL-focused domain assessments and provides report-level characteristics.

Across the included studies, more extensive local treatment was often associated with worse scores in one or more QoL domains, while organ-preserving approaches generally appeared compatible with better function or self-perception in selected men (63-74, 76, 79). These associations should not be interpreted as causal: disease stage, age, baseline function and treatment selection differed substantially, and pre-treatment PROMs were rarely available. Evidence from brachytherapy and reconstructive or organ-sparing cohorts suggested that acceptable global QoL can coexist with urinary, sexual or body-image difficulties (67, 70, 72-74). The available evidence therefore supports measuring global QoL and its urinary, sexual, body-image and psychological components together, beginning before treatment and continuing into survivorship.

Cross-domain synthesis

Several themes recurred across all eight topics. Distress could arise from the condition and then amplify how symptoms were experienced. Partners and relationships were central but inconsistently measured. A technically successful intervention did not always restore identity, confidence or everyday function. Treatment burden also changed over time: early recovery, later adaptation, recurrence or retreatment were not interchangeable moments. Finally, statistically significant score changes were difficult to interpret when studies omitted baseline severity, absolute follow-up scores, responder thresholds or assessment points that matched the patient's clinical course.

Table 8.
Original QoL studies in penile cancer.

Study	Design/population	QoL/PROM focus and timing	Main finding	Interpretive value
Opjordsmoen and Fosså (1994) [60]	Follow-up survey; 30 men: 5 local excision/laser, 12 radiotherapy, 9 partial and 4 total penectomy.	EORTC QLQ-C30, psychological scales and interviews; median 80 months after treatment.	Sexual function was worse after penectomy, whereas other QoL domains did not clearly differ by treatment. Mental symptoms remained common.	Long-term multidimensional assessment; small heterogeneous groups and no prospective baseline. Adaptation and treatment selection may influence scores.
D'Ancona et al. (1997) [61]	Post-treatment study; 14 men after partial penectomy; median age 50.5 years.	Explicit three-domain QoL assessment: social adjustment, sexuality and emotional state. OSFQ, Social Problem Questionnaire, GHQ and HADS; median 11.5 months.	Most men retained social and relationship functioning; 9/14 reported normal or slightly reduced sexual function. Significant anxiety or depression was not detected.	QoL-focused domain assessment, not a global QoL scale. Very small series without a prospectively measured baseline.
Skeppner et al. (2008) [62]	Retrospective survivor study; 46/58 eligible men interviewed after laser treatment for localized penile carcinoma.	LiSat-11 life-satisfaction assessment with structured interviews on sexual activity and treatment seeking; post-treatment interview.	Satisfaction with life as a whole was broadly comparable with population data, despite reductions in some sexual activities.	Explicit life satisfaction rather than function alone. Survivor selection and retrospective reporting limit causal conclusions.
Gulino et al. (2013) [63]	Retrospective series; 42 men with Ta–T2 disease after glansectomy/glanduloplasty using urethral mucosa, with or without limited apical resection.	Bigelow-Young QoL questionnaire and IIEF-15. QoL assessed 2 weeks before surgery and at 6 months; pre-illness sexual function recalled retrospectively.	Sexual pleasure and family, social and work-related QoL domains improved; 73% reported rigid erections and 60% coital activity.	Captures broader recovery after organ-preserving reconstruction. Non-randomized design, recalled sexual baseline and six-month follow-up limit inference.
Kieffer et al. (2014) [64]	Cross-sectional survey; 90/147 respondents after penile-sparing surgery or penectomy, with or without lymphadenectomy.	SF-36, Impact of Cancer version 2, IIEF-15 and urinary questions; postoperative survey.	Most generic QoL domains were similar across local treatments. Penectomy was associated with worse orgasm, appearance concerns, life interference and urination.	Shows that generic QoL can mask specific burdens. No pretreatment baseline; non-response and treatment selection may bias comparisons.
Sosnowski et al. (2016) [65]	Cross-sectional survey; 10/11 men after total penectomy and perineal urethrostomy.	EORTC QLQ-C30, self-esteem and masculinity measures, and modified IIEF-15; postoperative mailed survey.	Overall QoL was lower than reference values and sexual inactivity was frequent, although many partnerships remained stable.	Direct global and functional QoL assessment after radical treatment. Ten respondents and no pretreatment assessment limit generalizability.
