

# Revised Dyadic Adjustment Scale as a Reliable Tool for Assessment of Quality of Marital Relationship in Patients on Long-Term Hemodialysis

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Although the revised dyadic adjustment scale (RDAS) has been widely used as an indicator of the quality of marital relationship, no report is available on the reliability of this measure in patients on hemodialysis. We examined the internal consistency of the RDAS in a group of Iranian patients undergoing maintenance hemodialysis. A translated Persian version of the RDAS was self-administered to 135 patients. The internal consistency of the RDAS was tested using the Chronbach  $\alpha$  coefficient which was 0.898, 0.683, 0.779, 0.827, and 0.836 for the RDAS total score and the dyadic consensus, affective expression, dyadic satisfaction, and dyadic cohesion subdomains, respectively. All of the Chronbach  $\alpha$  scores were higher in patients with higher income and education level. Using the RDAS to examine marital relationship quality in patients on hemodialysis, the total score and almost all subscores except for dyadic consensus had adequate internal consistency.

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Marital relationship is a serious concern of patients with chronic conditions,<sup>1,2</sup> and this issue in patients with end-stage renal disease (ESRD) are no exception.<sup>3-6</sup> Generally, ESRD can affect different aspects of marital relationship quality.<sup>7</sup> The original Dyadic Adjustment Scale (DAS) and the revised DAS (RDAS) have been developed for assessment of marital relationship quality.<sup>8,9</sup> The RDAS has been translated into Persian and widely used in different chronic conditions, including ESRD.<sup>7,10-15</sup> However, most of our information regarding the reliability of DAS or RDAS backs to the international reports from general population.<sup>16</sup> Unfortunately, there is not much published data on the reliability of the Persian version of the RDAS, neither in the general population nor in patients with ESRD. The reliability of the RDAS in patients with ESRD should be investigated, specifically because the reliability of a questionnaire is affected

not only by the structure of the test, but also the study sample.<sup>17</sup> The present study aimed to test the RDAS internal consistency in an Iranian sample of patients on long-term hemodialysis.

As a secondary analysis of a survey conducted at Baqiyatallah Hospital (Tehran, Iran),<sup>7,13-15</sup> we reported the psychometric properties of the RDAS in 135 Iranian married patients undergoing hemodialysis for at least 6 months. None of the patients had a history of kidney transplantation. All of the patients were married for more than 6 months. All of the participants provided informed consent and the study was approved by the Ethics Committee of Baqiyatallah University of Medical Sciences, Tehran, Iran. The data were collected via self-administered questionnaires which included sociodemographic information and also the RDAS.

The RDAS consists of 14 items which evaluate a couple's agreement on decisions and appropriate

behavior, as well as marital satisfaction and marital cohesion. The scores of the RDAS range from zero to 69, with a “distressed relation” having the lowest score. It provides a total score and 4 subscores of dyadic consensus (measures the degree to which the couple agrees on matters of importance to the relationship), affective expression (measures the degree of demonstrations of affection and sexual relationship), dyadic satisfaction (measures the degree to which the couple is satisfied with their relationship), and dyadic cohesion (measures the degree of closeness and shared activities experienced by the couple).<sup>9</sup> In this survey, we used a previously translated Persian version of the RDAS.<sup>12,18,10</sup> This measure has been previously used in patients on hemodialysis.<sup>13-15</sup>

The Cronbach  $\alpha$  was applied to test the internal consistency of the RDAS total score and its subscores. We determined the Cronbach  $\alpha$  separately for the subgroups of the patients, according to the level of income and education level. Also, the Cronbach  $\alpha$  of the RDAS total score and its subscores was calculated when an item was deleted.

There were 135 participants in this study with a mean age of  $51.7 \pm 13.5$  years, of whom 87 (64.4%) were men, 54 (40.0%) had a high school degree or higher, and 47 (34.8%) had a monthly family income less than US \$ 200. The median, ESRD duration was 45 months. Diabetes mellitus was the causes of ESRD in 25.0%. Nonischemic heart disease was the most common comorbid chronic condition (62.2%).

The Cronbach  $\alpha$  was found to be 0.898, 0.683, 0.779, 0.827, and 0.836 for the total RDAS, consensus, affective expression, satisfaction, and cohesion scores, respectively. All Cronbach  $\alpha$  coefficients were found to be higher in patients with higher income or educational levels (Table). The Cronbach  $\alpha$  of the RDAS total score improved when item 6

(“Do you and your mate engage in outside interest together?”) was deleted ( $P = .001$ ). The Cronbach  $\alpha$  of the RDAS consensus score improved when item 1e (“To what extent do you have agreement or disagreement in conventionality”) was deleted ( $P = .049$ ). There was no item to be deleted to improve the Cronbach  $\alpha$  of the RDAS affective expression and satisfaction subscales. The Cronbach  $\alpha$  of the RDAS cohesion score improved when item 6 was deleted ( $P = .07$ ).

