



Research article

Investigation of sexual life and perceived spousal support in female recipients after kidney transplantation

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ARTICLE INFO

Keywords:Female kidney recipients
Kidney transplant
Sexual life
Spousal support

ABSTRACT

Introduction: End-stage renal failure has negative effects on sexual life, and solid kidney transplantation helps to recovery in sexuality. However, recovery in sexual life progresses slowly, and female recipients may need spousal support during this process. To examine the perceived spousal support and sexual lives of female kidney recipients in the aim of this study.

Methods: The study was conducted as a descriptive and cross-sectional research. 158 female kidney recipients were included in the study. In data collection, Personal Information Form, Spousal Support Scale, and Arizona Sexual Experience Scale were used. The study data were analyzed through descriptive statistics, Mann-Whitney *U* test, Kruskal-Wallis test, Dunn-Bonferroni post-hoc test, and Spearman correlation analysis.

Results: In this study 47.5 % of the female recipients were within the age range of 28–40 years. 43.7 % had university education and above. 60.1 % had their income equal to their expenses. 38 % of the female kidney recipients suffered from diabetes mellitus and endocrine problems. In this study, sexual dysfunction of female kidney recipients was found to be slightly above average. The spouse support perceived by the female recipients was well above average. As a result of this study was determined that as the economic status of the female recipients improved, perceived spousal support increased ($p < 0.05$). It was also determined that the female kidney recipients who were 40 years old and above, had poor economic status, used Tacrolimus and Cyclosporine, and had a comorbid chronic disease were under more risk in terms of poor sexual life, and their perceived spousal support was above moderate level.

Conclusion: The sexual life of female kidney recipients is affected by their clinical situation (concomitant diseases, advanced age, medication use). On the other hand, strong spouse support can make significant contributions to improving sexual life. A correlation was found in the study between sexual life and perceived spousal support in the female kidney recipients. The findings of the study point to the importance of spousal support in terms of improving sexual lives in female kidney recipients. Studies should be conducted on these two important concepts in planning care interventions and training programs.

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<https://doi.org/10.1016/j.heliyon.2025.e41728>

Received 26 January 2024; Received in revised form 31 December 2024; Accepted 4 January 2025

Available online 6 January 2025

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1. Introduction

In patients with end-stage renal failure, kidney transplant is preferred more as it increases survival rate and quality of life compared to dialysis [1]. The use of immunosuppressive drug therapies, effective management of postoperative complications, and psychosocial support interventions that facilitate the integration of recipients to social life have led to improvements in graft and clinical results of kidney recipients in the first 1–2 years following the transplant [2–4]. However, loss of kidney graft in the late period after transplant still continues to be a problem [5,6]. Kidney recipients suffer from various important complications such as cardiovascular diseases and cancer that constitute the primary causes of morbidity and mortality [7]. In the literature review performed, an optimal number of studies were not encountered in which psychometric parameters were addressed in the period following kidney transplant. In one of the rare studies encountered, it was determined that depression, stress, and anxiety levels of the recipients after kidney transplant were above a moderate level [8]. In the same study, depression, stress, and anxiety levels of female recipients were found to be higher compared to male recipients.

Various problems and complications that develop after the transplant surgery can reach unbearable levels for female kidney recipients. In terms of familial roles, these problems cause them to relinquish certain traditional tasks in which women are more active such as child care, housework, and cooking, or to need more spousal support [9]. Spousal support has been defined as a central marital resource that improves health and survival [10,11]. As spouses mostly live together, they can easily exchange support. A female kidney recipient who receives enough spousal support can better deal with the problems caused by her current situation. Thus, she can have a better sexual life with her spouse. In fact, it has been reported that sexual dysfunction in kidney recipients have various physiological and psychological consequences [12]. It is seen that in studies conducted on sexual lives of kidney recipients, mostly erectile dysfunction in males has been reported [13,14]. No study was found in the literature in which sexual lives of female kidney recipients were examined in detail. Hence, in the present study, it was aimed to identify perceived spousal support and sexual lives in female kidney recipients and to examine the relationship between these two concepts.

