

Sociocultural and environmental influences on bladder health

Public health initiatives designed to promote bladder health and raise awareness of its importance around the world may increase overall health and reduce societal burden

Bladder health may be affected by sociocultural and environmental factors and perceptions about bladder health and treatments. Cultural differences in toilet training strategies and toilet access at school during childhood may have long-lasting consequences on bladder health. Among adults, bladder health may be affected by sociocultural influences on voiding behavior, including religious beliefs and occupational conditions, and by environmental factors, including access to toilets and a clean water supply. Furthermore, individuals from some cultures may view urinary incontinence and lower urinary tract symptoms as a normal consequence of aging, and this misconception may act as a barrier to help-seeking behavior. Public health initiatives designed to promote and raise awareness of bladder health need to take these important factors into account.

Introduction

The World Health Organization defines health as ‘a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity’ (1). Compromised bladder function can impair physical, mental and social aspects of health, the effects of which are burdensome at both the individual and societal levels (2,3). Currently, the importance of bladder health in the context of overall health is not fully understood and acknowledged by healthcare providers and the public. There is a need to increase the reporting, diagnosis and treatment of bladder symptoms and disease, as well as primary prevention strategies. Worldwide public health initiatives aimed at raising awareness of and promoting bladder health have the potential to have a positive impact on overall individual and population health. However, factors influencing bladder health may differ across populations. For example, there are differences in the prevalence of lower urinary tract symptoms (LUTS) among different ethnic and racial groups, both within and among countries (4–15). Sociocultural and environmental factors may contribute to some of these differences (16,17). Thus, pioneering initiatives to improve bladder health must take into account varying levels of knowledge, attitudes and beliefs about bladder health and treatment among different populations and sociocultural and environmental factors that influence bladder health. In this article, we describe how these factors

may influence bladder health and the treatment of bladder dysfunction.

Bladder health knowledge, attitudes and beliefs among laypersons

Beliefs and attitudes about bladder health and dysfunction vary among cultures; however, universally, there is a general lack of knowledge regarding the normal functioning of the lower urinary tract system. For example, individuals with LUTS, including urinary incontinence (UI), often view their symptoms as a normal consequence of ageing. This misconception, which acts as a barrier to help-seeking, has been a consistent observation in global studies (18–32).

The need for educational directives to increase awareness that healthy bladder habits, preventative strategies and behavioural/lifestyle and pharmacologic therapies can help maintain or restore bladder health across the lifespan has been expressed by researchers from a number of different cultures (2,32–38).

In many cultures, LUTS and other bladder dysfunctions are often associated with stigma and embarrassment (39–42). UI can be perceived as evidence of social incompetence, thus compromising the ability to function in society (40). The perceived stigma associated with LUTS and UI can lead to psychosocial decline, including loss of independence, social isolation, premature retirement, anxiety and depression as well as feelings of demasculinisation and withdrawal from social activities among men (39,40,43,44). Across cultures, many individuals avoid seeking help or discussing treatment options with healthcare providers because of embarrassment (22,24,26,31,40,45,46).

In Western cultures, UI has been historically perceived as a social burden rather than a medical condition (40) and has led to ostracism by peers (42). However, there has been increasing recognition among researchers that underlying anatomical and physiological factors affect bladder function, and UI is evidence of health deterioration. In other cultures, UI may be viewed as a product of self-neglect, poor hygiene, or poor self-discipline (40).

Patient-directed education on normal bladder function, LUTS and available treatment options has been shown to increase healthcare-seeking behaviour and improve expectations about treatment outcomes (47–51).

Toileting influences in children

Over time and across cultures, many recommendations regarding childhood toilet training have been made. These recommendations vary on several aspects, such as the age at which training should be initiated and the level of parental permissiveness vs. control (52). Current prevailing thought in Western cultures favours later initiation of toilet training with parental permissiveness (i.e. waiting until the child appears ready rather than forcing the issue) (52,53), although evidence indicates that a long delay may lead to an increase in daytime and nighttime UI (54–56). Initiation of toilet training before 24 months of age may result in a longer duration of training, although some parents may attempt early training because of competing scheduling constraints or the availability of reduced day care rates for children who are toilet trained (57). However, in some Asian and African cultures, it is common to initiate toilet training during infancy (58). There is little definitive evidence regarding comparative effectiveness of different toilet training methods (52,59), which is due in part to the lack of culturally sensitive standardised definitions for toilet training methods and outcomes (59).