According to the present report, the Persian version of the RDAS is internally consistent in the Iranian patients on long-term hemodialysis. In other words, the Persian version of the RDAS is a reliable tool in the hand of the nephrologists who are interested to take the marital support and satisfaction of their patients into account. The results of this psychometric study of the RDAS in patients with ESRD is in line with the reports which have introduced DAS as a reliable tool in the general population.<sup>8,19</sup> First, the developer of the questionnaire—Spanier—reported an  $\alpha$  coefficient of 0.90 for this measure.<sup>8</sup> Years after, others have also reported a high reliability for the RDAS in general population.<sup>19</sup>

Spanier argued that the subscales of DAS could be used alone without losing confidence in the reliability and validity of the measure.<sup>8</sup> However, similar to our report, Graham and colleagues<sup>16</sup> showed a reduction in the Cronbach  $\alpha$  for the subscale of affective expression. We do not suggest the use of subscales of the RDAS alone. A low reliability of a subscale (here, dyadic consensus scale of the RDAS) can probably be explained with different factors, such as consisting of few items and also translation process. Underestimating the reliability should be also considered.<sup>20</sup>

In this study, there was not difference in any of the subdomains between men or women.

Mean Scores and Cronbach  $\alpha$  Coefficients for Revised Dyadic Adjustment Scale (RDAS) Questionnaire and Its Subdomains in Patients on Hemodialysis

RDAS	Mean Score	Cronbach $\alpha$ Coefficient						
		Overall	Sex		Education level*		Income level, US \$	
			Male	Female	High	Low	< 200	$\geq 200$
Total	$50.3 \pm 13.8$	0.898	0.907	0.869	0.917	0.852	0.852	0.911
Consensus	$15.5 \pm 4.3$	0.683	0.684	0.703	0.735	0.521	0.566	0.695
Affective expression	$8.0 \pm 2.5$	0.779	0.859	0.770	0.809	0.726	0.618	0.820
Satisfaction	$14.7 \pm 4.9$	0.827	0.859	0.768	0.897	0.769	0.812	0.885
Cohesion	$12.1 \pm 4.8$	0.836	0.820	0.827	0.845	0.842	0.826	0.864

\*High education level was defined as holding a high school or a higher degree.

However, the Cronbach  $\alpha$  was not exactly the same in the two sexes. This has been supported by some previous reports regarding the difference of reliability of this tool between men and women.<sup>21</sup> Also, all Cronbach  $\alpha$  coefficients were found to be higher in patients with higher incomes and higher educational levels. Overall, it has been a controversy whether the reliability of the DAS is influenced by the characteristics of a particular sample.<sup>16,19</sup> Also, the amount of improvement is not much if some items are deleted, and we do not suggest deletion of any item. However, revision of translation of questions 1e and 6 might increase the reliability, even more.

The RDAS, as a tool for measurement of the quality of marital relationship helps the kidney healthcare team, including physicians and nurses, to determine the marital relationship quality of the patients, this important aspect of their patients' life.<sup>22</sup> With this approach, a better care for patients with ESRD can be hoped.<sup>23</sup> The DAS has an acceptable applicability in both clinical practice and research,<sup>24</sup> and the Iranian nephrologists can count on the RDAS as an important outcome measure in the studies considering family issues in patients with ESRD receiving hemodialysis.

Several points should be considered in the interpretation of this study. First, this study has only focused on the measures of internal consistency; other types of reliability, such as test-retest reliability and other psychometric properties have not been addressed. For example, this study did not examine the validity of the RDAS. Although one could expect the validity coefficients to be lower in populations with low internal consistency, validity is not directly assessed here. The reason we used the Cronbach  $\alpha$  coefficient is that it is acceptable and widely used parameter that only needs a single test compared with alternate techniques such as test-retest method.<sup>25</sup> Second, this study only included patients with ESRD under long-term hemodialysis, and not all patients with ESRD or patients with other chronic conditions or general population. As a result, we could not compare the reliability of the RDAS in patients on hemodialysis with those with other conditions or the general population. It is important to note that the mode and type of dialysis can affect marital quality in patients with ESRD.<sup>26</sup> And third, this study has focused on the reliability of the RDAS,

but most of the cited studies have addressed the reliability of the DAS. This is because of the fact that less than 8% of all the previous studies in this field have used a revised form, and a small proportion among them has applied the 14-item questionnaire. However, we used this measure because it has been translated into Persian and has been widely used. Finally, we did not consider the health status of the spouses, which could be a major factor. Additional studies are needed to examine the utility of this tool in medical care of patients on hemodialysis.

### CONFLICT OF INTEREST

None declared.

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