2. Materials and methods

The study was conducted with a descriptive and cross-sectional design in order to investigation of perceived spousal support and sexual lives in female kidney recipients. The study data were collected prospectively in the organ transplant unit of a research and training hospital located in the west of Turkey by the researchers.

2.1. Study design and participants

Following the ethical approval, the study was conducted with the participation of female patients who had undergone kidney transplant. In determining study sample, purposive sampling method was used and female kidney recipients who met the inclusion criteria, and volunteered to participate were added to the sample. It was performed power analysis with G Power 3.1.9.7 software to calculate the sample size. According to the power analysis results, with 0.05 margin of error, 0.4 effect size, and 95 % confidence interval, it was determined that at least 92 kidney recipients in the study. The study sample consisted of 158 recipients. Female kidney recipients from whom written informed consents were taken filled in the questionnaires. Inclusion and exclusion criteria for the study were as follows.

2.2. Inclusion criteria and exclusion criteria

Inclusion criteria for this study were (i) Having received kidney transplant at the research and application center where the study was conducted, (ii) Having been receiving immunosuppressive drug therapy for at least 7 days, (iii) Being female, 18 years old and above, and having no communication problem, (iv) Having a continuing relationship for at least 6 months, sharing the same house with her partner or spouse for at least 6 months. People who met the criteria (i) Patients of institutions other than the health center where the study was conducted or surgeries other than kidney transplantation, (ii) Patients under 18 years of age, illiterate people with whom we cannot communicate, (iii) Having no completed at least 7 days after solid kidney transplantation, and/or not receiving immunosuppressive treatment/not complying with treatment (iv) Having no partners/spouses, living separately from partner/spouse, being divorced having a relationship for less than 6 months were excluded from the sample.

2.3. Data collection and tools

Data collection tools used in the study were Personal Information Form, Arizona Sexual Experience Scale, and Spousal Support Scale. In the organ transplant unit where this study was conducted, each patient stayed in a single room. Patients were visited one-on-one in their rooms by the researchers. They were asked to answer the questions in the scales distributed to them within 30 min. Information about these scales is presented below.

2.4. Personal Information Form

The form developed by the researchers in line with the literature consisted of questions inquiring about the sociodemographic information of the participants (age, gender, marital status, educational status, etc.) and their health status.

2.5. Arizona Sexual Experience Scale

Arizona Sexual Experience Scale (ASEX) was developed by McGahuey et al. [15] in 2000, and the Turkish validity and reliability study of the scale was conducted by Soykan [16] (2004) on patients with terminal stage renal failure, and the Cronbach's alpha coefficient of the scale was found as 0.90. The 5-item Likert type scale is a self-evaluation scale, and it has separate forms for males and females. The scale aims to evaluate sexual functions by excluding sexual orientation and intercourse with the spouse. In the female form used in the study, there are questions inquiring about sex drive, psychological arousal, physiological arousal (vaginal lubrication), ability to reach orgasm, and satisfaction from orgasm. Each item is scored between 1 and 6, and the total score obtained ranges between 5 and 30. While low scores indicate that sexual response is strong, easy, and satisfying, high scores show the presence of sexual dysfunction. The Cronbach's alpha coefficient of the scale was determined to be 0.90 in the present study.

Table 1

Kidney recipients' SSS and ASEX mean scores with respect to their characteristics (n = 158).

