

ORIGINAL ARTICLE

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How is delayed ejaculation defined and treated in North America?

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SUMMARY

Delayed ejaculation (DE) is an uncommon disorder that is difficult to treat because it is poorly understood. The aim was to evaluate the current opinion and clinical management of DE by practitioners in sexual medicine. Members of the Sexual Medicine Society of North America (SMSNA) were invited by email to participate in a web-based survey. The questionnaire consisted of eight questions pertaining to DE. Questions addressed patient volume, qualification of patient bother, ranking of etiologies, perceived success, treatments used, quantification of symptom resolution, and broad characterization of practitioner type. A total of 94 respondents completed the survey with 73% of those being urologists. Fifty-nine percent of the respondents saw ≤ 2 patients a month with DE and 89% of practitioners felt that DE was moderately or severely bothersome to the patients. Etiology was felt to be from medications and psychological factors primarily. Despite treatment modality, 'seldom' success was obtained for 49% of the time and 'never' for 11%. Carbergoline was the most common selected medication for DE. Academic and private urologists reported 'never' or 'seldom' success with sexual counseling compared to other practitioners, respectively ($p = 0.008$ and $p = 0.001$). Respondents who saw ≤ 2 patients per month often reported normalization of hypogonadism 'never' or 'seldom' corrected DE ($p = 0.047$). Delayed ejaculation is still a poorly understood disorder with inconsistent practice patterns seen among members of the SMSNA. A better understanding of this vexing disorder is needed with efforts placed on research and practitioner education.

INTRODUCTION

Delayed ejaculation (DE) is defined by the World Health Organization Second Consultation on Sexual Dysfunction as personal distress caused by the persistent or recurrent delay, difficulty, or absence of orgasm after sufficient sexual stimulation (Lue *et al.*, 2004). The terms 'inhibited', 'retarded', and/or delayed ejaculation have all been used to describe this disorder, and no specific amount of ejaculation latency has been established for diagnosis of DE. The median intravaginal ejaculation latency time was 5.4 min with a range of 4–10 min for an international sample of healthy subjects and was also found to increase with age (Patrick *et al.*, 2005; Waldinger *et al.*, 2005). DE can be a lifelong problem that is persistent, intermittent, or situational. Retrograde ejaculation and aspermia with presence of orgasm are not considered DE. Multiple etiologies of DE have been suggested, including age, congenital anomalies, surgical complications, neurogenic disorders, infections, endocrine abnormalities, medications, and psychopathology.

The prevalence of DE is not well established and mostly based on surveys and case cohorts. These studies have estimated it to

afflict 0.15–11% of men (Nathan, 1986; Spector & Carey, 1990; Laumann *et al.*, 1999; Rowland *et al.*, 2004). DE has been associated with anxiety, depression, shame, performance anxiety, relationship distress, sexual dissatisfaction, low self-esteem and self-image, intimacy avoidance and relationship dissatisfaction (Masters & Johnson, 1970; Jannini *et al.*, 2002a,b; Montorsi *et al.*, 2010; Abdel-Hamid & el Saleh, 2011; Mulhall & Hsiao, 2014).

A survey of members in the Sexual Medicine Society of North America (SMSNA) was conducted to determine perceived etiology, epidemiology, treatment options, and success when dealing with DE. As the members of this society likely see the greatest numbers of these patients, we felt that examining this group would provide a different perspective on this disease. We were particularly interested in how these practitioners viewed the implication of DE on their patients, their perception of etiology, and relative success of treatment choices.

AIMS

The aim was to evaluate the current opinion and clinical management of DE by practitioners in sexual medicine.

MATERIALS AND METHODS

Survey instrument

Members of the SMSNA were invited by email to participate in a web-based survey in May 2014 utilizing the commonly used web survey host Survey Monkey (surveymonkey.com) (Please see Table 1). A total of 859 SMSNA members were invited to

participate, and a reminder email was sent out 1 week after the initial invitation. The survey remained open for 2 weeks and a total of 94 (11%, 94/859) of members responded. The questionnaire consisted of eight questions pertaining to DE. Questions addressed the number of patients the practitioner sees per month with DE, a qualification of how bothersome the problem

