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The impact of Inflammatory Bowel Disease on sexual health in men: A scoping review

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The impact of inflammatory bowel disease on sexual health in men: A scoping review

What does this paper contribute to the wider global clinical community?

- Male sexual health in inflammatory bowel disease can be interpreted by identifying mediators, moderators and descriptors.
- Depression, disease activity and surgery are the most commonly cited inflammatory bowel disease related factors to affect sexual health in men.
- Further exploration of male sexuality, sexual well-being and masculinity is required to inform holistic nursing assessment and care of men with inflammatory bowel disease.

ABSTRACT

Aims and objectives: To review the literature on the impact of inflammatory bowel disease on the sexual health of men, and make recommendations for nursing practice and research.

Background: Inflammatory bowel disease is a chronic condition of the gastrointestinal tract, causing symptoms that may impact upon sexual health. Specialist nurses are well positioned to assess and manage sexual health, but there is a lack of clinical guidance, especially in relation to men.

Design: A systematic scoping review following the Arksey and O'Malley (2005) framework reported in line with the PRISMA-ScR checklist (Tricco et al. 2018).

Methods: OVID MEDLINE ALL [R], OVID EMBASE [R], OVID PsychINFO, EBSCO CINAHL Complete, The Cochrane Library and ProQuest were searched. Inclusion and exclusion criteria were applied independently by two reviewers. Data was extracted, charted and summarised from eligible studies.

Results: Thirty-one studies met the inclusion criteria. These were synthesised under three categories: mediators, moderators, and descriptors of sexual health. Depression, disease activity and surgery were the most commonly cited disease-related factors to affect sexual health in men. The most commonly used assessment tool was The International Index of Erectile Function. Descriptors of function included; frequency of intercourse, libido and the ability to maintain a desired sexual role.

Conclusions: The effect of inflammatory bowel disease on sexual health in men involves a complex interaction of physical and psychosocial factors. Researchers must explore areas outside of erectile function to understand how the disease impacts sexuality, sexual well-being and masculinity. This can be achieved through qualitative exploration of patient, partner and health professional experiences.

Relevance to clinical practice: A holistic nursing assessment of men with inflammatory bowel disease should include sexual health. Developing understanding of how the disease influences sexual interaction and expression will facilitate support that is relevant, accessible and of value to men living with the disease.

KEYWORDS

body image and sexuality, erectile dysfunction, men's health, literature review, sexual health, ulcerative colitis scoping review

1. INTRODUCTION

Inflammatory Bowel Disease (IBD) is a chronic, relapsing and remitting condition of the gastrointestinal tract. Prevalence ranges from 0.21% to 0.44% in Western Europe and North America (Büsch et al., 2014). Peak onset of the disease is between the ages of 15 to 30 years (Sturm & White, 2019). IBD is associated with distressing and embarrassing physical symptoms such as faecal urgency, incontinence, bloody diarrhoea, abdominal pain, fatigue and malnutrition. Extra-intestinal presentations can affect the joints, liver, skin and eyes. The disease can cause a psychological burden from attempting to live a normal life while living in fear of symptoms (Kemp et al., 2012).

Sexual health is an important adjunct of personal health and well-being. The World Health Organisation (World Health Organization, 2006) defines sexual health as not 'merely the absence of disease, dysfunction or infirmity...[but also] the possibility of having pleasurable

and safe experiences'. Sexual engagement and enjoyment may be disrupted by the symptoms and chronicity of IBD, particularly as peak onset is during early adulthood when people are developing their sexual and personal identities (Casati et al., 2000).

Both men and women have an increased risk of sexual dysfunction in IBD (Zhao et al., 2019). Previous literature reviews have identified that disease activity, medications, surgery and poor perception of body image all lead to a negative impact upon sexual health (Giese & Terrell, 1996; Jedel et al., 2015; Mantzouranis et al., 2015). Variations in anatomy, biology and psychology mean men and women are likely to experience sexual health in IBD differently. To date, the literature on sexual health in IBD has predominantly focused on women (Bharadwaj et al., 2014; Bonthala & Kane, 2018; Johnson & McLeod, 2006; Moleski & Choudhary, 2011; Moody et al., 1992; Rosenblatt & Kane, 2015; Sanders et al., 2016; Timmer et al., 2007b; Trachter et al., 2002) and men's sexual health needs have been largely overlooked (Allocca et al., 2018).

Men are also reported to have poorer health seeking behaviours than their female counterparts, particularly for psychological matters (Möller-Leimkühler, 2002). This is pertinent in the context of IBD, as depression could be at least twice as high than that of the general population (Graff et al., 2009). Depression can lead to low interest, self-esteem, irritability and poor communication all of which can impair intimate relationships (Basson et al., 2010). We know from previous work that men with long-term conditions may benefit from models of service delivery that are tailored to their specific needs and preferences (Galdas et al., 2014).

Prior literature reviews have begun to map the literature on sexual health in men with IBD (Allocca et al., 2018; Feagins & Kane, 2009; O'Toole et al., 2014; Shin & Okada, 2016) but have either taken a reproductive or medical focus to sexual health. There is limited literature on sexual health that explores well-being and sexuality that is applicable to nursing practice. The European Crohns and Colitis Organisation recommend that nurses support patients in regards to sexual function (Kemp et al., 2018) but there is no consensus or best-practice guidance on how nurses can detect, assess and provide care for sexual health and well-being in men with IBD (White, 2013). To address this gap, we conducted a scoping review of the literature on the sexual health of men with IBD, with the aim of informing nursing practice and identifying future research priorities in his area.

2. AIMS

To systematically identify and summarise peer reviewed, published literature reporting the impact of IBD on the sexual health of men.

