Review of hypnotherapy for overactive bladder

Lisa A. Osborne[1] & Phil Reed[2]

[1]Abertawe Bro Morgannwg University Health Board, UK; [2]Swansea University, UK.

Corresponding author: Professor Phil Reed,
Department of Psychology,
Swansea University,
Singleton Park,
Swansea, SA2 8PP, UK.
e-mail: p.reed@swansea.ac.uk

Short title: Hypnotherapy for OAB.

Cite as: Osborne, L.A., & Reed, P. (2019). A review of hypnotherapy for overactive bladder *International Journal of Clinical and Experimental Hypnosis*, **67**, 278-296.

Abstract

This review examines the effectiveness of hypnotherapy for the relief of overactive bladder (OAB) symptoms. Ten studies examining outcomes of hypnotherapy for OAB were located from searches of electronic databases. Most reports were case studies or observational, but there were two randomised control trials. Hypnotherapeutic treatment regimes were idiosyncratic and tailored to individual patients. All studies suggested benefits from hypnotherapy as an adjunct treatment for OAB, especially in terms of subjective reports of symptoms and increasing self-efficacy. These benefits suggest hypnotherapy increases patients' abilities to engage in relaxation, reduces condition-associated anxiety, and improves patients' perceptions of their symptom-coping abilities. Although strong objective evidence of improvement in OAB symptoms is lacking, these subjective improvements, combined with increasing use and acceptance of hypnotherapy in obstetric and gynaecological settings, suggest utility of hypnotherapy as a psychological adjunctive procedure in the treatment of OAB.

Keywords: hypnotherapy; hypnosis; relaxation; overactive bladder; anxiety and stress; pain; self-efficacy; psychological adjunct treatment.

Overactive Bladder (OAB) is a functional disorder of bladder storage; defined by the International Continence Society as urinary urgency, with or without urge incontinence, and usually accompanied by frequency and nocturia (Abrams, Cardozo, Fall, et al., 2003). OAB is highly prevalent, affecting between 3% and 43% of the population (Freeman & Adekanmi, 2005), and around 20% of women (Miller & Hoffman, 2006). It is estimated that OAB costs the U.S.A. $7.2 billion per year (Ganz et al., 2010). With lengthening life-expectancies, and medical advances, prevalence and costs may increase (Sexton et al., 2011; Tyagi et al., 2014).

Proper management of OAB necessitates multi-disciplinary care teams (Srikrishna, Robinson, Cardozo, & Vella, 2007). Treatment of OAB typically involves combinations of pharmacotherapy and behavioural strategies (Komesu et al., 2011a; Azrin & Foxx, 1989; Osborne et al., 2016; Srikishna et al., 2007). However, in spite of the availability of several options, treatment of OAB remains suboptimal for various reasons, and OAB is frequently resistant to medication and orthodox treatments (D'Souza et al., 2014). A significant problem is lack of treatment-compliance and persistence (Dhaliwal & Wagg, 2016). Discontinuation rates of 80% to 90% are reported within the first year of pharmacological therapy (D'Souza et al., 2008; Krueger et al., 2005). In a study of 1,637 U.S.A. Medicaid prescriptions for OAB, only 32% to 44% of patients remained on treatment beyond 30 days, and only 5% to 9% remained after one year (Shaya et al., 2005).

Although physical and psychological factors both produce drug non-persistence, physical dysfunction is not its primary predictor (Dumoulin et al., 2010; Hay-Smith & Dumoulin, 2006), contrasting with psychological variables (e.g., depression, anxiety) that play key roles (Goode et al., 2008; Khan et al., 2013; Osborne et al., 2016). Although development of β3-adrenoceptor agonists, that have fewer side effects, helps overcome the problems associated with older antimuscarinic drugs (Thiagamoorthy et al., 2016), such an

approach does not address the psychological factors that can determine therapy non-adherence (DiMatteo et al., 2000).

OAB is associated with a range of psychological problems: decreased self-esteem, increased low-mood and/or depression (Bradley et al., 2014; Milsom et al., 2012; Osborne et al., 2016), and stress and anxiety (Goode et al., 2008; Khan et al., 2013; Rawal et al., 2016) often tensing muscles to induce worse bladder urgency (Schimmel, 2016). Patients with idiopathic detrusor instability (associated with OAB) characteristically display greater levels of anxiety, neuroticism, depression, and hostility, than those with stress incontinence (Bradley et al., 2014; Freeman et al., 1985; Milsom et al., 2012), but there are no greater levels of situational stressors or hysterical personality disorders (Freeman et al., 1985). Thus, it is likely that some psychological factors play strong roles in treatment persistence for OAB, as studies have shown that depressed and/or anxious patients are much more likely to be treatment non-compliant (Bradley et al., 2014; DiMatteo et al., 2000; Milsom et al., 2012). One impact of psychological distress on compliance is hypothesised to be through negative effects on motivation (Osborne et al., 2016) – motivation-to-change translates into treatment-compliance (Cengisiz et al., 2015).

