Validation of the 'Revised Dyadic Adjustment Scale (RDAS)' for Measuring Marital Relationship among Oromo Language Speaking Ethiopian Families at Burayu Town, Central Ethiopia

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Abstract

Background: While research in marital adjustment continues, developing family measures that fit into different socio-cultural contexts appears to be minimally pursued. This calls for customization of measures used elsewhere in the world and check its appropriateness.

Objective: Widely used marital adjustment measure (Revised Dyadic Marital Adjustment Scale, RDAS) with three subscales (Consensus, Cohesion, and Satisfaction) was validated against Oromo language speaking communities living in Burayu town.

Materials and Methods: The data used in this study were generated from 201 randomly selected participants living in marital relationships for over a year. The validation measure, RDAS, was used to collect data along with the two anchor scales; Satisfaction with family life scale (SFLS) and conflict subscale of brief family relationship scale (BFRS). Beforehand, bilingual experts were translated the English version of RDAS and SFLS to the Oromo language and backward to English to ensure content similarity and harmony in meanings between the two versions. Descriptive statistics, factor analysis, and Pearson product moment correlation coefficients were used for data analysis.

Results: An acceptable overall reliability index of RDAS ($\alpha = 0.799$) was obtained. Factor analysis verified the presence of three components of RDAS. However, one item from RDAS Cohesion subscale was reduced because of low factor loading. RDAS convergent validity and discriminant validity were ensured with observed significant correlation indices between overall RDAS and SFLS score, and very low negative correlation between RDAS and conflict subscale of BFRS, respectively. The findings confirm the model fitness to the sample data with all satisfactory goodness of fit indices.

Conclusion: it is concluded that acceptable overall reliability coefficient of Cronbach's alpha 0.799 and ensured construct validity of the scale justifies its appropriateness to use for the intended purpose. The results imply that the three-dimensional RDAS has had reliable and valid psychometric properties based on the data obtained from Oromo language speaking Ethiopian married couples.

Keywords: Ethiopian couples; Marital adjustment; RDAS; Reliability; Validity

1. Introduction

Marital adjustment is among the most researched constructs attracting attention of researchers, marriage counselors, and clinicians of marriage and family relationship. To assess the quality and extent of satisfaction among couples in marriage relationship, scholars have developed various instruments one after the other where the original versions were subsequently revalidated and replaced by the revised versions. Among family relationship and marital satisfaction measures, 'Dyadic Marital Adjustment Scale' (Spanier, 1976), 'Kansas Marital Satisfaction Scale' (Nichols *et al*., 1983), 'Locke-Wallace's Marital Adjustment Test' (Locke and Wallace, 1987), 'Relationship Assessment Scale' (Hendrick *et al*., 1998), 'Semantic Differential Scale' (Karney and Bradbury, 1997), 'Quality of Marriage Index' (Reynolds *et al*., 2014) and 'Marital Relationship Satisfaction Scale' (Graham *et al*., 2011) are the most widely used ones. In this study, the authors selected RDAS for validation in Ethiopian context owing to the rational that the scale went through a series of revisions accompanying strong factor analysis which is believed to improve psychometric properties of the scale, and, thereby its dependability for use. Adoption and validation of such cross culturally tested and used scale adds much value to the efforts being made in family and marriage research in Ethiopia.

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Unlike the other marital relationship scales purported to assess the quality of marital relationship, the 'Dyadic Assessment Scale' was designed to measure dyads in marital as well as non-marital relationships (Spanier, 1976). Originally, the scale has 32 items classified into four underlying subscales: Dyadic Consensus (*13 items,* α = 0.90), Dyadic Cohesion (*5 items,* α = 0.86), Dyadic Satisfaction (*10 items,* α = 0.94), and Affectional Expression (*4 items,* α = 0.73). Despite its wider use among many marriage and family researchers, factor analysis of dyadic adjustment scale run in other studies demonstrated that there is a problem of validity with Dyadic Satisfaction and Affectional Expression subscales (Crane *et al*., 1991; Kazak *et al*., 1988). Furthermore, Sharpley and Cross (1982) found that, though the scale has had an overall adequate validity and reliability, most of the 32 items were irrelevant and failed to re-produce originally theorized four subscales, by Spanier (1976), when factor analyzed. The subscale items hybridized by other scholars (Busby *et al*., 1995), though supposed to be an alternate form of each other, half of the items could not produce high factor loadings on appropriate subscales (Sharpley and Cross, 1982), some items are even cross loaded (Kazak *et al*., 1988) and some items are loaded very low to respective subscales (Sabourin *et al*., 1990). Given these gaps, family and marriage researchers have continued further analysis of the scale.