3. METHODS

We undertook a scoping review following the five-stage framework described by Arksey and O'Malley (2005). We have reported our findings in line with the PRISMA extension for scoping reviews (PRISMA-ScR) (Tricco et al. 2018), the checklist can be found in supplementary file 1.

3.1 Identifying the research questions

This review was guided by the research question; what is known about the impact of IBD on sexual health in men? We defined 'men' as people identifying as male, aged 18 years or over. We were guided by the WHO (2006) definition of sexual health: 'a state of physical, emotional, mental and social well-being in relation to sexuality' (WHO, 2006). We sought to identify physical, psychological and societal factors associated with IBD that may influence male sexual well-being and clarify how effects are described, interpreted and defined. We did not explore fertility issues or sexually transmitted diseases. To ensure an exploratory approach, we considered personal experiences as well as measured effects.

3.2 Identifying relevant studies

Search terms were purposely broad and related to the key concepts in the research question: 'inflammatory bowel disease' and 'sexual health'. We chose not to employ sex/gender search terms to ensure we identified mixed-sex studies of potential relevance to the review (i.e. those which reported outcomes/findings disaggregated by sex/gender – see Table 1). The search strategy was reviewed by an information scientist and amended to suit MeSH headings and exploded terms across the databases searched: OVID MEDLINE ALL [R], OVID EMBASE [R], OVID PsychINFO, EBSCO CINAHL Complete, The Cochrane library and ProQuest. Reference lists of included and pertinent studies were reviewed to aid verification of the search strategy. No date restrictions were applied but searches were limited to publication in

the English language. The searches were conducted between the 6th - 8th February 2019 (see supplementary file 2).

3.3 Study selection

The database searches yielded 1679 titles (OVID EMBASE [R] n=1118, OVID MEDLINE ALL [R] n=374, EBSCO CINAHL Complete n=98, the Cochrane Library n=56, OVID PsychINFO n=17, ProQuest n=16). A further 21 articles not detected by the database search were identified through review of reference lists. After duplicates were removed there were a total of 1373 unique citations. A two-stage screening process was used to assess the eligibility of studies. Firstly, two reviewers (SM, PG) independently screened titles and abstracts against predefined inclusion and exclusion criteria (Table 1). Two hundred and thirty-six papers were identified as potentially relevant. Secondly, the full text of these records were reviewed using a similar process, which resulted in 31 identified as eligible for inclusion in the review (Figure 1). Disagreements regarding the eligibility of studies were resolved through discussion to reach consensus on a final decision. The search results were disproportionately female focused with only eight of the included studies containing male-only cohorts. One relevant RCT was found (Lindsey et al., 2002) but was excluded as it did not disaggregate the findings of men with IBD and those with other gastrointestinal disorders.

3.4 Charting the data

Data including study aim, population, sample size, measurement of sexual dysfunction and key findings were extracted and charted in Microsoft Excel spreadsheets.

Descriptors of sexual dysfunction, IBD-related impact factors and potential interventions were also extracted and used to graphically illustrate the themes identified in the included studies (Figure 2). Charted findings were thematically analysed and are summarised narratively in our results.

4. RESULTS

Thirty-one studies were included in the review and involved a total of 35,990 men with IBD (Table 2). The studies originated from 16 countries; USA (7), UK (4), Denmark (3), Germany (2), The Netherlands (2), Sweden (2), Spain (2), Australia (1), Austria (1), Canada (1), Finland (1), France (1), Italy (1), Japan (1), Taiwan (1) and Turkey (1). Studies were largely

single centre (n=20) and cross-sectional (n=26). The most commonly used research method was surveys (n=22). Two studies used pre-existing patient databases to analyse relationships between the disease and sexual dysfunction. Two qualitative studies presenting patient narratives were identified. These were the only nurse-led studies in the review.

There were 15 surgical studies, of which 10 recruited exclusively Ulcerative Colitis (UC) participants. Of the 16 non-surgical studies, 15 recruited participants with both UC and Crohn's disease. Eleven non-surgical studies used control groups, eight of which demonstrated a link between IBD and sexual dysfunction. One study included the partners of participants with IBD.

We were unable to determine the prevalence of sexual dysfunction in men as there was not a homogenous measure of sexual health and function across the papers reviewed. Erectile dysfunction was the most commonly used measure across the studies. There was a reported erectile dysfunction incidence rate of 2.23 per 10,000 person years (Kao et al. 2016).

Thematic analysis of the charted findings led to the identification of three categories;

- (i) Mediators of sexual health in men with IBD
- (ii) Moderators of sexual health in men with IBD
- (iii) Descriptors of sexual health men with IBD

Themes related to these categories are illustrated in Figure 2, which reflects the relative weight of evidence across the included studies.

4.1 Mediators of sexual health in men with IBD

We defined mediators as IBD-related factors that were reported as leading to, or associated with an impairment in men's sexual health and well-being. Five themes were identified:

4.1.1 Disease onset or presentation

The literature on the impact of disease onset on sexual function in men is sparse. Three studies were identified that analysed a statistical relationship between duration of disease and sexual function (Muller et al., 2010; Timmer et al., 2007a; Timmer et al., 2007b; Yoshida et al., 2014). No statistically significant association between age of onset and sexual function was found, but a disease duration of ≥ 3 years was reported to have an adverse effect on libido (Muller et al. 2010), while an onset age ≥ 30 years was associated with poor sexual activity

(Yoshida 2014). Conversely, Timmer et al. (2007b) found that longer disease durations were inversely associated to sexual function scores and inferred that coping strategies improved over the course of having the disease. No studies were identified that explored whether experiences varied with age of disease onset, or if there is an impact on puberty and sexual development.

