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Empirically Validated Treatment for Sexual Dysfunction

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Although recent changes in health care management in the United States have increased professional interest in identifying psychotherapies of proven utility, the concern about validated and effective psychotherapy treatments is several decades old (Lambert & Bergin, 1994; Paul, 1967). Compared to treatments for other mental health diagnoses, such as depression and anxiety, sexual dysfunction treatment efficacy has received less critical attention. Sexual disorders have often attracted entrepreneurial and exploratory interventions, with clinical examples, that are often encouraging, but which rarely meet conditions for a well-designed single-case or group-studies series. Our purpose in reviewing validated treatments is to underscore the importance of developing standards of care for sexual dysfunctions.

Overview: Empirical Validation of Sexual Dysfunction Treatments

The American Psychological Association's Task Force (APA, 1995) proposed two categories of empirically validated treatments: *well-established* and *probably efficacious*. There are almost no psychological treatments for sexual dysfunctions that conform to all of the criteria of "well-established treatments":

1. group studies by different investigators demonstrating efficacy by (a) showing superiority to pill, psychological placebo, or another treatment, or (b) demonstrating equivalency to an estab lished treatment in studies with adequate statistical power (n = 30/group); or
2. a large series of well-designed single case studies compared to a 1(a) treatment and demonstrating efficacy; with
3. treatment manuals, and
4. clear specification of client samples.

We could locate no studies in which therapists' use of different treatment techniques were compared in a randomized trial.

The APA Task Force's second category of validation, "probably efficacious treatments," uses less stringent criteria:

1. two studies showing treatment is more effective than a waiting-list control group; or
2. studies otherwise meeting the well-established criteria 1, 3, & 4

above; or

3. at least two good studies demonstrating effectiveness but flawed by client sample heterogeneity; or
4. a small series of single-case design studies otherwise meeting the well-established treatment criteria 2, 3, and 4.

There is more evidence for psychological treatments for sexual dysfunctions meeting the "probably efficacious" than "well-established" criteria, as will become evident as the review progresses.

Although we use the APA criteria as guidelines to defining validated treatments, it is clear that these criteria are not without problems and are expected to evolve over time. For example, Wampold (1997) provided a thoughtful analysis of the methodological problems involved in identifying efficacious psychotherapies, and Seligman (1995) argued for effectiveness studies over efficacy studies to establish valid treatments. Nevertheless, the APA criteria offer a relatively clear reference point to define some of the conditions that, if met, will increase practitioners' confidence in identifying where standards of clinical practice have and have not yet been established in the treatment of sexual dysfunctions.

The specific weaknesses in sexual dysfunction research fall into predictable areas. One problem is that treatment manuals are rather uncommon for the treatment of sexual problems, at least in the form we have come to know them. A second reason for the lack of empirically validated treatment is the lack of control groups. Clinical researchers have, for ethical reasons, preferred waiting-list controls over placebos, and reasonably efficacious alternative treatments have not been available for most of the dysfunctions. A third issue is the overwhelming and widespread impact of the Masters and Johnson (1970) text. Never, before or since, has such a large number of individuals (N = 792) with sexual problems been treated with such clearly described treatment techniques, and with a high success rate (overall 15% failure rate), including a 5-year follow-up (Masters & Johnson, 1970). Though methodological problems are clearly present in Masters and Johnson's work, particularly the fact that there was only one therapist-generated nonstandardized item that measured outcome, its impact truly brought sexual dysfunction research into the forefront so that increasingly systematic research might eventually be designed. In fact, more controlled research was delayed by the fact that there were no readily comparable and relatively successful treatments that seemed legitimate to offer as serious alternatives to Masters and Johnson's approach.

An additional issue that has affected the engagement of

researchers in controlled outcome studies in sexual dysfunction is the availability of funding for research. Sexual disorders have not been a priority for funding, particularly at the costly level of randomized psychological treatment trials. As a result, projects more modest in size and design complexity dominate the outcome literature.

In this article, we evaluate the status of sexual dysfunction treatments with respect to the evidence for validation, using the APA (1995) guidelines. In the text we provide a discussion of treatment comparison and own-control studies. In the accompanying tables we specify design and outcome details. We review English-language research, or abstracts from non-English sources. Psychological treatments that meet the "well-established" and "probably efficacious" criteria are included. However, due to space constraints, medical treatments are included only if they meet the "well-established" criteria. With this material, we intend for the reader to become well informed regarding the strengths and weaknesses of the research on treatment effectiveness for sexual dysfunctions, and we hope to stimulate new approaches and further documentation of both psychological and medical treatment effectiveness.

Rates of Sexual Dysfunction

Sexual dysfunctions are relatively common, though studies documenting their prevalence using random sampling techniques are scarce. The Laumann, Gagnon, Michael, and Michaels (1994) study is the only national random U.S. probability sample available on this topic. Selected results are presented in Table 1.

Known as the National Health and Social Life Survey (NHSLS), the Laumann et al. (1994) study was based on a sample size of 3,432 men and women ages 18 to 59 and a response rate of nearly 80%. A combination of face-to-face interviews and self-administered questionnaires (for very sensitive questions and reliability checks) were administered to assess sexual problems within the past 12 months. The sample's most common problems for women were lack of sexual interest (33%, figures rounded) and inability to experience orgasm (24%). For men, climaxing too early (29%), anxiety about performance (17%), and lack of sexual interest (16%) were the most frequently reported problems. Age effects were apparent though less dramatic than expected: There was little age-related increase or decrease between 18 and 59 among men who reported climaxing too early or orgasmic inability; for women there was little change in lack of sexual interest or in orgasmic inability. Increased education was typically associated with fewer sexual problems with the exception of

Table 1
Sexual Dysfunction Percentages Based on a Random Sample of 3,432 Individuals, Aged 18-59 Interviewed Between 1991-92. Adapted from Laumann et al., 1994.

	Sexual Dysfunction (Men/*Women*)							
Master Status	Pain During Sex	Sex Not Pleasurable	Unable to Orgasm	Lacked Interest in Sex	Anxiety about Performance	Climax too Early	Unable to Keep an Erection (Men)	Had Trouble Lubricating (*Women*)
Overall (*N*= 1,346/1,622):	3.0/*14.4*	8.1/*21.2*	8.3/*24.1*	15.8/*33.3*	17.0/*11.5*	28.5/*10.3*	10.4	*18.8*
Marital status (*N*= 1,341/1,613):								
Married	2.8/*14.4*	6.0/*20.5*	7.7/*21.9*	11.8/*29.4*	13.9/*9.7*	30.2/*9.2*	9.6	*21.6*
Never married	2.8/*14.9*	9.7/*23.0*	8.7/*26.6*	20.0/*37.3*	18.5/*15.3*	25.7/*13.4*	9.9	*15.0*
Divorced	3.8/*13.9*	11.4/*22.2*	9.1/*28.6*	18.2/*39.4*	27.4/*13.1*	32.5/*10.8*	14.6	*16.6*
Education (*N*= 1,342/1,614):								
Less than HS	4.6/*16.1*	14.7/*25.8*	12.7/*30.0*	22.3/*43.2*	23.2/*16.2*	36.0/*17.4*	15.4	*14.0*
HS graduate	4.1/*16.8*	5.7/*22.2*	8.2/*28.0*	13.2/*35.4*	17.3/*11.8*	32.5/*11.7*	9.5	*19.5*
Finished college	2.2/ *9.6*	6.6/*18.4*	6.5/*19.1*	15.7/*27.9*	10.9/*8.3*	25.8/*6.2*	9.1	*19.3*
Master's/Adv. Deg.	1.7/ 9.3	5.2/*16.5*	6.8/*13.3*	13.3/*23.4*	14.5/*13.3*	24.1/*4.1*	9.3	*23.7*
Race/Ethnicity (*N*= 1,342/1,623):								
White	3.0/*14.7*	7.0/*19.7*	7.4/*23.2*	14.7/*30.9*	16.8/*10.5*	27.7/*7.5*	9.9	*20.7*
Black	3.3/*12.5*	15.2/*30.0*	9.9/*29.2*	20.0/*44.5*	23.7/*14.5*	33.8/*20.4*	14.5	*13.0*
Hispanic	2.0/*13.6*	8.2/*19.8*	10.9/*20.3*	16.7/*34.6*	7.1/*11.7*	25.0/*18.4*	8.9	*12.0*
Income (*N*= 1,098/1,297):								
Poor	5.5/*16.2*	15.3/*23.3*	15.9/*27.4*	25.4/*39.7*	20.5/*20.0*	29.7/*18.2*	14 0	*13.9*
Middle	2.8/*14.5*	6.0/*21.5*	7.2/*23.6*	13.0/*32.0*	15.3/*10.2*	28.0/*10.6*	9.1	*19.0*
Rich	1.9/*11.4*	9.1/*17.3*	6.1/*20.8*	15.0/*27.5*	14.2/*11.7*	30.3/*4.4*	11.3	*23.7*

lubrication disorders in women, where fewer symptoms were associated with less education. With respect to race/ethnicity, a higher percentage of Black men and women reported dysfunctions compared to other groups, with the exception of fewer difficulties for Black men and women on orgasm variables and fewer lubrication problems for Black women (see Laumann et al., 1994, pp. 368-374 for more details).

Sexual Dysfunctions Reported by Women

Orgasmic Dysfunctions

As is evident from the NHSLS, orgasmic disorders are common conditions among women and remain fairly constant across each five-year-age group between 18 and 59 (with a range from 19% at ages 45 to 49 to 28% at ages 30 to 34). By contrast, data from the same national sample showed that 29% of women reported always being orgasmic with their partner, 41% reported being extremely physically satisfied with their partner, and 39% reported being extremely emotionally satisfied with their partner (Laumann et al., 1994). Although previous researchers have not consistently shown socioeconomic status to be related to women's orgasmic experiences, the NHSLS found that low income women were somewhat more likely to report inability to experience orgasm than those classified as high income (27% vs. 21%), and women with less than a high school education reported greater orgasmic incapacity than those who had finished college (30% vs. 19%). Master's level and advanced degree women reported a comparably low orgasmic inability of 13%. One must be cautious about interpreting these results as indicative of only primary orgasmic dysfunction. The question posed was whether or not, in the past 12 months, there was ever a period of several months or more when the inability to have an orgasm was a problem. Because some of the women concerned may have had orgasm prior to the 12-month point, it is likely that this category includes women with both primary and secondary anorgasmia.

Several other sources corroborate the finding that primary and secondary orgasmic disorders are common among women (Hawton, 1982; Heiman & Grafton-Becker, 1989; Spector & Carey, 1990). Here we shall use *primary anorgasmia* to refer to lifelong and global anorgasmia and *secondary anorgasmia* to refer to situational or acquired lack of orgasm. This terminology is comparable to the DSM-IV (APA, 1994) language with the addition of the use of primary and secondary as summary labels.