Rationale for hypnotherapy for OAB

In terms of patient and healthcare-professional acceptability, there is increasing interest in complementary approaches, both in patients (Krouwel et al., 2017; Slavin et al., 2010), and professionals (Freeman & Adekanmi, 2005; Gavin-Jones & Handford, 2016; MacArthur, Wilson, Herbison, et al., 2016; Weisberg, 2014). In a survey of women with pelvic floor dysfunctions, 50% (120/237) had tried a complementary therapy, 75% (179/237) were willing to try such an approach, and 32% (76/237) were willing to try hypnotherapy in particular (Slavin et al., 2010). Childbirth is often associated with later continence issues

(MacArthur, Wilson, Herbison, et al., 2016), and increasing usage of hypnobirthing techniques makes hypnosis of potential interest for conditions, like OAB, associated with incontinence (Gavin-Jones & Handford, 2016; McAllister, Coxon, Murrells, & Sandall, 2017). Previous acceptable and/or successful experience with hypnosis is a predictor of its future success (e.g., Holroyd, 1991; Hunter, 2010), and, as many individuals are now having acceptable experiences with hypnosis (Gavin-Jones & Handford, 2016; McAllister et al., 2017), this renders it useful to know something of its potential effectiveness for OAB.

Hypnotherapy is an individualised and multi-faceted approach, and it generally involves relaxation, focused-attention, visualisation, and suggestion components (Hadley, 2000). These components have been used to address psychological issues related to OAB, that can reduce overall treatment effectiveness; such as: anxiety, depression, reduced motivation, and sleep disturbances (Carrico et al., 2008; Hadley, 2000; Parekh, Feng, Kirages, et al., 2003; Turnbull & Ritvo, 1992).

Seeking and accepting correct treatment can be aided by learning relaxation, which clears thoughts and places problems in perspective, helping interactions with professionals, agencies, and support-networks, thus, promoting treatment-compliance (Lutz et al., 1983). Relaxation reduces stress and anxiety (Hadley, 2000; Hogan & Nahum, 2001), and may be key for OAB, as anxiety exacerbates urge urinary-incontinence (Rawal et al., 2016; Schimmel, 2016). Stress-feelings are produced by circumstances of frustration, anger, and/or anxiety, and anxiety-feelings result from apprehension, or fear, about OAB (Rawal et al., 2016). Some deal with stress better than others, retaining more positivity, but hypnotherapy can empower and give control to patients, reducing anxiety (Alladin, 2016). Otherwise, anxiety can be cyclical, taking over life, and producing depression and reducing motivation (Judah et al., 2013). When patients undergoing treatment for OAB are supported through motivation-targeted adjunct-strategies, such as hypnotherapy, attendance and treatment-

compliance can increase (Osborne et al., 2016; Reed et al., 2015). Motivation assistance at physically- and emotionally-appropriate times enhances positive mind-states, aiding the work within an individual's boundaries and limits (Hogan & Nahum, 2001; Sanders, 2011).

Hypnotherapeutic support may relieve sleep difficulties, assist coping skills and strategies, and help develop realistic goals; thus, aiding adaptation to OAB, by altering perspectives and accepting realities, to proceed productively with treatment (Ginandes, 2002; Marschall-Kehrel & Spinks, 2011). Hypnotherapy promotes active-living in society by re-assessing desired world-roles/life-goals limited by OAB, self-perceptions of interactions with others, and reducing negativity by opening-up to outside-interests, decreasing all-encompassing thoughts of OAB that isolate and sap motivation and energy (Hadley, 2000). Hypnotherapy deals with emotions, by helping identifying, controlling, and accepting reactions/emotions, especially by building self-esteem, confidence, and empowerment (Hogan & Nahum, 2001).

Direct evidence regarding effectiveness for OAB and related conditions

To explore evidence relating to the effectiveness of adjunct hypnotherapeutic approaches to OAB, a search of several electronic databases (Google Scholar, Web of Science, Scopus) was undertaken. These databases were selected, as they are typically employed in systematic searches of the literature, and encompass most of the published scientific reports relating to medical and psychological research. No specific dates were employed for the search, as it was not clear how many studies there would be on this topic, and when they were likely to have been published. While this is a standard strategy employed to identify relevant research literature, it does suffer from the potential disadvantage of ignoring unpublished reports, which tend to be associated with null findings (of course, there is little that can be done to easily identify such reports).

In these searches, the term, ‘hypno’, was paired with ‘overactive bladder’, ‘bladder control’, ‘detrusor’, ‘pelvic’, ‘bladder urge’, ‘urinary’, ‘mixed incontinence’, ‘urgency’, ‘twitchy detrusor’ ‘twitchy bladder’, ‘stress incontinence’, ‘voiding dysfunction’, and ‘bladder dysfunction’.

This search revealed a number of studies that have explored hypnotherapy's effectiveness in helping to treat OAB. These attempts have a long history, with the initial reports emerging sixty years ago (Fry, 1957). Analysis of the abstracts produced 10 studies of relevance to this area – that is, which dealt with the use of hypnosis within the treatment of OAB, or of a related urological condition: 6 case study reports, 2 prospective observational studies (not independent), and 2 randomised control trials (RCTs).

Additionally, this search produced 5 review papers (Groutz et al., 2001; Fall et al., 2004; Freeman & Adekanmi, 2005; Leckie, 1964; Ngarambe & Peng, 2015), which had used the above search terms. These reviews were scrutinised to see if any further primary-source studies relating to this area could be identified. However, this process did not reveal any additional reports to those identified by the original search of the electronic databases. Table 1 summarises the primary-source studies (case studies, observational studies, and RCTs).

Table 1 about here

Case reports

The six case reports (Diment, 1980; Fry, 1957; Godec, 1980; Hinman, 1986; Smith et al., 1999; van Dyke, 1972) provide evidence more specific to the effectiveness of hypnosis for OAB and continence issues. They also give information about the types of hypnosis procedures that have been employed, and indicate the precise aspects of the conditions that

are most impacted by hypnotherapy. However, it should be noted that none of these case reports do all of these things together.