The two main presentations of IBD – Crohn’s Disease (CD) and Ulcerative Colitis (UC) – were studied collectively in 19 of the 32 included papers. Men with either CD or UC were reported to have higher mean scores for erectile dysfunction than controls in one study, but this only reached statistical significance in CD ($p=0.04$) (Bulut and Tourner, 2018). It is possible the study was underpowered or that erectile dysfunction is not sensitive enough to demonstrate an impact on sexual health in UC. Alternatively, CD may have a greater effect on sexual health as it is transmural and more commonly associated with extra-intestinal manifestations.

Perianal disease in CD can cause abscesses and fistulas that result in pain, discharge and bleeding. However, perianal disease was not associated with, or an independent risk factor for, erectile dysfunction (Marin et al., 2013; Riviere et al., 2017). No studies were identified that explored whether perianal disease impacts upon other aspects of sexual health, such as enjoyment.

4.1.2 Disease activity

Active disease and symptoms are a key determinant of impaired sexual health and function in men with IBD. Tiredness, diarrhoea, fear of incontinence and abdominal pain were all reported to reduce frequency of sexual intercourse (Moody & Mayberry, 1993). Eight studies used a validated assessment tool to assess disease activity (Bel et al., 2015; Bulut & Toruner, 2018; Eluri et al., 2018; O’Toole et al., 2018; Riviere et al., 2017; Timmer et al., 2007a; Timmer et al., 2007b, Valer et al., 2017). Patients with active disease as measured by the Simple Clinical Colitis Activity Index or Harvey Bradshaw Index had poorer sexual function than those in remission and controls (Bel et al., 2015). This finding has been replicated in self-reported disease activity scores (Eluri et al., 2018).

4.1.3 Depression

There is strong evidence that depression is associated with sexual dysfunction in men with IBD in both univariate (Bulut and Toruner, 2018; Bell et al., 2015; Timmer et al., 2007a; Timmer et al., 2007b) and multi-variate analyses (Riviere et al. 2017; Marin et al., 2013). Depression is also associated with decreased sexual interest and satisfaction scores (Eluri et al., 2018). In a mixed-sex study evaluating prevalence and predisposing factors of sexual dysfunction among IBD patients, men reported psychological factors such as depression as responsible for disrupting intimacy, whereas women were more likely to blame physical disease symptoms (Marin et al., 2013).

4.1.4 Body Image

People with IBD can have a distorted perception of their body image (Bel et al., 2015) and this could lower self-esteem and confidence, and in turn impact upon intimate relationships. Muller et al. (2010) found 51.4% (n= 38) of male patients had impaired body image. In this study, all those who had a stoma reported a negative impact on body image but there was no statistically significant difference between operated and non-operated patients for body image overall.

4.1.5 Non-IBD related factors

Diabetes (Marin et al., 2013; Timmer et al., 2007b), smoking (O'Toole et al., 2018; Riss et al., 2013), cardiac co-morbidities (O'Toole et al., 2018) and older age (Riviere et al., 2017; Kao et al., 2016) have all been shown to be significantly associated to some form of sexual dysfunction in IBD. The IBD specialist nurse will inherently focus on assessing and treating disease related factors, but a broader awareness of other compounding issues is likely to lead to a more successful approach to care and appropriate referral to other services. Even when sexual ill-health has not been caused by IBD, it may still affect a person's well-being and ability to cope and manage the disease, but this was not considered in any of the reviewed papers.

4.2 Moderators of sexual health in men with IBD

Factors reported as mitigating or influencing the impact of IBD on men's sexual health is limited. The two moderators identified in the literature are medication and surgery.

4.2.1 Medication

IBD may require management with complex medication regimens and potent drugs that can induce unpleasant side effects. Eluri et al. (2018) found prednisolone, which is commonly used for inducing remission, did not impact upon sexual satisfaction but the data for men in this study was not presented separately from women. Traditional maintenance therapies such as thiopurines and methotrexate were not found not to increase the risk of needing an erectile dysfunction prescription (Friedman et al., 2018).

The need for biological therapies was found to be an independent risk factor for sexual dysfunction (Marin et al. 2013) but this finding was not duplicated in a large cohort study (Friedman et al., 2018). It is possible that the need for biological therapy is a surrogate marker for disease severity rather than the drug causing a direct impact on sexual health.

4.2.2 Surgery

Reports of post-operative erectile dysfunction ranged from 0% (de Bernardinis et al., 1981; De Zeeuw et al., 2011) to 48% (n=11) (Leicester et al., 1984). All the surgical surveys had small sample sizes (<50 patient participants). Several large surgical studies were excluded from the review due to the inclusion of non-IBD diseases. The disparity in findings of post-operative erectile dysfunction may be due to the heterogeneity in population, measure of dysfunction, surgery and research methodology across included studies. The largest study that included 31,498 men with IBD but was not a surgical study, found previous surgery in men with IBD increased the likelihood of needing an erectile dysfunction prescription (Friedman et al., 2018).

IBD surgery often necessitates the formation of a stoma. Timmer et al. (2007b) found no association between previous resecting surgery and sexual function or libido but the presence of an ostomy did have a negative impact. Conversely, an on-line survey by Eluri et al. (2018) found the presence of a stoma was not related to a reduction in sexual activity in men. Damgaard, Wettergren and Kirkgaard (1995) found men are more likely than women to continue having sex with a temporary stoma but as Berndtsson et al. (2004) highlight, measuring frequency does not afford insight into the quality of sexual function and relationships. An ileo pouch-anal anastomosis (IPAA) may offer patients a sense of normality and stoma reversal (Berndtsson, Oresland and Hultén, 2004; Salter, 1992) but pouches can become diseased or function inadequately. Anatomically, pouch formation frequently necessitates deep pelvic dissection and can therefore be more complex and detrimental than a

laparoscopic resection or formation of ileostomy, ileo-anal pouches were found to be associated with sexual dysfunction (Bengtsson et al., 2011).

Two studies also reported that surgery can improve sexual function and quality of life (Cohan et al., 2015; Wang et al., 2011). This is possibly due to the positive impact on disease activity and ultimate resolution of symptoms.

