DOI: 10.14744/cm.2023.97269
Comprehensive Medicine 2023;15(4):350-5

RESEARCH ARTICLE

The Mess of Erectile Dysfunction, Anxiety Disorder, and Decreased Self-Esteem

Tanju Keten[1], Ünsal Eroğlu[1], Ali Yasin Özercan[1], Şeref Coşer[1], Ferhat Çelikkaleli[1], Erdem Öztürk[2], Melih Balcı[3], Özer Güzel[1], Yılmaz Aslan[3], Altuğ Tuncel[1]

[1]Department of Urology, University of Health Sciences, Ankara Bilkent City Hospital, Ankara, Türkiye
[2]Department of Urology, University of Health Sciences, Dr. Abdurrahman Yurtaslan Training and Research Hospital, Ankara, Türkiye
[3]Department of Urology, Üsküdar University Faculty of Medicine, İstanbul, Türkiye

ABSTRACT

Objective: Erectile dysfunction (ED), defined as the inability to acquire or maintain an erection sufficient for a satisfactory sexual activity, is often associated with psychiatric disorders. In this study, it was aimed to investigate the relationship of ED with anxiety disorder and decreased self-esteem.

Materials and Methods: The study group (Group 1) consisted of 80 male patients older than 18 years, who applied to the urology outpatient clinic with the complaint of ED between May 1, 2022, and October 31, 2022, and the control group (Group 2) consisted of 80 healthy men in the same age group without any erection problems. Group 1 was matched with Group 2 for age and level of education. Demographic data of all participants were noted. The erection status was scored with the International Index of Erectile Function-15 (IIEF-15), the anxiety status was scored with State-Trait Anxiety Inventory (STAI I-II), and self-esteem was scored with Rosenberg Self-Esteem Scale (RSES), and the results of two groups were compared.

Results: Group 1 (38.6±13.13 years) and Group 2 (36.9±9.6 years) were similar for their ages (p=0.804). The mean IIEF-EF score was 14.7±6.1 in Group 1 and 28.9±1.2 in Group 2 (p<0.01). The mean STAI I-II scores were significantly higher in Group 1 (p<0.01). The mean RSES score was significantly higher in Group 1 (2.1±1.11) compared to Group 2 (0.77±0.55), indicating lower self-esteem in patients with ED (p<0.01).

Conclusion: The results of our study indicated that ED was associated with low self-esteem and anxiety disorder.

Keywords: Anxiety disorder, erectile dysfunction, self-esteem

How to cite this article: Keten T, Eroğlu Ü, Özercan AY, Coşer Ş, Çelikkaleli F, Öztürk E, et al. The Mess of Erectile Dysfunction, Anxiety Disorder, and Decreased Self-Esteem. CM 2023;15(4):350-5

INTRODUCTION

Erectile dysfunction (ED) is defined as the persistent inability to attain and maintain an erection sufficient to permit satisfactory sexual performance.[1] ED most frequently presents after 40 years of age and its prevalence increases with age, however, recent publications have shown that its prevalence has been increasing in people younger than 40 years of age.[2,3] The mean prevalence in men between 40 and 79 years of age was reported as 30%.[4] In the study conducted in our country by the Turkish Society of Andrology Men's Sexual Health Working Group, the prevalence of ED was reported as 17% in 40–49, 35.5% in 50–59, 68.8% in 60–69-year age groups, and 82.9% in men ≥70 years of age.[5]

Various factors including anatomic, neurologic, endocrinologic, vascular, and psychogenic factors play a role in the pathophysiology of ED. Most of the patients with ED have more than one etiological factor and organic causes are present in over 80% of cases. The psychogenic component often accompanies other pathophysiological factors although this is not a rule.[6] Psychogenic ED refers to the ED caused by psychological or inter-relational factors. Psychogenic ED usually coexists with other sexual dysfunctions (particularly

Address for Correspondence: Tanju Keten, Department of Urology, University of Health Sciences, Ankara Bilkent City Hospital, Ankara, Türkiye
E-mail: tanjuketen@gmail.com **ORCID ID:** 0000-0002-5217-6011

