# Psychometric Properties of Revised Form of the Dyadic Adjustment Scale in a Sample from North Cyprus

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**ABSTRACT** The goal of this study is to determine the psychometric properties of the Revised Dyadic Adjustment Scale (RDAS) among a sample from North Cyprus. The RDAS was applied to 279 (217 female, 62 male) married individuals, who had at least graduated from elementary school and were working at different workpla ces in Nicosia. RDAS is the final form of the Dyadic Adjustment Scale developed by Spanier (1976) and subsequently revised by Busby et al. (1995), which was adapted into Turkish by Gündogdu (2007). RDAS is a five point Likert scale. The Marital Problem Solving Scale (MPSS) and the Communication subscale of the Dyadic Relations Scale (DRS) were used for criterion-related validity. Exploratory factor analysis was applied to test structure validity. The reliability of the scale was measured with Cronbach Alpha coefficient and item-total correlation coefficients. A significant moderate positive correlation (r=.637 and r=.552) was found between RDAS and the other two scales used for criterion-related validity. The results of the exploratory factor analysis revealed that 56 .98 percent of the total variance of the scale was determined by three factors. The original scale also had three factors, while the grouping of the items was different. The consensus dimension of the original scale remained the same, but the items of the satisfaction and cohesion dimensions of the original scale were grouped under two different factors. When the common features of the new item groups were considered, they were named as satisfaction and conflict. The Cronbach alpha internal consistency coefficient determining the reliability of the scale was between .74 - .87 for the original and adaptation studies and it was between .73 - .82 for the scale and its subscales in the current study. The corrected item-total correlations were between .380 - .711. When the results are considered as a whole, the Turkish version of RDAS is found to be a valid and reliable instrument.

## INTRODUCTION

Marriage is a social construct that has existed for 4,000 years and still retains its importance. It is established between two persons and is a subsystem of the family, which is the basic unit of society. Although the preference for partnership without marriage is gaining popularity, couples who live together usually choose to marry at some point (Santrock 2012; Eurostat 2012). Researchers who investigate the subjects of marriage and couple relations often emphasize the adjustment in marital relations and satisfaction taken as a consequence from the marriage (Ersanli and Kalkan 2008).

All living things, such as human beings, need to make adjustments to nature and to their species in order to survive. In a similar manner to the adjustment (homeostatic) process of the small est structural unit of an organism - the cell to the external stimuli - an individual also experiences an adjustment process with their cohabitant after marriage (Cooper 2008). During this process, each of the partners reacts in a similar way like the cell and tries to preserve their own internal balance. It is normal that, as every individual develops within a different environment and family culture, they will consequently have a different marriage scenario (Kapkin 2014). As far as this difference turns into a concordance in marital or couple relations, the satisfaction from this marriage may increase.

There is a strong relationship between marital adjustment and marital satisfaction (Bayraktaroglu 2015). Studies have shown that couples who are happy in their marriages have better

physical and psychological health compared to those that are unhappy; furthermore, the children of partners who have poor marital adjustment have reduced academic success and exhibit more behavioural problems (Santrock 2012; Gladding 2012).

These factors mentioned above underline the importance of researching marital relations. Marital adjustment is one of the concepts emphasized in research about marital relations. There are various instruments that can be used to assess marital adjustment in experimental and descriptive studies and in marital counselling. One criteria for choosing a particular scale as an instrument for a study is that it should be capable of measuring the subject that is to be assessed and it may be preferred even more strongly if it also measures related concepts; furthermore, the second criteria seems to be that it should be sufficiently concise that it can be completed in a short period of time (Erkus 2014). A literature review reveals that there are six scales of marital adjustment, which include the Marital Assessment Test (MAT) (Locke and Wallace 1959), the Quality of Marriage Index (QMI) (Norton 1983) and the Kansas Marital Satisfaction Scale (KMS) (Schumm et al. 1986) which fulfil the criteria of quick assessment. The Dyadic Adjustment Scale (DAS) (Spanier 1976), the Couples Satisfaction Index (CSI) (Funk and Rogge 2007) and the Marital Satisfaction Scale (MSS) (Canel 2013) are scales that can be more time consuming. Taking the first criteria into consideration, it is found that the MAT, DAS, CSI and MSS all measure how couples agree about specific subjects, their attitudes towards trust and control besides marital satisfaction; however, the QMI and KMS only measure marital satisfaction. Among these six scales, only MAT meets both criteria.