Table 1 On-Line Survey Questionnaire on Delayed Ejaculation

1	How many patients per month do you see for delayed ejaculation?					
	0	1	2	3 - 5	>5	
2	How bothersome in general is this problem to your patients?					
	Not very bothersome		Mild	Moderate	Severe	
3	In your practice, what is the most common etiology of these ejaculatory problems? Please rank in order					
		Medications				
		Psychological				
		Hormonal				
		Previous Penile Implant				
		Autonomic Dysregulation				
4	Describe how successful you find the following treatment approaches:					
	Normalization of Hypogonadism	Always	Mostly	Seldom	Never	
	PDE5i's for Erectile Dysfunction	Always	Mostly	Seldom	Never	
	Sexual Counseling	Always	Mostly	Seldom	Never	
	Penile Vibratory Stimulation	Always	Mostly	Seldom	Never	
5	Please select your first line MEDICAL treatments and how often you use other treatments in your practice:					
	Carbergoline	First Line	Frequently	Occasionally	Rarely	Never
	Oxytocin	First Line	Frequently	Occasionally	Rarely	Never
	Yohimbine	First Line	Frequently	Occasionally	Rarely	Never
	Cyproheptadine	First Line	Frequently	Occasionally	Rarely	Never
	Amantadine	First Line	Frequently	Occasionally	Rarely	Never
	Buspirone	First Line	Frequently	Occasionally	Rarely	Never
	Bupropion	First Line	Frequently	Occasionally	Rarely	Never
	Midodrine	First Line	Frequently	Occasionally	Rarely	Never
	Methylphenidate	First Line	Frequently	Occasionally	Rarely	Never
	Other	First Line	Frequently	Occasionally	Rarely	Never
6	Overall, what percentages of patients have resolution of their symptoms with your treatment?					
	(Open-ended response)					
7	Please describe your current work position:					
	Advanced Practice Provider (NP/PA)	Primary Care Physician	Psychologist/ Psychiatrist	Urologist – Private practice	Urologist - Academics	Other (not listed)
8	Please use the space below to add any additional comments you have regarding these patients or the treatment options.					
	(Open-ended response)					

is to patients, ranking of common etiologies, perceived success of common treatments, the common treatments that are used by the practitioner, a quantification of symptom resolution, and a broad characterization of the practitioner's current work position. Treatment strategies were based on clinical practice and the reported success in existing research (Teloken *et al.*, 2012). Likewise, medications included in the survey were taken from those previously reported in the literature (Jannini *et al.*, 2002a; Lue *et al.*, 2004; Aukst-Margetic & Margetic, 2005; Porst & Buvat, 2006; Richardson *et al.*, 2006; Rowland *et al.*, 2010; McMahon *et al.*, 2013; Mulhall & Hsiao, 2014).

Data analysis

Results are primarily presented as proportions. One question used an open fill in the blank format to ask what percentage of patients has resolution of symptoms with treatment. Statistical analysis was completed using chi square tests to evaluate differences in reported outcomes and preferred treatments between types of practitioners as well as by volume of patients seen with DE. Comparisons by practitioner type included academic urologist, private urologist, and other providers. Patient volume categories were dichotomized between those who saw ≤ 2 and > 2 patients with DE monthly. SAS version 9.3 (SAS Institute, Cary, NC, USA) was used for statistical analysis, and a *p*-value of < 0.05 was considered significant.

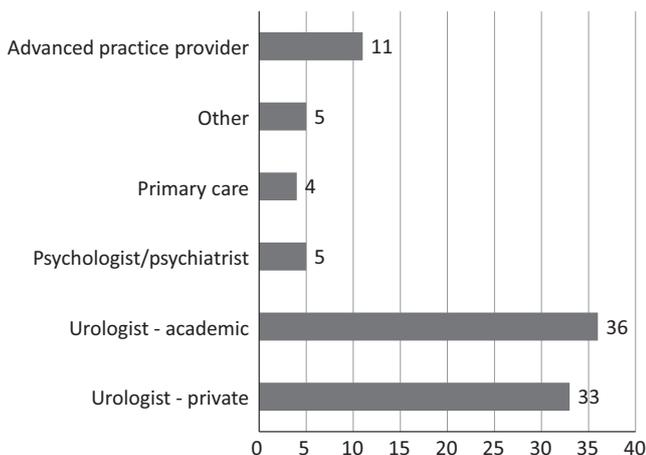
MAIN OUTCOME MEASURES

Quantification and qualification of the problem, assessment and perceived etiology, assessment of treatment algorithms, and treatment success were the main outcomes measured in our study.

RESULTS

A total of 94/859 (11%) respondents completed the survey with the overwhelming majority of participants in the survey being urologists (73%, 69/94) with roughly half of them being in an academic setting (Fig. 1). The frequency of patients with DE that were seen by the provider is displayed in Fig. 2. The most common response was '1' (32%, 30/94) and the majority (59%, 58/94) saw 2 or less patients per month. Owing to the range of 3–5 patients per month category, we were not able to obtain a true statistical average. In general, patients seeking medical care were

Figure 1 Self-described current work position of respondents.



significantly bothered by symptoms. A total of 89% (83/94) of practitioners subjectively qualified patients as moderately to severely affected by symptoms not based on objective measures (Fig. 3 and Table 1). Respondents chose medications and psychological factors as the most common etiology for DE (Table 2).