Childhood toilet training is important, because early perceptions and attitudes regarding bladder habits are often sustained throughout life. In Western cultures, children are toilet trained by their parents, and children can perceive ‘accidents’ as bad behaviour that is associated with shame and embarrassment from failing to meet their parents’ expectations (41). Internalised cultural values and expectations may influence bladder habits later in life and lead to the development of bladder dysfunction (41). Poor toilet training techniques (e.g. simultaneous use of multiple toilet training techniques, punishment of accidents, encouraging children to strain) are associated with increased urinary symptoms and urinary tract infections (UTIs) in older children and adolescents (54–56,60). Furthermore, the presence of LUTS during childhood is associated with LUTS during adulthood (61).

Restricted access to toilets during school days for children may have adverse effects on bladder health. Elementary school teachers are often unaware of the potential consequences of restricted toilet access and delayed voiding for school children (62,63). Further-

more, school toilets may lack appropriate privacy or cleanliness or may be places where bullying occurs, leading to suppression of the desire to void and dysfunctional voiding (62,64). For most of the children in villages in Africa and Asia, no toilets exist in school (65).

Toileting behaviours in adults

Current consensus is that bladder emptying should be accomplished by adopting a relaxed position and allowing time for the bladder to empty completely (2). The posture adopted for micturition, which may affect bladder health in women, is in part determined by sociocultural factors (66,67). For example, in Western cultures women typically empty the bladder in a sitting position on a flush toilet, whereas women in Asian and African cultures commonly empty the bladder in a squatting position using a squat toilet (67). Voiding posture may have implications beyond bladder health. A study in India has shown that squatting during toileting has been associated with increased blood pressure and stroke in both healthy individuals and individuals with known hypertension (68,69). Among Western cultures, many women adopt a crouching or hovering position when using public toilets (67). This position may preclude relaxation of the pelvic floor and urinary sphincter, thus preventing complete emptying of the bladder (70). One study investigating women’s preferred voiding position when using public toilets reported that the healthy young (mean age, 23.2 years) subjects preferred non-sitting positions with cleanliness of the toilet as the leading factor for adopting non-sitting positions (71). Although there are conflicting data regarding the best posture for voiding and the effects of various postures on emptying, it appears that adopting the most comfortable position is important for men and women. For example, among men without LUTS, better uroflow measures were associated with more familiar positions (in this case, standing or squatting) vs. unfamiliar positions (for many subjects in this study, sitting) (72).

For women, the physiological event of emptying the bladder, which comprises specific attributes, including voiding place, time and position, can be affected by societal beliefs and norms, including women’s focus on an appropriate time and place (67). Toileting is also influenced by physical and social environments (67), some of which may exacerbate conditions, such as paruresis (shy bladder syndrome) (73). Many cultures and societies do not account for gender differences in toileting needs, which can result, for example, in women often waiting in a line of other women to void because of insufficient number of public toilets (74). Cultural/religious phenomena and bladder

health may have a strong impact on each other among individuals with orthodox religious beliefs. For example, among Jewish women, UI is perceived as compromising the cleanliness required for prayer per Torah commandment (4). Among Muslims, incontinence has also led to religious restriction related to need for cleanliness during prayer (4).

Lifestyle factors, including differences in smoking habits and diet, may contribute to differences in bladder health between countries and cultures. For example, high smoking rates may be associated with increased prevalence of bladder cancer (75). Higher rates of LUTS may be evident in countries where people consume known bladder irritants, such as spicy foods, high-acid fruits and caffeine (76). Excessive water intake for weight management can essentially 'wash out' the bladder's natural defences and cause UTIs (77).