The initial set of case reports regarding the use of hypnosis for urogynaecological issues was outlined by Fry (1957), who provided a retrospective review of 120 case studies of hypnosis by GPs. This treatment was used for a variety of problems, including: 'neurosis', 'dysmenorrhoea', 'asthma', and some bladder problems, mainly of a psychosomatic origin, or where the patients were thought to be 'psychoneurotics' (displaying similar psychological issues to many with OAB). In these case reports, 47% (57/120) of patients showed improvement, 22% (26/120) displayed partial improvement, 19% (23/120) were resistant to treatment, and 12% (14/120) stopped the treatment. This study was notable in that it was the first large-scale examination of the effectiveness of hypnosis in general medical practice, and it both reported the successes, and resistance rates, for hypnotherapy. Although many of the case studies were not directly relevant to OAB and incontinence problems, the patients displayed psychological characteristics similar to those with OAB (Freeman et al., 1985) and more general continence problems (Bradley et al., 2014; Milsom et al., 2012).

van Dyke (1972) reported the hypnotherapeutic treatment of a 48 year-old female, who had a long history of frequency and urge incontinence. This treatment lasted over a period of some months. The report suggested that the initial sessions were less successful, but the later sessions became more effective and the patient's symptoms improved, so that she could spend longer periods of time away from close proximity to toilets. A similar small-scale report was provided by Diment (1980), who reported the cases of two women with urinary incontinence, possibly with a psychogenic origin. One of these patients received relaxation and hypnosis, along with brief supportive counselling, while the other received eight months of hypnotherapy. It was noted that both patients eventually improved with these treatment regimes.

Hinman (1986) reported the use of hypnosis as a complementary therapy for Hinman syndrome in children, in combination with anticholinergics and antibiotics. The hypnosis treatment involved suggestion, along with bladder retraining and bladder drill, with biofeedback to treat detrusor instability. The treatment produced improved striated muscle relaxation, and inhibited contraction of the α-adrenergic innervated bladder neck. The treatment lasted from six weeks to several years, with occasional relapses for some children, but it required cooperation on the parts of the children and their families in order to be successful.

Smith et al. (1999) documented case reports regarding four patients (1 male and 3 females). All patients had an 'unstable bladder', and all had previously failed to respond to behavioural training and educational methods. All patients received three, 60-min sessions of individual hypnotherapy, aimed at reducing their anxiety, and 'ego-strengthening' (building self-esteem). Also, they were taught to trigger their ability to control urgency, using the 'hand-on' method. Six months after completion of the treatment, two of the patients were in complete remission, and two reported some reduction in their symptoms. Godec (2011) reported the use of hypnosis, followed by seven months of self-hypnosis, for one 25-year old female patient, which significantly improved her cystometric curve, doubled bladder capacity, and reduced detrusor hyperreflexia.

These studies show examples of when hypnotherapy has been employed successfully in the treatment of OAB and similar conditions. They also give some indication of the types of hypnotic techniques that are helpful in these situations; in particular, the focus on increasing self-efficacy (Smith et al., 1999), and reducing anxiety (Diment, 1980; Smith et al., 1999), in addition to triggered bladder-retraining (Hinman, 1986; Smith et al., 1999). However, by their nature, these studies do not establish that hypnotherapy per se affects the improvements; although, in some cases, the condition had proved intractable through other

means. Also important is the possibility that unsuccessful treatments do not get reported, which needs to be acknowledged in order to temper views of potential success rates. That around 33% of the patents did not show improvement in the data reported by Fry (1957) may suggest that there could be predictors of success for this approach that are, as yet, unknown. These predictors will certainly include acceptability of the treatment to the patient (Hinman, 1986; Fry, 1957), and confidence in the methods on the part of the health professional (van Dyke, 1972).

Observational studies

Two prospective observational studies have been reported by the same group (Freeman & Baxby, 1982; Freeman, 1987). Freeman and Baxby (1982) reported an observational study conducted on 50 women with unstable detrusor, but no stress incontinence, who had an average age of 44 years. The patients underwent 12, weekly, hypnotherapy-sessions, spaced over a month. The sessions were tailored towards promoting symptom removal, increasing self-efficacy ('ego strengthening'), and could be practiced at home (by using an audio tape). Following this treatment, 50% of the patients had significantly-improved objective symptoms at a 3-month follow-up, using cystometry. However, 86% of patients self-reported 'improvement' or 'cure': 29 reported that they were "entirely symptom free", 14 were "considerably improved", while 7 were "unchanged". In a follow-up study of 30 of the above women, Freeman (1987) reported that, at a 6-13 month follow-up, around 25% (7/30) reported a relapse (4 due to an emotional trauma); and, after 2 years, symptoms had returned in 70% (21/30) of the patients. These studies suggest that a focus on self-efficacy, and symptom removal, could be as effective as suggested by the smaller-scale case studies, but that the effectiveness of hypnotherapy reduced over time.