Figure 2 Number of patients seen per month with delayed ejaculation.

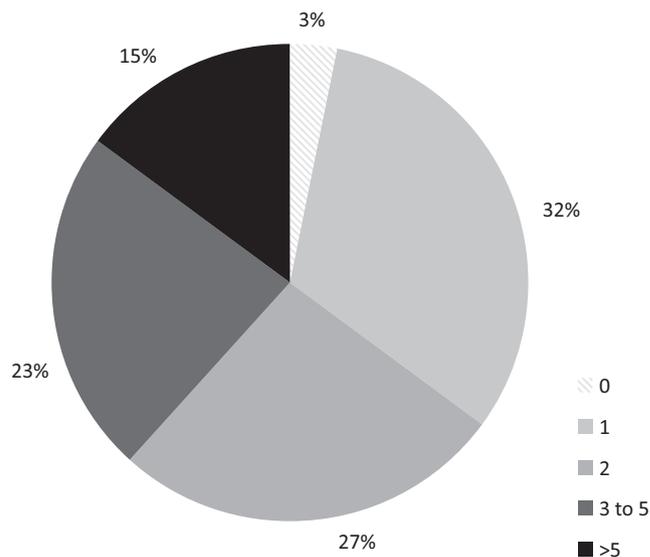


Figure 3 Assessment by practitioner of how bothersome DE is to patients.

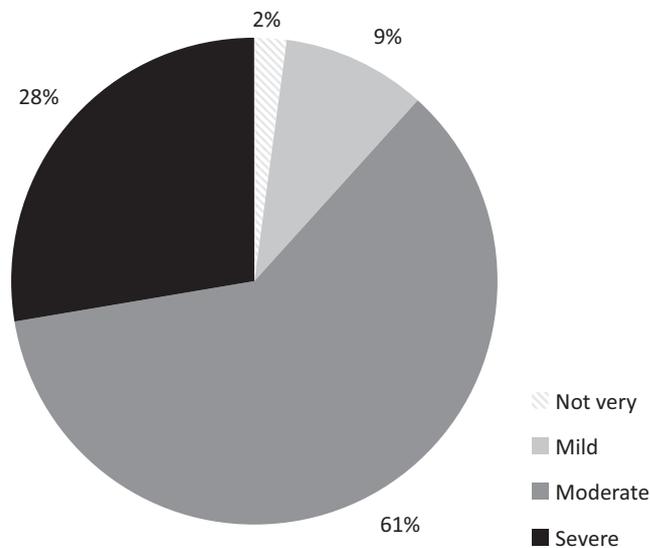
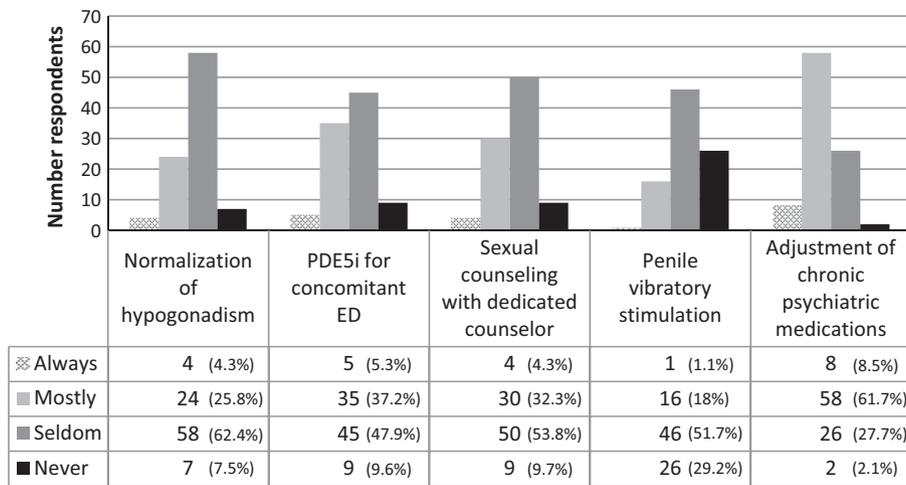