Received date: 14.08.2023
Revised date: 19.09.2023
Accepted date: 25.09.2023
Online date: 13.10.2023

hypoactive sexuality) and major psychiatric disorders (particularly depression and anxiety disorders).[7,8] Although ED is not a life-threatening condition, it causes anxiety disorder, depression, anger, low self-esteem, and lack of self-confidence and affects the quality of life negatively.[9]

Although the correlation of ED with anxiety disorder and its correlation with self-esteem was studied before, only a limited number of studies has evaluated correlation of all those three variables. In this study, it was aimed to determine the relationship of ED with anxiety disorder and self-esteem. Clarifying this relationship will enable clinicians to better understand the role of anxiety disorder and self-esteem in the development of ED and to establish a clinical approach suitable for the specific needs of their patients.

MATERIALS and METHODS

Ethics committee approval was obtained from Dr. Abdurrahman Yurtaslan Training and Research Hospital Clinical Research Ethics Committee (date: April 7, 2021, no: 2021-04/1119). This descriptive correlation study was carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The patient group (Group 1) consisted of 80 male patients over the age of 18 years who applied to the urology outpatient clinic with the complaint of ED between May 1, 2022, and October 31, 2022, and the control group (Group 2), consisting of 80 healthy men in the same age group without any erection problems, were included in the study. All participants were informed about the study in detail and they provided their written informed consent before starting the study. Heterosexual men who were older than 18-year age, had regular sexual activity in the previous 6 months, and were able to fill out the questionnaires in Turkish were included in the study. The patients with previous pelvic surgery, diabetes mellitus, hypertension, congestive heart failure, neurological or psychiatric disorders that may cause ED, and the patients who were on medications that may cause ED including antihypertensives, antidepressants, or antipsychotics were excluded. The testosterone levels of the patients in Group 1 were evaluated and those with low testosterone levels were excluded from the study. The demographic data of all participants were noted including age, body mass index, and educational status. ED was evaluated with the International Index of Erectile Function-15 (IIEF-15), anxiety was assessed with the State-Trait Anxiety Inventory (STAI I-II), and self-esteem was determined with the Rosenberg Self-Esteem Scale (RSES) in both groups. The results of two groups were compared.

International Index of Erectile Function-15

International Index of Erectile Function 15 (IIEF-15) is an inquiry questionnaire developed by Rosen to question male sexual functions. With this survey consisting of fifteen questions, five different sexual function areas of the participants are evaluated: Erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction. The erectile function domain is evaluated with questions 1st, 2nd, 3rd, 4th, 5th and 15th and the score obtained from this section is called the IIEF-EF score. The lowest score that can be obtained from this section is 0, and the highest score is 30.[10]

State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory is one of the most widely used tools to measure anxiety. It was developed by Spielberger et al. and adapted to Turkish and validated by Oner and Le Compte.[11,12] The State-Trait Anxiety Inventory includes two separate scales consisting of a total of 40 items. The first scale, the State Anxiety Inventory, consists of statements that indicate how the person feels at a certain moment, and the second scale, the Trait Anxiety Inventory, how the person feels in general. The highest score is 80 and the lowest score is 20. The higher the total anxiety score, the higher the anxiety level.

RSES

RSES is one of the most reliable tools used to measure self-esteem in psychiatry. It was developed by Morris Rosenberg in 1963.[13] Validity and reliability studies of the scale were conducted in our country, its overall validity was determined as 71%, and the reliability of the self-esteem domain was determined as 75%.[14,15]

The RSES contains 12 domains and a total of 63 questions. The first domain is the self-esteem domain which consists of 6 items and a total of 10 questions. The lowest score that can be obtained from 10 items is 0, and the highest score is 6. A total score of 0–1 indicates high, 2–4 indicates moderate, and 5–6 indicates low self-esteem.