Randomised control trials

There have been two RCT studies of the effectiveness of hypnotherapy as an adjunct treatment to behavioural therapy (pelvic-floor muscle training, PFMT, and education) for urinary problems. Komesu et al. (2011a) compared hypnotherapy and behavioural therapy, combined together, with the behavioural therapy alone, for OAB. Twenty female patients with OAB were randomly allocated to one of these two groups. Both groups received three, 60-min sessions, over the course of 6-8 weeks. In the hypnotherapy/behavioural therapy group, patients saw a board-certified clinical hypnotherapist, who used hypnosis to suggest bladder-control techniques, and to explore any emotional reactions blocking progress. The study noted that both approaches decreased numbers of self-reported urinary voids, and lessened self-reported psychological distress, with no statistical difference between the two treatments. However, the hypnotherapy/behavioural therapy treatment significantly improved self-rated quality of life (QoL) scores by 67%; whereas, behavioural therapy, alone, only improved QoL scores by 42% – an improvement that was not statistically significant. Direct comparison between the two approaches revealed that hypnotherapy/behavioural therapy also produced significantly greater patient impressions of symptom improvement than did behavioural therapy, alone.

An RCT found evidence for good effectiveness of hypnosis in dealing with the urinary aspects of interstitial cystitis (Carrico et al., 2008). This condition involves urinary urgency, frequency, and chronic pain. Thirty women (with a mean age of 44 years) were randomly allocated to either an hypnotherapy, or a relaxation-only, group. The hypnotherapy group used a 25-min guided imagery CD, twice daily for eight weeks, while the relaxation group were told to rest for the same duration at the same frequency. Self-efficacy for both groups improved to a similar degree to one another. However, in the guided imagery group, there was a 45% moderate, or marked, improvement in the urinary symptoms; whereas, there

was only a 14% improvement for the relaxation group. This guided imagery advantage in symptom improvement was noted for pain, also.

Of course, neither of the above two studies is free from limitations and potential confounds, and further research is needed. Nevertheless, these findings provide additional support for the use of hypnotherapy in OAB treatment; the main improvements coming in the areas of self-reported perception of symptom severity, and in self-efficacy for dealing with these symptoms. It might be noted that there is evidence, from brain-scanning studies, that hypnotherapy (as well as behavioural therapy, and therapeutic-distraction techniques) activates prefrontal-cortex areas, especially those involved with emotion (Mayer et al., 2006). These areas, likewise, inhibit portions of the limbic-cortex system that are activated when urinary urgency in OAB is experienced (Komesu et al., 2011b).

Conclusions

The above evidence suggests that some cautious optimism may be justified regarding the effectiveness of hypnotherapy as an adjunct support in OAB treatment. Most of the studies were either case report, or observational, in nature, but there were two RCTs reported within the literature (Carrico et al., 2008; Komesu et al., 2011a). Although it is often difficult to completely formalise treatment regimes for approaches such as hypnotherapy, as they are highly tailored to individuals (Freeman & Baxby, 1982), additional RCTs and controlled trials would improve the level of evidence for the use of hypnotherapy for OAB, and this must remain a goal of work in this area. The use of studies involving a comparison group would allow stronger evidence to be garnered relating to the direct effect of this treatment on OAB symptoms. Case reports always leave open the possibility of improvement occurring over time, although some of the currently reviewed case reports were conducted on patients who had shown no improvement for years (Smith et al., 1999). More thoroughly controlled

studies may also help to tease apart the impact of hypnotherapy from the other treatments being offered to the patients at the same time, and currently there are few studies that show the superiority of hypnotherapy to pharmacological treatments alone (but see Carrico et al., 2008).

Most studies suggested some subjective benefits from the use of hypnotherapy, mainly accruing to reports of symptoms, and health-related quality of life (Carrico et al., 2008; Komesu et al., 2011a), increases in self-efficacy (Carrico et al., 2008 Freeman & Baxby, 1982), and reductions in anxiety (Diment, 1980; Smith et al., 1999). These benefits suggest that when such treatment is effective in increasing patients' abilities to engage in relaxation (Komesu et al., 2011a), reducing anxiety associated with the condition, and improving patients' perceptions of their capabilities of coping with symptoms (Smith et al., 1999). The longer-term effectiveness of the treatment is also still an open question, with only a few studies providing data relating to this issue. Those that do provide follow-up data show good 3 month prognosis (Freeman & Baxby, 1982; Smith et al., 1999), which drops to around 75% after one year, and to around 25% at two years (Freeman, 1987). However, this does compare well to the lack of effectiveness of pharmacological treatment due to noncompliance issues (Shaya et al., 2005).

There were instances in which patients were resistant to the treatment (Freeman & Baxby, 1982; Fry, 1957), especially in earlier sessions (van Dyke, 1972). This may mean that careful attention is needed to the patient's wishes and expectations before embarking on this form of adjunct treatment (see Slavin et al., 2010). The variation in response to treatment among those patients who do engage also suggests the need to identify optimally receptive individuals for this procedure, which is an issue for all treatments in this area (see Osborne et al., 2016).

A key area that does need further investigation, and which still shows relatively weak evidence for the impact of hypnotherapy, at least over and above other therapies, is in terms of objective improvement in bladder symptoms. Several studies (Godec, 1980; Hinman, 1986) have shown improvement in objectively-measured bladder function following hypnotherapy. Similar objective improvements have been noted in RCTs, but these improvements are not different to those noted from the treatment in the absence of hypnotherapy (Komesu et al., 2011a). Of course, it remains a moot point as to whether the objective or the subjective assessments are the most important ones in this field.

Recommendations for Clinical Practice and Outline of a Treatment Plan

The reports point to a possible course of hypnotherapy for OAB, that both targets OAB-symptoms directly, as well as the associated barriers to treatment progress. Komesu et al. (2011a) used three sessions, whereas Freeman and Baxby (1982) employed 12 sessions. Given the complexity and subjectivity of OAB, but considering potential time-constraints, and typical numbers of treatment-sessions provided for OAB (Laycock & Holmes, 2003; Osborne et al., 2016), a treatment-course lasting 4-6 sessions, may be appropriate. The content of the hypnotherapy would need to be individually personalised (Freeman & Baxby, 1982), but a general outline can be developed from established literature.

