

## ORIGINAL ARTICLE

# Quality of life and sexuality in chronic dialysis female patients

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Patients in end-stage renal disease (ESRD) present reduced quality of life (QOL) and impaired sexual function. Previous studies have mostly addressed male sexual dysfunction. This was a cross-sectional controlled study that applied a general and the World Health Organization Quality of Life-bref<sup>©</sup> questionnaires to assess demographic, marital, and sexual conditions, and QOL in 86 healthy women aged 18 or more years (Group 1), and 38 female ESRD patients on dialysis for at least 2 months (Group 2). The effect of several explanatory variables upon QOL components was estimated. Quality of life was lower in Group 2 – overall, and on *physical* and *environment* domains. To undergo dialysis and to be poorly educated negatively affected the QOL. Yet age, a stable marital relationship or being sexually active had no effect. Female patients undergoing chronic dialysis had lower QOL and were significantly more sexually dysfunctional than comparable healthy women. Decline in sexual function had no effect on the QOL.

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## Introduction

Quality of life (QOL) is a new concept in health sciences and clinical practice, defined as *an individual's perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns*.<sup>1,2</sup> Evaluation of the QOL and adequacy of sexual function has been incorporated into the concept of health.<sup>2</sup> Also, sexual aptitude has been taken into account in the QOL evaluation of patients – and their partners – enduring chronic illnesses.<sup>3</sup> Patients with end-stage renal disease (ESRD) recognize a significant reduction in health-related QOL, conceivably due to the restrictions imposed by illness and the demands and intrusiveness of treatment.<sup>4,5</sup> Assessment of the health status of patients on chronic dialysis showed significantly lower scores in physical functioning and in general health compared with healthy

controls – dialysis itself appearing to be the main problem to confront.<sup>6</sup>

The burden of chronic renal failure is evidenced by the diverse and progressive metabolic, hormonal and emotional derangements experienced by patients in the course to ESRD.<sup>7</sup> Hyperparathyroidism and anemia occur early in the evolution of progressive renal failure.<sup>8,9</sup> Severe and accelerated vascular disease is a major cause of morbidity and mortality in this group of patients.<sup>10</sup> It has been shown that sexual dysfunction is highly prevalent among patients in ESRD, and starting renal function substitution therapy may even worsen it.<sup>11–14</sup> A recent paper has shown that a significant percentage of women undergoing chronic dialysis is sexually inactive.<sup>15</sup> Male individuals with increased prolactin levels refer lower frequency of sexual intercourse and orgasms.<sup>16</sup> Hyperprolactinemia has been often found in ESRD patients, associated with reduction in libido and sexual performance.<sup>16–19</sup> Furthermore, reduced testosterone levels have been associated with hypothalamic–pituitary axis derangement.<sup>20,21</sup> Menstrual disturbances, anovulation and infertility are frequent among female patients with ESRD.<sup>14</sup> Occurrence of sexual problems among dialysis patients, transplant recipients, and normal individuals has been shown to be markedly diverse (70, 45, and 10%, respectively).<sup>22</sup> A randomly selected group of patients on peritoneal

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dialysis with decreased or absent sexual activity had poorer QOL, and higher degrees of anxiety and depression.<sup>14</sup> Patients undergoing hemodialysis exhibited higher levels of depression in comparison with transplant recipients, yet comparable levels of anxiety.<sup>23</sup>

Few previous controlled studies examined QOL and sexual function of female patients with ESRD undergoing dialysis. This study was aimed at evaluating QOL and the sexual functioning of female patients undergoing chronic dialysis, in comparison with healthy women. Possible interfering factors were examined.

## Patients and methods

The study was a cross-sectional controlled survey that enrolled 124 female individuals older than 18 years – 86 healthy, and 38 with ESRD undergoing dialysis – at a university hospital (Hospital São Lucas-PUCRS), from 1 October 2004 to 31 July 2005.