Analysis of the studies conducted in Turkey was made to support these criteria that are taken into consideration when choosing an instrument. The National Thesis Centre was chosen to implement this analysis and, for filtering purposes, the keywords 'year 2016', 'master's and PhD thesis', and ''marital adjustment' were used. As a result of this search, 32 theses were found, where the MAT scale was used in 20 of them, DAS was preferred in seven theses, a scale developed in Turkish was used in one and scales other than the marital adjustment scales were used in the remaining five studies.

DAS is found to be the second most frequently used scale in research on marital adment in Turkey. Busby et al. (1995) improved DAS to eliminate problems with some of the sub- scales and individual items by following the standards of construct hierarchy. In that study, some of the items were excluded from the scale as they were not homogenous, some were excluded as they only required a yes/no answer and some were excluded as they consisted of general statements. Finally, a 14-item Revised Dyadic Adjustment Scale (RDAS) with three factors was formed (Busby et al. 1995).

Gündogdu (2007) applied the Turkish form of the RDAS in Turkish culture for the first time and studied its reliability. Thus, she pioneered the use of a second scale in Turkey that can be used in studies about marital adjustment, which enables quick assessment and measures agreement in marriage, as well as other related attitudes. The goal of this study is to investigate the psychometric features of RDAS in a sample in North Cyprus.

## METHODOLOGY

### Subjects

The sample of this study was formed from married individuals working at different workplaces in Nicosia. The age range of these 279 participants was 24-68. The mean of age of the participants was 40 (Median: 40.69, Mod: 35, Standard Deviation: 8.55). All participants were still married and the range of their marriage duration was 1-37 years. The mean of their marriage duration was 15 years (Median: 14.00, Mod: 5, Standard Deviation: 9.31). A total of 19 of the participants were primary school graduates, 73 were secondary school graduates and 187 had graduated from university. The sample was formed from 117 individuals from low socio-economic status, 145 moderate and 17 high. In total, 35 of the participants were childless and 244 had children. Finally, 244 of the participants were born in Cyprus, 26 in Turkey and 9 in other countries.

### Instruments

#### Revised Dyadic Adjustment Scale (RDAS)

The RDAS is the final 14-item form of the DAS developed by Spanier (1976), revised by

Busby et al. (1995) and adapted to Turkish by Gündogdu (2007). The scale was developed to assess the quality of relationships between couples who are married or in a marriage-like relationship. The Cronbach alpha coefficient of the RDAS total score and the subscale scores for satisfaction, cohesion and consensus were .87, .80, .80, .74, respectively. The correlation of RDAS with the Marital Adjustment Test (MAT) used for criterion validity was positive .68 (p<0.01).

**Dyadic Relationship Scale (DRS)**

The DRS developed by Haskan Avci (2014) is a 78-item, three point Likert type scale which has six subscales. High scores indicate a better level of the individual's dyadic relationship. The Cronbach alpha coefficients for the six dimensions of the DRS, namely communication, romanticism, sexuality, conflict solution, social support and awareness-acceptance, were found to be .79, .77, .88, .85, .91 and .79, respectively. The correlation of the DRS scores with the Pre-marital Relationship Assessment Scale used for criterion validity was positive .824 (p<0.001) (Haskan Avci 2014).