4.3 Descriptors of sexual health in men with IBD

Several physical and psychosocial descriptors of sexual health were identified (Figure 3).

4.3.1 Erectile function

Erectile function was used in 22 studies as a descriptor (and measure) of sexual dysfunction. When compared to sex- and age-matched controls, men with IBD have a 1.64-fold higher risk of developing erectile dysfunction (Kao et al., 2016) and the crude hazard rate for needing an erectile dysfunction prescription in men with IBD is 1.22, 95% CI 1.18-1.27 (Friedman et al., 2018).

The International Index of Erectile Function (IIEF) was the most commonly used assessment tool, which evaluates erectile function, orgasm, sexual desire, sexual satisfaction and overall satisfaction. No significant difference between patients and healthy controls was found when observing the IIEF recognised cut off of <42.0 for dysfunction (Bel et al., 2015; Marin et al., 2013; Riviere et al., 2017) but mean scores were significantly lower in the IBD group compared to healthy controls (Bel et al., 2015). The IIEF is based on sexual health impacts observed in other disease cohorts, and its validity in patients with IBD is uncertain. It is therefore possible that the given cut-off point for dysfunction is not sensitive enough in IBD or the tool itself does not reflect the challenges faced by men with IBD.

4.3.2 Sexuality and sexual orientation

The impact of IBD on men's sexuality, as defined by orientation, pleasure, behaviours and relationship roles, has been largely limited to the measurement of satisfaction and desire within the IIEF. One study reported issues in relation to gay men, which included fear of judgement, lack of inclusion of same sex partners in healthcare interactions, the absence of information on the safety of anal sex in active disease, concerns that sexual habits could

trigger the disease and the possible change in sexual role due to the presence of disease (Dibley et al., 2013).

4.3.3 Masculinity

Disability can have a negative impact on masculinity and the male social role (Tepper, 1999) but little was uncovered on this in the review. One survey assessed 'feeling masculine' and found that this was reduced by disease activity (Timmer et al. 2007b).

4.3.4 Partnership

Partners can play a positive role in helping those with the disease to adapt (Salter, 1992) and partnership is a precursor to good sexual health. Seven papers explored this within their study but just one study included partners as study participants.

As much as 43.2% (n=32) of male patients thought that IBD had affected their relationship (Muller et al. 2010) while a fifth were hesitant to start a new relationship because of their IBD (O'Toole et al. 2018). Bel et al. (2015) reported longer relationship duration was correlated to more sexual problems but this was the result of a combined male/female cohort sub-analysis. Conversely, in a study of UC patients, surgery did not negatively impact upon relationship status, perhaps reflecting the chronicity of the disease and preceding hardships which may have been overcome (Cohen et al. 2015).

No significant difference between duration of marriage or divorce rate between IBD patients and controls or general population data was described (Muller et al., 2010; Timmer et al., 2007a; Moody and Mayberry, 1993). The level to which IBD influences partnership and prohibits new sexual relations may be under-represented in the included studies due to a tendency for studies to recruit participants in established relationships.

4.3.5 Sexual libido and frequency

Frequency of sexual activity and libido are a common focus across the literature. Maunder et al. (1999) found that men ranked concerns regarding sexual desire and performance higher than women. In a case-controlled study, no statistically significant difference was observed between IBD patients and controls when sexual frequency was measured (Moody & Mayberry, 1993). However, a more recent study found a substantial number of men with IBD reported a negative impact on libido (41.9%, n=31) and reduction in frequency of sexual

interaction (40.5%, n=30) (Muller et al. 2010). Interestingly, higher levels of sexual activity have been observed in men with IBD compared to controls, despite having lower IIEF scores (Marin et al., 2013). There may be a relationship between libido and frequency, but these two factors can also be independently impaired and should therefore be measured separately.

4.4 Assessment and clinical support

Four different sexual health assessment tools were used across the studies (Table 3). None of the tools have been validated in an IBD population, and do not assess issues specifically related to IBD or consider wider sexual health domains such as sexuality, masculinity, partnership and sexual role. O'Toole et al. (2018) devised the IBD-Male Sexual Dysfunction Score (IBD-MSDS) which evaluates the impact of IBD specific issues such as fatigue, abdominal pain, incontinence and bowel frequency. The IBD-MSDS may provide a useful tool for nurses but focuses upon sexual function, with no assessment of broader sexual health domains such as sexuality and gender identity. Further validation and evaluation of its effectiveness and applicability is required before it can be recommended in routine clinical practice.

We did not identify any studies that tested interventions for sexual dysfunction in IBD, though several have been proposed (Table 4). O'Toole et al. (2018) found that 23% (n=40) of participants were taking erectile enhancing medications and 5% (n=9) were using testosterone to improve sexual function. Timmer et al. (2007a) argued treatment should focus on inducing remission of the disease and psychological maladaptation rather than sex therapy. Psychosocial approaches that include treatment of depression or rebuilding intimate partnership such as couples counselling may develop resilience, coping and self-management, may also have a benefit to overall disease course. There is a need to defined treatment strategies that can be trialled and tested within this population.

5. DISCUSSION

IBD can have a profound impact on an individual's sexual health and wellbeing. Nurses must be aware of the issues influencing sexual health when providing holistic care to patients living with the condition (Giese & Terrell, 1996). Information for nurses on sexual health in men with IBD is limited. This scoping review has mapped the current evidence on the sexual health needs of men with IBD.

This review has identified several physical and psychological disease specific mediators and modifiers of sexual health that can help inform nursing assessment and intervention.

Although the two main manifestations of IBD, Crohn's Disease (CD) and Ulcerative Colitis (UC) have similar traits, they can vary in how they present and are treated. It is not possible to determine from the extant literature whether CD and UC equivalently affect sexual health in men with IBD. Understanding whether there is a substantial difference in how men with CD and UC experience sexual health is needed to identify whether assessment, treatment and support should be disease presentation specific.