Table 2
Orgasmic Dysfunction

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Treatment Comparison Controlled Outcome Studies						
Husted (1972, 1975)	30	Mixed sexual dysfunction; all with partners; sexual anxiety	SD: Imaginal (I)vs.(C); vs. *in vivo* (I) vs. (C) vs. No-treatment control	Imaginal *M* = 8 sessions, in vivo *M* = 13 sessions	SD: decreased anxiety, increased coital frequency and orgasmic ability with masturbation; no difference (I) vs. (C) or imaginal vs. *in vivo*	
Obler (1973)	37	Mixed sexual dysfunction; marital status matched across groups; absence psychopathology	SD with videotapes (I) vs. Psychoanalytic tx with videotapes (G) vs. WL	SD: 15 45-min sessions; Psychoanalytic: 10 75-min sessions	SD: 85% orgasmic Psychoanalytic: 36% orgasmic WL: 23% orgasmic SD>Psychoanalytic, WL on decreased anxiety	
Heinrich (1976)	44	*M* age = 28; prim; 20 married, 24 with regular partner	DM (G) vs. DM bibliotherapy (I) vs. WL	DM:10sessions/5 wk; DM bibliotherapy: 1 session		2mo: DM: 100% orgasmic with masturbation (om), 47% coitally orgasmic (co); DM bibliotherapy: 47% om, 13% co; WL: 21% om, 0% co. No difference between groups on self-esteem, marital adjustment
Mathews et al. (1976)	18	*M* age = 28; 13 prim, 5 sec; 17/18 low sexual desire/arousal	SD, sexual tx (C) vs. SF, sexual tx (C) vs. SF, bibliotherapy (C)	10 sessions; 3 sessions and 10 wk mailing for SF, bibliotherapy	2/18 increased orgasmic ability no difference between groups	4 mo: no difference between groups
Wincze & Caird (1976)	21	18-38 yr; 16 prim, 5 see; married; sexual anxiety, absence psychopathology or medical problems	SD Imaginal (I) vs. SD video (I) vs. WL	*M*= 10 sessions/ 2-7 wk	SD: 18% orgasmic, decreased anxiety; no difference between imaginal/video	1-3 mo: 25% orgasmic
Carney et al. (1978)	32	19-36 yr; sec; sexual anxiety	SF weekly: testosterone (T) vs. diazepam (C) vs. SF monthly: T vs.diazepam (C)	SF weekly: 16 sessions SF monthly: 5 sessions	No difference in orgasmic ability between weekly vs. monthly T > diazepam frequency of orgasm, vaginal lubrication, sexual satisfaction	6 mo (after drug discontinuation): gains maintained
Nemetz et al. (1978)	22	21-39 yr; 7 prim, 15 sec; sexual anxiety; all with regular partners	SD (I) vs. SD (G) vs. Control	5 sessions/3 wk	SD (G) > SD (I), Control on decreased anxiety; no difference between groups on orgasmic ability	3 wk; 1 yr: gains maintained

Table 2 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
O'Gorman (1978)	40	*M* age = 36; low sexual desire/arousal, some dysparuenia/vaginismus	SD, sex education (G), partner-only discussion groups vs. SD, intravenous methoxitone sodium to induce relaxation (I with partner participation)	SD (G) 20 1 hr sessions; SD (I) 15 10-min sessions/ 10 wk	SD, sex education (G): 63% successful; SD, methoxitone sodium (I): 47% successful	
Riley & Riley (1978)	37	*M* age = 26; prim; married	DM and SF (C) vs. SF (C)	6 weekly and 6 bi-monthly sessions	DM and SF: 18/20 orgasmic SF: 8/15 orgasmic	1 yr: gains maintained
McMullen & Rosen (1979)	60	*M* age = 29; prim 30 married, 30 single	DM Bibliotherapy (I) vs. DM Instructional videotape (I) vs. WL	6 sessions/6 wk	Bibliotherapy: 65% orgasmic with masturbation (om), 50% coitally orgasmic (co); Instructional: 55% om, 30% co; WL: 0% om, 0% co	1 yr: gains maintained/improved
Andersen (1981)	30	*M* age 25; prim; 25 married, all with regular partners; some sexual aversion	SD (G) vs. DM (G) vs. WL	10 sessions/5 wk	No difference between SD and DM on self-acceptance, sexual anxiety; DM > SD, WL on orgasmic response	6 wk: SD > DM on self-acceptance DM > SD on orgasmic response
Fichten et al. (1983)	23	*M* age = 33; sec; *M* yr married = 10	Sexual information, relaxation, Kegel ex, DM, SF, sexual communication training, ban on si: (C) vs. (G) vs. minimal contact bibliotherapy	14 wk	SF: significant increase in enjoyment of noncoital sexual caressing and si, no change in orgasmic responsiveness	
Kilmann et al. (1986)	55	*M* age = 33; sec; 51 married; all with partners; no dyspareunia or vaginismus, no premature ejaculation in partners	2 2-hr sessions sex education followed by Communication skills (C/G) vs. Sexual skills (C/G) vs. WL vs. Attn-placebo		Communication and sexual skills > controls: increased frequency si and sexual satisfaction; no difference between groups	6 mo: gains decreased; no difference between groups
Morokoff & LoPiccolo (1986)	43	*M* age = 30; prim; *M* yr married = 9; no male sexual dysfunction, no psychosis or depression	Minimal therapist contact (MTC; n = 14) (C) vs. full therapist contact (FTC; n = 29) (C)	MTC: 4 sessions FTC: 15 sessions	Increased orgasmic ability during masturbation and si, increased sexual satisfaction; MTC > FTC on increased frequency orgasm during masturbation	
Kilmann et al. (1987)	11	*M* age = 30; 10 married; sec; no premature ejaculation in partners	2 2-hr sessions sex education followed by communication and sexual skills vs. WL vs. Attn-placebo		Tx > WL, Attn-placebo: significant increase in orgasmic ability	

Table 2 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Milan et al. (1988)	38	*M* age = 33; sec; *M* yr relationship = 10; regular sexual partners with no sexual dysfunction	Sex education plus either: communication skills vs. sexual skills vs. condensed sex and communication skills vs. didactic lecture vs. WL	10 2-hr sessions/5 wk		2-6yr: no difference between treatment groups, WL on sexual or relationship functioning
Hurlbert & Apt (1995)	36	*M* age = 28; 6 prim, 30 sec; *M* yr married = 5	Coital alignment technique (CAT) (C) (n = 19) vs. DM (C) (n = 17)	4 30-min sessions plus 4/10-min telephone contacts	CAT: 56% increased orgasmic ability during si; DM: 27% increased orgasmic ability during si	
Own Control or Wait-list Controlled Outcome Studies						
Munjack et al. (1976)	22	12 prim, 10 sec	SD, DM, assertiveness training, modeling, sexual education (I/C) vs. WL	22 weekly sessions	Tx > WL orgasmic ability, no difference between prim and sec	
Sotile & Kilmann (1978)	22	*M* age = 27; 8 prim, 14 sec; all with partners; sexual anxiety	Sexual education followed by SD (G) or WL	16 sessions/ 8 wk	Decreased sexual anxiety, increased sexual satisfaction, increased noncoital orgasmic frequency, sec > prim orgasmic frequency	6 wk: orgasmic gains maintained sexual satisfaction decreased
Heiman & LoPiccolo (1983)	41	*M* age = 30; 25 prim, 16 sec, absence psychosis, depression, or severe marital distress	CBT, communication training, DM, SF, systems conceptualization (C) vs. WL	15/1-hr sessions	Prim and see: increased duration foreplay and si; Prim: increased frequency si, increased orgasmic response during masturbation and si; Sec: increased orgasmic response during si, increased initiation of sexual activity	3 mo: prim: gains maintained sec: orgasmic gains maintained decreased duration foreplay and si
LoPiccolo et al. (1985)	31	*M* age = 35; 12 prim, 19 sec; *M* yr married = 13	CBT sexual therapy (LoPiccolo & Hogan, 1979) vs. WL (C)	15 1 -hr sessions	Prim and see: significant increase in orgasmic ability with masturbation	3 mo: gains maintained/ improved
No Control Outcome Studies						
Lazarus (1963)	16	*M* age = 25; married; some decreased desire/arousal	SD (I)	*M* = 29 sessions	9/16 "nearly always achieve orgasm"	15 mo (4 patients): gains maintained or improved

Table 2 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Cooper (1970)	50	Coitally anorgasmic	*In vivo* SD, sex education, psychotherapy (I)	21 sessions/1 yr	24/50 coitally orgasmic 26/50 unchanged or worse	
Masters & Johnson (1970)	342 (1959-1964)	193 prim; 11 masturbatory dys; 106 coital dys; 32 random	Sex education, SF, communication training, *in vivo* SD (C)	14 sessions/daily	Prim: 83% orgasmic; masturbatory: 91 % orgasmic; coital: 80% orgasmic; random: 63% orgasmic	5 yr: prim 1% relapse; sec 2% relapse
Jones & Park (1972)	55	Prim; anxiety; sexual shame	SD with Brevital injections to induce relaxation (I with partner participation)	*M* = 14 sessions	82% orgasmic, decreased sexual anxiety; increased sexual communication	Anxiety returned to pre treatment levels
LoPiccolo & Lobitz (1972)	8	Prim; married	DM (I)	15 sessions	8/8 orgasmic with masturbation 6/8 coitally orgasmic	6 mo: gains maintained
Lobitz & LoPiccolo (1972)	13	Prim; married	DM (I with partner participation)	15 sessions	13/13 orgasmic with masturbation 13/13 coitally orgasmic 50% of time	
Barbach (1974)	83	19-48 yr	DM (G)	10 sessions/5 wk	91% orgasmic with masturbation	
Wallace & Barbach (1974)	17 (of the 83 above)	*M* age = 27; 11/17 married; all with partners	DM (G)	10 sessions/5 wk	100% orgasmic with masturbation 87% orgasmic with partner	8 mo: gains maintained
McGovern et al. (1975)	12	*6 prim, 6 sec*	Sexual and communication skills training, anxiety re-education, DM	*15 sessions*	*Increased sexual and marital satisfaction.* prim: 6/6 increased orgasmic ability, sec: no change orgasmic ability	
Blakeney et al. (1976)	38	10 prim, 28 sec; some male sexual dysfunctions	2 1/2 day workshop based on Masters & Johnson (C)	4-hr interview, 2 1/2 day workshop	Prim: 70% orgasmic sec: 57% orgasmic	
Schneidman & McGuire (1976)	20	10 < 35 yr, 10 > 35 yr; prim	Variation of Masters & Johnson (sexual education, group discussions, DM, couples tx) (C)	10 wk	< 35 yr 70% orgasmic during masturbation, 0/10 coitally orgasmic, > 35 yr 40% orgasmic during masturbation, 1/10 coitally orgasmic	6 mo: < 35 yr: 80% orgasmic during masturbation, none orgasmic during si; > 35 yr: 60% orgasmic during masturbation, 1/10 orgasmic during si
McGovern et al. (1976)	4		DM (G)		4/4 orgasmic during masturbation 3/4 coitally orgasmic	
Leiblum & Ersner-Hershfield (1977)	16	23–43 yr; 12 married	DM (G)	8 sessions/8 wk	80% orgasmic with masturbation, increased assertiveness, body attitude	

Table 2 (cont.)