Sosnowski et al. (2017) [66]	Observational postoperative study; 51 men: 13 local treatment, 27 partial and 11 total penectomy.	EORTC QLQ-C30 and partner-related questions; postoperative assessment.	More aggressive surgery was associated with poorer global health and physical functioning; partnership status was not associated with QoL.	Direct QoL comparison across treatment extent. Stage, selection and baseline differences prevent attribution to surgery alone.
Gambachidze et al. (2018) [67]	Long-term survey; 23/39 respondents after low-dose-rate or pulsed-dose-rate brachytherapy for localized glans carcinoma.	EQ-5D-3L/EQ-VAS plus urinary, sexual and cosmetic questions; at least 3 years after treatment, median 5.9 years.	Median self-rated health was 80/100 and 70% were sexually active. Urinary symptoms and pain could persist despite favourable overall health ratings.	Long-term direct health-status data after brachytherapy. Survivor and response selection, with no baseline or control group.
Draeger et al. (2018) [68]	Cross-sectional measurement and clinical survey; 76 men after local treatment.	EORTC QLQ-C30 with newly developed HRO-PE29 scales. Survey conducted December 2015–March 2018; individual postoperative intervals varied.	Mean global QoL was approximately 54/100. The adjunct addressed voiding, sexuality, body image, lymphoedema and future prospects.	HRO-PE29 was not independently validated. Also listed in the measurement table; this report is counted once in the evidence map.
Suarez-Ibarrola et al. (2018) [69]	Cross-sectional survey; 10/15 respondents after partial or total penectomy, with or without inguinal lymphadenectomy.	SF-36 and IIEF-5; postoperative questionnaire survey.	Generic QoL did not differ significantly by treatment extent in this small sample. Erectile impairment after partial penectomy remained substantial.	Direct generic HRQoL alongside sexual function. Low power, non-response and absent baseline make non-significant differences inconclusive.
Wan et al. (2018) [70]	Comparative observational study; 15 men with early cancer: 8 wide local excision and 7 partial penectomy.	EORTC QLQ-C30, IIEF-15, SEAR and EDITS, with urodynamic assessment; postoperative comparison.	QoL and most functional outcomes did not differ significantly. Orgasmic function favoured wide local excision.	Direct QoL plus sexual and relationship outcomes. Very small, non-randomized groups; absence of significance is not equivalence.
Sosnowski et al. (2019) [71]	Cross-sectional observational study; 40 men: 13 penile-sparing procedures and 27 partial penectomies; response rate 71%.	Explicit selected QoL domains: IIEF, Self-Esteem Scale, CMNI and partner questions; postoperative assessment. No global QoL instrument.	Less disfiguring treatment was associated with higher masculinity scores; erectile dysfunction and self-esteem did not differ clearly. Most relationships were stable.	QoL-focused domain evidence, not an estimate of global QoL change. No baseline and possible treatment-selection effects.
Pérez et al. (2020) [72]	Multicentre series; 57 men after glans resurfacing, partial glansectomy or glansectomy; 32 completed HRQoL assessment.	EQ-5D-3L/EQ-VAS, ICIQ-MLUTS and IIEF-5. Median clinical follow-up 55.7 months; postoperative QoL survey.	Self-rated health was 82.5/100; median ICIQ-MLUTS was 4 and IIEF-5 was 19 among assessed survivors.	Direct health-status data after reconstructive organ preservation. Selected respondents, no baseline and no radical-treatment comparator.
Harju et al. (2021) [73]	Two-centre cross-sectional survey; 107 invited, 68 responded and 63 completed 15D after surgery in 2009–2019.	15D HRQoL, Rosenberg Self-Esteem Scale, OSFQ and Erection Hardness Score; variable postoperative intervals.	Mean HRQoL was lower than in an age-standardized Finnish population; poorer sexual function was associated with lower HRQoL.	Provides population-referenced HRQoL with sexual and self-esteem domains. Cross-sectional associations do not demonstrate treatment-related change.
Croghan et al. (2021) [74]	Post-treatment survey; 35/49 respondents after partial or radical glansectomy with reconstruction.	EORTC QLQ-C30 global QoL item, modified genital-image scale, IIEF-5 and urinary/sensory questions; mean 22 months, range 4–51.	Mean past-week QoL was 5.88/7; most men were satisfied or neutral about appearance, and 55.9% were sexually active.	Pairs a direct global QoL item with appearance and function. Single expert centre, no baseline and possible non-response bias.
Branney et al. (2022) [75]	Feasibility survey; 20 completed questionnaires after sentinel-node biopsy, inguinal lymphadenectomy or nodal treatment with radiotherapy, with or without chemotherapy.	EORTC QLQ-C30, MGSIS-5, G3L-20, IIEF and modified LGUCQ; mailed post-treatment assessment.	The study assessed feasibility of multidomain PROMs, including genital body image and lymphoedema screening, rather than a comparative QoL treatment effect.	Supports broader survivorship measurement. Small sample limits psychometric and between-treatment conclusions.