A history of surgical intervention was correlated to sexual dysfunction in several studies. Surgical studies spanned from 1959 to 2015 during which there was considerable advances in surgical technique, most notably the introduction of laparoscopic surgery which has reduced the need for deep pelvic dissection, reduced complication rates and improved post-operative hospital length of stay (Gaglani et al. 2019). It is also likely that the advances in the medical management of IBD including the introduction of biologic therapy has reduced or delayed the need for surgery (Olivera et al. 2017). There is now the need to update the evidence base on the surgical effects on sexual function and expand this to cover psychosexual health implications. Future studies should ensure that a distinction is made between the direct impact of surgery (e.g. possible impairment of erectile function due to nerve dissection), post-operative physical effects (e.g. wound healing, stomas, weight loss, fatigue), psychological impacts (e.g. body image impairment, embarrassment, sense of loss) and contextual implications (e.g. hospital stay, distance from partner). The effect of surgery will vary depending on a person's disease, surgical technique and type, stage of recovery and personal factors such as an ability to cope and social support network. This must be considered in future studies and when counselling patients. Notably, the effect of surgery on sexual function was not always reported as negative. Exploring this could be of major benefit to people who are unable to avoid surgical intervention and require practical support to optimise their sexual health in the post-operative period.

As with surgical care, medical management of IBD has advanced significantly in the last decade, with biological therapies becoming a widely available treatment option. The effect of medications on the sexual health and wellbeing of men with IBD remains underexplored. There has been no exploration of the influence of medication schedules and procedures on sexual well-being. We believe this is of interest in IBD as we presume the nocte rectal

administration of medication could disrupt sexual interest and activity. Muller et al. (2010) indicate that medications may be omitted due to a perceived impact on libido and sexual activity. This needs to be investigated further so nurses can accurately inform patients and address concerns in order to overcome poor medication compliance.

There has been very little research into the effect of the disease on sexuality and sexual preferences, including the potential impact of the disease on receptive anal disease. This is something that should be considered in future research and may improve care and advice for those with perianal disease and anal ulceration.

Extra-intestinal symptoms and complications including joint and skin problems can impact on patient quality of life and possibly sexual health. Such issues were not raised in the studies and yet this is a key aspect of IBD nursing care. There may be insight to be gained from exploring the literature in hepatology, dermatology, rheumatology and related inflammatory disorders.

Moody and Mayberry (1993) reported no significant difference in rates of sexual activity between patient groups and controls, yet several IBD-related symptoms were attributed by men with the disease to sexual inactivity. It is possible that there is a mismatch between perceived and actual impact of the disease. When in remission, men with IBD were found to have better sexual functioning than healthy controls (Bel et al., 2015; Timmer et al., 2007a). This suggests that for some men, the disease may not produce a constant limiting factor on sexual health. Alternatively, it is possible that without an appropriate and validated assessment tool for sexual well-being in the IBD population, problems are not being detected by researchers and clinicians.

The IBD-MSDS could provide a much-needed aid to nurses wishing to assess sexual function. Muller et al. (2010) make an interesting observation that many studies attempt to quantify sexual dysfunction with objective measures. However, sexual health and function is largely a subjective matter. It is possible that traditional assessment tools are not the most appropriate method of patient assessment. Research into the effectiveness, validity and applicability of sexual health assessment in IBD is required before they are recommended for nursing practice.

As well as promoting assessment, the potential for nurses to improve care by providing a safe sharing space and initiating conversation on this sensitive matter should also not be

underestimated. Only 10% of patients in the O'Toole et al. (2018) study had been in a consultation with an IBD specialist about sex. Further exploration into the barriers to assessment and care of sexual dysfunction is required to inform approaches to overcome them. The appropriateness and acceptability of sexual health assessment in IBD clinics and by nurses needs assessing. Timmer et al. (2007a) stated that they would not necessarily recommend routine discussion of the matter because only 25% of male patients wanted to discuss sexual issues with a physician, suggesting that many men do not view sexual health as a medical matter. Recommendations against assessment of sexual health and well-being do not encourage the breaking down of taboos and normalisation of good sexual health and well-being. It is also worth noting that only 16% of controls in the same study wanted to discuss sexual issues with a doctor, demonstrating an increased need in the IBD population.

Overall, the current evidence suggests that sexual health should be sensitively assessed within the IBD clinic. 78% of patients reported they would be comfortable talking to a doctor about sex and (O'Toole et al., 2018) and 52.1% of male participants expected to discuss sex with a physician (Riviere et al., 2017). Marin et al. (2013) reported 46% of men thought information about the impact of IBD on sex should be given at diagnosis and 44% believed the IBD specialist is an appropriate person to have this discussion with.

Only two qualitative studies presenting men's narratives were identified. Further qualitative research to capture the complexity of the disease and men's experiences is warranted to help inform the nursing assessment process and health service delivery. Ensuring that health systems are responsive to men's sexual and reproductive health needs has been identified as a key goal for improving the health and wellbeing of men by the World Health Organisation (WHO 2018). Men's under-use of healthcare services are consistent across many countries and are closely linked to masculine norms and ideals as well as to socioeconomic factors (Galdas et al 2014; WHO 2018). Previous studies of men with a range of long term conditions has shown that the accessibility and acceptability of services can be improved when the context, content, and delivery style of interventions are tailored to be in alignment with valued aspects of their masculine identities (Galdas et al 2014). However, we could not identify any studies that have explored men's experiences of IBD in this context. Only by illuminating the lived experience of people with this disease can health professionals interpret their needs and design relevant assessment and management strategies. This is particularly suited to nursing research as specialist nurses support and provide care for the

biopsychosocial effects of the disease and aim to support these as an adjunct to medical consultant care in their nurse-led clinics.