Study	N	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Sotile et al. (1977)	6	3 prim, 3 sec	Sexual and communication skill training, sexual education, SF, DM, Kegel ex, role-play orgasm (C)	6/1 1/2-hr sessions	Decreased sexual anxiety, increased sexual communication	
Ersner-Hershfield & Kopel (1979)	22	*M* age = 26	DM: spaced vs. massed sessions (GI) vs. DM: spaced vs. massed sessions (GC)	10 sessions/5 wk	91% orgasmic with masturbation, 73% orgasmic with partner; no difference GI vs. GC or spaced vs. massed sessions	10 wk: 82% orgasmic with partner
Barbach & Flaherty (1980)	26	Sec	DM, communication training(I)	10 1 1/2 = hr sessions		1-2 yr: 60% increased orgasmic frequency with partners
Kuriansky et al. (1982)	19	*M* age = 30	SD, DM, assertiveness training (GI)	10 sessions/5 wk	18/19 orgasmic	2 yr: 16/19 orgasmic
Kilmann et al. (1983)	48	*M* age = 33; sec; *M* yr married = 9	Sexual education (C)	2 2-hr sessions	Significant increase orgasmic frequency, decreased sexual anxiety	
De Amicis et al. (1985)	22	*M* age = 34; *M* yr married = 13; 13 prim, 9 sec	Sensual awareness, SF, DM, communication training, modification of sexual interactions (C)	15-20 sessions	No significant change in orgasmic ability, significant increase in sexual satisfaction	3 yr: prim: significant increase in orgasmic ability with genital caress, increased marital and sexual satisfaction; sec: some increase in orgasmic ability during masturbation, increased sexual satisfaction
Case Studies						
Brady (1966)	5	17-30 yr; married; anxiety and dysparuenia	SD with Brevital injections to induce relaxation (I)	10-14 sessions/ 3-14 wk	4/5 coitally orgasmic	3-8 mo: gains maintained
Kraft & Al-Issa (1967)	1	25 yr; prim; divorced; sexual aversion; anxiety	SD with hypnotic induction (I)	84 sessions	Decreased sexual anxiety	9 mo: gains maintained
Madsen & Ullmann (1967)	1	"Young"; prim; married; coital anxiety	SD and conjoint therapy (I with partner participation)	12 sessions	Coitally orgasmic	9 mo: gains maintained

Table 2 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Annon (1973)	2	24, 27 yr, 1 single, 1 married	DM(I)	4 wk	2/2 orgasmic	
Ince (1973)	1	21: yr prim; married; low sexual desire; dyspareunia	*In vivo* SD (I)	1 mo	Coitally orgasmic	
Caird & Wincze (1974)	1	24 yr; prim; married; sexual aversion	SD	7 sessions/2 wk	Coitally orgasmic, decreased anxiety	6; 9 mo: gains maintained
Kohlenberg (1974)	3	28-33 yr; married	DM (C)	10 sessions/10 wk	3/3 orgasmic with masturbation increased sexual arousal	6 mo: coitally orgasmic
Reisinger (1974)	1	23 yr single	DM (I)	8 sessions	Orgasmic with masturbation	6 mo: coitally orgasmic
Snyder et al. (1975)	1	Sec	Sexual techniques training, marital tx (C)	17 sessions/15 wk	Significant increase in sexual and marital satisfaction	3 mo: gains maintained

Note. SD = systematic desensitization, DM = directed masturbation, SF = sensate focus, CBT = cognitive-behavioral therapy; WL = wait-list, (I) = individual therapy, (C) = couples therapy, (G) = group therapy, (GI) = group/individual therapy, (GC) = group/couples therapy, prim = primary orgasmic dysfunction, sec = secondary orgasmic dysfunction, si = sexual intercourse.

Treatments for primary anorgasmia appear to fulfill the criteria of "well-established," whereas secondary anorgasmia studies fall into the "probably efficacious" group. In Table 2 the research located on this topic, including case studies, single group designs, own-control and wait-list control group designs, and treatment comparison studies are summarized. We will discuss primary and secondary anorgasmia separately, though the two groups are combined in several studies.

Primary anorgasmia has been most frequently treated with the techniques of sensate focus, desensitization, and/or directed masturbation exercises. Prior to the interventions developed in the last 30 years, there is no research documentation that psychoanalytically oriented psychotherapy was successful in treating this problem. Sensate focus exercises were the development of Masters and Johnson (1970) and consist of exchanging physical caresses, moving from nonsexual to increasingly sexual touching of one another's body over the course of assigned sensual experiences at home. These techniques are described in Masters and Johnson's text. Sensate focus exercises can be conceptualized, though Masters and Johnson did not, as a modified in vivo desensitization using relaxation to counter anxious feelings and gradually introducing more sexually arousing interactions. Masters and Johnson reported on 193 primary anorgasmic couples, 84% of whom became orgasmic at the end of 14 sessions. The success rate dropped to 82% at 5-year follow-up.

A number of controlled studies have been conducted using systematic desensitization to treat primary anorgasmia. This intervention is typically used when anxiety plays a significant role in maintaining the sexual disorder. As can be seen from Table 2, sexual anxiety typically decreases with the administration of systematic desensitization without a subsequent increase in orgasmic capacity. This effect suggests that, in most cases, anxiety does not necessarily play a causal role in orgasmic disorders.

Treatments involving directed masturbation consist of a series of at-home exercises which begin with visual and tactile total body exploration and move toward increased genital stimulation with the eventual optional use of a vibrator. LoPiccolo and Lobitz (1972) and Lobitz and LoPiccolo (1972) established masturbation as an effective technique with 21 women who were able to become orgasmic in 15 individual sessions. Barbach (1974) extended this approach to a 10-session, women-only group model, resulting in 92% of the women becoming orgasmic with masturbation. Evidence for generalization to interpersonal orgasm (e.g., manual, oral, coital) has been less consis-

tent and, except for coital orgasm, often not mentioned in individual studies. Exceptions include Wallace and Barbach (1974) who reported that 87% of their sample were orgasmic during partner related sexual activity after the 10 session women-only group therapy. Ersner-Hershfield and Kopel (1979) found that 73% of their sample of 22 women were orgasmic during partner activities after 10 sessions of group therapy using Barbach (1975) and Heiman, LoPiccolo, and LoPiccolo (1976) as written guides during their treatment.

Several researchers have examined different presentations of directed masturbation materials. Heinrick (1976) compared a one session introduction to directed masturbation using bibliotherapy to group treatment and to a wait-list control. At follow-up 2 months later, 100% of the group therapy participants, 40% of the bibliotherapy participants, and 21% of the wait-list controls were orgasmic during masturbation, whereas 47%, 13%, and 0%, respectively, were orgasmic during coitus. McMullen and Rosen (1979) compared the use of written texts on becoming orgasmic to a series of weekly 20-minute videotapes which portrayed the weekly assignments. Compared to no change in orgasmic status for the wait–list control group, 65% of the text, and 55% of the video group became orgasmic during masturbation. In addition, 50% of the text and 30% of the video group became orgasmic during intercourse.

Heiman and LoPiccolo (1983) examined primary anorgasmic dysfunction in an own-control design using 15 sessions of treatment that included sensate focus, directed masturbation, and other cognitive-behavioral home assignments. At posttreatment, 25 previously anorgasmic women reported a significant increase in masturbatory orgasm (from 0% to 63%), in manual orgasm (to 43%), in coital orgasm (to 25%), and in sexual satisfaction. These changes were either maintained or increased at the 3-month follow-up. The wait-list analysis revealed that waiting approximately 3 months for therapy to begin resulted in a significant increase in global sexual satisfaction for all the women in this study (the primary anorgasmic women were not analyzed separately) and greater marital happiness. However, these changes were not accompanied by a resolution of sexual symptoms during the same time period.

We could locate no studies in which some type of active treatment for anorgasmia were compared to a placebo condition. Five studies were found in which different types of psychological interventions were compared. Of these, in only one was group systematic desensitization compared with group directed masturbation (Andersen, 1981). After 10 biweekly sessions, Andersen found that the changes in

orgasmic response at posttesting were modest: 10% of the desensitization, 20% of the masturbation, and 10% of the wait-list control subjects became orgasmic. However, by the 6-week follow-up, an additional 20% of the directed masturbation subjects became orgasmic. In addition, 66% of the wait-list control subjects became orgasmic after later receiving the directed masturbation treatment. Overall, directed masturbation was superior to the other conditions in increasing orgasmic responses. Directed masturbation and systematic desensitization groups were found to be equal on the self-acceptance scale of the Sexual Interaction Inventory (LoPiccolo & Steger, 1974) and showed no changes on measures of sexual anxiety.

In two other studies systematic desensitization has been compared with an alternative treatment (Mathews et al., 1976; Obler, 1973). In both cases, approximately 15 hours of therapy were offered over approximately 10 to 15 weeks, using videotapes. Unfortunately, both primary and secondary anorgasmic women were included in the analysis with no subanalysis of each group. Obler's (1973) study is the only one comparing individual systematic desensitization with group psychoanalytic treatment, though he combined primary and secondary anorgasmic women. The results showed that 85% of the desensitization subjects, 36% of the psychoanalytic subjects, and 23% of the control group members experienced orgasm for the first time (or during the specifically desired situation) during the course of the treatment.

Mathews et al. (1976) followed 18 anorgasmic women, 13 of whom were primary anorgasmic. Seventeen of the 18 women also reported low desire and arousal. Comparisons were made between 10 weekly sessions of systematic desensitization combined with counseling on sexual attitudes; conjoint sensate focus sessions, which also included some counseling on sexual attitudes; and sensate focus plus bibliotherapy for three sessions, with 10 weekly mailings. There were no differences between the groups on ratings of the couples' general and sexual relationships. By comparison, Riley and Riley (1978) selected 37 primary anorgasmic women and compared conjoint sensate focus therapy to conjoint sensate focus plus directed masturbation sessions. Six weekly and six bimonthly sessions were offered. They found that the directed masturbation plus sensate focus group improved more than the sensate focus group alone, with 90% of the former and 53% of the latter patients achieving orgasm by the end of treatment. In addition, coital orgasm was attained by 47% of the sensate focus group and 85% of the directed masturbation plus sensate focus group.

Morokoff and LoPiccolo (1986) compared 14 couples who received minimal therapist contact (MTC, four 1-1/2 hour therapy sessions once a month) to 29 couples who received full treatment contact (FTC, 15 1-1 1/2 hour therapy sessions once a week). Both groups read *Becoming Orgasmic* (Heiman, LoPiccolo, & LoPiccolo, 1976; now Heiman & LoPiccolo, 1988) and saw the accompanying video. The following percentages are estimates taken from the graphed material in Morokoff and LoPiccolo (1986). Compared to FTC, the MTC group showed a greater (nonsignificant) frequency of masturbatory manual orgasm, (approximately 73% vs. 45%) and manual or vibrator orgasm (approximately 76% vs. 25%). These changes were maintained at the 3-month follow-up. Lower percentages were found for orgasm from partner stimulation (approximately 25% in both groups at posttreatment and 3-month follow-up), coital orgasm (5% FTC to 12% MTC at posttreatment rising to 12% and 25% at follow-up) and coital orgasm with additional stimulation (30% MTC, 15% FTC at posttreatment increasing to over 40% and 20% at follow-up). Thus, MTC claimed comparable success, better in the case of masturbatory orgasm and coital orgasm with additional stimulation, to the full 15-session therapy format. The authors speculated that these results (a) suggest that MTC may imply more strongly than FTC that the client, versus the therapist, is the primary active, responsible motivational agent for change, and (b) that lifelong, global anorgasmia can be usefully viewed as a skill deficit that might be quite adequately treated by structured assignments.