Table 2 Ranking of etiology of delayed ejaculation

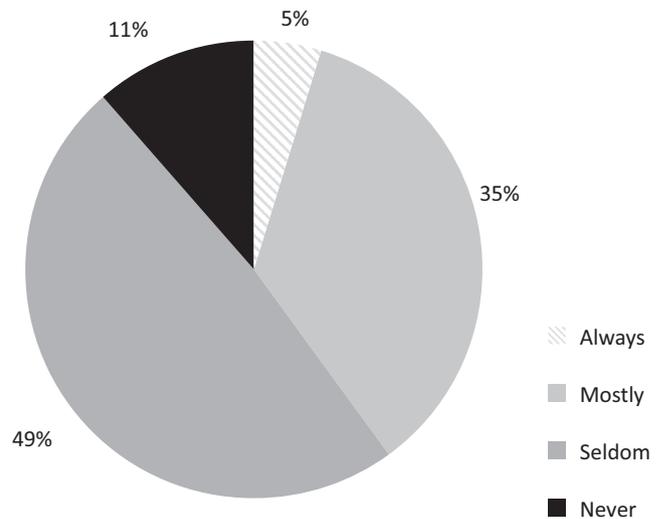
	Most common	2nd	3rd	4th	5th	6th
Medications	32	33	17	7	3	0
Psychological	25	13	21	22	8	3
Hormonal	8	20	14	29	16	5
Previous penile implant	0	4	12	8	16	52
Autonomic dysregulation	10	12	23	15	24	8
Other	17	10	5	11	25	23

Figure 4 Description of success with each treatment approach.



Efficacy of treatments was assessed in multiple questions. In an open response wherein respondents stated the percentage of patients who had symptom resolution with treatment, the average was 22% (standard deviation 20.6%). Respondents were also asked how successful they found certain treatment approaches (Fig. 4). The most success was seen with adjustments of chronic psychiatric medication, which garnered the most responses as being ‘always’ or ‘mostly’ (70%, 66/94) effective amongst the options listed. The other modalities that were ‘always’ or ‘mostly’ successful for patients ranged from 19 to 43% as follows: PDE5i (43%, 40/94), sexual counseling (37%, 34/94), normalization of hypogonadism (30%, 28/94), and penile vibratory sensation (19%, 17/94). When these answers were aggregated, 11% (10/94) of respondents found that no treatments worked (‘never’ category), while 49% (46/94) selected ‘seldom’, 35% (33/94) answered ‘mostly’, and 5% (5/94) ‘always’ (Fig. 5).

Figure 5 Treatment success from any modality.



A large number of medications were listed and respondents were asked to select their first line choice followed by how often they use other common medications (Table 3). Surprisingly, almost all treatment options were selected as a first line by at least one respondent. Cabergoline (14) and bupropion (11) were the most commonly selected first line treatments. Additionally, cabergoline was chosen most often as ‘frequently’ and ‘occasionally’ for treating DE. Amantadine and midodrine were never chosen as a first line agent in treatment. Of the 89 practitioners who responded to this question, 63% (56/89) of them designated no first line medication.

Table 3 Use of common medications for treatment

	First line	Frequently	Occasionally	Rarely	Never
Cabergoline	14	10	15	5	41
Bupropion	11	6	13	15	39
Oxytocin	6	5	6	12	52
Cyproheptadine	5	0	4	13	57
Buspirone	1	2	11	10	58
Methylphenidate	1	1	4	6	67
Amantadine	0	2	2	10	65
Yohimbine	1	1	2	6	69
Midodrine	0	1	1	10	65

Respondents who see ≤ 2 patients a month with delayed ejaculation ($n = 58/94$) reported that they ‘never’ or ‘seldom’ had successful treatment when normalizing hypogonadal states compared with those who saw three or more patients per month ($n = 36/94$) (OR 2.5, $p = 0.047$). Urologists were more likely to report ‘never’ or ‘seldom’ success with sexual counseling compared with other practitioners. This difference was seen when comparing academic urologists (OR 4.2, $p = 0.008$) and private urologists (OR 6.3, $p = 0.001$) to the group of other practitioners. The other group of practitioners were made up of advanced practice providers (NP, PA) (12%, 11/94), primary care physicians (4%, 4/94), psychologist/psychiatrist (5%, 5/94), and other (5%, 5/94). The other category may have included: sexual counselor, physical therapist, resident, medical/graduate student,

fellows, or other practitioner. The urologist respondents were academic (38%, 36/94) and private practice (35%, 33/94) (See Fig. 1).

DISCUSSION

In this study, clinicians reported that DE is a relatively uncommon condition but a significant problem for their patients. The survey answers suggest that there are disparate DE treatment practices among clinicians and that complete resolution of

symptoms is unlikely. The numerous and interacting perceived etiologies seen here for DE introduces additional difficulties in management. Some of the broad categories for proposed causes of DE include age, medications, neurogenic, congenital, iatrogenic, infective/inflammatory, endocrine, and psychological.