**Marital Problem Solving Scale (MPSS)**

MPSS is a nine item, Likert type scale developed by Baugh et al. (1982). The adaptation study of the scale to the Turkish culture was conducted by Hünler (2002). The original 9-point Likert type scale was changed to five points in the Turkish form for the convenience of response. The highest score that can be taken from the scale is 45 and the lowest score is nine. High scores show that the individual perceives themselves to be successful in solving problems in their marriage. Factor analysis of the MPSS shows that all items were under one factor. The Cronbach alpha coefficient of the scale is .91, and the item total correlation is between .63 and .73 (Hünler 2002).

**Data Analysis**

The data was analysed using the Statistical Package for the Social Sciences (SPSS) 20.0. The MPSS and the communication subscale of DRS were used for criterion-related validity. Exploratory factor analysis was applied to test the structure validity of RDAS. The reliability of the scale was measured with the Cronbach alpha coefficient and the item-total correlation coefficients.

**RESULTS**

**Factor Analysis**

It is mentioned by Büyüköztürk that, to determine whether data is suitable for factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient should be more than .60 and the Bartlett's test for sphericity, indicating if the correlation matrix has an identity matrix, should be meaningful (Büyüköztürk 2010). In this study, the KMO coefficient was .88 for the sample and the $\chi^2$ value in the Bartlett test was 1406.72 (p<.001), indicating that factor analysis could be conducted.

The first analysis gave three factors with eigenvalues larger than one, which shows the number of important factors of the instrument; however, the scree plot made according to the eigenvalues showed that, after the first factor, there was a sudden decline which suggested that the instrument might have one general factor. Furthermore, the decline continued until the third factor and it was even less than the value after the first factor. This suggested that the instrument could have three factors. After the fourth and the other factors, the graph formed a plateau and did not demonstrate a significant tendency to decline. In other words, the contribution of the fourth and other factors to the variance was similar.

Axis rotation was applied to the three factors determining 56.98 percent of the total variance in order to bring independency, clarity and meaningfulness in the interpretation. After axis rotation, the load of some items may increase at one factor and decrease at another; thus, the related items are categorized under the same factor, which facilitates the interpretation of these factors. The Varimax method was used, which is an orthogonal factor analysis method, and is often preferred in social sciences (Büyüköztürk 2007). After orthogonal factor analysis, the values at the factor load matrix give the correlation between the factor and the items in that factor.

The researchers used the values with factor load over 0.32. Values between 0.32-0.45 are mild as they comprise ten percent of the variance, values between 0.45-0.55 are good as they cover twenty percent of the variance, values between 0.63-0.71 are very good as they comprise forty percent of the variance and values larger than 0.71 are perfect as they cover fifty percent of the variance (Comrey and Lee 1992 cited in Polat

2012). Büyüköztürk (2007) suggest that a factor load of 0.45 or more is a good measure for selection, while this can be decreased to 0.30 for a small number of items and, for a cross-loading item, the difference of factor load at two factors should be at least 0.1. If this is not the case, the item should be excluded from the scale. Factor load values for the 14 items after exploratory factor analysis are given in Table 1.

**Table 1: Factor analysis**

| Item no. | Factor loading after | | Varimax |
| | Fac.-1 | Fac.-2 | Fac.-3 |
| --- | --- | --- | --- |
| 12 | **.771** | .161 | .167 |
| 13 | **.642** | -.093 | .202 |
| 11 | **.621** | .335 | .048 |
| 7 | **.613** | .119 | .319 |
| 9 | **.555** | .317 | .362 |
| 1 | -.145 | **.719** | .188 |
| 6 | .289 | **.716** | .062 |
| 5 | .348 | **.673** | .154 |
| 2 | .505 | **.521** | .265 |
| 4 | .355 | **.463** | .010 |
| 3 | .340 | **.461** | .138 |
| 8 | .104 | .125 | **.821** |
| 10 | .146 | .253 | **.771** |
| 14 | .336 | .026 | **.675** |