To briefly summarize the outcomes of the comparative treatment studies of primary anorgasmia, it appears that directed masturbation sustains good outcomes over systematic desensitization and enhances or is enhanced by the effects of sensate focus interventions. In fact, directed masturbation fits the criteria for an empirically validated treatment for primary orgasmic disorders. Overall, however, controlled conditions are underutilized, interventions differ somewhat in intensity even within the same study, and multiple disorders are sometimes combined under the rubric of orgasmic dysfunctions. In addition, primary and secondary orgasmic disorders are sometimes combined, making results difficult to evaluate precisely.

Secondary orgasmic dysfunction, the infrequency or restrictiveness of an orgasmic pattern, is a common complaint with a generally less optimistic prognosis than primary anorgasmia. In a study by Carney, Bancroft, and Mathews (1978), sensate focus treatment was combined with either testosterone or diazepam in treating orgasmic disorder and "general sexual unresponsiveness." Weekly versus monthly

treatment was equally effective for the 32 women and their partners assigned to these treatments. However, testosterone appeared to be associated with significant gains that were maintained at follow-up 6 months after the drug was discontinued. This is one of the few studies to date in which drug and psychotherapy were combined to examine how they might augment one another. For this particular study, it was difficult to determine whether diazepam might have had a negative impact on sexual responsiveness, thus apparently enhancing testosterone's effect. In fact, this interpretation was supported in a later study comparing sex therapy with testosterone or placebo to testosterone alone. There were no differences found between the sex therapy groups, and the groups were superior to testosterone alone (Dow & Gallagher, 1989; see also Mathews, Whitehead, & Kellet, 1983).

In the Heiman and LoPiccolo (1983) own-control outcome study, Masters and Johnson's (1970) approach was used, as well as other directive cognitive-behavioral approaches, with 16 couples who reported secondary anorgasmia in the female partner. They reported highly significant improvements from pre- to posttherapy on sexual and marital satisfaction, a nonsignificant increase, from 12% to 30%, in orgasmic ability from manual stimulation, and a significant but clinically modest increase from 12% to 30% in orgasmic ability during coital experiences. Changes were maintained at the 3-month follow-up. Hurlbert and Apt (1995) have successfully used the "coital alignment technique," positioning the male partner's body to provide more direct stimulation, so that 56% increased coital orgasmic ability.

Other researchers have compared different therapy formats. For example, Libman, Fichten, and Bender (1984) found that a standard couple format resulted in more positive change on subjective satisfaction and behavioral measures than did group therapy or minimal contact bibliotherapy. McGovern, Stewart, and LoPiccolo (1975) concluded it was important to have both members of a couple in treatment after comparing the outcomes of six primary and six secondary anorgasmic women. Although the former improved dramatically, the latter did not. Consequently, the authors suggested that future work might combine marital therapy and sex therapy to treat secondary inorgasmic disorder.

Kilmann and colleagues (Kilmann et al., 1986; Kilmann et al., 1987) highlighted the importance of couples' issues in their study of four different kinds of treatment components typically used to treat women with secondary anorgasmia. In the first study (Kilmann et al., 1986), all couples received 4 hours of basic sex education before

they were assigned to one of six groups: communication skills training, sexual skills training, a condensed combination of communication and sexual skills training presented in two different orders (S/C and C/S), an attention placebo control consisting of a series of didactic lectures of the material presented in the combined treatment condition, and a wait-list control. Although there were no posttreatment outcome differences between treatment components, when compared to controls, the treated couples reported less sexual dissatisfaction, greater harmony, and a greater number of women attained coital orgasm during at least 50% of coital experiences. In the follow-up study (Kilmann et al., 1987), 11 new couples were used to compare the two sexual communication skills sequences of the combined treatment to the nine no-treatment and 11 attention-placebo individuals of the earlier study. Treatment consisted of 2-hour group sessions weekly (S/C = 7 couples, C/S = 4 couples). Women in the treatment group were significantly more coitally orgasmic at posttest than women in the control group, though these gains were lost at follow-up. The results showed greater coital orgasm frequency gains in the S/C group compared to either control group, whereas the C/S group did not make significant gains compared to either control group. However, the S/C women showed a significant decline at follow-up and the attention-placebo control group showed a significant increase. The extremely small sample size limits evaluation of the impact of the study, but it does suggest that combined communication and sexual skills training can be a useful group intervention.

To summarize the treatment perspective for women with secondary anorgasmia, some combination of sex education, sexual skills training, communication on general and sexual issues, body image, and, perhaps, directed masturbation appear to be helpful. Gains are somewhat fragile long-term, however. Given that secondary orgasmic disorder can take so many different forms (e.g., complete lack of coital orgasm, vibrator/masturbatory-only orgasm, general low frequency of orgasm), it may be that interventions have not been adequately tailored toward individual needs, except perhaps at the case study level.

Vaginismus

Vaginismus is the involuntary spasmic contraction of the vaginal musculature which interferes with or prevents coitus. Although there are no reliable estimates of its prevalence in the general population, it accounts for 12% to 17% of women presenting to sex therapy clinics (Hawton, 1982; Spector & Carey, 1990).

Table 3
Vaginismus

Study	*N*	Subject Characteristics	Treatment Type	No. of Sessions	Outcome
No ControlOutcome Studies					
Masters & Johnson(1970)	29 cases (11 yr)	Many cases of sexual trauma, male sexual dysfunction, religious orthodoxy	Demonstration of involuntary nature of spasms & vaginal dilators (C)	14 sessions	29/29 able to have si
Hawton & Catalan (1986)	26	*M* age = 33	Homework assignments (as outlined by Masters & Johnson, 1970), sexual education, psychotherapy (C)	*M* = 15 sessions	12 resolved, 9 1argely resolved, 2 some improvement, 3 no change
Case Studies					
Ellison (1968)	100	14 < 20 yr, 66 21-50 yr, 17 31- 40 yr, 3 > 40 yr, *M* yr married = 2.5	Insight therapy & vaginal dilators (in some patients)	3-10 hr psychotherapy	87/100 able to have si 5/100 not able to have si 8/100 not known
Lerner (1971)	1	Patient also dyspareunia	Roger's client-centered psychotherapy		able to have si
Fuchs et al. (1973)	9 (1968 - 1970)	Severe vaginismus 2-5 yr	In vitro "hypno-SD" (I)	6-8 sessions	6/9 able to have si; gains maintained at 1-3 yr
Fuchs et al. (1973)	34 (1965-1970)	Severe vaginismus > 2 yr	In vivo SD & vaginal dilators (I)	8-10	31/34 able to have si; gains maintained at 1-5 yr
Kaplan (1974)	1	30 yr; history sexual abuse; married 4 1/2 yr	Psychotherapy; finger insertion by husband (C)	12 sessions/6 wk	Able to have si
Gottesfeld (1978)	1	20 yr; history physical abuse; married 1 yr	Psychotherapy & hypnosis (I)	2 yr	Able to have si; gains maintained at 2 yr
Leiblum & Rosen (1989)	2	24-25 yr; married	SD, Kegel exercises, sensate focus, finger insertion(I/C)	12-15 sessions	1 able to have si, 1 able to engage in partial penetration
Wincze & Carey (1991)	1	History of sexual abuse; borderline; married 4 yr	Couples therapy; gradual penile insertion (I/C)	1 1/2 yr (I); 3 mo (C)	Able to have si

Note. SD = systematic desensitization, (I) = individual therapy, (C) = couples therapy, si = sexual intercourse.

There are no controlled or treatment comparison studies of vaginismus (Table 3). In fact, it is questionable whether the extant clinical research even qualifies vaginismus treatment as "probably efficacious." With some reservations, we include it here based on the evidence that therapy involving insertion training appears to be very effective, with an unusually clear outcome measure–the ability to have sexual intercourse. There have been several case studies, including those described by Masters and Johnson (1970) and other authors. Comparison studies have not been reported and are unlikely, given the lack of a clearly viable alternative and the hesitation clinical researchers feel about putting these patients in a placebo group, given the distress the problem causes to relationships. An own-control study could be a valuable alternative.

There is general agreement that repeated daily use of dilators or the insertion of some objects of graduated size, such as fingers, is important in treating vaginismus. Masters and Johnson (1970) combined dilators with the physical demonstration of the involuntary spasm to both partners. The male initiated the dilator use with the woman's control and guidance. Their success rate, after 14 sessions of treatment, was high: women in 29 out of 29 cases were able to have sexual intercourse, and these gains were maintained at 5-year follow-up. Fuchs et al. (1973) combined systematic desensitization, vaginal dilators, and hypnotic techniques. Over 8 to 10 sessions, 37 (86%) of the patients were able to have intercourse. Hawton and Catalan (1986) used a combined Masters and Johnson, sex education, and psychotherapy approach over an average of 15 sessions of couples treatment. Although three cases showed no improvement, most (80%) were either completely or largely resolved.

Other clinicians have incorporated a broader range of interventions. Kegel exercises are sometimes prescribed so that the woman learns to tense and relax the pubococcygeus muscles surrounding the vaginal barrel. Variations on dilator use, with the emphasis on first the woman (rather than her partner) using dilators or fingers, and the use of films showing intercourse (e.g., Leiblum, Pervin, & Campbell, 1989) have also been included in treatment approaches. Active ingredients of treatment are unknown at this point, although the behavioral intervention of gradual insertion possibly combined with in vivo desensitization and active therapeutic processing of difficulties appear to be important. Couple treatment predominates in the reports of successful outcome, though there is no indication that individual treatment could not be effective. In treatment resistant cases, perineometer biofeedback training using a vaginal or anal

probe has been tested clinically with some success, but we could not locate studies which might substantiate this approach for vaginismus.

To summarize, vaginismus appears to be successfully treated if repeated practice with vaginal dilators is included in the treatment. Most applications of the method also include relaxation, Kegel exercises, and both individual and partner involvement in the exercises, though the weight of each of these factors has not been researched.

Sexual Dysfunctions Reported by Men

Erectile Disorder

Although not the most prevalent men's sexual disorder in the general population (Laumann et al., 1994), the largest group of men seeking clinical services for sexual problems are those having difficulties with erection (Hawton, 1982; Spector & Carey, 1990; U.S. Department of Health and Human Services, 1987). In one study confined to a cross-sectional sample of 40- to 70-year-old healthy men, it was found that 52% of the sample reported some level of erectile problem (Feldman, Goldstein, Hatzichristou, Krane, & McKinlay, 1994).

Medical surgical treatments. A wide variety of treatments are available for erectile disorders, in part because of a proliferation of assessments and interventions focusing on physiological causes and medical-surgical treatments. For example, the use of sleep measures of erection, cavennosography, and vasoactive injections into the corpora are commonly used for diagnoses. Although a detailed review of biomedical interventions is beyond the purpose of the present article, a few comments regarding the controlled research to date are in order (see also Rosen & Leiblum, 1995). The least invasive of the medical interventions is the vacuum device and constriction ring. In one study, it was found that there were lower attrition rates with a vacuum tube compared to intracorporal injections, but equal partner acceptability across methods (Turner et al., 1992).