Group 1 comprised 86 healthy female individuals that regularly attended the Gynecology/Obstetrics Outpatient Clinic, and Group 2 included 38 female patients undergoing ambulatory renal function substitution therapy (21 on hemodialysis and 17 on ambulatory peritoneal dialysis) at the hospital Dialysis Unit longer than 2 months. In order to accommodate for age and educational levels, the planned enrollment in Group 1 was twice that of Group 2. Unwillingness to participate, and hospitalization during the preceding month were excluding criteria. The Ethics in Research Committee approved the protocol, and all the participants signed an informed consent.

All the participants privately completed a general questionnaire – that was returned unidentified – addressing demographic, level of education (primary, secondary, or university), marital status (single, widow, stable relationship >6 months or married), and sexual activity and practices (occurrence of any sexual intimacy, masturbation, oral sex, anal sex, homosexual activity, and vaginal coitus in the preceding 4 weeks) data. End-stage renal disease patients answered additional questions regarding dialysis modality. Simultaneously, all received a copy of the World Health Organization Quality of Life (WHOQOL)-bref<sup>®</sup> – questionnaire, validated for Brazilian Portuguese language.<sup>24</sup> The questionnaire evaluates four different domains (physical, psychological, social relations, and environment) addressing 24 facets, and the overall perception of QOL by two additional questions – all scaled 1–5.<sup>1,24,25</sup> The research team remained available for questioning throughout the study period. To reduce a possible effect of ageing on sexual activity, participants were stratified by age: ≤60 and >60 years.

The WHOQOL-bref<sup>®</sup> questionnaire was transformed according to the recommended computing

syntax: questions Q3, Q4, and Q23 values were reversed (originally negative questions); each domain score was computed and then multiplied by four to be directly comparable with scores derived from the WHOQOL-100<sup>®</sup>; scores were finally transformed to a 1–100 scale.

Data are presented as mean ( $\pm$ s.d.), percentage or ratio.  $\chi^2$  or Fisher's exact test – was used to compare categorical variables, and Student's *t*-test for continuous variables. Multiple linear regression analysis (forward stepwise method) was employed to evaluate the effect of several possible explanatory variables upon WHOQOL<sup>®</sup> domains. The *Statistical Package for Social Sciences* (SPSS, version 11.5 for Windows, SPSS Inc., Chicago, IL, USA) was used for computing WHOQOL<sup>®</sup> scores, and in all statistical analyses. For all comparisons, a value of  $P \leq 0.05$  was considered significant.

## Results

Both groups were comparable with regard to age, education, and marital status; yet significantly diverge concerning sexual activity. Data are shown in Table 1.

The WHOQOL-bref<sup>®</sup> scores were significantly different between groups *overall*, and in *physical* and *environment* domains. Table 2 depicts the values.

Several possibly influential factors were taken into a multiple linear regression model as independent variables (group, stratified age, marital status, sexual activity, and stratified education) to test for effect upon each WHOQOL-bref<sup>®</sup> domain. To participate

**Table 1** Age, educational, marital, and sexual characteristics by group ( $n = 124$ )

| Attribute                | Group 1<br>( $n = 86$ ) | Group 2<br>( $n = 38$ ) | P        |
|--------------------------|-------------------------|-------------------------|----------|
| Age: mean (s.d.)         | 46 (16)                 | 51 (15)                 | 0.080*   |
| ≤60: mean (s.d.)         | 40 (11)                 | 44 (10)                 | 0.078*   |
| >60: mean (s.d.)         | 69 (6)                  | 70 (6)                  | 0.848*   |
| <i>Educational level</i> |                         |                         |          |
| University (%)           | 5 (6)                   | 4 (11)                  |          |
| Secondary (%)            | 34 (40)                 | 9 (26)                  | 0.194**  |
| Primary (%)              | 47 (55)                 | 25 (66)                 |          |
| <i>Marital status</i>    |                         |                         |          |
| Single (%)               | 22 (26)                 | 7 (18)                  |          |
| Married (%)              | 46 (53)                 | 15 (40)                 |          |
| Divorced (%)             | 7 (8)                   | 5 (13)                  | 0.103**  |
| Widowed (%)              | 11 (13)                 | 11 (29)                 |          |
| Stable relationship (%)  | 62 (72)                 | 22 (58)                 | 0.119**  |
| Sexually active (%)      | 58 (67)                 | 7 (18)                  | <0.001** |

\**t*-test for independent samples.

