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Review article

A systematic review of paruresis: Clinical implications and future directions

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ABSTRACT

Objective: Paruresis refers to the inability to initiate or sustain urination where individuals are present due to the fear of perceived scrutiny from others. The aim of this systematic review was to evaluate four key questions: (1) What is the prevalence of paruresis and its associated demographic features; (2) What is the prevalence of psychopathology in paruresis cohorts, how does it compare to other chronic-health conditions, and what percentage of paruresis patients also have social anxiety disorder? (3) How does quality of life, and levels of anxiety and depression compare between those with and without paruresis; and (4) do psychological interventions for paruresis patients reduce paruresis symptoms, or, anxiety, or depression, or improve quality of life?

Method: A review was conducted using PRISMA protocol for search strategy, selection criteria, and data extraction. Searched databases included PubMed, CINAHL, and PsychINFO. Over the 1418 studies screened, ten were found relating to at least one review question.

Results: The prevalence of paruresis ranged between 2.8 and 16.4%, and around 5.1–22.2% of individuals with paruresis also had Social Anxiety Disorder. Paruresis symptoms were shown to reduce in one intervention study. Paruresis was also associated with poorer quality of life. A key limitation of the research to date has been the notable methodological problems and lack of standardisation relating to the measurement of paruresis.

Conclusion: Little is known about the prevalence of paruresis and more rigorous studies of paruresis are required. Recommendations in terms of clinical implications, diagnostic criteria and future research relating to paruresis are discussed.

1. Introduction

Paruresis commonly refers to the inability to initiate or sustain urination (micturition) where individuals are present (e.g., in a public toilet) due to the fear of perceived scrutiny from others [8]. Considerable interpersonal, occupational and social impairment, psychological distress, and reduction in life quality have been associated with this disorder [8,39]. For some, their experience of paruresis can be very mild and occur inconsistently [35] however, in severe cases, paruresis sufferers may refrain from travel and social activities, leave their occupations, and avoid leaving their house due to their symptoms [24].

Paruresis is a phenomenon associated with a plethora of clinical nomenclature. For example, Malouff and Lanyon [22] employed the term "avoidant paruresis" while other researchers have used the terms "shy bladder syndrome" [14,24] and "psychogenic urinary retention" [4–6]. There has been debate as to whether paruresis and psychogenic urinary retention are synonymous and the issue is further compounded by researchers alternating between the terms (e.g., [19,36,41]).

Although both paruresis and psychogenic urinary retention are classified as forms of urinary retention, paruresis differs from psychogenic urinary retention as, in the latter disorder, the individual experiences long-standing inability to urinate under any environment or circumstance which resultantly requires the patient to be catheterized [8,22,26]. Indeed, there is a difference between paruresis and other forms of more chronic, emotionally or physiologically influenced urinary retention [7]. In particular, such forms of urinary retention (e.g., vesical sphincter dyssynergia and non-neurogenic, neurogenic bladder) are mostly seen in children and result in incontinence and structural damage [7].

In terms of theoretical models of paruresis, early conceptualisations

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were predominately psychoanalytic. For example, Freudian interpretations explained paruretic symptomology in the context of psychosexual influences (e.g., unconscious ego-dystonic sexuality; [41]). Modern understandings of paruresis have moved away from psychoanalysis towards a cognitive-behavioural framework whereby paruretic symptoms are thought to result from an association between anxious arousal and urination in public restrooms [8]. Unsuccessful attempts at voiding in public may lead to feelings of anxiety and embarrassment, which are then exacerbated with further unsuccessful attempts and avoidance strategies [8]. Furthermore, dysfunctional thoughts and cognitive fallacies have been suggested to contribute to paruresis pathogenesis. In particular, individuals with paruresis may be inclined to perceive others as being critically evaluative, have inflated concerns of their body image, overestimate severity of negative evaluation, and be predisposed to interpreting ambiguous cues as being indicative of negative evaluation [8,37]. These cognitive fallacies serve to exacerbate and reinforce paruretic symptomology and have also been noted in other psychopathologies [18].