There has been increasing interest in oral pharmacological treatment of erectile problems. Of 10 controlled studies of yohimbine, a presynaptic alpha-adrenergic blocker, between 33% and 72% of the subjects showed some improvement in subjective erectile functioning (see Table 4). This effect was statistically significant in those studies using a placebo control, showing erectile improvement in the range of 15%-28% (Mann et al., 1996; Morales et al., 1987; Reid et al., 1987; Riley, Goodman, Kellet, & Orr, 1989; Rowland, Kallna, & Slob, 1997;

Sonda, Mazo, & Chancellor, 1990; Susset et al., 1989). There are no reports of follow-up beyond the 4-8 week treatment phase for yohimbine alone. In the one study, combining yohimbine and trazodone, a treatment effect of 71% improvement in subjective erection at posttest was shown, with these gains maintained in about 57% of patients at 6 months. Yohimbine was found to have no effect on nocturnal penile tumescence (Mann et al., 1996; Rowland et al., 1997) and no enhancing effects on erectile response of sexually functional men in the one study in which a functional comparison group was used (Rowland et al., 1997). It is not clear from the data to what extent yohimbine is more or less effective for psychogenic versus organic erectile disorders. Overall, yohimbine appears to have an enhancing effect on subjective reports of erectile response when compared to placebo (see also Carey & Johnson, 1996), though it is currently difficult to predict how much it might help any given individual and whether the effects last longer than a few months. Other pharmacological treatments for erectile disorders are currently being developed and are expected to begin to be available in 1998.

Overall, intercorporal injection of vasoactive drugs, whose primary effect appears to be the relaxation of corporal smooth muscle tissue, has an efficacy rate of about 80% (Linet & Neff, 1994). Intracavernous injections of papaverine hydrochloride alone or with phentolamine mesylate, as well as prostaglandin E-1 (PGE-1), have been shown to be effective in increasing erectile response. PGE-1 appears to be more effective than papaverine plus phentolamine and to cause fewer instances of priapism and pain (e.g., Lee, Stevenson, & Szasz, 1989; Mahmoud, El Dakhil, Fahjmi, & Abdel-Aziz, 1992; Porst, 1988; Waldhauser & Schramek, 1988). In addition, PGE-1 is the only drug currently approved for this purpose by the U.S. Food and Drug Administration. When Mahmoud et al. compared the two drugs, they reported an 81% good erectile response rate for PGE-1 compared to 63% for the papaverine-phentolamine combination, with less effectiveness reported for the suspected vasculogenic men.

Turner et al. (1992) compared self-injection of papaverine-phentolamine (SI) with the external vacuum device (EVD). Success rates were comparable for both treatments, ranging from 76%-84% and stable over 12 months. However, dropout rates were higher (60%) with self-injection than with the vacuum device (20%), primarily due to complaints of treatment ineffectiveness. Side effects included pain and discomfort (48% SI vs. 33% EVD), blocked ejaculation (0% SI vs. 40% EVD), and plaque formation and liver abnormalities (26% SI vs. 0% EVD).

Table 4
Erectile Disorder

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Treatment Comparison Controlled Outcome Studies						
Obler (1973)	27	Sec ed; absence neurotic or psychotic disorders; mixed pe	SD and assertiveness training (I) (n = 9) vs. psychoanalytic (G) (n = 9) vs. no treatment control (n = 9)		SD: 80% showed increased sexual performance and decreased sexual anxiety vs. 15% of other 2 groups	1 1/2 yr: gains maintained
Kockott et al. (1975)	24	Ed min 6 mo.; *M* age = 31	SD (n = 8) vs. Routine tx (standard psychiatric advice and medication) (n = 8) vs. WL (n = 8). Groups matched on age, prim/sec ed, IQ, neuroticism (I)	14 sessions SD; 4 sessions Routine tx; 16 wk WL	SD and Routine tx: increased quality and quantity of sexual behavior vs. WL. SD: decreased sexual anxiety vs. WL or routine. No difference between groups on plethysmograph ratings or in ability to maintain erection > 1 min. during si.	
Auerbach & Kilmann (1977)	16	Sec ed	SD (G) (n = 8) vs attention-placebo control (relax training alone) (n = 8). Groups matched on age, education, severity and duration of disorder, marital status, number of sexual partners, and partner cooperation	15 3/4-hr sessions	Tx: 40% improved in frequency of successful si Placebo: 3% improved in frequency of success si	3 mo: gains maintained
Reynolds (1980)	30	17 married; 13 single	Erectile biofeedback training vs. control (I)		Tx: 17/30 some improvement in erectile function; 7/30 considerable improvement in erectile function	1 mo: no difference tx vs. control
Takefman & Brender (1984)	16	Sec ed, min 6 mo; *M* age = 48; absence psychopathology or marital dysfunction; *M* yr married = 20	No si and communication training vs. communication training alone (tx administered primary via written instruction) (C)	1 mo	Significant improvement in erectile ability and marital adjustment for both groups; no difference between groups	
Morales et al. (1987)	100	Organic ed min 3 mo; *M* age = 56	Yohimbine (6mg 3/day) vs. placebo. Double-blind, partial cross-over design; 10 wk drug administration (I)		Tx: overall 43% showed improvement in subjective erectile function Placebo: 28% showed improvement in subjective erectile function	
Reid et al. (1987)	48	Psychogenic ed min 3 mo; 18-70 yr., all with steady partners	Yohimbine (6mg 3/day) vs. placebo. Double-blind, partial cross-over design; 10 wk drug administration (I)		Tx: overall 46% showed improvement in subjective erectile function Placebo: 16% showed improvement in subjective erectile function	
Danjou et al. (1988)	10	19-27 yr, absence anxiety	Yohimbine (0.30 mg/kg, i.v. route) vs. apomorphine (0.009 mg/kg subcutaneous route) vs. placebo. Double-blind design (I)	4 sessions	Yohimbine vs. placebo: no change in plethysmograph responses to erotic slides, subjective sexual excitement decreased during post-stimulation phase Apomorphine vs. placebo: increased plethysomograph responses to erotic slides, no change in subjective reports of sexual excitement	

Table 4 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Porst (1988)	61	psychogenic ef (n = 24), organic ef (n = 37)	Intracavernous prostaglandin E1 (10 µg or 20 µg) vs. papaverine vs. papaverine + phentolamine (I)		Prostaglandin El: 41/61 attained complete erection Papaverine: 20/61 attained complete erection Papaverine + phentolamine: 20/61 attained full erection	
Waldhauser& Schramek (1988)	12	*M* age = 53; ef min 1 yr	Prostaglandin EI (20 mcg) vs. papaverine (7.5 mg) + phentolamine (.25 mg). Double-blind, cross-over design (I)	2 sessions	Prostaglandin EI: 11/12 full erection Papaverine: 6/12 full erection	
Lee et al. (1989)	25	Vasculogenic ef (n = 13), neurogenic ef (n = 10), mixed ef (n = 2)	Intracavernous prostaglandin E1 (50 µg/cc) vs. papaverine (30mg) + phentolamine (1 mg/cc). Double blind design		9/25 Prostaglandin E1 > papaverine + phentolamine in subjective reports of penile rigidity; 16/25 no difference between tx in subjective reports of penile rigidity	
Porst (1989)	249		Intracavernous prostaglandin E1 (10 µg or 20 µg) vs. papaverine vs. papaverine + phentolamine (I)		Prostaglandin El (10 µg or 20 µg): 180/249 attained adequate erections Papaverine: 79/249 attained adequate erections Papaverine +phentolamine: 72/249 attained adequate erections	
Riley et al. (1989)	61	Ed min 6 mo; mixed organic/psychogenic; absence psychopathology	Yohimbine (5.4 mg 3/day) vs. placebo. Double-blind, cross-over design; 8 wk drug administration		Tx vs. placebo: Improvement in subjective erectile function	
Sarosdy et al. (1989)	15	*M* age = 63, psychogenic ef	Intracorporeal prostaglandin El (10 mcg. or 20 mcg.) vs. papaverine (30mg/ml or 60 mg/ml). Double-blind, cross-over design, 2-4 wk drug administration (I)		Prostaglandin E1: 2/15 full erection, Papaverine: 3/15 full erection; Either tx: 4/15 full erection	
Schramek & Waldhauser (1989)	20	*M* age = 45; psychogenic ef duration 1-7 yr	Intracavernous injections of either saline, preservative, 5 µg prostaglandin E1, or 10 µg prostaglandin E1. Double-blind, cross-over design (I)	4 sessions	5 µg prostaglandin E1: 11/20 subjective reports of full erection 10 µg prostaglandin E1: 14/20 subjective reports of full erection Placebo or preservative: no change in erection	

Table 4 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Sonda et al. (1990)	33	Prim ed min 3 mo	Yohimbine (5.4mg 3/day) vs. yohimbine & placebo vs. placebo. Double-blind, cross-over design; 4 wk drug administration, 1 wk between study phases (I)		Improvement in subjective erectile function: yohimbine (11/33); yohimbine + placebo (5/33); placebo (5/33); no change (12/33)	
Susset et al. (1989)	74	*M* age = 61, absence psychopathology	Yohimbine (21.6 - 42.0 mg /day) vs. placebo. Double-blind, partial cross-over design; 8 wk drug administration (I)		Yohimbine: 46/71 no change in erectile function, 10/71 restoration of full erection, 15/71 occasional rigidity of penis to allow penetration Placebo: 3/71 improved erectile function	
Cavallini (1991)	33	Neurogenic ef (n = 10), arterial ef (n = 10), mixed (n = 4), *M* age = 58	Minoxidil (1 ml of 2% solution applied to glans penis) vs. placebo (lubricating gel) + nitroglycerin (2.5 gm of a 10% ointment applied to the penile shefl). Double-blind design (I)		Minoxidil > placebo + nitroglycerin in increasing penile diameter, rigidity and arterial flow of penis	
Mahmoud et al. (1992)	52	Ed mean duration = 3 yr, 24 vasculogenic ed, 10 psychogenic ed, 5 neurogenic ed, 5 hyperprolactinemia ed; *M* age = 49	Intracavernous prostaglandin El (20 μg/ml) vs. papavarine hydrochloride (30mg/ml). Double-blind cross-over design (I)	1 session per each drug treatment	Prostaglandin El: 81% good erectile response (nearly 90-degree angle & min duration 2 hr) Papavarine: 63% good erectile response	
Turner et al. (1992)	78	Self -injection (SI) group (n = 42): ed *M* duration = 7 yr; *M* age = 54; 69% married; 20 organic ed, 16 mixed ed, 6 psychogenic ed External vacuum device group (n = 36): ed *M* duration = 6 yr; *M* age = 59; 67%married; 16 organic ed, 11 mixed ed, 8 psychogenic ed, 1 idiopathic ed	SI papaverine & phentolamine (n = 42) vs. external vacuum device (n = 36); 12 mo trial (I/C)		No significant difference between groups in sexual or psychological functioning. Both groups significant improvements in erectile response, increased frequency of si, orgasms, and spontaneous erections, increased sexual satisfaction, decreased anxiety and depression. No change in self-esteem.	3 mo: gains maintained 6 mo: gains maintained 1 yr: gains maintained
Chancellor et al. (1994)	18	Spinal cord injured patients, 19-65 yr	Minoxidil (1 ml of 2%-solution applied to glans penis) vs. vacuum constriction device vs. intracorporeal papaverine (l0mg) (I)	4 sessions	Papaverine: increased rigidity at base of penis by median 77%; vacuum constriction device: increased rigidity by median 57%; minoxidil: no change in rigidity at base of penis	