Explained Variance
Total: 56.98%
Factor-1: 23.85%
Factor-2: 18.01%
Factor-3: 15.19%

When the results of orthogonal rotation were examined, 5 items (12, 13, 11, 7, 9) were found to load the first factor, 6 items (1, 6, 5, 2, 4, 3) loaded the second factor and 3 items (8, 10, 14) loaded the third factor. The lowest factor load of any item was 0.46, indicating that each item had a good correlation with the factor it loaded. The factor loads of four items were between 0.63- 0.71, showing very good correlation and 5 items were

**Table 2: Criterion-related validity**

more than 0.71, showing correlation at a perfect level. As the factor loads of all the items were good, no item was omitted. Additionally, the difference of factor load for the items that load more than one factor was smaller than 0.1, indicating that there was no cross-loading item and therefore it was not necessary to omit any of the items. Taking the content of the items into consideration, the first factor was called "satisfaction" (for example, item 12 "having a stimulating exchange of ideas"), the second factor "consensus" (for example, item 2 "agreement about career decisions") and the third factor "conflict" (for example, item 8 "how often the partners quarrel").

**Criterion-related Validity**

RDAS was applied simultaneously with the other scales (MPSS and DRS) in order to assess the concepts related with marital adjustment and the correlation between them was investigated. The results of this analysis are given in Table 2.

The results of the correlation analysis conducted to show criterion-related validity of the scale indicated a relationship between RDAS and MPSS at a level of .690 and between RDAS and the communication subscale of DRS at a level of .522 (p<0.001). A moderate, positive significant correlation was found between RDAS and the scales applied simultaneously indicated the validity of the scale in the form adapted to Turkish. Moderate, positive, significant correlations between the subscales of RDAS among themselves and with the criterion-related scales provided further evidence for the validity of the scale.

**Reliability**

The internal validity method was used as one of the reliability test methods to test the con-

| | Subscales | | | | Criterion related scales | |
| | RDAS total | RDAS satisfaction | RDAS consensus | RDAS conflict | MPSS | DRS communication |
| --- | --- | --- | --- | --- | --- | --- |
| RDAS Total | - | .838** | .872** | .633** | .690** | .552** |
| RDAS Satisfaction | .838** | - | .577** | .421** | .637** | .431** |
| RDAS Consensus | .872** | .577** | - | .384** | .571** | .442** |
| RDAS Conflict | .633** | .421** | .384** | - | .504** | .513** |

**p<0.001

sistency of the items with each other and to determine if the items measured a hypothetic variable (Çakmur 2012). The reliability of a scale is determined using the Cronbach alpha coefficient if the items have more than two alternative answers (Erkus 2014). The Cronbach alpha co- efficient of the RDAS was found to be .88. If .60 is considered as the reliability level for instruments that can be used in research (Büyüköztürk 2007), the reliability of the scale was sufficient.

## Item Analysis

Item-total correlation analysis was used for item analysis. Item-total correlation determines the correlation of each item with the total score of the scale (Çakmur 2012). The items with an item-total correlation value of 0.30 or higher are defined to represent similar behaviours, and the internal consistency of the test is high (Büyüköztürk 2007). Item analysis of the RDAS showed that the item-total correlation for the first item was 0.380 and, for the other 13 items, it was between 0.473-0.711. The results indicated that the items of the scale could discriminate individuals fairly good (p<.001), and also high values indicated that each item measured a similar behaviour and this was evidence of the internal consistency of the scale.

## DISCUSSION

Öner (1994) proposed a three stage model for adapting scales for intercultural differences. The first stage is translation of the test items. All the items of the 14 items in the RDAS are taken from the DAS and 12 items are the same as in the 32 item DAS, with only slight modifications made to the other two. The sentence structure of two items (RDAS item 7 and 9) were simplified. It can be mentioned that translation was made by Fisiloglu (2000) who made the original Turkish adaptation study of DAS and Gündogdu (2007) subsequently made revisions.