Descriptive Characteristics	n	%	SSS	ASEX ^b
Age Range			XX ± SD	XX ± SD
28 and 40 [1]	75	47.5	64.56 ± 2.78	17.85 ± 2.08
41 and 50 [2]	60	38	65.21 ± 3.18	21.6 ± 2.06
51 years and above [3]	23	14.6	63.86 ± 2.54	21.34 ± 2.38
Test and Sig.			KW = 1.939, p = 0.379	KW = 0.642, p = 0.005**
Post-hoc				1 > 2,3
Marital Status			XX ± SD	XX ± SD
Living together	46	29.1	61.76 ± 3.21	16.81 ± 1.96
Married	112	70.9	64.3 ± 2.89	21.66 ± 2.18
Test and value			U = 1.087, p = 0.007	U = 0.961, p = 0.002
Educational Level			XX ± SD	XX ± SD
Primary School [1]	37	23.4	65.08 ± 2.89	21.94 ± 2.09
High School [2]	52	32.9	64.30 ± 2.96	22.21 ± 2.31
University and above [3]	69	43.7	63.52 ± 2.96	21.68 ± 1.86
Test and value			KW = 0.714, p = 0.014	KW = 1.454, p = 0.312
Post-hoc				1 > 2>3
Economic Status				
Income lower than expenses [1]	40	25.3	54.15 ± 2.93	21.75 ± 1.91
Income equal to expenses [2]	95	60.1	64.02 ± 3.11	17.7 ± 2.12
Income higher than expenses [3]	23	14.6	69.65 ± 2.63	18.47 ± 2.46
Test and value			KW = 0.766, p = 0.028*	KW = 0.269, p = 0.014*
Post-hoc				3 > 2>1
Additional Chronic Disease			XX ± SD	XX ± SD
Yes	77	48.73	65.08 ± 2.19	26.72 ± 2.11
No	81	51.27	61.30 ± 2.65	19.21 ± 2.06
Test and value			U = 0.932, p = 0.007**	U = 1.352, p = 0.241
Current chronic diseases^a				
Diabetes mellitus and endocrine problems [1]	60	38	63.16 ± 2.20	21.16 ± 1.13
Neurological disorders [2]	38	24.05	64.36 ± 1.16	27.14 ± 2.18
Other (Cardiovascular, enteral, osteoporosis [3],	21	13.3	62.34 ± 2.34	25.15 ± 0.93
Test and value			KW = 6.725, p = 0.035*	KW = 9.454, p = 0.009**
Post-hoc				2 > 1>3
Donor			XX ± SD	XX ± SD
Spouse [1]	73	46.2	66.32 ± 2.93	21.79 ± 2.05
Sibling, child, parents [2]	61	38.6	63.93 ± 3.34	21.49 ± 2.21
Other (Relatives, non-relatives) [3]	24	15.2	64.12 ± 2.17	21.83 ± 2.07
Test and value			KW = 0.815, p = 0.071	KW = 1.005, p = 0.605
Post-hoc				1 > 3>2
Time of Kidney Transplant			XX ± SD	XX ± SD
In less than 6 months [1]	11	7	63.54 ± 3.61	25.36 ± 2.06
Between 6 months and 1 year [2]	101	63.9	64.46 ± 2.96	21.69 ± 2.23
In 1–2 years [3]	46	29.1	63.82 ± 2.80	21.5 ± 1.85
Test and value			KW = 4.591, p = 0.101	KW = 0.541, p = 0.022*
Post-hoc				1 > 2,3
Drugs used^a			XX ± SD	XX ± SD
Corticosteroids [1]	112	70.9	63.26 ± 1.89	16.32 ± 2.46
Mycophenolate mofetil [2]	59	37.3	61.37 ± 2.44	15.48 ± 2.37
Tacrolimus [3]	51	32.27	62.23 ± 2.45	23.99 ± 2.21
Cyclosporin [4]	48	30.37	64.18 ± 3.01	22.48 ± 2.16
Azathioprine [5]	24	15.18	64.43 ± 1.98	17.44 ± 3.21
Test and value			KW = 0.365, p = 0.051	KW = 1.143, p = 0.000**
Post-hoc				3 > 4>5 > 1,2

*p < 0.05, **p < 0.01 KW; Kruskal-Wallis, XX; Mean, SD; Standard Deviation, U; Mann-Whitney U.