Statistical Analysis

SPSS 20.0 (IBM, Chicago, IL, USA) software was used for statistical analysis. The conformity of the quantitative data to the normal distribution was analyzed with the Kolmogorov–Smirnov test. It was determined that parametric test assumptions were not met and the data did not have normal distributions, therefore, the groups were compared with Mann–Whitney U-test. We used Fisher's exact and Chi-square tests to compare qualitative data between groups.

Table 1. Demographic data

	Group 1 (n=80)		Group 2 (n=80)		p
	n	%	n	%	
Age (years)	38.6±13.13 (18–73)		36.9±9.6 (23–66)		0.804[m]
Marital status					
Married	50	62.5	56	70	
Single	30	37.5	24	62.5	0.403[χ2]
Educational status					
Primary school	4	5	2	2.5	0.431[f]
Secondary school	4	5	1	1.2	
High school	10	12.5	8	10	
University	62	77.5	69	86.2	
BMI (kg/m^2)	24.95±3.58 (18.2–32.8)		24.6±3.81 (17.9–34.3)		0.550[m]
IIEF-EF	14.7±6.1 (0–25)		28.9±1.2 (26–30)		0.000*[m]
STAI-I	44.1±11.9 (22–71)		33.5±7.38 (19–60)		0.000*[m]
STAI-II	45.3±9.12 (25–67)		37.1±6.9 (23–49)		0.000*[m]
RSES	2.1±1.11 (0.25–4.92)		0.77±0.55 (0–3)		0.000*[m]

[m]: Mann–Whitney U test; [χ2]: Chi-square test; [f]: Fisher's exact test; *: Statistically significant. BMI: Body mass index; IIEF-EF: International Index of Erectile Function-EF; STAI: State-trait anxiety inventory; RSES: Rosenberg self-esteem scale

The sample size for each group, calculated with an effect size of 0.5, a significance level of 0.05, and a power of 0.80, determined a minimum requirement of 74 people per group. Correlation analysis of IIEF-EF scores with RSES, STAI-I, and STAI-II scores was performed with Spearman's test. Statistical significance was set at p<0.05.

RESULTS

Two study groups were similar for age, marital status, and educational status. There was no difference between the groups in terms of basic demographic data except for IIEF-EF scores. The demographic data of the participants are presented in Table 1.

IIEF-EF, STAI I-II, and RSES scores

The mean IIEF-EF score was 14.7±6.1 in Group 1 and 28.9±1.2 in Group 2 (p<0.01). The STAI I - state anxiety score was 44.1±11.9 in Group 1 and 33.5±7.38 in Group 2. The STAI-II-trait anxiety score was 45.3±9.12 in Group 1 and 37.1±6.9 in Group 2. It was determined that both state and trait anxiety scores were significantly higher in Group 1 when compared to in Group 2 (pSTAI-I <0.01, pSTAI-II <0.01). When RSES scores were considered, the mean score of Group 1 was significantly higher than Group 2, indicating a low self-esteem in Group 1 (mean RSES scores for Group 1 and Group 2 were 2.1±1.11 and 0.77±0.55, respectively, pRSES<0.01) (Table 1).

Correlation Analysis

Spearman's correlation analysis was performed to examine the relationship of IIEF-EF scores with STAI and RSES scores. IIEF-EF score was negatively correlated with RSES (r=−0.617, p=0.000), STAI-I (r=−0.496, p=0.000), and STAI-II (r=−0.437, p=0.000) scores (Fig. 1). A complete list of correlations is presented in Table 2.

DISCUSSION

A healthy sex life is one of the most important components of a satisfying relationship and a good quality of life.[16] An adequate sexual function contributes to a better subjective health perception and a good overall quality of life by making the person feel good.[17] The deterioration of sexual health, on the other hand, causes deterioration of the quality of life together with the psychosocial problems it brings. ED is one of the most common sexual dysfunctions when male sexual health is concerned.[18]

ED affects the sexual function and quality of life negatively both in the affected individual and his partner.[19,20] It has