Environmental influences on bladder health

Increasing access to and quality of healthcare can affect bladder health and preventive care. For example, adequate prenatal care, including provision of information regarding the physiotherapy of pelvic floor dysfunction during pregnancy and childbirth that can help prevent bladder problems may be lacking. The eradication of obstetric fistula in low- and middle-income countries is dependent upon building programmes or collaborating with existing programmes that target screening, prevention, treatment strategies and adequate quality of and access to women's healthcare (78). In parts of Africa, where prevalence of obstetric fistulas that impact bladder function is high, programmes counselling women on contraception after fistula repair demonstrated increased knowledge and indicated that population-based education is feasible (79).

Geographic differences related to weather/seasons appear to be another factor affecting bladder conditions (80). A population-based questionnaire study in three communities in Japan investigating the relationship between climates (winter vs. summer) and storage LUTS demonstrated that winter was an independent risk factor for frequency, urgency and nocturia (80). The authors hypothesised that the phenomena may be attributable to the larger seasonal difference in the atmospheric temperature (80).

Access to a clean water supply affects hygiene and the risk of LUTS. In addition, regulations regarding what constitutes clean water differ among countries, and water quality can affect bladder health (81). For example, arsenic contamination in

drinking water is a major public health issue around the world, and bladder cancer rates are high in countries where arsenic has infiltrated the ground water and the public drinking supply. The World Health Organization recommends that the arsenic level in drinking water should be less than 10 µg/l, but some developing countries have levels as high as 50 µg/l. Other environmental factors that can have an impact on bladder health include access to toilets and the safety and privacy of toilet facilities.

Some countries have attempted to alleviate the burden of inaccessibility of toilet facilities. The Australian government has provided a national public toilet map on their continence education website (82). The map provides the location of the nearest public toilet; details of opening hours, accessibility, parking and other features; a way to plan short and longer journeys and locate toilets along the way; and the ability to save toilet information and trip plans. Lack of toilet access and dependence on others for assistance with toileting have been identified as factors that can cause or contribute to UI in frail older adults (83). Access to toilets may be affected by occupational or cultural factors and limited by availability and accessibility during travel.

Some societies do not prioritise toilet facility access as a human right (65), and regulatory processes may not properly address issues of sanitation, both of which can limit access thereby negatively affecting bladder health. In 2008, it was reported that more than 2.6 billion people (i.e. 40% of the world population) were living in villages in Africa, Asia and Latin American with toilet facilities that were not safe, private, or sanitary, which is not only demoralising and unhealthy for individuals, but also represents a public health crisis (65). Approximately 200 million women in India and more elsewhere are forced to 'hold themselves in' until nightfall, when they risk abuse and attack, because they cannot be seen going to the toilet to relieve themselves (65). The Water Supply and Sanitation Collaborative Council has compiled national coordinators in 35 countries in Africa, Asia and Latin American to educate and facilitate advocacy and regulatory policy development for sanitation at both the national and global level (84).

Occupational influences on bladder health

The relationship between bladder health and work is bidirectional. For example, episodes of UI in women with factory jobs have been tied to occupational problems (e.g. heavy lifting, bending, prolonged standing

and restricted access to toilet facilities); however, the majority of women employed full-time with UI never sought medical help (85,86). Conversely, existing UI can cause problems for women in varied work settings (interruptions in work, embarrassment) and a coping strategy of fluid restriction could itself aggravate urinary tract problems (87).

The impact of bladder health on one's occupation includes choice of career and retirement decisions (e.g. access to toilets, travel requirements, heavy lifting), rate of productivity during work hours (presenteeism), occurrence of sick days (absenteeism) and the perception by management and co-workers that frequent voiding is just an excuse to avoid work (88,89).

For a variety of occupations, certain environments may not allow for adequate restroom breaks, and workers may routinely defer these breaks because of lack of toilet parity, lack of opportunity based on daily activities and responsibilities, or restricted access to toilets (38,90–92). Among workers who may delay restroom breaks are those who have a number of competing scheduling demands and control of the work environment, including teachers, nurses, production workers and airline pilots.

