

# Urinary and faecal incontinence: psychological factors and management recommendations

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## ABSTRACT

**BACKGROUND:** Urinary and faecal incontinence substantially impacts upon physical health and is associated with significant psychological distress and reduced quality of life. Due to stigma and embarrassment, many patients do not present for management of their incontinence.

**AIM:** The objective of this article is to summarise the forms and causes of urinary and faecal incontinence, highlight the psychological mechanisms and psychopathology associated with incontinence, and provide management recommendations.

**CONCLUSION:** Urinary and faecal incontinence can have a significant impact on an individual's psychological wellbeing and quality of life. Psychological factors may either contribute to or arise from incontinence and should be addressed as part of the overall management plan.

Urinary incontinence (UI) is defined by The International Continence Society as “the complaint of any involuntary loss of urine”.<sup>1</sup> The prevalence of UI has been suggested to be around 3.0% to 60.0% of the population.<sup>2</sup> Faecal incontinence (FI) refers to “the involuntary loss of liquid or solid stool that is a social or hygienic problem”.<sup>1,3</sup> The reported prevalence of FI in the general population ranges between 2.2% to 20.7%.<sup>4</sup> Risk factors for incontinence include patient characteristics (eg, obesity), existing urological or gastrointestinal (GI) conditions, obstetric injury/other injuries to pelvic floor, sequelae from surgical procedures and/or radiotherapy, and neurological disease.<sup>3</sup> Treatment-resistant incontinence refer to conditions where symptoms continue despite treatment being provided.<sup>5</sup> While treatment-resistant incontinence poses challenges regarding treatment of symptoms, success has been noted for surgical intervention of stress UI (median cure rate of 82.3%), and pharmacological intervention of urgency UI (median cure rates of 49%).<sup>6</sup> Despite relatively high prevalence, many patients do not

present for management of treatable incontinence, which may need to be specifically enquired about in consultation.<sup>7</sup> This may be due to the stigma and embarrassing nature of,<sup>4</sup> or the perception that UI is a normal part of aging.<sup>7,8</sup> Incontinence negatively impacts many aspects of a sufferer's life, including physical health, psychological wellbeing and economic, social and functional domains.<sup>7,9,10</sup> General practitioners (GPs) are ideally positioned to diagnose, treat and support patients with suspected urinary and faecal incontinence, but must be proactive in assessing for the condition.

## Forms and causes of incontinence

There are five forms of incontinence (see Table 1), with all forms sharing the common feature of loss of bladder or bowel control. Clinicians should be mindful of the risk factors which can lead to incontinence and have a low threshold for enquiring about the presence of incontinence. Providing a normalising experience and working on strategies to identify and address incontinence symptoms is essential.

**Table 1:** Types of urinary and faecal incontinence.

Type of incontinence	Urinary <sup>7,11</sup>	Faecal <sup>12</sup>
<b>Urgency incontinence</b>	The sudden, compelling need to pass urine which is difficult to defer.	Faecal incontinence despite attempts to hold on to bowel contents. This may be due to weak/damaged anal sphincter/pelvic floor, to loose stool or to rapid colonic transit.
<b>Overflow incontinence</b>	Urinary incontinence due to sudden increase in intra-abdominal or bladder (detrusor overactivity) pressure in over-distention of bladder.	Presence of stool-stained mucus or constant leakage of loose stool due to severe constipation.
<b>Functional incontinence</b>	Patients who have intact urinary storage functions, but are physically unable to reach bathroom in time to pass urine (eg, due to arthritis)	Faecal incontinence due to inability to manage bowel function or access bathroom in time (eg, due to vision impairment).
<b>Stress urinary incontinence</b>	Urinary incontinence during physical exertion (eg, exercise), or due to coughing or sneezing.	-
<b>Mixed urinary incontinence</b>	Urinary incontinence that is associated with or preceded by urgency urinary incontinence, in addition to physical exertion, coughing or sneezing.	-

## Urinary incontinence

Causes of urinary incontinence include pregnancy, labour, vaginal delivery, hysterectomy, and menopause, in addition to diabetes, lower urinary tract symptoms (LUTS) and infections (UTI), advancing age, prostatectomy, and neurological disorders and cognitive dysfunction (eg, dementia, Parkinson's disease, multiple sclerosis, traumatic spinal and/or brain injuries, and cerebrovascular accidents).<sup>13</sup> Urethral obstruction is also a cause of overactive bladder, which may occur secondary to sling and pelvic organ prolapse surgery, as well as prostatic or bladder neck obstruction.<sup>14,15</sup>