The patient needs an empty bladder for each hypnotherapy session. Sessions would provide PFMT and education, covering pelvic-floor exercises (PFEs), timed voiding (bladder drill), recognising and coping with triggers/cues associated with urinary urgency, fluid-intake advice, and voiding-diary reviews (Komesu et al., 2011a; Osborne et al, 2016). Breathing techniques would be taught to facilitate relaxation (Diment, 1980), and as a form of distraction during urgency (Carrico et al. 2008). Some of this information would be presented as hypnotic-suggestions through guided-imagery, to directly challenge OAB

symptoms (Carrico et al. 2008). Additionally, any barriers or resistance to treatment progress could be addressed through hypnotherapy, which would have a strongly motivational flavour (Osborne et al., 2016). Hypnotic induction would be via progressive muscle relaxation, promoting further patient relaxation (Diment, 1980; Komesu et al., 2011a).

During the first session, patient information would be collected, screed/modality preferences assessed, and hypnotherapeutic principles and hypnosis explained (Freeman & Baxby, 1982; Hadley, 2000). Prior to hypnosis, visual illustrations/models of the bladder and pelvic floor (a difficult muscle-group to identify, isolate, and target) would be used to aid subsequent goal-visualisation during hypnotic suggestion of PFEs and relaxing/stretching the bladder (Hinman, 1986; Osborne et al., 2016). After hypnotic induction, based on patient perceptions/impressions of their OAB problems, guided imagery, developed as hypnotic suggestions, would serve to build pelvic-floor strength (PFEs) and bladder-capacity (bladder drill; Hinman, 1986). Individualised therapeutic suggestions would be utilised for learning responses to deal with physical-urgency symptoms, and for relaxation (anchoring/trigger words; Freeman & Baxby, 1982). Patients would be encouraged to practice relaxation and their responses at home, between sessions (Carrico et al. 2008; Freeman & Baxby, 1982).

The second session would check OAB progress, and comprise elements from the above, namely, timed voiding (bladder drill), PFEs, relaxation and bladder-stretching exercises (Hinman, 1986), through guided imagery, within hypnotic suggestion, and during pre- and post-hypnotic periods (waking hypnosis and seeding; Carrico et al. 2008). Additionally, discussion of emotional responses to OAB would be undertaken to determine whether any underlying problems were promoting OAB symptoms and/or blocking treatment progress (Diment, 1980).

For the third and fourth sessions, the above progress reviews and hypnotic suggestions would be performed and developed. Additionally, potential emotions identified

as blocking treatment progress would be addressed under hypnosis: imagined accomplishment of taking control (empowerment and self-esteem), and/or dealing with stress/anxiety issues (Freeman & Baxby, 1982; Smith et al., 1999). Self-hypnosis would be taught to empower and help patients in future (Godec, 1980). Patients would be encouraged to practice this, and their various exercises, daily at home.

If further sessions were necessary, these would review any remaining OAB symptoms, improvements, voiding patterns, and include screeds for PFEs, bladder drill, and relaxation, as above. Further hypnosis could be conducted, depending on the natures of individual barriers. If emotional issues were blocking treatment progress and compliance, further work could be conducted. If poor health values were a problem, these could be addressed using personalised guided imagery screeds on health, healing, and wellbeing, to improve personal health prioritisation, motivation, and treatment compliance.

In summary, although strong objective evidence of improvement in OAB symptoms as a result of hypnotherapy is lacking, the subjective improvements, combined with the increasing use and acceptance of hypnotherapeutic techniques in obstetric and gynaecological settings, suggest that such an adjunctive procedure may have benefits in the treatment of OAB. Psychological adjunct procedures have been noted to improve compliance and effectiveness of treatments for incontinence (Khan et al., 2013; Osborne et al., 2016), and have the advantage of reducing health costs. Hammond (2010) noted that hypnosis is cost effective, requiring fewer office visits (less for self-hypnosis), than many other procedures, resulting in lower costs. Moreover, it has been suggested that hypnosis can promote earlier compliance with medical treatment, through a variety of means, often reducing costs of subsequent more difficult treatment (Kraft, 2016). Given the above evidence, the question could be asked: why not hypnotherapy? In the current context, it may already be more

familiar to some patients than other forms of psychological support, may carry less stigma than other support interventions such as CBT, and may be more cost effective.

Ethical Statements

Neither author has any potential conflict of interest.

There was no informed consent, as there were no participants involved.

Author Contributions

Osborne - Project development; Data collection or management; Manuscript writing/editing.

Reed - Project development; Data collection or management; Manuscript writing/editing.

References

Abrams, P., Cardozo, L., Fall, M. *et al.* (2003). The standardisation of terminology in lower urinary tract function: Report from the standardisation sub-committee of the International Continence Society. *Urology, 61*, 37-49.

Alladin, A. (2016). Cognitive hypnotherapy for accessing and healing emotional injuries for anxiety disorders. *American Journal of Clinical Hypnosis, 59*, 24-46.

Azrin, N., & Foxx, R.M. (1989). *Toilet training in less than a day*. New York, NY, USA: Simon and Schuster.

Bachner-Melman, R., & Lichtenberg, P. (2001). Freud's relevance to hypnosis: A reevaluation. *American Journal of Clinical Hypnosis*, *44*, 37-50.