Dopamine and serotonin are neurotransmitters primarily involved with ejaculation, and any medication or pathologic condition that alters these neurochemicals may result in DE (Rowland *et al.*, 2010). Selective serotonin reuptake inhibitors (SSRIs) cause a decreased sensitization of the serotonin receptors and are the prime example of a medication implicated in DE. SSRIs carry up to a sevenfold increased risk of DE and are actually an effective treatment for premature ejaculation (Kiev & Feiger, 1997; Corona *et al.*, 2009). Many other classes of medications also cause ejaculatory dysfunction and erectile dysfunction. Survey respondents identified medications as the leading cause of DE, and adjustment of medications was noted to be the most successful treatment option.

Hypogonadism was associated with DE in 26% of men from a large sample of men with sexual dysfunction (Corona *et al.*, 2008). Studies have found that areas of the brain associated with orgasm and arousal as well as pelvic musculature are influenced by testosterone-mediated pathways (Mulhall & Hsiao, 2014). Prolactin is also a hormone suspected to be involved in the pathophysiology of DE. Prolactin spikes after orgasm and is thought to be partly responsible for the refractory period in men (Kruger *et al.*, 2005; Fitzgerald & Dinan, 2008). Although hypogonadism may be a cause for DE, normalization of testosterone levels were reported to have a low treatment efficacy by survey respondents. Additionally, those practitioners who saw fewer patients with DE were less likely to have treatment success when normalizing hypogonadism. This result may suggest these practitioners have less experience with hypogonadism correction and/or use other treatment modalities for DE outside of testosterone replacement. Data were not collected on specific clinical treatments of hypogonadism and hence we are not able to draw any conclusions on the impact this may have on DE in our study.

Numerous theories based on empirical support have been proposed to explain DE. These include fear of pregnancy, refusal to accept pleasure, insufficient mental stimulation, psychic conflict, idiosyncratic masturbation, and subtle desire disorders (Perelman, 2006; Binik & Hall, 2014). In order to properly treat DE from a psychological cause, the underlying psychopathology must be first identified. Various strategies can then be employed to address the specific problem by a sexual therapist who can provide counseling. Research is needed to establish the efficacy of this sexual counseling and psychotherapy in the management of DE. Our results demonstrated a disagreement between urologists and other practitioners in the efficacy of sexual counseling for DE. This may be explained by the relatively rare access to sexual therapists. Objective research will help to establish evidence-based practice guidelines.

There is no FDA approved medication to treat DE due to a lack of robust clinical trials to adequately prove the efficacy of the drugs. There also has been no superiority or comparative studies for treatment of DE. The top two medications cited by respondents of our survey were cabergoline and bupropion. Cabergoline is a dopamine agonist on D2 receptors that inhibits prolactin secretion and has been shown to decrease the refractory period, increase libido, and improve ejaculation.

Bupropion is a dopamine and norepinephrine reuptake inhibitor that has been an effective antidote for the side effect of DE from SSRIs in some studies (Labbate *et al.*, 1997; Ashton & Rosen, 1998; DeBattista *et al.*, 2005). Many of the other drugs commonly used for DE have also been investigated as a treatment to counter the effects of SSRIs. Further research to compare efficacy of these many options is warranted to identify preferred medications.

The average treatment success was only one in five for patients regardless of treatment choice, which highlights that practitioners are generally unable to provide symptom relief for patients with our current understanding and tools for managing the condition. The outcomes with medical treatment of DE reported by Teloken, Nelson, and Mulhall align with our results for medication adjustment and normalization of hypogonadism (Teloken *et al.*, 2012). They cited 68% success with adjustment of SSRI agents and 24% with testosterone supplementation, which is congruent with our respondents' report of 70 and 30% for these treatments being 'always' or 'mostly' successful for patients. However, they achieved 60% success with penile vibratory stimulation, but our results demonstrated a much lower result of only 19%.

Limitations include the cross-sectional nature of the survey, convenience sampling, and voluntary response bias. The respondents may be practitioners who have strong opinions about the topic of DE and thus took the time to complete the survey. The survey was also limited to the SMSNA membership and thus is not representative of a broader population of general urologists, primary care providers, or mental health practitioners who may also manage patients with DE. Additionally, the survey instrument was not tested for validity or reliability. The limited Likert-type questions in the survey may have resulted in central tendency bias, acquiescence bias, and/or social desirability biases.

CONCLUSIONS

This survey administered to members of the SMSNA has shown variable experience and poor treatment success with DE in men, underscoring the need for a better understanding of the disorder, treatment research, and practitioner education in the future.

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