Study	Design/population	QoL/PROM focus and timing	Main finding	Interpretive value
Jakobsen et al. (2022) [76]	DaPeCa-10 cross-sectional groups; 157 questionnaires: 51 at diagnosis, 69 at 1 year and 37 at 2 years. Not a longitudinal panel.	Face-validated study-specific questionnaire covering QoL, voiding and sexual function; separate time-defined groups.	Overall QoL was often rated favourably, while pad use, nocturia and reduced orgasm frequency were reported after treatment.	Includes a diagnosis-time group but does not measure within-person change. Low response rates and separate groups limit temporal inference.
Warli et al. (2024) [77]	Retrospective comparison; 20 men with bulky nodal disease: 5 early inguinal lymph-node dissection and 15 neoadjuvant chemotherapy.	EORTC QLQ-C30; one assessment at least 6 months after completion of treatment.	Global health and functional QoL domains did not differ significantly between treatment groups.	Direct QoL evidence in node-positive disease. Very small, unequal groups and confounding by indication; non-significance does not establish equivalence.
Firmansyah et al. (2023) [78]	Single-centre descriptive cross-sectional study; 9 treated men assessed in 2020–2021.	EORTC QLQ-C30; post-treatment survey.	All nine participants were classified as having poor QoL using the authors' scoring approach.	Direct multidomain QoL in a small clinical series. The reported classification is study-specific; no baseline or comparator supports wider inference.
Jovanović et al. (2023) [79]	Cross-sectional study; 31 men assessed after surgery in 2022–2023.	EORTC QLQ-C30, IIEF-15, HADS, Rosenberg Self-Esteem Scale, fatigue and fear-of-recurrence measures; postoperative assessment.	Mean global QoL was 67.2 ± 22.5/100. QoL was associated with psychological, fatigue, sexual and self-esteem variables.	Illustrates multidimensional survivorship needs. Small cross-sectional sample and multiple predictors limit causal and predictive interpretation.

CMNI: Conformity to Masculine Norms Inventory; EDITS: Erectile Dysfunction Inventory of Treatment Satisfaction; EORTC QLQ-C30: European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire Core 30; EQ-VAS: EuroQol visual analogue scale; GHQ: General Health Questionnaire; HADS: Hospital Anxiety and Depression Scale; HRQoL: health-related QoL; ICIQ-MLUTS: International Consultation on Incontinence Questionnaire–Male Lower Urinary Tract Symptoms; IIEF: International Index of Erectile Function; LiSat-11: Life Satisfaction Checklist; MGSIS-5: five-item Male Genital Self-Image Scale; OSFQ: Overall Sexual Functioning Questionnaire; SEAR: Self-Esteem and Relationship questionnaire; SF-36: 36-item Short Form Health Survey. G3L-20 and modified LGUCQ denote lymphoedema and genitourinary assessments used in the feasibility report (75).