Initial assessment of UI symptoms include collection of a medical history, physical examination, laboratory testing and radiographic examination.<sup>16</sup> Specific procedures may involve urinalysis and urine cytology, post-void residual measurement, along with urodynamic testing and pelvic ultrasonography.<sup>16</sup>

## Faecal incontinence

Causes of faecal incontinence include sphincter damage, diarrhoea and rapid colonic transit. Overflow incontinence should be considered (hence the importance of the rectal examination with or without abdominal film) as this condition requires specific management (ie, disimpaction). If the stool is watery, the cause of that should be sought, including inflammation, infection, surgery (including cholecystectomy or procedures that shorten the bowel or predispose to bacterial overgrowth), as well as diarrhoea induced by drugs or diet and managed appropriately. If no specific cause can be found, use of a nonspecific antidiarrhoeal and a fibre supplement to bulk and firm the stool up may be effective in treating incontinence, as a loose stool is far more difficult to retain than a formed stool. If symptoms persist referral for pelvic floor assessment is appropriate, and if that is unhelpful,

**Table 2:** Structured guide for the GP to help explore psychological aspects of urinary and faecal incontinence.

Urinary incontinence	Faecal incontinence
<p><b>History and examination</b></p> <p><b>Physical:</b> Explore the onset of symptoms in relation to risk factors; obstetric delivery, pelvic surgery, neurological conditions. Urinalysis and urine cytology, post-void residual measurement, urodynamic testing and pelvic ultrasonography.<sup>16</sup></p> <p><u>Questions that could be asked:</u></p> <p><i>What is the pattern of leakage—exertion related suggesting stress incontinence or associated with nocturia and frequent voiding indicating overactive bladder?</i></p> <p><i>Is leakage associated with poor warning suggesting a neurological mechanism?</i></p> <p><i>Is it affecting your choice of activities?</i></p> <p><i>Do you have to wear heavy pads?</i></p> <p><i>Day and night?</i></p> <p><i>Number of pads?</i></p> <p>Severe incontinence requires a more urgent plan than mild infrequent incontinence that is not affecting activities of daily living nor requiring pads.</p> <p><b>Psychological:</b> Explore current level psychological distress, and links between psychosocial factors (eg, stress, anxiety, behavioural avoidance) and incontinence. Do you experience fear about not making it to a bathroom in time to urinate?</p> <p><u>Questions that could be asked:</u></p> <p><i>Are you unable to relax if you feel your bladder isn't empty?</i></p> <p><i>Are your bladder patterns unpredictable?</i></p> <p><i>Do you worry about being humiliated in public if you lose control of your bladder?</i></p> <p><i>How does urinary incontinence impact on your life (including work, family, social activities, and sex)?</i></p> <p><b>Treatment recommendations</b></p> <p><b>Physical:</b> Conservative approaches are usually recommended at first.<sup>21</sup> Stress incontinence may be remedied with physical interventions which could be discussed using the recent Australian Commission on Safety and Quality in Health Care (ACSQHC; <a href="http://www.safetyandquality.gov.au/our-work/transvaginal-mesh/resources/care-pathway-sui/">http://www.safetyandquality.gov.au/our-work/transvaginal-mesh/resources/care-pathway-sui/</a>) pathways and patient information.