^a The same patient may have more than 1 option.

^b As ASEX score increases, sexual dysfunction increases.

2.6. spousal support scale

Spousal Support Scale (SSS) was developed by Yildirim (2004) in order to assess support levels received by spouses from each other. The 27-item scale consists of 4 subscales, which are 9-item “emotional support”, 7-item “material help and information support”, 8-item “appreciation support”, and 3-item “social attention support.” There are 3 reversely scored items on the scale (items 10, 20, and 24). The scale items are scored on a 3-point Likert type scale (Describes me well = 3 points, Partially describes me = 2 points, Does not describe me at all = 1 point). The scores obtained from the subscales and the total scale can be used. The minimum and maximum scores to be obtained from the scale are 27 and 81. A higher score obtained from the scale shows that the individuals thinks s/he receives more support from his/her spouse. In the original scale study, the Cronbach’s alpha internal consistency coefficient of the scale was found as 0.95 [17]. In the present study, this coefficient was determined as 0.88.

2.7. Analysis of the study data

In the analysis of the study data, SPSS IBM 25.0 software was used. Statistical analyses were evaluated at 95 % confidence interval and $p < 0.05$ significance level. The compliance of the data with distribution was checked through Kolmogorov-Smirnov test and there was no normal distribution. Demographic data were presented as percentage, number, mean, and standard deviation. In the comparison of normally distributed data, Mann-Whitney *U* test, Kruskal-Wallis, Dunn-Bonferroni post-hoc test, and Spearman correlation test were used. In determining validity and reliability of the scales used in data collection, the Cronbach’s alpha coefficient was considered.

2.8. Ethical aspects

Prior to the study, Institutional Review Board permission was taken from Istanbul Medical Park Hospitals Group, where the study was conducted. Then, written ethical approval was obtained from Istinye University Human Research Ethics Board (Date: July 21, 2022, Decision No: 22/108). The research steps were carried out in compliance with the Declaration of Helsinki. Written informed consents were taken from all female kidney recipients.

2.9. Findings

In Table 1, SSS and ASEX mean scores of the female kidney recipients are presented with respect to their characteristics. 47.5 % of the female recipients were between 28 and 40 years old. 70.9 % were married, and 43.7 % had university education and above. In addition, incomes of 60.1 % were equal to their expenses. 48.73 % of the female kidney recipients had a comorbid chronic disease, and 38 % suffered from diabetes mellitus and endocrine problems. 63.9 % of the recipients had kidney transplant within the last 6 months and 1 year. Regarding immunosuppressive drugs used by kidney recipients, 70.9 % were using corticosteroids, 37.3 % mycophenolate mofetil (MMF), and 32.23 % were using tacrolimus. The severity of sexual dysfunction was higher in female kidney recipients who were low-income, had comorbidities, were in the early post-transplant period (first 6 months), and were receiving multiple immunosuppressive treatments, compared to others, and these differences were statistically significant ($p < 0.05$). Spousal support was higher in the presence of good economic conditions and comorbidities, and these differences were statistically significant ($p < 0.05$).

In Table 2, the female kidney recipients’ SSS and ASEX mean scores are presented. According to Table 2, SSS total scale mean score was determined to be 64.14 ± 2.99 , and ASEX total scale mean score was found 21.68 ± 2.1 . ASEX subscale mean scores were determined as 4.65 ± 1.2 for sex drive, 4.13 ± 0.93 for psychological arousal, 4.56 ± 1.11 for physiological arousal, 4.12 ± 0.73 for ability to reach orgasm, and 4.2 ± 0.79 for satisfaction from orgasm. As for SSS subscale mean scores of the kidney recipients, they were found to be 22.32 ± 1.96 for emotional support, 16.75 ± 1.37 for material help and information support, 17.74 ± 1.33 for appreciation support, and 7.31 ± 0.95 for social attention support.