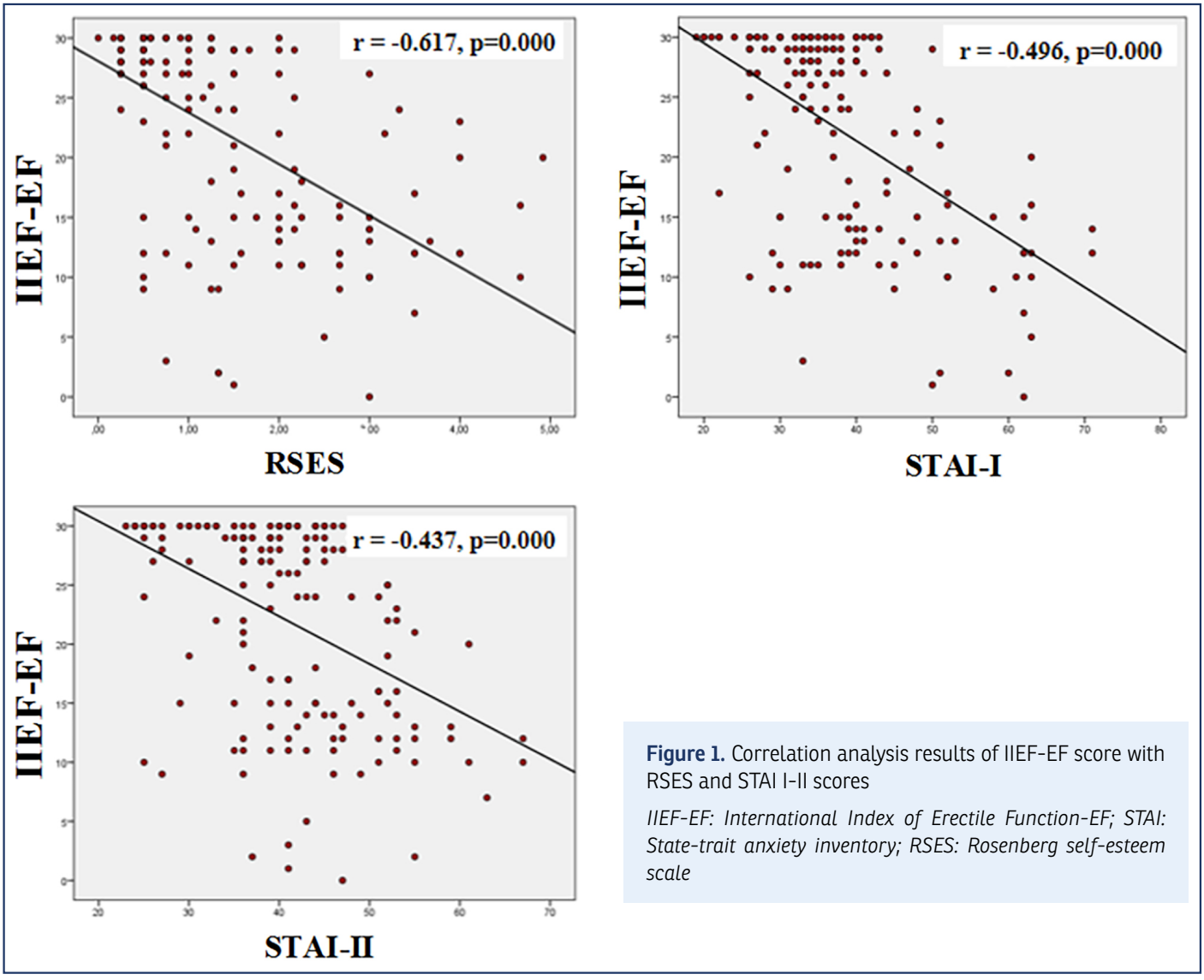

Figure 1. Correlation analysis results of IIEF-EF score with RSES and STAI I-II scores

IIEF-EF: International Index of Erectile Function-EF; STAI: State-trait anxiety inventory; RSES: Rosenberg self-esteem scale

been shown that the partners of the men had better sexual functions when the men were treated for ED and their erectile functions were improved.[21]