5.1 Limitations

As is common practice with scoping reviews, included studies were not critically appraised using a validated tool. Only papers available in English were reviewed but this led to the exclusion of just one paper.

6. CONCLUSION

In this scoping review we have sought to understand the potential impact of IBD on male sexual health and identify whether there is scope for nursing intervention and research. We have highlighted a paucity of studies investigating men's sexual health in IBD. Most of the current evidence concerns erectile dysfunction evaluated through small patient surveys. Of the methodologically robust studies, a comprehensive systematic review has recently been completed and demonstrated an a combined relative risk of 1.41, 95%CI (1.09-1.81) meaning men with IBD have a 41% higher risk of sexual dysfunction, mainly measured through erectile function, than their healthy counterparts (Zhao et al., 2019). This supports a case for further investigation but does not provide detailed insight into the concerns of men with IBD pertaining to sexual health and well-being.

The most notable gap in the literature is in the personal experiences of men with IBD and the broader concept of sexual well-being, particularly regarding sexuality, masculinity and psychosexual health. This review has demonstrated that men with IBD can suffer disruption to not only erectile function but also frequency of intercourse, sexual satisfaction and fulfilment of sexual preferences. The extent to which patients experience these remains poorly described. Disease activity, depression and surgery are the most reported IBD-related impact factors, but how these factors mediate the varying features of sexual health remains unclear. Further qualitative exploratory research into patient and professional experiences is required to provide a clinically useful understanding of male sexual dysfunction. This could help drive clinical practice that is based on patient need.

7. RELEVANCE TO CLINICAL PRACTICE

Sexual health is a multifactorial and subjective feature of personal well-being shaped by biological, physical, psychological, social and cultural factors. Understanding how people perceive and experience their sexual function may deepen nursing assessment and guidance, including delivery of feasible and patient-acceptable self-management strategies. The ability to understand and empathise with a person's experience of disease is central to nursing practice and enables the nurse to be an effective and holistic source of support. It is important that nurses can confidently and sensitively discuss sex and intimate relationships to ensure sexual health problems are not left unaddressed. Judgement-free discussion of health is inherent to nursing practice and the development of a therapeutic relationship, yet many nurses do not feel that they have the knowledge or competence to talk about sex. Perhaps the most important care nurses offer is 'awareness of the sexual issues that often go unspoken' (Giese & Terrell, 1996) and further qualitative exploratory research could aid this.

Exploration of the trilateral association between depression, disease activity and sexual health in IBD may assist the development of disease-specific support strategies. It is possible that an approach that blends treatment of physical symptoms and psychological effects will be beneficial. There is the opportunity for the development of training tools and clinical treatment pathways that specifically allow nurses to identify, facilitate, co-ordinate and manage appropriate care in this area.

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TABLES

TABLE 1: Inclusion and Exclusion criteria

Inclusion Criteria	Exclusion Criteria
(1) Peer reviewed.	(1) Included participants under the age of 18 years.
(2) Available in English.	(2) Data on sexual function on men is not disaggregated from female data.
(3) Included male participants; aged ≥ 18 years (or, in mixed sex/gender studies, where findings are disaggregated by sex/gender) with a diagnosis of Inflammatory Bowel Disease (Crohn's Disease, Ulcerative Colitis, Indeterminate Colitis or Collagenous colitis).	(3) Data in relation to men with IBD is not disaggregated from data on other diseases.
(4) Presented primary research data (any study design).	(4) Studies on fertility, sexually transmitted diseases, sperm or fecundity without investigation of sexual function.
(5) Included sexual function/dysfunction or engagement in sexual activity or erectile dysfunction or sexual behaviour or physical and/or emotional intimacy as a primary outcome measure or focus of the study.	(5) Vaginoplasty studies.
	(6) Surgical studies where sexual function is not a primary outcome, measured within a wider quality of life measure or has not been clearly defined within the study.
	(7) Does not present primary research data (commentary articles/protocols etc).
	(8) Case studies.

TABLE 2: Aims of included papers

Authors	Year	Aim	Male patient sample size
Stahlgren & Ferguson	1959	Investigate changes in sexual function after abdomino-perineal resection.	25
Donovan & O'Hara	1960	Explore whether removal of the rectum causes sexual dysfunction.	21
Fazio, Fletcher & Montague	1980	Evaluate the effect of conservative vs radical resection of the rectum on sexual function.	9
Hendriksen & Binder	1980	Evaluate the social/emotional status in ulcerative colitis.	52
de Bernardinis et al.	1981	Explore incidence of sexual dysfunction after colorectal resection.	15
Leicester et al.	1984	Identify the incidence of sexual function after rectal excision.	23
Salter, M.	1992	Identify body image problems for those undergoing a continent procedure vs stoma.	4
Moody & Mayberry	1993	Assess evidence of sexual dysfunction amongst men and women with ulcerative colitis and men with Crohn's Disease.	100
Damgaard, Wettergren & Kirkegaard	1995	Assess quality of life with emphasis on social and sexual function in patients with a pelvic pouch.	26
Tiainen, Matikainen & Hiltunen	1999	Document the kinds of change that take place in sexual functions and fertility after ileal pouch-anal anastomosis.	44
Maunder et al.	1999	Evaluate differences between men & women regarding sexual performance & intimacy.	147
Berndtsson, Oresland & Hulten	2004	Assess sexuality in UC patients pre and post ileal pouch-anal anastomosis.	25
Timmer at al.	2007	Examine the nature & extent of sexual dysfunction.	153
Timmer at al.	2007	Assess physical & psychosocial determinants of sexual dysfunction.	280
Muller et al.	2010	Explore perspectives of the impact of inflammatory bowel disease on relationships/body image/libido/ sexual function/sexuality	74
Bengtsson et al.	2011	Compare sexual dysfunction in patients with functioning vs failing pouches.	13
Wang et al.	2011	Examine sexual function and quality of life before and after proctectomy.	41
De Zeeuw et al.	2011	To pilot whether close rectal dissection is safe.	6
Riss at al.	2013	Evaluate the impact of surgery for anal fistula on quality of life, sexual function and behaviour.	22
Marin et al.	2013	Evaluate prevalence and predisposing factors of sexual dysfunction among inflammatory bowel disease patients.	153
Yoshida et al.	2014	Evaluate sexual activity after restorative proctocolectomy with ileal j- pouch-anal anastomosis.	30