Table 4 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Montorsi et al. (1994)	55	Psychogenic ed *M* duration = 8 mo; *M* age = 43; all with steady partners	Yohimbine (5mg 3/day) & trazodone (50mg/day) vs. placebo. Double-blind, cross-over design; 8 wk drug administration (I)		Tx: 71% complete and partial erection Placebo: 22% complete and partial erection	3 mo: 32/39 gain maintained 6 mo: 31/39 gain maintained
Kim & McVary (1995)	10	Ed; 9 spinal cord injury; 1 arterial insufficienct *M* age = 33	Topical prostaglandin El (1.0 gm-1.5 gm) vs. placebo (applied to penis, scrotum, perineum) (I)	3 sessions	Tx: 7/10 significant increase in blood flow to penis (Doppler ultrasound) Placebo: no change blood flow to penis	
Knoll et al. (1996)	20	Ed duration = 2–7yr, M age = 47, arterial insufficiency, cavernous venous leakage	Yohimbine (5.4mg 3/day) & isoxsuprine (10 mg) vs. pentoxifylline (400mg 3/day). Cross-over design; 2 mo drug administration (I)		Yohimbine & isoxsuprine: 50% partial erectile response Pentoxifylline: 35% partial erectile response. No difference between groups duplex ultrasound scanning	
Linet & Ogrinc (1996)	296	neurogenic ef, vasculogenic ef, psychogenic ef, mixed ef	Intracavernosal alprostadil (2.5 -20 mg) vs. placebo (C)		Alprostadil > placebo at all dosages	
Mann et al. (1996)	30	Ed > 2 yr 23/30; 25-64 yr; mixed sexual dysfunctions; 16/30 organic ed; absence psychopathology	Yohimbine (5mg 3/day) vs. placebo. Double-blind; 7 wk drug administration (I)		Significant improvement in subjective erectile function in non-organic patients only. No change in nocturnal penile tumescence or rigidity in organic or non-organic patients	
Padma-Nathan et al. (1997) at least once	961	Organic ed min 3 mo; *M* age = 62; all with steady partners; all showed sufficient erectile response to prostaglandin E1 (125-1000 ug doses) during in lab pretesting	Prostaglandin El (125-1000 µg (n = 461) vs. placebo (delivered transurethrally) (n = 500); 3 mo at home treatment (C)		Tx: 299/461 successful si at least once, Placebo: 93/500 successful si at least once; 118/500 orgasm at least once	293/461 orgasm
Rowland et al. (1997)	26	Tx (n = 11): Ed min 6 mo; *M* age = 49; absence vascular, neurologic, or testosterone dysfunction, absence psychopathology Placebo (n = 15); sexually functional; *M* age = 40	Yohimbine (5mg 3/day for 2 wk; 10mg 3/day for 2 wk) (n = 11) vs. placebo (n = 15). Double-blind, cross-over design; 4 wk drug administration (I)		Tx: 3/11 strong improvement subjective erectile function, 5/11 partial improvement subjective erectile function; increased sexual activity; slight delay ejaculation Placebo: no change sexual desire, arousal, erectile ability; slight delay ejaculation	

Table 4 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Own Control or Wait-list Controlled Outcome Studies						
Price et al. (1981)	21	Sec ed; *M* age 45; none with sexual partners	Didactic presentations and discussions, DM bibliotherapy (G) vs. WL	8 2-hr sessions	Tx: 64% increased satisfaction of erectile function; 36% complete improvement WL no change	6 mo: gains maintained
Heiman & LoPiccolo (1983)	19	*M* age = 32; absence psychosis, depression, or severe marital distress	CBT, communication training, SF systems conceptualization vs. WL (C)	Tx: 15 1 hr sessions WL: 1-2 mo.	Significant increase in sexual and marital satisfaction, sexual contact, foreplay and si duration, and frequency during masturbation, no sig. change in attaining or maintaining erections	3 mo: significant decrease in patient and partner sexual satisfaction
Munjack et al. (1984)	16		RET focusing on performance anxiety vs. WL	6 wk	RET vs. control: increased frequency si; decrease sexual anxiety	6 mo: relapsed
Flaherty (1989)	29	Sec ed	Sex education, behavioral assignments, DM, SF, sexual and communication skills (G) vs. WL (posttest only)	10 1/2-hr sessions/ 5-6 wk	Tx vs. control: increased frequency si, increased sexual satisfaction, lower frequency ed, increased sexual arousal, decreased sexual anxiety	
No Control Outcome Studies						
Wolpe & Lazarus (1966)	31	Mixed sexual dysfunctions	SD		21/31 "achieved entirely satisfactory sexual performance" 6/31 "sufficiently inproved"	
Friedman (1968)	10	24-50 yr; 2 single, 8 married	SD & intravenous methohexital to maximize muscular relaxation (I)	*M* = 9 sessions	8/10 ability to have si without ed or ejaculation problems; 2/10 improved	12 mo: gains maintained
Masters & Johnson (1970)	245 (1959-1970)	32 prim ed; 213 sec ed	Educational presentations, therapy discussions, SF (C)	daily/ 2 wk	59% success for prim ed 74% success for sec ed	5 yr: prim ed 0/7 relapsed, sec ed 9/90 relapsed
Jones (1973)	7		SD & methohexital	*M* = 7 sessions	6/7 "restored to coital competence"	
Lobitz & LoPiccolo (1972)	6		Modification of Masters & Johnson, daily monitoring of sexual feelings/behavior, interpersonal sexual skills, some classical conditioning of sexual arousal (C)	15 sessions/ 15 wk	4/6 partner satisfied min 50% of si	
Meyer et al. (1975)	7	Mixed sexual dysfunction	Variation of SF (C)	10 sessions/ 10 wk	5/7 complete relief; 2/7 "equivocal improvement"	7 mo: 3/4 gains maintained
Csillag (1976)	12	6 ed min 6 mo., 6 controls; 18-38 yr	Erectile biofeedback training (I)	16 sessions/ 8 days	5/6 patients improved erectile ability outside of laboratory; 0/6 controls improved	

Table 4 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Levine & Agle (1978)	16	Sec ed min 6 mo; *M* = age 41; 6 subjects also had pe; absence *psychopathology*, *M* yr married = 14	SF; psychotherapy for performance anxiety and interpersonal issues (C)	8-26 sessions/ 6-48 wk	6/16 consistently potent; 14/16 ability to attain erection during foreplay	3 mo: 6/6 potency maintained 12 mo: 69% improved vs. pre treatment; 75% declined vs. post-tx measures
Lobitz & Baker (1979)	9	3 prim ed, 6 sec ed; *M* age = 31; 4 single; no psychopathology	*In vivo* SD, communication training, sexual education sensory awareness exercises, sexual fantasy training, stop and start (G)	12 90-min sessions	Significant decrease incidence ed, sig. increase sexual sat and sexual fantasy (TAT)	9 mo: gains maintained
Reynolds et al. (1981)	11	Sec ed; *M* age = 50; 8 divorced; none with steady partners	Dating skills, sexual communication skills, role play withsexual therapy, bibliotherapy (G)	10 sessions	Significant decrease ed and social anxiety	6 mo: gains maintained
Everaerd et al. (1982)	13	8 prim ed, 3 sec ed, 2 pe and sec ed; *M* age = 30	RET (G), social skills training, SF, DM	18-21 2-hr sessions	9/13 ability to maintain erection	2 mo: 6/15 "complete cure," 3/15 slight improvement
Kuruvilla (1984)	13	Single	SD, DM, sex education		9/13 full erection during masturbation, 4/13 partial erection during masturbation	2 yr: 7/11 cont. improvement
LoPiccolo et al. (1985)	16	*M* age = 38; *M* yr married = 13	CBT (LoPiccolo & Hogan, 1979) (C)	15 1 -hr sessions	Significant increase in ability to attain and maintain erection	3 mo: gains maintained
De Amicis et al. (1985)	15	*M* age = 38; *M* yr married = 13	Sensual awareness exercises, SF, communication training, modification of sexual interactions (C)	15-20 sessions	Significant increase in length of foreplay and ability to maintain erection during si, sig. increase sexual satisfaction	3 yr: ability to maintain erection during si, no change in ability to attain erections prior to si
Hawton & Catalan (1986)	34	*M* age = 33	Homework assignments (Masters & Johnson, 1970) sexual education, psychotherapy (C)	*M* = 15 sessions	14 resolved, 9 largely resolved, 5 some improvement, 5 no change, 1 worse	
Hawton et al. (1992)	36	34 sec ed, 2 prim ed; *M* age = 39; married; *M* duration ed = 5 y	SF; DM (C)	*M* = 12 sessions	15 complete resolution; 10 marked improvement; 11 little or no change	3 mo: marked/complete resolution declined to 20

Table 4 (cont.)

Study	N	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Case Studies						
Lazarus & Rachman (1957)	1	Prim ed	SD	8 sessions	Ability to maintain erection	17 mo: gains maintained
Wolpe (1958)	8		*In vivo* SD	M = 31 sessions/ 10 mo	6/8 "cured" I /8 "much improved"	
Lazarus (1961)	5		SD (G) (n = 2) vs. Interpretive tx designed to explore emotions, interpersonal relationships and their relation to ed (G) (n = 3)	20 sessions 3 wk	SD: 2/2 complete recovery Interpretive tx: 0/3 recovery	
Cooper (1968)	31		Relaxation training, sex education, psycho–therapy (I/C)	20 sessions 1 yr	13/31 cured/improved	
Cooper (1969b)	49		*In vivo* SD, sex education, psychotherapy (I)	*M* sessions = 24	7/49 recovered; 12/49 improved/ 21/49 unchanged; 9/49 worse	
Salzman (1969)	1	Prim ed; 33 yr; married 10 yr.	SD	49 sessions	Ability to maintain erection during si	1 yr: gains maintained
Masters & Johnson (1970)	28	19 prim ed; 9 sec ed	Sexual surrogate (C)		Prim ed: 63% success sec ed: 88% success	
Bass (1974)	1	24 yr; single	SD (I)	5 50 min sessions	Able to maintain erection during si	6 mo: gains maintained
Herman & Prewett (1974)	1	Prim ed; 51 yr	Erectile biofeedback training (I)	16 sessions	Increase in erectile ability outside of laboratory	7 mo: relapsed
Glick (1975)	1	36 yr married 6 yr.	Relaxation training; SD	68 sessions/ 2 yr	Able to maintain erection during si	
Lansky & Davenport (1975)	3		SF	11 sessions	1 total improvement; 2 no improvement but non compliant	
Davis & Davis (1980)	1	48 yr	Nocturnal penile tumescence conditioning (C)	5 sessions	Able to maintain erection during si	2 yr: gains maintained
Apfelbaum (1984)	407 (1971-1981)	19-83 yr; mixed sexual dysfunctions	SF, sexual surrogate	Daily/ 2-3 wk	29% completely successful; 40% largely successful; 21% moderately successful; 7% no change; 1% worse	

Table 4 (*cont.*)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Stravynski (1986)	1	54 yr	*In vivo* SD, social skills training	6 wk	No ed during si, decreased anxiety	
Dauw (1988)	311 (1970-1980)	*M* age = 49; 55 prim ed; 256 sec ed	Bibliotherapy, sex education, social skills, DM, sexual surrogate		98% success for prim ed 85% success for sec ed	3 mo: gains mantained

Note. SD = systematic desensitization, SF = sensate focus, DM = directed masturbation, WL = wait-list, CBT = cognitive behavioral therapy, prim ed = primary erectile dysfunction, sec ed = secondary erectile dysfunction, pe = premature ejaculation, si = sexual intercourse, (I) = individual therapy, (C) = couples therapy, (G) = group therapy.