Mental health conditions that have been reported to be commonly comorbid in paruresis presentations include, social anxiety disorder (SAD), depression, and obsessive compulsive disorder (OCD; [39]). Contention remains in regards to rates of psychopathology in paruresis presentations, and to date a systematic review identifying rates of psychopathology in paruresis has yet to be conducted. In the current version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the diagnostic classification of paruresis falls under the category of social anxiety disorder (SAD; [1]). The reason behind this classification stems from the argument that paruresis and SAD share common features (e.g., [8,39]). In contrast, other researchers have argued that paruresis is distinct from SAD (e.g., [14]) as it is a functional disorder (a condition where normal function of the body is impaired in the absence of a physical cause; [23]).

While there have been several studies in the area of paruresis, no systematic review has been conducted to date. Four review questions were chosen because of their underlying connection to the psychosomatic nature of paruresis. The systematic review of these questions will both clarify current knowledge relating to paruresis and help direct future research in this area (Table 1).

The aim of the current systematic review was to explore four key questions relating to the paruresis literature:

Question 1: What is the prevalence of paruresis and its associated demographic features (i.e., age, gender, socioeconomic status, ethnicity)?
Question 2: What is the prevalence of psychopathology in paruresis cohorts, how does it compare to other chronic-health conditions, and what percentage of paruresis patients also have social anxiety disorder?
Question 3: How does quality of life, and levels of anxiety and depression compare between those with and without paruresis?
Question 4: Do psychological interventions for paruresis patients reduce paruresis symptoms, or, anxiety, or depression, and/or improve QoL?

2. Methods

This systematic review was registered in the International Prospective Register of systematic reviews PROSPERO (CRD42016049498).

2.1. Types of studies

Studies were included in the systematic review if they met the following criteria: (1) investigated paruresis; (2) reported on the prevalence, psychopathology, aetiology, and symptomology of paruresis; (3) reported on psychological treatment interventions for paruresis. Studies were excluded if they met the following criteria: (1) case studies, case reports, or case series; (2) reviews, commentaries, discussion pieces or opinion articles; (3) focused on pharmacotherapy; (4) investigated animal models; (5) were in a language other than English; (6) did not directly investigate paruresis (e.g., hysterical urinary retention, urinary retention of organic aetiology).

2.2. Search methodology

2.2.1. Sources

A systematic and comprehensive literature search of PubMed, CINAHL, and PsychINFO were conducted in April and August 2016 using the search strategy listed below.

2.2.2. Search strategy

The following keywords were used in this search.

"paruresis" OR "shy bladder" OR "urinary retention" OR "psychogenic urinary retention" OR "micturition retention" OR "micturition inhibition" OR "bashful bladder" OR "impaired voiding" NOT "Fowler's Syndrome" NOT "surgery" NOT "cancer" NOT "spinal cord" NOT "prostate" NOT "prostatic hyperplasia" NOT "cerebral palsy" NOT "infection" NOT "constipation" NOT "vaginal delivery" NOT "hip fracture" NOT "stroke" NOT "dementia" NOT "postoperative" NOT "cystitis" NOT "sclerosis" NOT "pregnancy" NOT "neurogenic bladder" NOT "renal injury" NOT "acute urinary retention" NOT "chronic urinary retention".

2.3. Data collection and analysis

The current systematic review was conducted based on recommended PRISMA guidelines (http://www.prisma-statement.org/).

2.4. Data extraction

Extracted data consisted of the following: authors and year of publication, country of origin, condition and/or design and/or intervention, participant details, outcome measures, and main findings.

2.5. Quality and risk of bias assessment

In order to appraise study quality, two reviewers independently inspected the full-text articles that were identified for each question. Any disagreement was discussed with a third reviewer.

3. Results

Of the 1535 studies identified during the initial searches, 117 were removed as duplicates. Of the 1418 articles that were screened on the basis of titles and abstracts, 1358 were excluded based on title and abstract (Fig. 1), leaving 60 articles for full review to determine each articles relevance to each question. As for the number of articles applicable to each question, eight articles were applicable to Question 1, six articles were applicable to Question 2, one article was applicable to Question 3, and one article was applicable to Question 4.

3.1. What is the prevalence of paruresis and/or its associated demographic features (i.e., age, gender, socioeconomic status, ethnicity)?

Eight of the 10 studies reported paruresis prevalence within their sample and only three studies reported a mean age-range. The mean age-range of those affected by paruresis spanned 29.2 to 41.4 years [14,17,35]. Unfortunately, no further information was provided regarding other demographic features (e.g., ethnicity).

Using community samples, Hammelstein, Pietrowsky, Merbach, and Brahler [13] reported a prevalence of 2.8% with Knowles and Skues