In Table 3, correlation analysis results between the kidney recipients’ SSS and ASEX mean scores are presented. Accordingly, a

Table 2

Female kidney recipients’ SSS and ASEX mean scores (n = 158).

Total scale and subscales	Number of Items	Items	Score Range	Min.-Max.	Xx ± Sd
ASEX	5	Items 1-5	5–30	18–26	21.68 ± 2.11
Sex drive	1	Item 1	1–6	3–6	4.65 ± 1.2
Psychological arousal	1	Item 2	1–6	3–6	4.13 ± 0.93
Physiological arousal	1	Item 3	1–6	3–6	4.56 ± 1.11
Ability too reach orgasm	1	Item 4	1–6	3–6	4.12 ± 0.73
Satisfaction from orgasm	1	Item 5	1–6	3–6	4.2 ± 0.79
SSS	27	Items 1-27	27–81	56–72	64.14 ± 2.99
Emotional support	9	Items 6, 16, 12, 21, 4, 1, 3, 9, and 2	9–27	17–27	22.32 ± 1.96
Financial aid and information support	7	Items 24*, 17, 27, 25, 13, 7, and 15	7–21	13–21	16.75 ± 1.37
Appreciation support	8	Items 18, 10*, 5, 26, 14, 22, 23 and 20*	8–24	15–21	17.74 ± 1.33
Social attention support	3	Items 19, 11 and 8	3–9	5–9	7.31 ± 0.95

XX; Mean, SD; Standard Deviation, Min.; Minimum, Max.; Maximum.

Table 3
Correlation analysis between SSS and ASEX mean scores of the kidney recipients.

		Total SSS	Emotional Support	Financial aid and information support	Appreciation Support	Social Attention Support
ASEX	Spearman Correlation	-0.172	0.025	-0.158	0.089	0.116
	Sig. (2-tailed)	0.030*	0.753	0.031^a	0.266	0.148
	N	158	158	158	158	158

^a Correlation is significant at the 0.05 level (2-tailed).

negative, weak, and statistically significant correlation was found between SSS total scale mean score and ASEX total scale mean score ($r = -0.172$, $p = 0.030$). In addition, a negative, weak, and statistically significant relationship was determined between ASEX and Material Help and Information Support subscale of SSS ($r = -0.158$, $p = 0.031$).

3. Discussion

In the study, perceived spousal support and sexual function in female kidney recipients were analyzed. Immunosuppressive drug regimen after kidney transplant reduces this risk of transplant rejection [18]. Throughout the period of immunosuppressive drug use, individuals who underwent transplantation surgery must abide by social isolation and cannot be present in social environments in order not to be infected [19]. This situation causes them to fall behind in their business life and many social roles. 25.3 % of the female kidney recipients in the study had poor economic status. Kidney recipients, who cannot go back to their professional lives before their health improves, may have to get help even for meeting their basic needs (nutrition, accommodation, clothing, etc.).

In the literature, it has been reported that low creatinine clearance, presence of proteinuria, hemoglobinemia [20,21], hypoalbuminemia [22,23], and comorbidity [8] following kidney transplantation lead to psychopathology development. In the present study, 48.73 % of the recipients had comorbid chronic diseases. 38 % had diabetes mellitus and endocrine problems. In the post-transplant period, kidney recipients experience difficulty in coping with the challenges brought about by their compliance with immunosuppressive drug therapy and having undergone a major surgical procedure and may need more spousal support than healthy individuals. The study sample of the present study consisted of only female kidney recipients. Perceived spousal support in the female kidney recipients was found to be above average. The areas that the spouses of the female kidney recipients provided the highest support were emotional support and social attention support.