Table 9.
Proposed pragmatic QoL architecture across the clinical topics

Clinical domain	Generic anchor	Condition-specific core	Targeted add-on	Suggested timing
Male infertility	WHOQOL-BREF or EQ-5D	FertiQoL	PHQ-9/GAD-7; partner dyad	Diagnosis; before/after treatment cycle; 6-12 months
Erectile dysfunction	EQ-5D or PROMIS Global	IIEF	SQOL-M; PHQ-9; relationship measure	Baseline; titration; 3 and 12 months
Premature ejaculation	PROMIS Global	PEDT or MSHQ-EjD	SQOL-M; partner impact	Baseline; 1-3 and 6-12 months
Peyronie disease	EQ-5D or SF-12	PDQ	IIEF; body image; PHQ-9	Baseline; end of treatment; 6–12 months
Hypogonadism	SF-12 or PROMIS Global	Validated symptom inventory	IIEF; vitality; mood; physical function	Baseline; 3, 6 and 12 months
Varicocele	EQ-5D or PROMIS Global	Pain NRS plus fertility context	IIEF; FertiQoL; satisfaction	Baseline; 3, 6 and 12 months
Ejaculation-sparing BPO surgery	EQ-5D or PROMIS Global	IPSS-QoL with MSHQ-EjD-SF	Continence; sexual priorities; satisfaction/regret	Preoperatively; 6 weeks–3 months; 12 months and longer
Penile cancer	EQ-5D, SF-36 or 15D	EORTC QLQ-C30	Urinary/sexual function; body image; distress; lymphoedema	Before treatment; 3-6 months; annually and after recurrence or further treatment

GAD-7: Generalized Anxiety Disorder-7; NRS: numeric rating scale; PHQ-9: Patient Health Questionnaire-9. Instrument selection should follow licensing requirements, validated language versions and the stated construc.

Discussion

Principal findings

This review of original human studies shows that QoL is clinically important across andrology and male urologic surgery, but the evidence is uneven. The more robust studies chose a validated instrument, declared the outcome in advance and followed patients through meaningful stages of care. Weaker studies were cross-sectional, treated function as an unlabeled proxy for QoL, collected postoperative scores without a baseline or ignored the partner and treatment pathway.

The resulting evidence supports a modular measurement strategy rather than one questionnaire applied indiscriminately to every condition.

The central finding is straightforward: biomedical improvement and recovery as experienced by the patient overlap, but they are not the same. Better semen variables, rigidity, latency, curvature, testosterone, urinary flow or oncological clearance may be necessary goals, yet none shows whether confidence, intimacy, body image, fertility-related worries or acceptance of treatment have improved. The reverse can also occur, with substantial distress despite apparently modest physiological abnormality. QoL must therefore be measured directly and interpreted alongside – not beneath – the conventional clinical endpoint.

Interpreting the established andrology topics

Male infertility is often a sequence of uncertain and emotionally charged events rather than a stable diagnosis. Distress, resilience, support, treatment failure and couple communication all shaped later burden (21, 23, 24, 26, 28). Men and women did not necessarily cope in the same way (29), so a couple-level assessment should not erase the experience of either partner.

In erectile and ejaculatory disorders, satisfaction, perceived control and interpersonal distress added information that latency or erection scores could not provide (35-42). In Peyronie disease, the most informative trials paired anatomical change with disease-specific bother (45); future studies should add baseline body image, pain, erectile function and treatment expectations.

Hypogonadism better illustrates why results should remain domain specific. Sexual activity and desire improved more consistently than global vitality (48, 50, 51). These benefits also need to be placed beside safety and other outcomes: excess adverse events were reported in frail older men in one trial (80), cognition did not improve in men with age-related memory impairment (81), cardiovascular non-inferiority was shown in appropriately selected men (82), and correction of anaemia is a separate documented benefit (83). No single improvement proves a global QoL gain.

In varicocele, evidence that repair may raise testosterone in selected men (84) is biologically relevant but still does not reveal whether energy, sexuality or overall well-being changed. Future studies should stratify the reason for intervention – pain, infertility, endocrine concern or a combination – and measure the outcome that follows from that reason.

Penile cancer: survival, preservation and identity

Penile cancer makes the distinction between technical and patient-experienced success unusually stark. Cancer control and accurate nodal management remain non-negotiable, but the extent of local treatment may alter standing urination, sexual activity, appearance, self-esteem and willingness to resume intimacy. The QoL literature suggests a possible advantage for organ-preserving approaches in well-selected men, yet most studies are small, non-randomized and vulnerable to selection by stage, anatomy and baseline function (60-79). Better postoperative scores therefore cannot be attributed to the operation alone. Comparative studies need pre-treatment PROMs, stage and treatment detail, recurrence data and follow-up long enough to capture adaptation as well as early recovery.