<sup>6</sup></p> <p><b>Psychological:</b> Referral to mental health professional for psychological intervention. Key psychological strategies likely to be of benefit: <i>Psychoeducation</i> (educating the patient about how anxiety influences bladder function), <i>stress/anxiety management</i> (managing stress through breathing retraining), <i>cognitive restructuring</i> (reappraising unhelpful thoughts regarding bladder function) and <i>in-vivo exposure</i> (having patient expose themselves to increasingly anxiety-provoking situations, to allow for extinction response to occur).</p>	<p><b>History and examination</b></p> <p><b>Physical:</b> Rectal examination with or without abdominal film, pelvic floor assessment, anorectal physiological (eg, manometry) and anatomical (eg, endoanal ultrasound) assessment.<sup>17</sup></p> <p><u>Questions that could be asked:</u></p> <p><i>Is your bowel incontinence unpredictable? Does it make a difference to your continence whether the bowel motions are loose or firmer?</i></p> <p><i>Are you troubled by leaking/soiling of clothes or can you lose a large amount?</i></p> <p><b>Psychological:</b> Explore current level psychological distress, and links between psychosocial factors (eg, stress, anxiety, behavioural avoidance) and incontinence. Do you experience fear about not making it to a bathroom in time to defecate?</p> <p><u>Questions that could be asked:</u></p> <p><i>Are you unable to relax if you feel your bowel isn't empty?</i></p> <p><i>Are your bowel patterns unpredictable?</i></p> <p><i>Do you worry about being humiliated in public if you lose control of your bowel? How does faecal incontinence impact on your life (including work, family, social activities and sex)?</i></p> <p><b>Treatment recommendations</b></p> <p><b>Physical:</b> Psyllium supplementation, surgical intervention.<sup>22</sup> Often management to firm up bowel motions/add bulk will be helpful (eg, fibre supplement, loperamide). Be careful of impaction and leakage—do a PR and/or abdominal film to check and if present start with a clean-out. If medications and pelvic floor physiotherapy are not helpful, consider rectal irrigation (eg, Peristeen; Coloplast Pty Ltd). If life is intolerable, a stoma may not be a bad option, but the patient needs to decide (after talking to the stoma nurse and ostomates).</p> <p><b>Psychological:</b> Referral to mental health professional for psychological intervention. Key psychological strategies likely to be of benefit: <i>Psychoeducation</i> (educating the patient about how anxiety influences bowel function), <i>stress/anxiety management</i> (managing stress through breathing retraining), <i>cognitive restructuring</i> (reappraising unhelpful thoughts regarding bowel function) and <i>in-vivo exposure</i> (having patient expose themselves to increasingly anxiety-provoking situations, to allow for extinction response to occur).</p>
<p><b>Example statement that could be used to normalise distress around incontinence and link to psychological treatments:</b></p> <p>It is very common for individuals who are experiencing incontinence to also feel some anxiety, shame and frustration with its impact on one's life. We also know that psychological stress can make bladder/bowel problems worse. Given this, along with the physical strategies that we are going to put in place to manage your incontinence, I would like you to consider seeing a mental health professional. Mental health professionals can work with you to identify psychological strategies you can implement to reduce the stress and distress and increase your ability to manage living with incontinence.</p> <p>Note: The role of psychological treatments may be particularly helpful where other treatments have failed. In addition to the ongoing physical problem, patients may have to cope with the disappointment of not having the problem cured despite their efforts and expense.</p>	