\*\* $\chi^2$ -test.

in Group 2 negatively ( $B = -11.7$ ;  $P = 0.004$ ) affected the QOL, overall. The physical domain was strongly affected, with reduction in the QOL ( $B = -19.4$ ;  $P < 0.001$ ); however, being poorly educated was also influential in this domain ( $B = -13.7$ ;  $P = 0.029$ ). The QOL in the psychological domain was perceived as reduced only by the least educated ( $B = -13.9$ ;  $P = 0.025$ ). Alone, poor education negatively impacted upon the social relations domain ( $B = -12.4$ ;  $P = 0.062$ ). Finally, being part of Group 2 positively changed ( $B = 7.8$ ;  $P = 0.017$ ) the evaluation of the environment domain; yet, once again, lower education had negative effect ( $B = -12.4$ ;  $P = 0.017$ ). Interestingly, neither sexuality nor marital stability affected the perception of QOL. Data are presented in Table 3.

Both groups were similar in regards to marital status, even after stratifying by age. However, the sexual activity of women on Group 2, regardless of age stratum, was significantly lower in comparison

with Group 1, as depicted in Table 4. No ESRD patient older than 60 was sexually active. Of interest, only healthy women evidenced a repertoire of sexual practices other than vaginal coitus.

## Discussion

The QOL of female patients on chronic dialysis was significantly lower than that of comparable healthy women. Furthermore, their sexual activity was remarkably reduced at all ages, being absent in older than 60-year patients.

Allocation to Group 2 significantly reduced the overall perception of QOL, as well as the components of the physical and environmental domains. It seems redundant to say that working capacity and energy are diminished in ESRD dialysis patients – sleep and rest are disturbed; they strongly depend on medication. Having to follow a strict diet and periodically use an external device – that occasionally might fail – reduce physical safety, security and the sense of freedom. The only factor to reduce the QOL in psychological and social relationships domains was poor education. It is possible that contact with other patients and their families, support provided by the health team, or the perspective of a kidney transplant improved personal relationships and induced positive feelings. Apparently – and contrary to previous studies – engagement in a stable relationship or being sexually active had no effect upon the perceived QOL.<sup>14,26</sup> However, being poorly educated had negative impact upon the QOL, compared to women

**Table 2** World Health Organization Quality of Life-bref<sup>®</sup> test scores by domain and group ( $n = 124$ )

| Domain           | Group 1 (n = 86)<br>mean (s.d.) | Group 2 (n = 38)<br>mean (s.d.) | P*     |
|------------------|---------------------------------|---------------------------------|--------|
| Overall          | 69.3 (17.2)                     | 56.3 (20.7)                     | <0.001 |
| Physical         | 70.1 (16.1)                     | 49.7 (20.5)                     | <0.001 |
| Psychological    | 66.8 (16.5)                     | 62.4 (20.6)                     | 0.206  |
| Social relations | 67.1 (19.9)                     | 62.9 (19.6)                     | 0.289  |
| Environment      | 55.7 (14.0)                     | 63.8 (17.0)                     | 0.006  |

\*t-test for independent samples.