Several original reports that focused only on qualitative experience, sexual function, reconstruction, aesthetics or urinary function were deliberately not counted as QoL evidence (85-91). They remain useful context because they identify concerns that a global score can miss, but they cannot substitute for direct QoL measurement. Recent secondary syntheses reinforce two implications: variation in nodal management creates a need for standardization (92), and shaft-preserving surgery must be judged by oncological and functional outcomes together (93). These context-only articles and reviews were not included in the 65-report evidence map. Counselling should begin before treatment and state plainly what is known, what is uncertain and which aspects of urinary, sexual and body-image function may change.

Ejaculation-sparing surgery for benign prostatic obstruction

The BPO question addressed here is deliberately narrow: how patients experience surgery whose stated purpose includes preservation of ejaculation. This distinction matters because an ejaculation-sparing technique can relieve obstruction yet fail to preserve ejaculation, or preserve ejaculation without demonstrating a broader QoL advantage. The five eligible studies suggest that urinary QoL usually improves after these procedures, but the evidence is not sufficient to rank techniques. QoL was commonly represented by the single IPSS QoL item; only some studies combined it with an ejaculation-specific PROM, and comparative long-term evidence was limited (55-59).

Two related reports were retained only as contextual literature: a 2019 technical description (94) reproduces QoL data from a 2009 cohort (55), rather than providing an additional original QoL cohort, and the 2025 diode-enucleation series (95) reports satisfaction and regret without a direct QoL endpoint. A recent systematic review of randomized trials specifically examined ejaculation-sparing endoscopic surgery (96), while broader reviews considered multidimensional QoL after BPO surgery (97) and persistent storage symptoms (98). They were used only to frame the Discussion and were not counted among the included studies. The strict eligibility rule applied here excluded standard TURP, standard HoLEP, Aquablation, prostatic urethral lift, water-vapour therapy, temporary implants and embolization unless a report explicitly evaluated an ejaculation-sparing surgical strategy and directly measured QoL. This prevents a general BPO literature from being misrepresented as evidence about QoL after ejaculation-sparing surgery.

A pragmatic outcome architecture

A core outcome approach must be brief enough for routine care and flexible enough for trials. Generic instruments such as EQ-5D and SF-36 support comparisons across diseases and can detect health problems that a sexual or urinary questionnaire may miss (99, 100). PROMIS item banks offer flexible domain selection and computer-adaptive testing (101). Generic tools are less sensitive, however, to fertility-specific distress, altered genital body image or ejaculation. They should therefore be paired with one validated condition-specific measure, not used as a replacement for it.

Evidence from penile lengthening surgery, outside the prespecified scope of this review, provides a further example of the relevance of targeted patient-reported assessment. In a series of 245 patients undergoing suspensory ligament release with placement of a pubo-cavernous spacer, *Rossi et al.* assessed sexual self-esteem and satisfaction using the APPSSI questionnaire and reported sustained satisfaction during follow-up extending to 48 months (102). These findings illustrate the value of assessing patients' perceptions alongside anatomical outcomes, although they do not establish an improvement in global health-related QoL.

Table 9 summarizes a practical instrument set and aligns measurement with the clinical pathway. Each instrument should answer a defined question. Several overlapping questionnaires increase burden and multiplicity without guaranteeing insight.

Interpretation also needs to move beyond statistical significance. A minimally important difference is the smallest change patients perceive as beneficial enough to matter for management (103). Trials should report baseline and follow-up values, confidence intervals, responder proportions and deterioration. When no accepted threshold exists, an anchor-based estimate linked to a patient global rating should be planned before analysis.