In most cases, ED is associated with more than one pathophysiological factor. There is often an underlying organic cause and is frequently accompanied by a psychological component. In particular, anxiety and depression play important roles in both the beginning and persistence of ED.[22]

Anxiety disorder exists in up to 37% of patients with ED, and the prevalence of ED is approximately 85% (median 20%) in patients with anxiety disorder.[23,24] A study that investigated the anxiety and depression in men with primary ED reported that the state and trait anxiety scores were higher in ED patients compared to the controls (STAI-I scores were 48.1±3.9 and 43.8±6.4, and STAI-II scores were 47.8±5.7 and 44.1±5.6 in ED and control groups, respectively).[25] In our study, both state and trait anxiety scores were significantly higher in ED group compared to the control group (STAI-I scores were 44.1±11.9 and 33.5±7.38, respectively, and STAI-II scores were 45.3±9.12 and 37.1±6.9, respectively).

Table 2. Correlation analysis results of IIEF-EF score with RSES and STAI scores

	Spearman's correlation	p
RSES	−0.617	0.000*
STAI-I	−0.496	0.000*
STAI-II	−0.437	0.000*

*: Statistically significant. IIEF-EF: International Index of Erectile Function-EF; RSES: Rosenberg self-esteem scale; STAI: State-trait anxiety inventory

The role of anxiety disorder in the development of ED is clear. In general, speaking, anxiety, and stress suppress sexual arousal by diverting attention from sexual stimuli. Anxiety about erection impairs sexual arousal and interferes with a normal sexual function.[26] It has been suggested that anxiety disorder affects sexual life negatively and results in communication problems between the patient and his partner, and this creates a vicious circle that hinders the erectile function of the man.[22]

In case of ED and at the beginning, men avoid intimacy with their partners and experience sadness and anxiety about not being able to meet their wives' needs. This causes decreased self-esteem and loss of self-confidence in addition to anxiety disorder.[27] Decreased self-esteem and loss of self-confidence may negatively affect one's relationship with friends and other people.

Self-esteem is self-confidence on self-worthiness, it may affect decision-making process, relationships with other people, as well as health and well-being.[28,29] Self-esteem is also associated with anxiety and depression. Individuals with low self-esteem tend to go into a depressive mood by exaggerating the negative situations that arise as a result of their failures.[30]

It has been shown that ED is associated with decreased self-esteem and self-confidence.[31–33] Özkent et al.[34] investigated the relationship of ED with self-esteem, found that the RSES score was higher in ED group compared to the control group, and stated that ED was associated with low self-esteem. In our current study, RSES scores were significantly higher in the ED group compared to the control group (RSES scores for Group 1 and Group 2 were 2.1±1.11 and 0.77±0.55, respectively). Our results indicate low self-esteem in patients with ED, supporting previous data in the literature.

The main limitation of this study is the cross-sectional design that does not allow an investigation of causality. Although our study showed the correlation of ED with anxiety disorder and decreased self-esteem, it is not able to put forward a cause-and-effect relationship. ED may be the cause of anxiety disorder and decreased self-esteem, or on the contrary, it may be the result of these conditions. Our results could demonstrate an association rather than a clear etiological relationship. Another limitation of the study is the relatively small number of patients. Despite these limitations, our study is valuable since it reveals the relationship of ED with both anxiety disorder and decreased self-esteem. Although the relation between ED and anxiety and between ED and self-esteem was previously investigated, only a few studies investigated all of these three clinical conditions simultaneously. Therefore, we suppose that our study contributes to the literature data significantly.

CONCLUSION

Men who presented with ED had higher anxiety levels and lower self-esteem compared to those without ED. Although a cause-and-effect relationship remains unclear among those three clinical conditions, we recommend clinicians to adopt a clinical approach that takes the close relationship of ED with anxiety disorder and self-esteem into account and tailor their approach to the specific needs of the patients presenting with ED.

Disclosures

Ethics Committee Approval: The study was approved by the Dr. Abdurrahman Yurtaslan Training and Research Hospital Clinical Research Ethics Committee (No: 2021-04/1119, Date: 07/04/2021).