**Table 3** MLRA – effect of selected factors on domains of World Health Organization Quality of Life-bref<sup>®</sup> ( $n = 124$ )

| Variable            | Overall |       | Physical |        | Psychological |       | Social relations |       | Environment |       |
|---------------------|---------|-------|----------|--------|---------------|-------|------------------|-------|-------------|-------|
|                     | B       | P*    | B        | P*     | B             | P*    | B                | P*    | B           | P*    |
| Group               | -11.7   | 0.004 | -19.3    | <0.001 | -2.5          | NS    | 0.7              | NS    | 7.8         | 0.017 |
| Age                 | 0.1     | NS    | -0.1     | NS     | -0.2          | NS    | 0.1              | NS    | 0.1         | NS    |
| Secondary education | -5.8    | NS    | -6.6     | NS     | -2.8          | NS    | -0.4             | NS    | -5.5        | NS    |
| Primary education   | -9.1    | NS    | -13.7    | 0.029  | -13.9         | 0.025 | -12.5            | 0.062 | -12.5       | 0.017 |
| Stable relationship | 3.9     | NS    | 1.1      | NS     | -3.7          | NS    | 5.4              | NS    | 4.5         | NS    |
| Sexually active     | -2.7    | NS    | -0.2     | NS     | 2.6           | NS    | 6.4              | NS    | -2.2        | NS    |

Abbreviations: B, B coefficient; MLRA, multiple linear regression analysis.

\*ANOVA; NS, not significant.

**Table 4** Marital status and sexuality stratified by age and group ( $n = 124$ )

| Variable                | ≤ 60 years       |                  |          | > 60 years       |                  |         |
|-------------------------|------------------|------------------|----------|------------------|------------------|---------|
|                         | Group 1 (n = 68) | Group 2 (n = 27) | P        | Group 1 (n = 18) | Group 2 (n = 11) | P       |
| Stable relationship (%) | 53 (78)          | 18 (67)          | 0.299*   | 9 (50)           | 4 (36)           | 0.702*  |
| Sexual activity (%)     | 51 (75)          | 7 (26)           | <0.001** | 7 (39)           | 0 (0)            | 0.026** |

\* $\chi^2$ -test; \*\*Fisher's exact test.

with higher education. It is possible that an inadequate illness perception and limited financial resources justify such difference. Having observed a significant divergence in sexual activity – absent in older patients – between groups, it was unexpected that the variable had no impact in the QOL evaluation. It is possible that the physical and environmental QOL losses, and the additional effort to cope with disease and treatment were overwhelming enough for patients to dispense with sexual activity.

The study raises some questions. Firstly, the prevalence of sexual activity among individuals in Group 1 was lower than that reported for similar populations – 67 and 83%, respectively.<sup>27</sup> From 62 healthy women engaged in a stable relationship, eight (five younger than 60 years, and three older) denied having sexual activity in the preceding month. It is possible that the recruiting method (attending a Gynecology/Obstetrics Outpatient Clinic) accounts for the difference. However, it has not affected comparison of sexual functioning between groups. Secondly, proportionately more of less educated widowed women were enrolled on Group 2 than on Group 1 (10/38 vs 8/86). Older, lonely, and uneducated women – independently of illness – would score lower in *social relationship* and *environment* domains, and unduly overestimate sexual dysfunction in Group 2. However, stratification by age showed that younger – and possibly more sexually active – dialysis patients also had poorer sexual activity. Thirdly, patients undergoing two different modalities of substitution therapy were pooled for analysis. Yet, as perception of QOL in all WHOQOL-bref<sup>®</sup> domains was similar for patients on both modalities, it seemed appropriate so to proceed.

Sexual activity other than vaginal coitus occurred only among healthy women. No patient, even without a stable relationship, referred masturbation or other sort of intimacy. It is possible that among younger patients loss of physical QOL, and in older women cultural reinforcements inhibited the pursuit of autoerotic satisfaction.

In summary, female patients with ESRD on dialysis had decreased QOL – *overall*, and on *physical* and *environmental* domains. Additionally, poor education negatively affected their QOL. Sexual functioning was markedly diminished, irrespective of age, yet had no impact on the QOL. In order to better clarify the full range of sexual dysfunctions in ESRD female patients, new research instruments should be validated and applied.

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