Dibley et al.	2014	Explore the parallels between 'coming out' and sexual identity and inflammatory bowel disease.	33
Cohan et al.	2015	To examine relationship parameters in patients with ulcerative colitis and their partners.	25
Bel et al.	2015	Evaluate the prevalence of sexual dysfunctions in men and women with inflammatory bowel disease.	119
Kao et al.	2016	To determine whether inflammatory bowel disease is associated to increased risk of erectile dysfunction.	1845
Riviere et al.	2017	Determine the prevalence of sexual dysfunction.	166
Valer et al.	2017	Secondary aim: evaluate impact of inflammatory bowel on sexual function.	52
O'Toole et al.	2018	Determine disease specific psychometric properties that can be used for assessment.	175
Bulut & Toruner	2018	Evaluate anxiety, depression, quality of life and sexual dysfunction.	69
Eluri et al.	2018	Evaluate interest and satisfaction with sex.	745
Friedman et al.	2018	Examine the use of erectile dysfunction medications in men with inflammatory bowel disease.	31498

TABLE 3: Assessment tools for sexual dysfunction used within included studies

Tool	Study(s)	Description	Pros	Cons	Common issues
International Index of Erectile Function (IIEF)	Timmer et al. (2007a), Timmer et al. (2007b), Bengtsson et al. (2011), Wang at al. (2011), Marin et al. (2013), Riss et al. (2013), Bel et al. (2015), Riviere at al. (2017), Valer at al. (2017), O'Toole et al. (2018)	Questions in the domains of erectile function, orgasmic function, sexual desire, satisfaction and overall satisfaction.	Validated in wider population. Patient input used to develop measure. Assesses some aspects of wider function such as desire and satisfaction. Quick and easy to use	Does not account for other specific issues such as premature ejaculation.	Not been validated in an IBD population. Questions do not relate to specific IBD issues. Do not consider wider sexual health domains such as
Sexual Function Questionnaire (SFQ)	Wang at al. (2011)	Seven domain questionnaire assessing desire, enjoyment, orgasm, sensation, arousal, pain, partner	Addresses aspects of the sexual response cycle	Developed and validated in women not men.	sexuality, personal expression, masculinity, intimate
Arizona Sexual Experience Scale (ASEX)	Bulut and Toruner (2018)	Assesses desire, arousal, erection/lubrication, orgasm and satisfaction. Score is 5-30, higher indicating more	East to use. Designed to be self-administered. Not dependent on user	Based on domains most commonly impaired by psychotropic drugs	partnership, sexual role.

		dysfunction.	being in a current partnership.	not chronic disease. Not specifically designed for men.
Patient Reported Outcome Measurement Information System Sexual Function and Satisfaction Scale (PROMISE SexFS)	Eluri et al. (2018)	Comprehensive assessment including sexual activities, interfering factors, therapeutic aids as well as satisfaction and erectile function.	Derived from literature review, expert opinion, focus groups and qualitative data. Considers anal discomfort.	Originally, developed using cancer populations that may have differing experiences to IBD.

TABLE 4: Potential interventions for male sexual dysfunction in IBD

INTERVENTIONS	CITED BY
Physicians should be aware of risk and inform	Kao et al. (2016)
Reverse/treat the disease	Timmer et al. (2007b)
Provide a safe environment for discussion	Dibley, Norton & Schaub (2013); Muller et al. (2010)
Treatment of depression as a first line intervention	Timmer et al. (2007a)
Psychological assessment or clinical psychology	Bel et al. (2015); Moody & Mayberry (1993)
Referral to couples counselling	Moody and Mayberry (1993)
Involving partners in care	Dibley, Norton & Schaub (2013)
Nurse led co-ordination of rehabilitation and aiding acceptance of body.	Salter (1992)
Sex-therapeutic treatment	Bel et al. (2015)
Erectile enhancing medications and testosterone	O'Toole (2018)

FIGURE LEGENDS

FIGURE 1: PRISMA Diagram

FIGURE 2: Mediators, moderators and descriptors of sexual health mapped out from the literature reviewed