Implications for research and practice

QoL should be defined at protocol stage as a primary, sec-

ondary or exploratory outcome. If a patient-reported endpoint is central to the treatment claim, it should inform sample size.
Reports should describe missing data, the timing and mode of administration, meaningful-change thresholds and the proportions who improve, remain stable or deteriorate.
Qualitative work remains important when available scales do not capture masculinity, disclosure, decisional conflict, adaptation or the couple's experience.
Original international surveys show that practice varies in sperm DNA fragmentation testing and management (104, 105), varicocele care (106), regenerative treatment for erectile dysfunction (107), the organization of andrology services (108) and the evaluation or treatment of non-obstructive azoospermia (109, 110).
These clinician surveys were not patient-level QoL evidence, but they reveal pathways in which uncertainty, repeated testing and invasive treatment may differ widely. Likewise, large safety surveillance can answer a different question from a QoL trial, as illustrated by the observational dapoxetine study (111). A common PROM schedule would make it possible to compare not only what clinicians do, but how patients fare across settings.
In routine care, a brief baseline screen can identify men who need a fuller assessment. The conversation should start with the patient's priorities and return to them at follow-up. Electronic questionnaires with automatic scoring may reduce burden, while optional partner measures are particularly helpful in infertility, premature ejaculation, Peyronie disease and survivorship after penile cancer. The proposed schedule in Table 9 is deliberately pragmatic: it is a starting framework to be adapted to treatment and risk, not a substitute for clinical judgement.

Strengths and limitations

The principal strength of this review is its focus on original human evidence and its explicit separation of patient-level findings from reviews, guidelines, clinician surveys and safety-only reports. The expansion to penile cancer and ejaculation-sparing BPO surgery also reveals recurring outcomes – identity, sexuality, urinary function and recovery – that are easy to miss when conditions are reviewed in isolation. Study characteristics and source references are presented by topic, and Peyronie disease and infertility are kept separate because their constructs and measurement needs differ.
The review also has limitations. The core search covered three databases, whereas the later scope expansion used a targeted PubMed and citation search; eligible reports in the two added topics may therefore have been missed. The focused strategy favoured specificity and a manageable screening set but may have overlooked papers in which QoL appeared only as a secondary endpoint. No formal risk-of-bias assessment was performed.
Heterogeneity in design, selection, instruments and follow-up prevented quantitative pooling, and some included outcomes in the original six-topic map – sexual function, distress, bother or regret – are related to QoL without being global QoL measures. For penile cancer and ejaculation-sparing BPO surgery, we applied the stricter rule that QoL had to be analyzed directly. The evidence map should guide measurement and future comparative research, not be read as a ranking of treatment efficacy.

Take-home messages

- Only original human studies contribute to the evidence map; reviews and clinician surveys are used solely to contextualize the Discussion.
- Clinical success and patient benefit are related but not interchangeable. QoL must be measured directly rather than inferred from laboratory, anatomical, oncological or functional outcomes.
- Use a short generic PROM plus one validated condition-specific instrument, adding focused measures only when they answer a prespecified question.
- For BPO, include only explicitly ejaculation-sparing surgery and measure QoL directly; ejaculation rate, urinary flow or technical success alone is not sufficient.
- For penile cancer, count a study as QoL evidence only when global QoL, explicitly QoL-focused domains or life satisfaction is measured directly; sexual, urinary, aesthetic or reconstructive outcomes alone are not enough.
- Collect baseline and longitudinal PROMs at clinically meaningful moments, report meaningful improvement and deterioration separately, and involve partners when their perspective is relevant.

Conclusions

Quality of life is not an optional supplement to clinical success in andrology, penile cancer or ejaculation-sparing surgery for BPO; it is one of the outcomes by which success should be judged. The evidence shows why laboratory normalization, symptom relief, cancer control or technical preservation cannot be assumed to restore well-being. A credible assessment combines a brief generic measure, one validated condition-specific PROM and a small number of targeted domains chosen for the condition and intervention. Assessment begins before treat-

Declarations

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ment, follows the patient's clinical pathway and records deterioration as carefully as improvement. For penile cancer, survival must be considered alongside directly measured global QoL and urinary, sexual, body-image and psychological recovery. For ejaculation-sparing BPO surgery, urinary QoL and ejaculatory preservation must both be measured rather than allowing one to stand in for the other.

The present evidence is too small and heterogeneous to identify a superior technique in either surgical domain. Future multicentre comparative studies in penile cancer should collect baseline and longitudinal QoL with validated generic and cancer-specific measures; BPO studies should add validated ejaculation-specific PROMs, explicit preservation definitions and long-term follow-up. This would turn QoL from a descriptive afterthought into a practical tool for shared decisions, treatment evaluation and survivorship care.

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