Previous studies conducted have focused more on sexual dysfunction in males than in females. It has been reported that male kidney recipients experienced erectile dysfunction disorders at rates reaching up to 60 % [12,14]. Sexual dysfunction in kidney transplant patients can generally be caused by various physiological and psychological problems [24]. Sexuality is a significant subdimension of quality of life [25]. In the present study, it was determined that presence of comorbid chronic diseases, having undergone a major surgical intervention, receiving immunosuppressive drug therapy, being over the age of 40 years, and poor economic status triggered sexual dysfunction in the female kidney recipients. In addition, it was found that tacrolimus and cyclosporin frequently used in immunosuppressive regimen aggravated sexual life ($p < 0.05$). In a study previously conducted, it was reported that there was sexual dysfunction disorder in 73.9 % of the female kidney recipients [26]. In another study, it was reported that more than 50 % of the women who entered the terminal stage of renal failure, which is the last stage before kidney transplant, experienced problems such as oligomenorrhea, amenorrhea, anovulation, decrease in sexual desire, vaginal dryness, and inability to reach orgasm [27]. It is a potential and important problem that female kidney recipients may experience existing or newly developed sexual dysfunction disorders due to various psychological and physiological problems after kidney transplant. The results of the present study emphasize that there is a negative correlation between spousal support scale and sexual experience scale mean scores.

3.1. Limitations

Psychosocial problems that could trigger sexual dysfunction were not examined in this study. No determination was made regarding the insufficiency of affection, love and emotional bond between spouses. Medicines and supplements other than immunosuppressive drugs, how they were fed and what they ate were not recorded. There is no determination regarding the frequency and functions of sexual intercourse in women when they are healthy. All of these may be predictors of sexual dysfunction in the post-kidney transplantation period and limit the results of our study. Female kidney recipients with comorbid diseases may have sought more help from their partners than others. At the same time, it is often inevitable that women with poor economic conditions do not receive enough support from their husbands. These two factors limit our results regarding spousal support. In addition to the points mentioned above the present study had certain limitations such as the study being conducted at a single center, and not examining the problems caused by drugs deeply.

4. Conclusion

The process after kidney transplant and immunosuppressive drug regimen cover an important period in which multifactorial, multidimensional, and high-risk problems are involved. Patients' compliance with immunosuppressive drug therapy should be kept at

the maximum level, and their return to their social roles should be expedited and facilitated. In this regard, the spouses of female kidney recipients have important responsibilities. In the study, it was determined that the highest spousal support provided to the female kidney recipients was in the areas of emotional support and social attention support. In addition to the correlation between sexual life and spousal support, a relationship was determined in the study between sexual experience scale and material help and information support subscale. In this context, in cases where spousal support is not adequate, female kidney recipients should be supported in terms of material and social aspects. Thus, the return of female kidney recipients to their social life will be facilitated. In the study, it was determined that the female kidney recipients who suffered from four problems were under more risk in terms of poor sexual life. These problems were found to be 1) being over the age of 40 years, 2) low economic level, 3) presence of tacrolimus and cyclosporin in the immunosuppressive drug regimen, and 4) presence of a comorbid chronic disease. It is obvious that as a major surgical intervention, kidney transplantation weakens body image. Although we did not measure body image in the study, undergoing a major surgical procedure can also be a predictor of sexual dysfunction disorder, and this issue should be investigated in detail. It is highly important to make necessary plans and relevant studies in order for health professionals to identify sexual lives of female kidney recipients, to determine risks in early period, and to increase spousal support.

CRedit authorship contribution statement

Sennur Kula Sahin: Writing – review & editing, Visualization, Supervision, Software, Project administration, Investigation, Funding acquisition, Data curation, Conceptualization. **Semra Bulbuloglu:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Resources, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Data availability statement

The detail about original data can be requested from the corresponding author.

Ethical approval

All procedures performed in this study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments. Informed consent was obtained from all individual participants included in the study.

The authors didn't received institutional support, non-commercial grants, commercial support.

All of authors meet the authorship criteria. Research data was collected by Bulbuloglu, and Kula Sahin.

Funding

None.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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