Note: Psychological treatment questions from the Bladder and Bowel Incontinence Phobia Severity Scale (BBIPSS).<sup>23</sup>

referral for anorectal physiological (eg, manometry) and anatomical (eg, endoanal ultrasound) assessment may be required to determine whether there are any aspects that may benefit from surgical intervention. For information regarding management of incontinence in a residential aged care (RAC) population, see Guinane and Crone.<sup>17</sup>

### Psychopathology and associated psychological mechanisms

Incontinence is distressing as it is associated with poor health perception, sexual dysfunction and reduced quality of life (QoL).<sup>3,18</sup> Assessment of the psychological impact of incontinence symptoms should be utilised as part of the medical examination for incontinence (see Table 2 for structured guide).<sup>19</sup> In managing these patients, clinicians should also be mindful of associated psychosomatic components of incontinence and the embarrassment and reluctance of patients to seek treatment.<sup>8</sup>

Psychological factors such as depression, anxiety, embarrassment, fear, shame and living with, management of and attitudes about incontinence symptoms have been associated with incontinence.<sup>18,20,21</sup> Literature reviews on the psychosocial impact of UI in women, note that UI is commonly associated with psychological comorbidity.<sup>18,20</sup> In particular, women with severe UI have been reported to be 80% more likely to be significantly depressed, while women with mild to moderately severe UI were noted as 40% more likely to have depression.<sup>22</sup> Likewise, another study found significantly higher levels of major/other depressive syndromes in men and women with UI, compared to individuals who were continent.<sup>21</sup> As for anxiety, a review reported that UI was associated with a 50% increase in risk of anxiety symptoms for both men and women, and a four-fold increase in anxiety prevalence in cases where UI caused functional impairment.<sup>23</sup> A review also found psychosocial factors such as how an individual lives with (eg, the impact of incontinence on intimate relationships, physical activity, social and occupational life), manages (eg, planning and constant vigilance of incontinence symptoms, help-seeking behaviours/disclosure) and their attitudes towards incontinence (eg, negative vs positive perceptions) mediate the relationship between UI and mental health

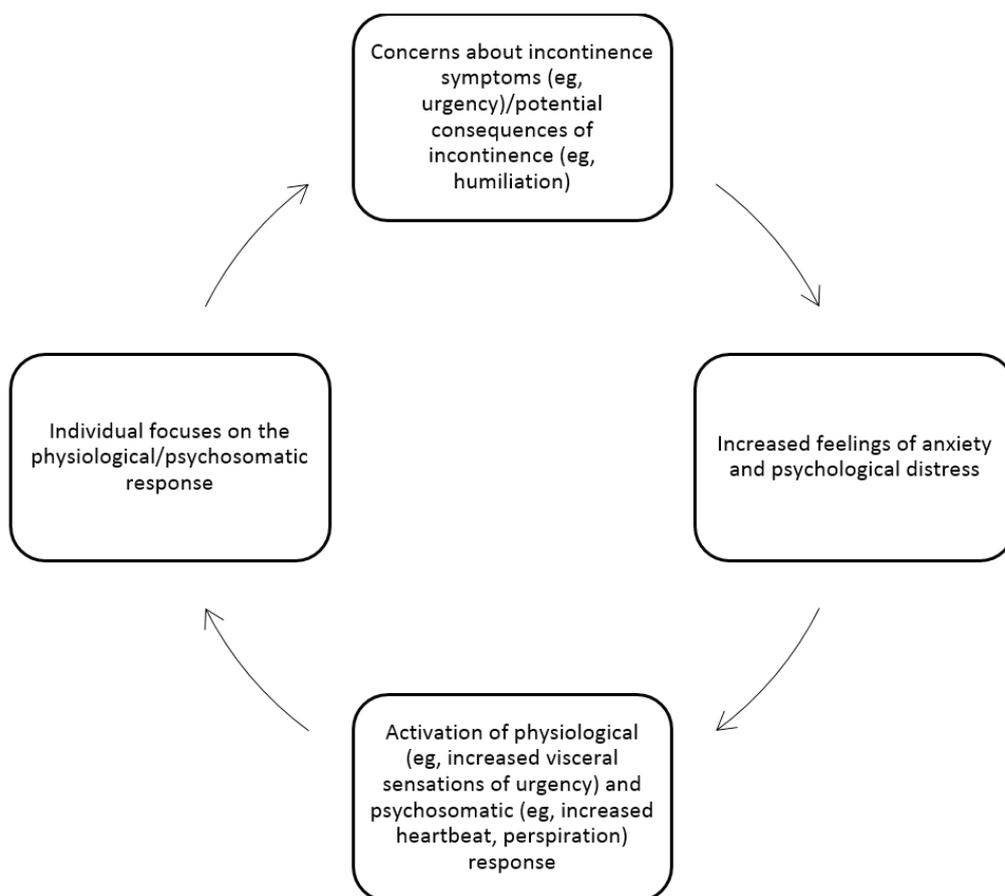
status.<sup>20</sup> Specifically, incontinence patients can better manage their condition by increasing awareness of the psychosocial issues (eg, reframing their attitudes towards incontinence symptoms) that can influence their incontinence and mental health.<sup>20</sup> Conversely, while there are fewer studies which document psychological factors in FI, the depression and anxiety experienced in FI is believed to be greater than that of UI.<sup>23</sup> Indeed, according to a review, individuals with FI are four times more likely to be afflicted with anxiety, and five times more likely to be affected by depression, with FI sufferers also being more likely to report anxiety, frustration and shame.<sup>23</sup> It is apparent that incontinence has a profound negative impact on QoL, whereby sufferers experience humiliation and stigma over their symptoms.<sup>18</sup> Additionally, individuals with incontinence also struggle with anxiety and fear relating to episodes of incontinence in public, and the ensuing consequences.<sup>18</sup> As such, the psychological morbidity associated with incontinence likely stems from reduced QoL due to incontinence symptoms.<sup>18</sup>