Bosch, P.C., & Bosch, D.C. (2014). Treating interstitial cystitis/bladder pain syndrome as a chronic disease. *Reviews in Urology*, *16*, 83.

Bradley, C.S., Nygaard, I.E., Torner, J.C., Hillis, S.L., Johnson, S., & Sadler, A.G. (2014). Overactive bladder and mental health symptoms in recently deployed female veterans. *The Journal of Urology, 191, 1327-1332*.

Bradley, P., Wilson, A., Buss, P., Harrhy, S., Laing, H., Shortland, G., & van Woerden, H. (2014). Achieving prudent healthcare in NHS Wales. *Public Health Wales*. 2014; 2.

Brown, T.D. (1959). Hypnosis in genito-urinary diseases. *American Journal of Clinical Hypnosis, 1*, 165-168.

Carrico, D.J., Peters, K.M., & Diokno, A.C. (2008). Guided imagery for women with interstitial cystitis: results of a prospective, randomized controlled pilot study. *The Journal of Alternative and Complementary Medicine*, *14*, 53-60.

Cengisiz, C., Deveci, A., & Yapici, A. (2015). Effects of depression on treatment motivation in male alcohol dependence. *Archives of Neuropsychiatry, 52, 412-416*.

Coyne, K.S., Matza, L.S., & Brewster-Jordan, J. (2009). "We have to stop again?!": The

impact of overactive bladder on family members. *Neurourology and Urodynamics*, *28*, 969-975.

Darwish, A.K. (1994). Hypnosis and psychotherapy. *The Psychiatrist*, *18*, 246.

Dhaliwal P., & Wagg A. (2016). Overactive bladder: Strategies to ensure treatment compliance and adherence. *Clinical Interventions in Aging, 11*, 755.

DiMatteo, M.R., Lepper, H.S., & Croghan, T.W. (2000). Depression is a risk factor for noncompliance with medical treatment: Meta-analysis of the effects of anxiety and depression on patient adherence. *Archives of Internal Medicine, 160, 2101-2107.*

Diment, A.D. (1980). Hypnosis in the treatment of urinary incontinence. *Australian Journal of Clinical & Experimental Hypnosis*.

D'Souza, A.O., Smith, M.J., Miller, L.A., Doyle, J., & Ariely, R. (2008). Persistence, adherence, and switch rates among extended-release and immediate-release overactive bladder medications in a regional managed care plan. *Journal of Managed Care Pharmacy*, *14, 291-301*.

Dumoulin, C., Bourbonnais, D., Morin, M., Gravel, D., & Lemieux, M.C. (2010). Predictors of success for physiotherapy treatment in women with persistent postpartum stress urinary incontinence. *Archives of Physical Medicine and Rehabilitation*, *91, 1059-1063*.

Fall, M., Baranowski, A.P., Fowler, C. J., et al. (2004). EAU guidelines on chronic pelvic pain. *European Urology*, *46*, 681-689.

Freeman, R. M. (1987). A psychological approach to detrusor instability incontinence in women. *Stress Medicine*, *3*, 9-14.

Freeman, R.M., & Adekanmi, O.A. (2005). Overactive bladder. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *19*, 829-841.

Freeman, R.M., & Baxby, K. (1982). Hypnotherapy for incontinence caused by the unstable

detrusor. *British Medical Journal (Clinical Research Edition), 284,* 1831–1834.

Freeman, R.M., McPherson, F.M., & Baxby, K. (1985). Psychological features of women with idiopathic detrusor instability. *Urologia Internationalis, 40,* 257-259.

Fry, A. (1957). The scope for hypnosis in general practice. *British Medical Journal, 1,* 1323.

Gavin-Jones, T., & Handford, S. (2016). *Hypnobirth: Evidence, practice and support for birth professionals*. London, UK: Routledge.

Ginandes, C. (2002). Extended, strategic therapy for recalcitrant mind/body healing: An integrative model. *American Journal of Clinical Hypnosis, 45,* 91-102.

Godec, C.J. (1980). Inhibition of hyperreflexic bladder during hypnosis: A case report. *American Journal of Clinical Hypnosis, 22,* 170-172.

Goode, P.S. et al. (2008). Population based study of incidence and predictors of urinary incontinence in black and white older adults. *The Journal of Urology, 179, 1449-54.*

Groutz, A., Blaivas, J. G., Pies, C., & Sassone, A. M. (2001). Learned voiding dysfunction (non-neurogenic, neurogenic bladder) among adults. *Neurourology and Urodynamics: Official Journal of the International Continence Society, 20,* 259-268.

Hägglund, D., Walker-Engström, M.L., Larsson, G., & Leppert, J. (2001). Quality of life and seeking help in women with urinary incontinence. *Acta Obstetricia et Gynecologica Scandinavica, 80,* 1051-1055.

Hadley, S. (2000). *Hypnosis for change*. New York, NY, USA: MJF Books.

Hay-Smith, E.J., & Dumoulin, C. (2006). Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. *Cochrane Database Systematic Reviews 2006; 1:CD005654.*

Haylen, B.T., de Ridder, D., Freeman, R.M., et al. (2010). An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. *Neurourology and*

Urodynamics, *29*, 4–20.

Hilgard, E.R., & Hilgard, J.R. (2013). *Hypnosis in the relief of pain*. London, UK: Routledge.

Hinman, F. Jr. (1971). Non-neurogenic neurogenic bladder. *The annual meeting of the American Urological Association, Chicago*, May 16±20.