To address the challenges that transit and transportation drivers face for work-related toilet access, the American Restroom Association ('America's advocate for the availability of clean, safe, well designed public restrooms') has dedicated a website to restroom availability issues related to this occupation (93). The US Occupational Safety and Health Administration (OSHA) At-Will Bathroom-Break Regulations address the rights of workers to have adequate toilet facilities (93,94). The OSHA regulations were aimed at the prevention of adverse health related to lack of access to toilets when employees need them (94).

Factory production operatives, especially women in manufacturing and production facilities, are affected by UI (85,95). A survey of more than 250 women in a manufacturing plant demonstrated that 29% had symptoms of UI, but only 35% of them reported the symptoms to a healthcare provider (95). Of those who reported the symptoms, only 30% were unable to identify the cause. Infrequent voiders' syndrome is also referred to as nurses' bladder, or hairdressers' bladder because those occupations are associated with infrequent voiding (96). In a study of infrequent voiders, most women voided 0–2 times during an 8-h workday (96). Despite multiple hypotheses, the long-term impact of this behaviour on bladder health is still not clear.

Self-imposed fluid limitation is a strategy used by some professionals, including school teachers (97). A

study of 791 female teachers with an average 8.4-h workday investigated the effects of voiding habits or behavioural factors at work that may predispose them to UTI (97). Teachers who drank less than the volume they desired to ingest had more than twice the risk of UTI compared with those who drank the volume they desired. Seventy-nine per cent of teachers reported needing to urinate at times other than during sanctioned restroom breaks, suggesting that local policies may need to change to accommodate this need (97).

Workplace conditions, such as toilet inaccessibility and organisational pressure to increase productivity by restricting breaks or setting salary deductions for breaks, can affect bladder health. In a study of 445 elementary school teachers in Taipei, the prevalence of UI was 26.7%, suggesting that the working environment of elementary school teachers may affect LUTS (98). Another study of women in Taipei suggested that women need education on the importance of maintaining normal body weight, good bladder/bowel habits, regular exercise, treating chronic cough, decreasing daily caffeine consumption and implementing environmental modifications where possible in their employment settings (38).

There may be legal repercussions to employers for failure to provide employees with access to adequate toilet facilities (99) or when toileting behaviour associated with a particular profession has adverse effects directly related to bladder health, such as limiting liquid intake, not using the toilet for extended periods of time (97), heavy lifting (which can cause pelvic muscle dysfunction) (100), or occupational exposure to carcinogens associated with bladder cancer (101). Not being permitted to go to the restroom can cause UTIs, constipation, abdominal pain, diverticuli, haemorrhoids, bowel distension and incontinence.

Rates of bladder cancer vary among countries; high incidence rates are reported in many southern and eastern European countries, in parts of Africa, the Middle East and in North America (102). The highest estimated mortality caused by bladder cancer is in Egypt, where rates are more than three times higher than the highest rates observed in Europe and 8 times higher than those in the United States (102). Work associated with carcinogen exposure is associated with bladder cancer (103); in a study of 1749 plant workers in New York State who were exposed to two potential bladder carcinogens (ortho-toluidine and aniline), an increased incidence of bladder cancer was observed (103). In Swedish men, an association has been identified between bladder cancer and many occupations, including employment in pulp and fibreboard manufacturing and in rope and twine

making; working as a dental technician, barber or beautician, artistic painter, toolmaker or machinist, and physician; and employment in butcher shops, industrial chemical making, apparel manufacturing and plumbing (101).

Conclusion

Bladder disease and dysfunction, such as UI and other LUTS, are currently underreported, underdiagnosed and undertreated. Misperceptions regarding the nature of UI and LUTS, as well as a lack of appreciation for the importance of bladder health on overall health, contribute to this global public health issue. Public health initiatives designed to promote bladder health and raise awareness of its importance around the world may increase overall health and reduce societal burden. These initiatives must address beliefs and attitudes regarding bladder health, as well as sociocultural and environmental factors, that can have profound effects on bladder health worldwide.

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