During initial examination of incontinence patients, a number of validated measures can be used to assess the nature, severity and impact that incontinence has on QoL. Examples of faecal incontinence measures include the Fecal Incontinence Severity Index (FISI),<sup>24</sup> Cleveland Clinic Florida Fecal Incontinence Score (CCFFIS; also known as the Jorge-Wexner incontinence score),<sup>25</sup> St. Marks Incontinence Score,<sup>26</sup> Comprehensive Fecal Incontinence Questionnaire,<sup>27</sup> Revised Fecal Incontinence Scale<sup>28</sup> and the International Consultation on Incontinence Questionnaire (ICIQ)-Bowels module.<sup>29</sup> As for measures of urinary incontinence severity, examples include the ICIQ-UI Urinary module,<sup>29</sup> the Incontinence Severity Index (ISI),<sup>30</sup> and the Revised Urinary Incontinence Scale (RUIS).<sup>31</sup> Although there are a number of measures available, clinical practice guidelines have recommended commonly used instruments such as the FISI, St. Marks Incontinence Score and CCFFIS.<sup>19</sup> It should also be noted that while several of the abovementioned measures include QoL and lifestyle-based items within their scoring, there are incontinence-specific QoL scales such as the Fecal Incontinence

Quality of Life (FIQL) scale<sup>32</sup> and the Incontinence Quality of Life (I-QOL) instrument<sup>33</sup> for UI. Despite the subjective nature of these self-report instruments, the use of QoL-incontinence measures is recommended as they can assist in selecting appropriate therapies (eg, use of more aggressive, interventional therapies for patients with severe symptoms) and gauge treatment efficacy over time.<sup>19</sup> Consistent with a cognitive-behavioural framework, incontinence patients have been noted to experience dysfunctional thoughts (eg, thinking they are socially undesirable and physically unattractive) along with avoidance behaviours where they avoid social activities which may lead to incontinence or where incontinence would be particularly distressing (eg, exercising, visiting friends).<sup>20</sup> Distress may be significantly increased by of “lack of control or urgency”.<sup>20</sup> The relationship between distress and urgency symptoms can be described as a cycle whereby psychological processes perpetuate feelings of incontinence urgency, which lead to development

of further psychological symptoms (see Figure 1).<sup>34,35</sup> Concerns about incontinence symptoms (eg, feelings of urgency) and potential consequences of incontinence (eg, public humiliation) can lead to increased feelings of anxiety.<sup>18</sup> This increased anxiety then produces a physiological (eg, visceral sensations of urgency) or psychosomatic (eg, increased heartbeat) response where the individual focuses on somatic stimuli,<sup>36</sup> increasing concerns surrounding incontinence symptoms. Through this cycle, psychological processes exacerbate the physical symptoms of incontinence, which then trigger further anxieties and fears regarding impending incontinence. Accordingly, as well as the physical symptoms of incontinence, associated psychological symptoms should also be monitored.<sup>10</sup> Although there is little formal research about pelvic floor overactivity, there is an increasing awareness of this construct and incontinence may be a manifestation of this anxiety driven disorder.<sup>37</sup>

**Figure 1:** Cycle of incontinence symptoms and psychological distress.



A notable psychogenic condition that can result from incontinence is bladder and bowel incontinence anxiety. Bladder and bowel incontinence anxiety refers to overwhelming fear of incontinence in a public setting, in the absence of physical illness.<sup>34</sup> Primary clinical features include overwhelming fear of incontinence; repeated checking of sensations in the bladder or bowel; reoccurring, intense visceral sensations of urgency; avoidance of anxiety-provoking situations (eg, travelling long distances without access to a restroom); and compulsive urination or defecation.<sup>34,38–40</sup> While prevalence rates for incontinence have been reported, the prevalence of bladder and bowel incontinence anxiety has yet to be clearly identified. The recently developed Bowel Incontinence Phobia Severity Scale (BBIPSS)<sup>41</sup> will help better assess fear relating to bowel and bladder incontinence and help to explore the prevalence and severity of psychopathology surrounding incontinence anxiety.