Hinman, F. Jr. (1986). Nonneurogenic neurogenic bladder (the Hinman syndrome) – 15 years later. *Journal of Urology*, *136*, 769-777.

Hogan, K. & Nahum, E.J. (2001). *The new hypnotherapy handbook: Hypnosis and mind body healing*. Eden Prairie, Minnesota, USA: Network 3000 Publishing.

Holroyd, J. (1991). The uncertain relationship between hypnotizability and smoking treatment outcome. *International Journal of Clinical and Experimental Hypnosis*, *39*, 93-102.

Hunter, C.R. (2010). *The art of hypnosis: Mastering basic techniques*. Carmarthen UK: Crown House Publishing.

Judah, M.R., et al. (2013). The prospective role of depression, anxiety, and worry in stress generation. *Journal of Social and Clinical Psychology* 32.4, 381-99.

Karle, H.W. & Boys, J.H. (1987). *Hypnotherapy: A practical handbook*. London, UK: Free Association.

Khan, Z.A., Whittal, C., Mansol, S., Osborne, L.A., Reed, P., & Emery, S. (2013). Effect of depression and anxiety on the success of pelvic floor muscle training for pelvic floor dysfunction. *Journal of Obstetrics and Gynaecology 2013, 33, 710-714*.

Komesu, Y.M., Sapien, R.E., Rogers, R.G., & Ketai, L.H. (2011a). Hypnotherapy for treatment of overactive bladder: An RCT pilot study. *Female Pelvic Medicine & Reconstructive Surgery*, *17*, 308-320.

Komesu, Y.M., Ketai, L.H., Mayer, A.R., Teshiba, T.M., & Rogers, R.G. (2011b).

Functional MRI of the brain in women with overactive bladder: Brain activation during urinary urgency. *Female Pelvic Medicine & Reconstructive Surgery, 17*, 50-65.

Kraft, D. (2016). The place of hypnosis in psychiatry part 6: Treatment of specific phobias – natural environment type, blood-injection-injury type, and other types. *Australian Journal of Clinical and Experimental Hypnosis, 41*, 1-15.

Krouwel, M., Jolly, K., & Greenfield, S. (2017). What the public think about hypnosis and hypnotherapy: A narrative review of literature covering opinions and attitudes of the general public 1996–2016. *Complementary Therapies in Medicine, 32*, 75-84.

Krueger, K.P., Berger, B.A., & Felkey, B. (2005). Medication adherence and persistence: a comprehensive review. *Advances in Therapy, 22*, 313-356.

Laycock, J., & Holmes, D.M. (2003). The place of physiotherapy in the management of pelvic floor dysfunction. *The Obstetrician & Gynaecologist, 5*, 194-199.

Leckie, F.H. (1964). Hypnotherapy in gynecological disorders. *International Journal of Clinical and Experimental Hypnosis, 12*, 121-146.

Lutz, R.W., Silbret, M., & Olshan, N. (1983). Treatment outcome and compliance with therapeutic regimens: Long-term follow-up of a multidisciplinary pain program. *Pain, 17*, 301-308.

Lynn, S.J., Barnes, S., Deming, A., & Accardi, M. (2010). Hypnosis, rumination, and depression: Catalyzing attention and mindfulness-based treatments. *International Journal of Clinical and Experimental Hypnosis, 58*, 202-221.

MacArthur, C., Wilson, D., Herbison, P., et al. (2016). Urinary incontinence persisting after childbirth: Extent, delivery history, and effects in a 12–year longitudinal cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology, 123*, 1022-1029.

McAllister, S., Coxon, K., Murrells, T., & Sandall, J. (2017). Healthcare professionals'

attitudes, knowledge and self-efficacy levels regarding the use of self-hypnosis in childbirth: A prospective questionnaire survey. *Midwifery*, *47*, 8-14.

Marschall-Kehrel, D., & Spinks, J. (2011). The patient-centric approach: The importance of setting realistic treatment goals. *European Urology Supplements, 10, 23-27*.

Matcham, F., Norton, S., Scott, D.L., Steer, S., & Hotopf, M. (2015). Symptoms of depression and anxiety predict treatment response and long-term physical health outcomes in rheumatoid arthritis: Secondary analysis of a randomized controlled trial. *Rheumatology*, *55*, 268-278.

Milsom, I., Kaplan, S.A., Coyne, K.S., Sexton, C.C, & Kopp, Z.S. (2012). Effect of bothersome overactive bladder symptoms on health-related quality of life, anxiety, depression, and treatment seeking in the United States: Results from EpiLUTS. *Urology*, *80*, 90-96.

Nash, M.R. (2001). The truth and the hype of hypnosis. *Scientific American*: July 2001

Ngarambe, C., & Peng, D. H. (2017). Female urinary incontinence: A systematic overview and non-surgical treatment. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *4*, 527-539.

Osborne, L.A., Whittall, C.M., Emanuel, R., Emery, S., & Reed, P. (2017). Randomized controlled trial of the effect of a brief telephone support intervention on initial attendance at physiotherapy group sessions for pelvic floor problems. *Archives of Physical Medicine and Rehabilitation*, *98*, 2247-2252.

Osborne, L.A., Whittall, C.M., Edwards, D.J., Emanuel, R., Emery, S., & Reed P. (2016). Randomised control trial of a values-based motivational interview support to promote attendance at pelvic floor muscle training physiotherapy treatment. *Pelvic, Obstetric, & Gynaecological Physiotherapy Journal*, *119*, 38-46.