Prostaglandin E-1 has most recently been examined in transurethral application in order to overcome some of the negative effects of injection. Delivered with a small applicator, 50% of the administrations of alprostadil (MUSE, Vivus, Menlo Park, CA) in a 3-month period resulted in intercourse and orgasm or an erection sufficient for 10 minutes of intercourse (Padma-Nathan et al., 1997). Fifteen percent of the placebo administrations and 64% of the alprostadil group had successful intercourse at least once, compared to 18% of the placebo group. Pain was the only significant side effect reported in 35% of the alprostadil cases. Although PGE-1 overall has been shown to be effective, there is minimal follow-up data at present. Turner et al. (1992) are the only researchers to conduct follow-up which showed that treatment gains were maintained at 3, 6, and 12 months but at a cost of the significant dropout rate noted previously.

Another alpha-adrenergic antagonist, minoxidil, has been tried in two studies with rather different results. Cavallini (1991) tested minoxidil applied to the penile glans and compared it to a placebo applied to the penile glans and nitroglycerin applied to the penile shaft. Responses were measured by RigiScan and Doppler sonography. Minoxidil was more effective and had fewer side effects than nitroglycerin and placebo in increasing penile diameter, rigidity, and arterial flow, with greater effects for neurogenic than arterial patients. However, a full erection was never attained.

Chancellor, Rivas, Panzer, Freedman, and Staas, (1994) compared the papaverine injections, vacuum constriction device, and topical minoxidil in men with spinal cord injury and found 77%, 57%, and no change, respectively, in rigidity for the three methods. At this time neither topical minoxidil or nitroglycerin can be considered a validated treatment for erectile disorders.

All of the above treatments may be used for both psychogenic or organic forms of erectile dysfunction. The only biomedical interventions that are currently restricted to organically based erectile dysfunction patients are either the inflatable or semi-rigid silicone rod prostheses. Though nearly three times as expensive and associated with more significant surgical complications than the semi-rigid model, the inflatable device results in higher partner satisfaction (Tiefer, Pederson, & Melman, 1988).

The pattern of increased medicalization of treatments for erectile dysfunction has been noted by other researchers with some concern for the meaning of the shift and the impact on sexual values (e.g., Bancroft, 1990; Hawton, Catalan, & Fagg, 1992; Tiefer, 1994). Currently, medical treatments focus only on the symptom, erectile insufficiency, and ignore

the interpersonal context for which erections are desired. With rare exceptions, partner functioning, sexual desire, and satisfaction have been of minimal interest in testing the medical interventions. The apparent message is that producing an erection becomes the defining value of the sexual experience rather than an integral component of a broader sexual interaction. The attractiveness of the pharmacological approaches is that they offer men (including men with psychogenic erectile disorders) an erection "on demand." Whether this in fact will mean sustained greater satisfaction for couple sex remains to be studied.

Psychological treatments. The core therapeutic techniques in psychological treatments of erectile dysfunction are similar to orgasmic disorders: sensate focus and systematic desensitization. In addition, many interventions include interpersonal and sexual communication, sensory awareness training, and masturbation exercises. The interventions are typically multimethod and not easily separated from an integrated package nor tested by components.

Among the five psychological treatment comparison controlled outcome studies located, there were several repeated patterns of results (see Table 4). Treatment occurred in a relatively brief format of 5 to 20 sessions. Systematic desensitization for individuals or groups was an effective intervention, superior to interpretive or psychoanalytic treatment and to an attention placebo (Auerbach & Kilmann, 1977; Lazarus, 1961; Obler, 1973). In addition, systematic desensitization was found to be equal to "routine treatment" (Kockott, Dittmar, & Nusselt, 1975). There was also a suggestion that communication training was helpful (Takefman & Brender, 1984). Importantly, only one of the treatment comparison studies incorporated couples and none compared directly systematic desensitization with sensate focus. Among the wait-list control or own-control studies, behavioral assignments, masturbation, sex education, and communication skills resulted in increased satisfaction with erectile functioning which was maintained at 6 months (Price, Reynolds, Cohen, Anderson, & Schochet, 1981). In addition, these components increased the frequency of sexual activity, sexual satisfaction, and decreased erectile dysfunction and sexual anxiety (Flaherty, 1989).

In the only wait-list, own-control study that involved couples cognitive-behavioral treatment homework assignments, sensate focus exercises, and communication training were used (Heiman & LoPiccolo, 1983). Significant changes in sexual and marital satisfaction were achieved by the 19 couples. In addition, there were significant changes in longer foreplay and intercourse duration. Interestingly,

though the men reported a nonsignificant improvement in their partners' ability to achieve and to maintain erections. At the 3-month follow-up, sexual satisfaction decreased significantly in both males and females in spite of coital erection problems having remained the same as posttest levels (problems during 30% to 35% of contacts).

Among group uncontrolled studies, in five, systematic desensitization, as all or part of the treatment, was used with generally positive results of between 30% and 85% improvement. Higher levels of improvement and better maintenance of gains occurred when systematic desensitization was combined with other interventions such as communication training, education, or directed masturbation (Friedman, 1968; Jones & Park, 1972; Kuruvilla, 1984; Lobitz & Baker, 1979; Wolpe & Lazarus, 1966). Similarly, the treatments that included sensate focus resulted in significant decreases in erectile problems, though in three of the studies some decrease in functioning or satisfaction at follow-up was found (Hawton et al., 1992; Levine & Agle, 1978; Masters & Johnson, 1970). This pattern was generally similar to that found among the case studies.

In summary, there is more evidence for systematic desensitization than sensate focus being effective for the treatment of erectile disorders, though no direct comparisons have been made within the same study. Other therapeutic ingredients, such as behavioral assignments, sex education, and communication training, appear to contribute to better erectile functioning and general sexual satisfaction. Partner data and couples' treatment in controlled studies is too limited to draw firm conclusions.

Premature Ejaculation

Premature ejaculation is a very common phenomenon, affecting 29% of men, according to Laumann et al. (1994). The pattern of premature ejaculation is subjectively and individually defined, as it typically refers to persistent or recurrent ejaculation before, at, or shortly after penetration and before the person wishes it. Another aspect of the definition is that often partners will complain that the time before ejaculation is too short, causing impairments in their own sexual response.

Treatment approaches for premature ejaculation have included behavioral approaches, such as the squeeze technique developed by Semens (1956) and made popular by Masters and Johnson (1970), cognitive behavioral interventions (Zilbergeld, 1992), and more recently, the use of various pharmacological agents. Except for an early study which included men with erectile disorders, making effi-

cacy for premature ejaculation difficult to tease out (Obler, 1973), the only controlled outcome studies that have included a placebo or comparison treatment have been six studies involving medications (Althof et al., 1995; Girgis, El-Haggar, & El-Hermouzy, 1982; Goodman, 1980; Haensel, Rowland, Kallan, & Slob, 1996; Mendels, Camer, & Sikes, 1995; Segraves, Saran, Segrave, & Maguire, 1993) (see Table 5).

In four studies, clomipramine, a serotonergic antidepressant, was compared with a placebo and found to be effective in controlling premature ejaculation. Dosage and patient selection may have been important. For example, the 15 men selected for the Althof et al. (1995) study had a history of severe premature ejaculation and poor response to prior treatments. A higher (50mg) dosage level of clomipramine was compared with a lower (25mg) dosage and was found to be more helpful in delaying ejaculation (mean latency to ejaculation = 6 vs. 3 minutes).

Sertraline, a specific serotonin reuptake-inhibitor, widely prescribed for depression, has also been shown to significantly increase latency to ejaculation during intercourse, as reported by men as well as their female partners, though it required 4 weeks for the drug to show significant effects (Mendels et al., 1995). There are also indications that female partner orgasmic response increases, as does relationship satisfaction (Althof et al., 1995). In most studies daily drug dosages have been used, though more recently, clomipramine taken 6-24 hours prior to sexual activity has proven effective (Haensel et al., 1996; Segraves et al., 1993). Side effects are usually mild and dose-related, with dry mouth, constipation, and fatigue being the most common.

Whether pharmacological agents such as serotonin-reuptake inhibitors or alpha-adrenergic antagonists should be encouraged as a first line treatment intervention (as opposed to being an intervention primarily reserved for treatment resistant patients) remains to be evaluated. Although these medications are a simple and, if not used for a lifetime, cost effective treatment for premature ejaculation, there are some limitations to their widespread use. First, providing a systemic drug for a specific sexual problem may be unnecessary, given fairly good outcomes from behavioral interventions. Second, the serotonergic drugs have been associated with diminished desire, and in some cases, diminished arousal (Gitlin, 1997; Meston & Gorzalka, 1992). Therefore, these drugs would not be recommended for patients who also have low sexual desire or erectile dysfunction. Third, they would not be recommended for patients with an undiagnosed bipolar

Table 5
Premature Ejaculation

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Treatment Comparison Controlled Outcome Studies						
Obler (1973)	27	Absence neurotic or psychotic disorders; mixed ed	SD and assertiveness training (I) (n = 9) vs. psychospalytic (G) (n=9) vs no treatment control(n = 9)		SD: 80% improvement (increased sexual performance, decreased sex anxiety) vs. 15% other 2 groups	1 1/2 yr: gains maintained
Goodman(1980)	16		10mg/day clomipramine vs. placebo. Cross-over design; 1 mo trisl (I)		No significant difference tx vs. placebo in ejaculatory latency	
Girgis et al. (1982)	*50*	*Pe duration M = 3 yr; M age = 35; married; absence erectile or desire dysfunctions*	*10 mg 2/day clomipramine vs. placebo. Double-blind, cross-over design; 6 wk drug trial (I)*		*Clomipramine vs. placebo: significant increase in self-rated satisfactory sexual performance*	
Segraves et al. (1993)	20	M age = 45; absence psychiatric disorders or other sexusl dysfunctions; 8 lifelong pe	25mg or 50mg clomipramine 6 hr pnor to si10 trials vs. placebo 6 hr prior to si Double-blind design (I).		Clomipramine: 70% duration si min 2 minutes Placebo: 10% duration si min 2 minutes	
Althof et al. (1995)	15	lifelong pe; *M* age = 38; 12/15 married	25 mg/day clomipramine vs. 50 mg/day clomipramine vs. placebo. Double-blind cross-over design, 2-7 wk (C).		25mg clomipramine: increase (249%) in mean time to ejaculation 50mg clomipramine: increase (517%) in mean time to ejaculation Placebo: increase (30%) in mean time to ejaculation. 25mg and 50mg clomipramine: increased sexual satisfaction in patients snd partners; improved orgasmic ability in partners	2 mo: ejaculatory latency returned to baseline upon drug withdrawal.
Mendels et al. (1995)	52	Tx group: pe = 18 yr, 25-52 yr Placebo group: pe *M*=13 yr, 25-52 yr	Sertraline (50 mg-200 mg) (n = 26) vs. placebo (n = 26). Double-blind design; 8 wk drug administration(I)		Tx vs. placebo: significant increase in ejaculatory latency and successful si attempts	
Haensel et al. (1996)	22	Tx group (n = 14): pe min 6 mo; 8 primary pe, 6 secondary pe and erectile failure; *M* age = 42 Placebo group (n = 8); *M* age 41; sexually functional	25 mg clomipramine (12-24 hr prior to si) vs. placebo. Double-blind, cross-over design; 3 wk drug administration (I)		Tx vs. placebo: primary pe significant increase latency to ejaculation, significant increase sexual and relationship satisfaction; secondary pe and controls no change in ejaculation latency. Clomipramine inhibited nocturnal penile tumescence all groups	