### Management recommendations

A systematic review by Forte and colleagues<sup>42</sup> on FI treatment reported low-strength evidence for certain non-surgical treatment (eg, psyllium supplementation), while also noting insufficient evidence on all available surgical treatment. The review concluded that surgical treatment was associated with greater complications and adverse effects compared to non-surgical management, and that limited evidence was present to support treatment beyond three to six months.<sup>42</sup> Conversely, a recent systematic review on UI cure rates noted that surgical intervention was effective for stress UI, with open colposuspension displaying a median cure rate of 32%, and other surgical techniques displaying a cure rate of 82.3%.<sup>6</sup> For urgency UI, pharmacological intervention had a median cure rate of 45.8%.<sup>6</sup> Supervised pelvic floor muscle therapy (PFMT) interventions were noted to display a cure rate of 35% at 12 months.<sup>6</sup> For mixed UI, the median cure rate of surgical intervention in women was 82.3%, with supervised PFMT intervention eliciting a cure rate of 47% in men and 28% in women at six months.<sup>6</sup> While physical characteristics of incontinence are routinely explored in consultations, psychosocial aspects of incontinence tend to be overlooked.<sup>20</sup> Factors

such as attitudes towards, living with and management of incontinence have been reported to contribute towards the relationship between incontinence and mental health.<sup>20</sup> Given the significant bi-directional links between distress and incontinence (eg, incontinence causing distress and distress affecting coping behaviours in people with incontinence), evidence-based psychological interventions such as Cognitive Behavioural Therapy (CBT)<sup>43</sup> should be considered in the psychological management of incontinence, especially when symptoms are associated with treatment-resistant incontinence.

### Summary

Urinary and faecal incontinence significantly impact the physical health and mental wellbeing of those afflicted. While the prevalence of urinary and faecal incontinence has reported to range between 3.0% to 60.0% and 2.2% to 20.7% respectively, due to the stigma and embarrassing nature of symptoms, patients hesitate to raise incontinence issues during consultations, and these may need to be specifically enquired about. Clinicians should be mindful of risk factors associated with incontinence along with the psychosocial impact of incontinence on mental health and QoL. Treatment interventions should be tailored to the pattern of symptoms, underlying causes/contributors, individual needs and circumstances of each patient. Where appropriate, psychological interventions should be utilised to facilitate patient management of symptoms, especially in cases involving psychological distress and/or treatment-resistant incontinence.

### Key points

- There are several forms of urinary and faecal incontinence.
- Due to the stigma and embarrassing nature surrounding incontinence, patients may be reluctant to disclose their symptoms.
- General practitioners should provide a normalising experience for the patient and proactively identify and address incontinence symptoms.
- Urinary and faecal incontinence are often associated with significant psychological symptoms, which may in turn lead to an increase in physical symptoms and reduction in quality of life.

**Competing interests:**

Nil.

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**REFERENCES:**

1. International Continence Society. Evaluation and treatment of urinary incontinence, pelvic organ prolapse and faecal incontinence 2009 [cited May 24th 2018]. Available from: [http://www.ics.org/publications/ici\\_4/files-book/recommendation.pdf](http://www.ics.org/publications/ici_4/files-book/recommendation.pdf)
2. Crome P, Smith AE, Withnall A, Lyons RA. Urinary and faecal incontinence: Prevalence and health status. *Reviews in Clinical Gerontology*. 2001; 11(2):109–113.
3. Norton C, Whitehead W, Bliss D, Metsola P, Tries J. Conservative and pharmacological management of faecal incontinence in adults. *The International Continence Society*; 2016. [cited 10 May 2018]. Available from: [http://www.ics.org/Publications/ICI\\_4/files-book/comite-16.pdf](http://www.ics.org/Publications/ICI_4/files-book/comite-16.pdf)
4. Menees SB, Almario CV, Spiegel BMR, Chey WD. Prevalence of and Factors Associated With Fecal Incontinence: Results From a Population-Based Survey. *Gastroenterology*. 2018 May; 154(6):1672–1681 e3.
5. Sambach H, Equit M, El Khatib D, Schreiner-Zink S, von Gontard A. Therapy-resistant urinary incontinence and enuresis. *Monthly pediatrics*. 2011; 159(6):565–571.
6. Riemsma R, Hagen S, Kirschner-Hermanns R, Norton C, Wijk H, Andersson KE, et al. Can incontinence be cured? A systematic review of cure rates. *BMC Med*. 2017 Mar 24; 15(1):63.
7. Wyndaele M, Hashim H. Pathophysiology of urinary incontinence. *Surgery (Oxford)*. 2017; 35(6):287–292.
8. Ueda T, Tamaki M, Kageyama S, Yoshimura N, Yoshida O. Urinary incontinence among community-dwelling people aged 40 years or older in Japan: Prevalence, risk factors, knowledge and self-perception. *International Journal of Urology*. 2000; 7:95–103.
9. Ge J, Yang P, Zhang Y, Li X, Wang Q, Lu Y. Prevalence and risk factors of urinary incontinence in Chinese women: a population-based study. *Asia Pac J Public Health*. 2015 Mar; 27(2):NP1118–31.
10. Debus G, Kastner R. Psychosomatic Aspects of Urinary Incontinence in Women. *Geburtshilfe Frauenheilkd*. 2015 Feb; 75(2):165–169.
11. Price H. Incontinence in patients with dementia. *British Journal of Nursing*. 2011; 20(12):721–725.