FIGURE 3: Descriptors of sexual dysfunction

FIGURE 1: PRISMA Diagram

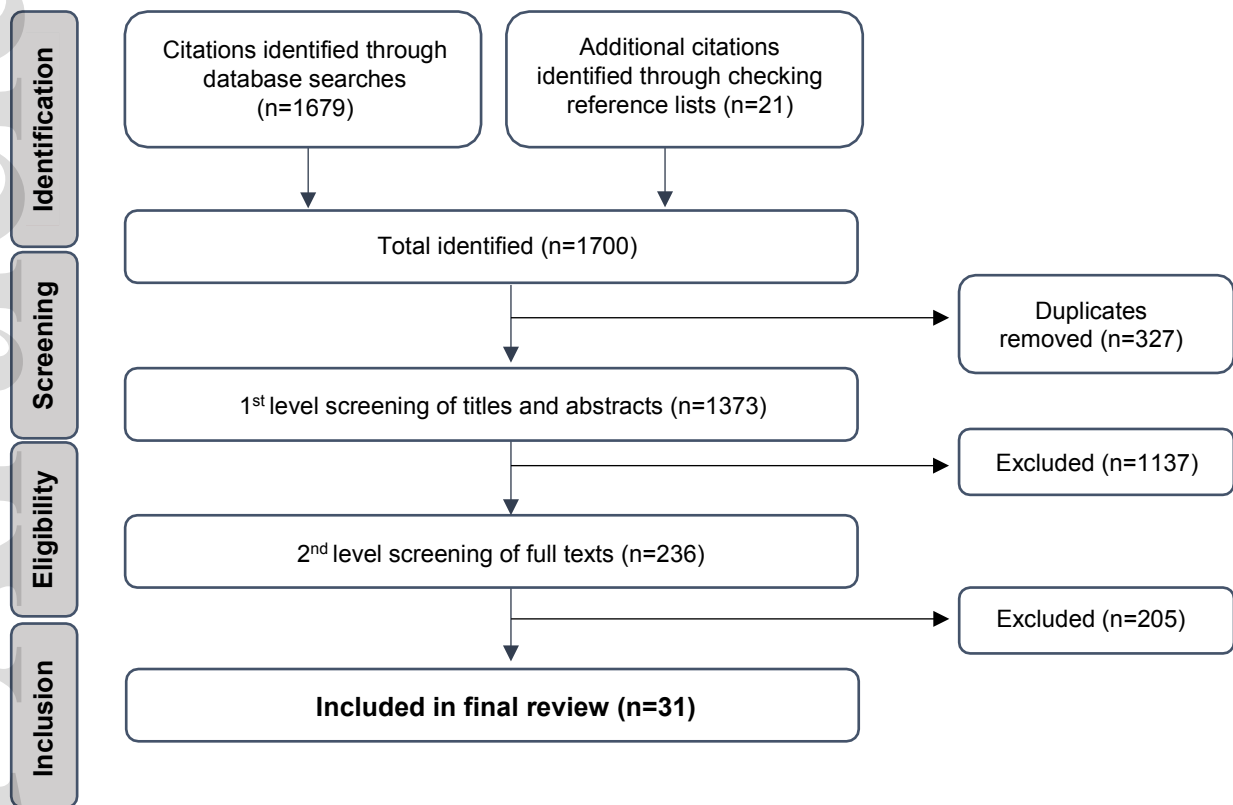


FIGURE 2: Mediators, moderators and descriptors of sexual health mapped out from the literature reviewed

IBD-related mediators

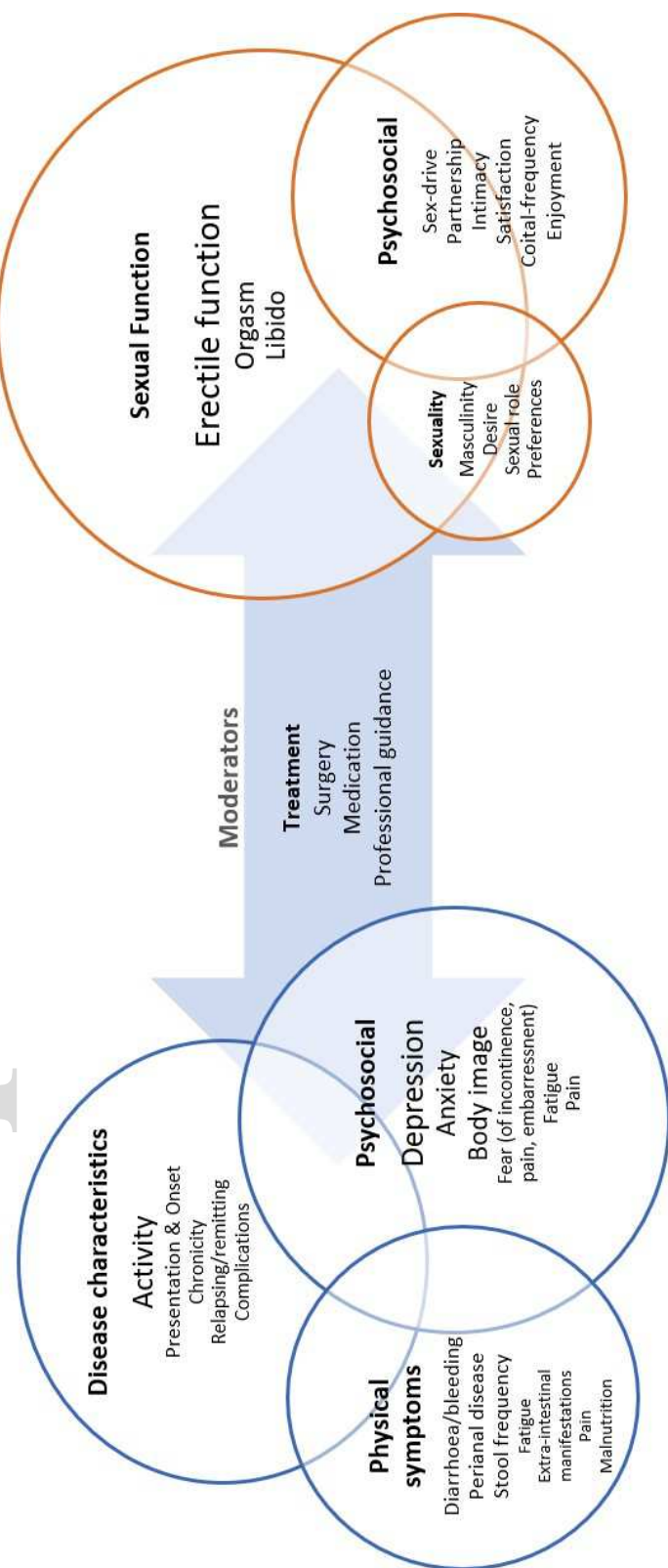


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