Table 5 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Own Control or Wait-List Controlled Outcome Studies						
Heiman & LoPiccolo (1983)	21	*M* age = 32; absence psychosis, Severe depression or marital distress	CBT, communication training, systems conceptualization, pause and squeeze, SF vs. WL (C)	Tx: 15 1 hr sessions WL: 1-2 mo.	Increased duration of foreplay and si, increase in partner-initiated sexual activity	3 mo: decreased duration si (still sig. increase from pre tx), sexual satisfaction maintained
No Control Outcome Studies						
Masters & Johnson (1970)	186 (1959-1970)		Pause and squeeze		182/186 success	5 yr.: 1/74 relapsed
Lobitz & LoPiccolo (1972)	6		Modification of pause and squeeze, communication training (C)	15 sessions	6/6 cured	6 mo.: gains maintained
McCarthy(1973)	14	Mixed pe/erectile dysfunction	Modification of pause and squeeze (C)	10-15 sessions/ 10-15 wk	12/14 "marked improvement"	
Yulis (1976)	37		Homework assignments (Masters & Johnson, 1970); 3 men also assertiveness training	18 sessions/ 3wk	80%-100% ejaculatory controlled encounters	6 mo: 33/37 ejaculatory control
De Amicis et al. (1985)	20	*M* age = 38; *M* yr. married = 13	Sensual awareness, communication training, modification of sexual interactions (C)	15-20 sessions/ 15-20 wk	Significant increase in duration of foreplay and si	3 mo & 3 yr: decreased duration si, sexual and marital satisfaction
LoPiccolo et al. (1985)	21	*M* age = 38 *M* yr. married = 13	CBT(LoPiccolo & Hogan, 1979) (C)	15 1 hr sessions	Significant increase in duration of foreplay and si	3 mo: gains maintained
Hawton & Catalan (1986)	14	M age = 33	Homework assignments (Masters & Johnson, 1970), sex education, psychotherapy (C)	M = 15 sessions	4 resolved, 5 largely resolved, 1 some improvement, 3 no change, 1 worse	
Case Studies						
Cooper (1968)	10		Stop and start, relaxation exercises, sexual education, couples interview, individual tx	Minimum 20 sessions	1/10 improved	
Cooper (1969a)	30		*In vivo* SD, sexual education, psychotherapy (I)	Minimum 20 sessions	13/30 improved; 15/30 unchanged; 2/30 worse	
Ince (1973)	1		SD, thought stopping, masturbation prior to si			
Tanner (1973)	2	1 patient psychotic	Pause and squeeze (C)		Increased duration si, increased sexual satisfaction	9 mo (1 patient): gains maintained

Table 5 (cont.)

Study	*N*	Subject Characteristics	Treatment Type	No. Sessions	Outcome	Follow-up
Kaplan et al. (1974)	4		Sexual techniques training, stop-start (C)	6 45-min sessions	Ejaculatory control	4 mo: gains maintained
Zeiss (1978)	6		Sexual and communication training, ban on si (C)	6 sessions	4/6 ejaculatory control	8 mo: 3/4 gains maintained
Assalian (1988)	5	26-52 yr. chronic pe	25 mg/day clomipramine		5/5 ejaculatory control within 2 days	12/18 mo (2 patients):gains maintained
Dauw (1988)	127 (1970-1980)	*M* age = 28	Bibliotherapy, sex education, social skills training, masturbation exercises, sexual surrogate	Daily 2-3/wk	122/127 ability to maintain erection during si min 10 min before ejaculation	

Note. *SD* = systematic desensitization, WL = wait-list, CBT = cognitive behavioral therapy, si = sexual intercourse, pe = premature ejaculation, (1) = individual therapy, (C) = couples therapy.

disorder, as they may significantly increase the likelihood of onset of a manic episode. There are also minor side effects that accompany any drug use, and these should be examined in terms of patient tolerance. Finally, there are no current long-term follow-up studies for the ongoing use of these medications.

In further studies, researchers should assess whether a brief trial of pharmacological intervention could be used on a short-term basis to initiate change toward less anxious and more extended sexual interactions. Relatedly, one could imagine combining medication with a brief behavioral intervention, although as yet no studies have been done to compare the usefulness of pharmacological versus behavioral versus a combination of the two interventions.

The primary psychological intervention that has been used for premature ejaculation is a version of the squeeze technique (also referred to as the pause-and-squeeze) (Semens, 1956; Masters & Johnson, 1970). This technique involves stimulating the penis to full erection and almost to the point of ejaculation ("moment of inevitability") and then applying a firm squeeze on either side of the penis, usually just below the glans. Typically this procedure is repeated twice before the person is allowed to ejaculate. A typical modification of this procedure includes the person first practicing it during masturbation (Lobitz & LoPiccolo, 1972) and then transferring the skill to a partner.

The only controlled study that has tested this procedure was reported by Heiman and LoPiccolo (1983). In an own-control design, the effectiveness of 15 sessions using cognitive-behavioral treatment, including the squeeze technique, was tested. Heiman and LoPiccolo found that foreplay duration increased from 7-to-10 minutes to 11-to-15 minutes and intercourse duration from 1-to-2 minutes to 5-to-8 minutes, both of which were significant changes. However, at 3 months following the end of therapy, a decrease was reported in duration of intercourse. Other research from the same clinical center found similar changes immediately posttherapy, but different responses at follow-up (LoPiccolo, Heiman, Hogan, & Roberts, 1985; and De Amicis, Goldberg, LoPiccolo, Friedman, & Davies, 1985). In LoPiccolo et al., it was found that most gains were maintained at 3 months, whereas De Amicis et al. found that at 3-month and 3-year follow-ups, there was a decreased duration of sexual intercourse.

The largest study in the literature was Masters and Johnson (1970), for whom the primary intervention was the squeeze technique. They reported a 98% cure posttreatment and a 97% cure at 5-year follow-up. Unfortunately, a comparison control group was not

included. Yulis (1976) combined Masters and Johnson's approach with assertiveness training and found 33 of 37 men reported ejaculation control on 80-100% of their sexual encounters.

Overall, the squeeze technique has shown marked improvement for premature ejaculation, with rare exceptions (cf., Hawton & Catalan, 1986). It also appears that a pharmacological intervention may be very helpful. Follow-up data suggest that there is decreased latency over time after the psychological treatment, requiring resumption of some of the techniques. There are no follow-up data for the pharmacological interventions to examine whether effectiveness and acceptability of the medication remain strong.

Sexual Dysfunctions Lacking Efficacy Data

We have not mentioned *sexual desire disorders* and *dyspareunia* in women and men, and *delayed orgasm* in men. There are inadequate data on these topics to claim efficacious treatments. Although testosterone has been shown to increase sexual desire in men and women, its effect may be limited to those individuals with abnormally low levels of bioavailable testosterone (Bancroft, 1988; Sherwin, Gelfand, & Brenders, 1985). We could locate no controlled studies in which the effect of testosterone on humans who had adequate testosterone levels but low desire was directly tested. As mentioned earlier, there are also no controlled studies that demonstrate an effective treatment for inhibited sexual desire. In our opinion, efforts made to differentially diagnose and classify hypoactive desire disorders would significantly assist the development of treatments, both psychological and medical.

Dyspareunia in women has been difficult to treat and would benefit from further collaboration between behavioral and medical treatments. Gynecologists have identified vulvar vestibulitis syndrome (VVS) as the major subtype of vulvar pain and dyspareunia, with reported rates of 15% in gynecological practices. It is characterized by chronic persistent pain upon vestibular touch or attempted vaginal entry, extreme tenderness to a cotton-swab palpation of the vestibular area, and physical findings confirming vestibular erythema. In spite of its prevalence, medical and behavioral management of this condition is underinvestigated (Bergeron, Binik, Khalife, & Pagidas, 1997). Masters and Johnson (1970) reported on several different sources of dyspareunia for men and women but did not offer any statistic of evidence of differential treatment effectiveness.

Concluding Observations

What conclusions can be drawn with conviction? Empirically validated psychological treatments for several dysfunctions exist, "well established" in the case of primary anorgasmia in women, and erectile failure in men, and "probably efficacious" for secondary anorgasmia and, perhaps, vaginismus in women and premature ejaculation in men. Outcome studies in this area have declined since the mid-1980s, although we can anticipate an increasing rate of research on pharmacological agents. Among the nonsurgical medical treatments, there is evidence that yohimbine is somewhat effective for as yet unspecified cases of erectile disorder. Prostaglandin E-1 appears to be effective when injected into the corpora cavernosa and when absorbed transurethrally. Low doses of selective serotonin reuptake inhibitors have been shown to be useful for men with premature ejaculation, with evidence of effectiveness even when used within 6-24 hours of a sexual experience. As noted earlier, there is inadequate support for effective treatments for hypoactive sexual desire, sexual aversions, dyspareunia in women and men, and delayed orgasm in men. Desire disorders and dyspareunia include many different types of disorders under one heading, and will need further diagnostic differentiation and conceptualization in order to evaluate tailored treatments.

Perplexing and important issues remain to be examined. One is the comparison between couple and individual interventions. Of the treatment control and wait-list control studies located, there were few studying couples: among the psychological treatments, approximately 57% for the orgasmic disorders in women, 0% for vaginismus, 20% for the erectile disorders, and 25% for premature ejaculation. The medical treatments reported almost never included the partner in the assessment of treatment. These figures are striking given that the largest noncontrolled psychological treatment study was with couples (Masters & Johnson, 1970) with a clear philosophy that the solution to these disorders required couple involvement. In addition, it is clear that these diagnoses are interpersonally defined and experienced. When couple treatment studies are done, the partner's data are seriously underutilized.

Another issue is the need to examine *both* short- and long-term effects of given treatments. This factor becomes increasingly important when comparing psychological and medical (e.g., pharmacological) treatments, because short-term gains may fade differentially by modality, partially because the psychological or medical interventions

may need ongoing maintenance level treatment, which is not appealing to patients. Particularly underresearched are comparisons of psychological, pharmacological, and combined treatments. Designs similar to those used in depression or anxiety outcome research, examining both pharmacological and psychotherapeutic effectiveness, have potential value in sexual dysfunction treatment evaluations.

Methodological issues are not unique to sexual dysfunction treatment but deserve mention: (a) controlling for or matching subjects on group variables (e.g., age, years of disorder, marital status) would help interpretation; (b) measures for both client and therapist, and measures including changes in the target symptom as well as overall sexual and relationship satisfaction would be informative; (c) long-term follow-up evaluations, and; (d) qualitative methods, tapping into aspects of treatment that clients, and their partners for those in ongoing relationships, find most and least helpful, could contribute to our understanding of therapeutic change and its maintenance.

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