12. Russell B, Buswell M, Norton C, Malone JR, Harari D, Harwood R, et al. Supporting people living with dementia and faecal incontinence. *British Journal of Community Nursing*. 2017; 22(3):110–114.
13. Milsom I, Altman D, Cartwright R, Lapitan MC, Nelson R, Sillén U, et al. Epidemiology of urinary incontinence (UI) and other lower urinary tract symptoms (LUTS), pelvic organ prolapse (POP) and anal (AD) incontinence. Paris: Ltd HP; 2012.
14. Leng WW, McGuire EJ. Obstructive uropathy induced bladder dysfunction can be reversible: Bladder compliance measures before and after treatment. *J Urol*. 2003; 169(2):563–566.
15. Leng WW, Davies BJ, Tarin T, Sweeney DD, Chancellor MB. Delayed treatment of bladder outlet obstruction after sling surgery: Association with irreversible bladder dysfunction. *J Urol*. 2004; 172 (4 Pt 1):1379–1381.
16. Staskin D, Hilton P, Emmanuel A, Goode P, Mills I, Shull B, et al. Initial assessment of incontinence. 2005. Available from: [http://www.ics.org/Publications/ICI\\_3/v1.pdf/chap9.pdf](http://www.ics.org/Publications/ICI_3/v1.pdf/chap9.pdf)
17. Guinane J, Crone R. Management of faecal incontinence in residential aged care. *Australian Journal of General Practice*. 2018; 47(1–2):40–42.
18. Sinclair AJ, Ramsay IN. The psychosocial impact of urinary incontinence in women. *The Obstetrician & Gynaecologist*. 2011; 13:143–148.
19. Paquette IM, Varma MG, Kaiser AM, Steele SR, Rafferty JF. The American Society of Colon and Rectal Surgeons' clinical practice guideline for the treatment of fecal incontinence. *Dis Colon Rectum*. 2015; 58(7):623–636.
20. Avery JC, Braunack-Mayer AJ, Stocks NP, Taylor AW, Duggan P. Psychological perspectives in urinary incontinence: A meta-synthesis. *OA Women's Health*. 2013; 1(9).
21. Avery JC, Stocks NP, Duggan P, Braunack-Mayer AJ, Taylor AW, Goldney RD, et al. Identifying the quality of life effects of urinary incontinence with depression in an Australian population. *BMC Urology*. 2013; 13(11):1–9.
22. Nygaard I, Turvey C, Burns TL, Crischilles E, Wallace R. Urinary incontinence and depression in middle-aged United States women. *Obstet Gynecol*. 2003;101:149–156.
23. Miner PB. Economic and personal impact of fecal and urinary incontinence. *Gastroenterology*. 2004; 126:s8–s13.
24. Rockwood TH, Church JM, Fleshman J, Kane RL, Mavrantonis C, Thorson AG, et al. Patient and surgeon ranking of the severity of symptoms associated with fecal incontinence The Fecal Incontinence Severity Index. *Dis Colon Rectum*. 1999; 42(12):1525–1532.
25. Jorge JMN, Wexner SD. Etiology and management of fecal incontinence. *Dis Colon Rectum*. 1993; 36(1):77–97.
26. Vaizey CJ, Carapeti E, Cahill JA, Kamm MA. Prospective comparison of faecal incontinence grading systems. *Gut*. 1999; 44:77–80.
27. Macmillan AK, Merrie AE, Marshall RJ, Parry BR. Design and validation of a comprehensive fecal incontinence questionnaire. *Dis Colon Rectum*. 2008 Oct; 51(10):1502–22.
28. Sansoni J, Hawthorne G, Fleming G, Marosszeky N. The revised faecal incontinence scale: a clinical validation of a new, short measure for assessment and outcomes evaluation. *Dis Colon Rectum*. 2013 May; 56(5):652–9.
29. Abrams P, Avery K, Gardener N, Donovan J. The International Consultation on Incontinence Modular Questionnaire: [www.iciq.net](http://www.iciq.net). *The Journal of Urology*. 2006; 175:106–1066.
30. Sandvik H, Seim A, Vanvik A, Hunskaar S. A severity index for epidemiological surveys of female urinary incontinence: Comparison with 48-hour pad-weighting tests. *Neurourol Urodyn*. 2000; 19:137–145.
31. Sansoni J, Marosszeky N, Sansoni E, Hawthorne G. The development of the Revised Urinary Incontinence Scale (RUIS). National Health Outcomes Conference - Australian Health Outcomes Collaboration Wollongong, Australia. The University of Wollongong; 2008 Available from: <http://ro.uow.edu.au/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1066&context=gsbpapers>
32. Rockwood TH, Church JM, Fleshman J, Kane RL, Mavrantonis C, Thorson AG, et al. Fecal Incontinence Quality of Life Scale Quality of life instrument for patients with fecal incontinence. *Dis Colon Rectum*. 2000; 43(1):1–16.
33. Wagner TH, Patrick DL, Bavendam TG, Martin ML, Buesching DP. Quality of life of persons with urinary incontinence: Development of a new measure. *Urology*. 1996; 47(1):67–71.