Informed Consent: Written informed consent was obtained from all patients.

Peer-review: Externally peer reviewed.

Authorship Contributions: Concept: C.K., A.T., M.B., E.Ö., Ö.G.; Design: T.K., E.Ö., Y.A., M.B.; Supervision: T.K., E.Ö.; Funding: Ü.E., Ş.C., A.Y.Ö., F.Ç.; Materials: A.T., Ş.C., Ö.G., A.Y.Ö., Y.A.; Data Collection or Processing: A.Y.Ö., F.Ç., Ş.C.; Analysis or Interpretation: Ü.E., F.Ç., T.K., Y.A.; Literature Search: Ü.E., T.K., Ö.G.; Writing: T.K., M.B., Ü.E.; Critical review: M.B., T.K., A.T.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

REFERENCES

1. NIH Consensus Conference. Impotence. NIH Consensus Development Panel on Impotence. JAMA 1993;7;270:83–90. [CrossRef]
2. Shamloul R, Ghanem H. Erectile dysfunction. Lancet 2013;381:153–65.
3. Nguyen HMT, Gabrielson AT, Hellstrom WJG. Erectile dysfunction in young men-a review of the prevalence and risk factors. Sex Med Rev 2017;5:508–20. [CrossRef]
4. Corona G, Lee DM, Forti G, O'Connor DB, Maggi M, O'Neill TW, et al; EMAS Study Group. Age-related changes in general and sexual health in middle-aged and older men: results from the European Male Ageing Study (EMAS). J Sex Med 2010;7:1362–80. [CrossRef]
5. Çayan S, Kendirci M, Yaman Ö, Aşçı R, Orhan İ, Usta MF, et al. Prevalence of erectile dysfunction in men over 40 years of age in Turkey: Results from the Turkish Society of Andrology Male Sexual Health Study Group. Turk J Urol 2017;43:122–9. [CrossRef]
6. Gratzke C, Angulo J, Chitaley K, Dai YT, Kim NN, Paick JS, et al. Anatomy, physiology, and pathophysiology of erectile dysfunction. J Sex Med 2010;7:445–75. [CrossRef]
7. Francis ME, Kusek JW, Nyberg LM, Eggers PW. The contribution of common medical conditions and drug exposures to erectile dysfunction in adult males. J Urol 2007;178:591–6. [CrossRef]
8. Araujo AB, Durante R, Feldman HA, Goldstein I, McKinlay JB. The relationship between depressive symptoms and male erectile dysfunction:

cross-sectional results from the Massachusetts Male Aging Study. Psychosom Med 1998;60:458–65. [CrossRef]