Parekh, A.R., Feng, M.I., Kirages, D., Bremner, H., Kaswick, J., & Aboseif, S. (2003). The

role of pelvic floor exercises on post-prostatectomy incontinence. *The Journal of Urology, 170,* 130-133.

Rawal, A., Shen, B., Vetter, J., & Lai, H. (2016). PD17-04 – The impact of anxiety and depressive symptoms on overactive bladder. *The Journal of Urology, 195*, e400.

Sanders, P. (2011). *First steps in counselling: A students' companion for introductory courses*. Ross-on-Wye, UK: PCCS Books.

Sexton, C.C., Coyne, K.S., Thompson, C., Bavendam, T., Chen, C.I., & Markland, A. (2011). Prevalence and effect on health-related quality of life of overactive bladder in older Americans: Results from the epidemiology of lower urinary tract symptoms study. *Journal of the American Geriatrics Society,* 59, 1465-1470.

Schimmel, J. (2016). Psychodynamic psychotherapy. In B. Chughtai, A. Stein, & G. Espinosa (Eds.) *Healing in urology: Clinical guidebook to herbal and alternative therapies* (pp. 243-264). New York: World Scientific Publishing Company.

Slavin, S.L., Rogers, R.G., Komesu, Y., Omotosho, T., Hammil, S., Lewis, C., & Sapien, R. (2010). Complementary and alternative medicine (CAM) use in women with pelvic floor disorders: A cohort study. *International Urogynecology Journal, 21*, 431-437.

Smith, N., D'Hooghe, V., Duffin, S., Fitzsimmons, D., Rippin, C., & Wilde, G. (1999). Hypnotherapy for the unstable bladder: Four case reports. *Contemporary Hypnosis, 16*, 87-94.

Srikrishna, S., Robinson, D., Cardozo, L., & Vella, M. (2007). Management of overactive bladder syndrome. *Postgraduate Medical Journal, 83,* 481-486.

Thiagamoorthy, G., Cardozo, L., & Robinson, D. (2016). Current and future pharmacotherapy for treating overactive bladder. *Expert Opinion on Pharmacotherapy, 17,* 1317-1325.

Turnbull, G.K., & Ritvo, P.G. (1992). Anal sphincter biofeedback relaxation treatment for

women with intractable constipation symptoms. *Diseases of the Colon & Rectum*, *35*, 530-536.

Tsai, P-F., & Jirovec, M.M. (2005). The relationships between depression and other outcomes of chronic illness caregiving. *BMC Nursing*, *4, p.3*.

Tyagi, P., Tyagi, V., Qu, X., Lin, H.T., Kuo, H.C., Chuang, Y.C., & Chancellor, M. (2014). Association of inflammaging (inflammation + aging) with higher prevalence of OAB in elderly population. *International Urology and Nephrology*, *46*, 871-877.

Weisberg, M.B. (2014). 50 years of hypnosis in healthcare. *The Handbook of Behavioral Medicine*, 251-274.

Wright, N., & Ellis, L. (2010). *Coping with chronic illness*. New York, NY: Harvest House.

van Dyke, P.B. (1972). The case of the recalcitrant bladder. *American Journal of Clinical Hypnosis*, *14*, 256-259.

Table 1: Studies included in the review.

Authors	Year	Study Design	Participants/Treatment	Outcomes
Carrico et al.	2008	RCT	30 women with interstitial cystitis. Guided imagery CD, twice daily for 8 weeks, versus relaxation sessions.	Better subjective and pain improvement with hypnosis. Objective symptoms and self-efficacy improved for each group.
Diment	1980	Case study	2 women with urinary incontinence. P1 = relaxation and hypnosis, with brief supportive counselling. P2 = eight months of hypnotherapy.	Both patients improved.
Freeman	1987	Observational study	30 women with unstable detrusor. 1-year and 2-year follow-ups, after one-month of hypnosis (see below).	7 relapsed at 1-year follow-up; 21 had symptoms return at 2-year follow-up.
Freeman & Baxby	1982	Observational study	50 women with unstable detrusor. 12 sessions of hypnosis over 1 month (tailored for symptom removal, and self-efficacy) at home (on tape).	29 self-rated symptom free; 14 improved; 7 unchanged. Objectively, 50% significantly improved at 3-month follow-up on cystometry.
Fry	1957	Case study	120 cases, mainly psychosomatic (not all continence issues).	14 stopped treatment; 23 resistant; 57 improved; 26 partial improvement.
Godec	1980	Case study	1 woman with OAB. Hypnosis, followed by 7 months of self-hypnosis.	Improved cystometric curve; doubled bladder capacity; reduced detrusor hyperreflexia.
Hinman	1986	Case study	Children with Hinman syndrome (detrusor instability). 6 weeks to several years of suggestion, bladder drill/retraining, and biofeedback.	Improved striated muscle relaxation; inhibited contraction of innervated bladder neck.
Komesu et al.	2011	RCT	20 women with OAB. Hypnosis and behaviour therapy, versus behaviour therapy, for three 60-min sessions over 6-8 weeks.	Better subjective improvement for hypnosis; objective improvement similar for both groups.

Smith et al.	1999	Case study	1 man, and 3 women, with unstable bladder. Three 60-min sessions, focused on anxiety, and self-esteem.	2 had complete remission; 2 had some reduction.
van Dyke	1972	Case study	1 woman with frequency and urge incontinence. Hypnosis.	Initial sessions less successful; later sessions improved symptoms.