34. Pajak R, Kamboj SK. Experimental single-session imagery rescripting of distressing memories in bowel/bladder-control anxiety: a case series. *Front Psychiatry*. 2014; 5:182.
35. Pajak R, Langhoff C, Watson S, Kamboj SK. Phenomenology and thematic content of intrusive imagery in bowel and bladder obsession. *Journal of Obsessive-Compulsive and Related Disorders*. 2013; 2(3):233–240.
36. Wong JY, Fong DY. Anxiety mediates the impact of stress on psychosomatic symptoms in Chinese. *Psychol Health Med*. 2015; 20(4):457–68.
37. Shaheed H. The hypertonic pelvic floor. Australia: Continence Foundation of Australia; 2019 [cited 2019 20/03]. Available from: <http://continence.org.au/news.php/577/the-hypertonic-pelvic-floor>
38. Cosci F. “Bowel obsession syndrome” in a patient with chronic constipation. *Gen Hosp Psychiatry*. 2013 Jul–Aug; 35(4):451 e1–3.
39. Kamboj SK, Langhoff C, Pajak R, Zhu A, Chevalier A, Watson S. Bowel and bladder-control anxiety: a preliminary description of a viscerally-centred phobic syndrome. *Behav Cogn Psychother*. 2015 Mar; 43(2):142–57.
40. Porcelli P, Leandro G. Bowel obsession syndrome in a patient with ulcerative colitis. *Psychosomatics*. 2007 Sep–Oct; 48(5):448–50.
41. Kuoch KLJ, Meyer D, Austin DW, Knowles SR. Development and validation of the bladder and bowel incontinence phobia severity scale (BBIPSS). *Journal of Cognitive Psychotherapy*. in press.
42. Forte ML, Andrade KE, Butler M, Lowry AC, Bliss DZ, Joanne LS, et al. Treatments for fecal incontinence [Internet]. Rockville, US: Agency for Healthcare Research and Quality; 2016.
43. Australian Psychological Society. Evidence based psychological interventions in the treatment of mental disorders: A literature review. 3rd ed. Australia; 2010.