9. Guest JF, Das Gupta R. Health-related quality of life in a UK-based population of men with erectile dysfunction. Pharmacoeconomics 2002;20:109–17. [CrossRef]
10. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. Urology 1997;49:822–30.
11. Spielberger CD, Gorsuch RL, Lushene RE. Manual for the State-Trait Anxiety Inventory. Polo Alto, CA: Consulting Psychologists Press; 1970.
12. Oner N, Le Compte WA. Durumluk-Sürekli Kaygı Envanteri El Kitabı. 2nd ed. İstanbul: Boğaziçi Üniversitesi Yayınları; 1985. p. 3–5.
13. Rosenberg M. Society and the Adolescent Self-image. Princeton, NJ: Princeton University Press; 1965. [CrossRef]
14. Çuhadaroğlu F. Adölesanlarda Benlik Saygısı [Specialty thesis]. Ankara: Hacettepe Üniversitesi Tıp Fakültesi Psikiyatri Ana Bilim Dalı; 1986.
15. Öner N. Türkiye'de Kullanılan Psikolojik Testler. 3rd ed. İstanbul: Boğaziçi Üniversitesi Yayınları: 1997. p. 458.
16. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. JAMA 1999;281:537–44. Erratum in: JAMA 1999;281:1174. [CrossRef]
17. Rosen RC, Bachmann GA. Sexual well-being, happiness, and satisfaction, in women: the case for a new conceptual paradigm. J Sex Marital Ther 2008;34:291–7. [CrossRef]
18. McCabe MP, Sharlip ID, Lewis R, Atalla E, Balon R, Fisher AD, et al. Incidence and prevalence of sexual dysfunction in women and men: a consensus statement from the fourth international consultation on sexual medicine 2015. J Sex Med 2016;13:144–52. [CrossRef]
19. Sánchez-Cruz JJ, Cabrera-León A, Martín-Morales A, Fernández A, Burgos R, Rejas J. Male erectile dysfunction and health-related quality of life. Eur Urol 2003;44:245–53. [CrossRef]
20. Fisher WA, Rosen RC, Eardley I, Sand M, Goldstein I. Sexual experience of female partners of men with erectile dysfunction: the female experience of men's attitudes to life events and sexuality (FEMALES) study. J Sex Med 2005;2:675–84. [CrossRef]
21. Edwards D, Hackett G, Collins O, Curram J. Vardenafil improves sexual function and treatment satisfaction in couples affected by erectile dysfunction (ED): a randomized, double-blind, placebo-controlled trial in PDE5 inhibitor-naïve men with ED and their partners. J Sex Med 2006;3:1028–36. [CrossRef]
22. Hedon F. Anxiety and erectile dysfunction: a global approach to ED enhances results and quality of life. Int J Impot Res 2003;15:16–9. [CrossRef]
23. Corretti G. The relationship between anxiety disorders and sexual dysfunction. Psychiatr Times 2007;24:58–9.
24. Velurajah R, Brunckhorst O, Waqar M, McMullen I, Ahmed K. Erectile dysfunction in patients with anxiety disorders: a systematic review. Int J Impot Res 2022;34:177–86. [CrossRef]
25. Mourikis I, Antoniou M, Matsouka E, Vousoura E, Tzavara C, Ekizoglou C, et al. Anxiety and depression among Greek men with primary erectile dysfunction and premature ejaculation. Ann Gen Psychiatry 2015;14:34.
26. Nobre PJ, Pinto-Gouveia J. Cognitions, emotions, and sexual response: analysis of the relationship among automatic thoughts, emotional responses, and sexual arousal. Arch Sex Behav 2008;37:652–61. [CrossRef]
27. Althof SE. Quality of life and erectile dysfunction. Urology 2002;59:803–10.
28. Leary MR, Baumeister RF. The nature and function of self-esteem: sociometer theory. Adv Exp Soc Psychol 2000;32:1–62. [CrossRef]
29. Orth U, Erol RY, Luciano EC. Development of self-esteem from age 4 to 94 years: a meta-analysis of longitudinal studies. Psychol Bull 2018;144:1045–80. [CrossRef]
30. Roberts JE, Monroe SM. Vulnerable self-esteem and depressive symptoms: prospective findings comparing three alternative conceptualizations. J Pers Soc Psychol 1992;62:804–12. [CrossRef]
31. Althof SE, Cappelleri JC, Shpilsky A, Stecher V, Diuguid C, Sweeney M, et al. Treatment responsiveness of the self-esteem and relationship questionnaire in erectile dysfunction. Urology 2003;61:888–92. [CrossRef]
32. Latini DM, Penson DF, Colwell HH, Lubeck DP, Mehta SS, Henning JM, et al. Psychological impact of erectile dysfunction: validation of a new health related quality of life measure for patients with erectile dysfunction. J Urol 2002;168:2086–91. [CrossRef]
33. Martin-Morales A, Meijide Rico F, García González JI, Regadera Anechina L, Manero Font M. Psychological impact of erectile dysfunction on self-esteem and self-confidence. Actas Urol Esp [Article in Spanish] 2005;29:493–8. [CrossRef]
34. Özkent MS, Hamarat MB, Taşkapu HH, Kılınç MT, Göger YE, Sönmez MG. Is erectile dysfunction related to self-esteem and depression? A prospective case-control study. Andrologia 2021;53:e13910. [CrossRef]