In the second stage the psychometric properties of the test, the reliability and validity of the instrument is tested and, at the third stage, the cultural properties of the adapted scale is investigated. The culture-related properties refers to any differences between the language, norms and the factor structure and the item factor load of the adapted test and the original test, and the explanation is found in the cultural differences

(Öner 1994). These two stages taken for adaptation study of RDAS in this current study will be discussed together.

Gündogdu (2007) found the Cronbach alpha coefficient of RDAS and the subscales to be between .74-.87. Busby et al. (1995) found the Cronbach alpha coefficient as .90 for the RDAS in their study aimed at improving the scale. In the present study, the Cronbach alpha coefficient was found to be .88. The Cronbach alpha coefficients found in each of these studies were similar and high, indicating that the scale has reliability for different samples and cultures. In Gündogdu's (2007) adaptation study, other psychometric properties were not analysed, and therefore a comparison of the results of this study will continue by comparing the findings of the original study by Busby et al. (1995).

Item-total correlation is another method used to determine reliability and, for the first item of RDAS, it was found as 0.380, while, for the other 13 items, it was between 0.473-0.711. This supports the assertion that the items measure similar behaviours. The correlation coefficient for the first item 'the level of agreement of the couple about religious matters' was lower than other items, indicating that religious subjects may be less important for agreement among couples in North Cyprus.

The results of the exploratory factor analysis conducted for testing the validity of RDAS showed that the scale could be used as one factor, in a similar manner to the original form. The first six items of the original form and the first six items of the form used in this study were clustered under the same sub-dimension called 'consensus'. The items under the 'satisfaction' and 'cohesion' sub-dimensions of the original form were clustered under different dimensions in the factor analysis of this study. To determine the reasons for this difference, the steps of the factor analysis of the original form were examined. During the analysis before the final factor analysis of the original form, 14 items were clustered under seven first order sub-dimensions, with two items in each (Busby et al. 1995).

In the original form, items 7 and 9 were clustered under the fourth sub-dimension called 'stability' (Busby et al. 1995), Items 8 and 10 were under the fifth sub-dimension called 'conflict', items 11 and 13 were under the sixth sub-dimension called 'activities' and items 12 and 14 were under the seventh sub-dimension named 'dis-

cussion'. The results of factor analysis of this study showed that items 8, 10 and 14 were clustered under one dimension. These three items in the original form were grouped under the subdimension called conflict and discussion, which are words used in the same sense in Turkish culture. Items 11 and 13 in the original form were under the "activities" sub-dimension, whereas in this study, they were under the "satisfaction" sub-dimension, which may be related with the perception of performing activities together as a part of satisfaction gained from marriage in Turkish culture (example, Item 11 "how often do they engage in outside interests together?").

## CONCLUSION

The scores participants received from the RDAS and the other scales (MPSS and DRS) used in the marital counselling field were compared to analyse the criterion related validity and significant results were found. It can be concluded that the results of construct validity and criterion related validity analysis show that RDAS is a valid instrument that can be used in this field.

Based on the findings of the reliability and validity studies of RDAS, various recommendations can be made. Application of the scale to a new sample with different characteristics, such as housewives, and application on different samples of 500-1,000 participants can contribute to evaluating the validity and reliability of the scale. Additional items like "family budget, communication, etc.", which are missing in this scale, can be added to future studies to improve the marital adjustment theory. It is believed that the scale can be used to assess the efficiency of programs for improving marital relations and to efficiently screen the problem areas for the couples who apply for marital counselling and to contribute to the understanding of problem areas of the couples in accordance with what they bring verbally.

## RECOMMENDATIONS

RDAS is a valid and reliable instrument for Turkish culture and enables quick evaluation with its 14 items effectively determining marital adjustment among married couples or couples living together. Thus, the scale can be recommended for use in research on marriage.

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