The DAS author and other researchers who have tested and proved problems of psychometric properties of the scale have called for further research efforts to make the scale more valid and reliable for its wider use by clinicians and researchers. In response, Busby *et al.* (1995) have followed the standards of construct and named it "Revised Dyadic Adjustment Scale" (RDAS). The original four-factor structure of DAS was reduced to three factors with 14 items in RDAS; dyadic consensus, dyadic cohesion and dyadic satisfaction. The RDAS items ask the respondents to rate certain aspects of their marital relationship on a five point likert scales (0 to 4). The Revised Dyadic Adjustment Scale has produced an overall Cronbach's alpha coefficient of 0.90. The confirmatory factor analysis found strong support for three subscales (Consensus, Satisfaction, and Cohesion). The subscales have produced Cronbach's alpha value of 0.81, 0.85, and 0.80 for dyadic consensus, dyadic satisfaction and dyadic cohesion, respectively. Two of the three statistics evaluating fitness of the model to the data i.e., chi-square 149.44 (p = 0.00), GFI = 0.95 and RMR = 0.05, demonstrated an adequate data fit.

The instrument of data collection developed in one corner of the world requires cultural validation and appropriateness for its use in another cultural context such that culture sensitive instruments will be obtained and used for the intended purpose. Hence, validating RDAS scale in the context of Ethiopian couples will have a significant contribution to scaling up the horizon of research works on marital relationship and adjustment in the country. Moreover, marriage related policy and training material inputs could also be derived from the potential research results obtained from the data to be collected by RDAS. This study was aimed to provide supplementary data on the psychometric properties of the "Revised Dyadic Adjustment Scales" (RDAS) with Oromo language speaking communities. Marriage is one of the most important rituals in Ethiopian culture accompanied by birth and death, which either adds to or takes away member(s) from the family respectively. Moreover, beyond family formation, marriage is a platform where couples with different personalities are tied together and adjust their personal values to each other for joint life in marriage. According to Belay (2011), marriage as a rite of passage, has also been asserted to be the union of a new couple and joining of their corresponding two families. Hence, it is worthwhile to validate a tool developed in the western world for its fairness of use in Ethiopia context.

The purpose of this validation study was then to adopt and validate RDAS in Ethiopian socio-cultural context, particularly among Oromo language speaking married couples living in Burayu town. To this end, the research attempted to answer the following three questions keeping in view the social-cultural context of Oromo language Speaking Ethiopians.

- What is the internal consistency of the 14 items Revised Dyadic Adjustment Scale?
- Would the Revised Dyadic Adjustment Scale satisfy the validity assumption with the current study sample data?
- Does the underlying structure of the Revised Dyadic Adjustment Scale prove change or stability in this new sample when examined through exploratory and confirmatory factor analysis?

Model followed in the scale adaptation process

Cross-cultural adaptation and validation of psychological scales necessitates researchers' strict follow up of suggested steps by different scholars though no

consensus was reached based on commonly followed steps (Borsa *et al*., 2012). In general, different scholars suggest five to seven essential stages to be pursued in the course of adaptation and validation of instruments from source culture to a new socio-cultural context. The first five-staged adaptation and validation procedures suggested by Hambleton (2005) and Sireci *et al.* (2006) include translation of from the source language into the target language, synthesizing the translated versions, analysis of the synthesized version by expert judges, back translation, and a pilot study. Taking the five-staged process as a baseline, Borsa *et al.* (2012) later added two more stages, instrument evaluation by target population and the evaluation of instrument's underlying factorial structure. In this study, five-staged model suggested by Hambleton (2005) and Sireci *et al*., (2006), and Borsa *et al*., (2012).

2. Materials and Methods

2.1. Research Design

Adaptation and validation of *Revised Dyadic Marital Adjustment Scale (RDAS)* among Oromo language speaking Ethiopian families was the central aim of this study. Given the fact that adults within the age ranges between 20- 58 were involved in the study cross-sectional research design was employed. In this regard (Levin, 2006; Setia, 2016) asserted that because of its wider applicability and less expensive to use for participants of different age groups, Cross sectional research design is the preferred research design to employ.

2.2. Study Area

Burayu town, the current study area, is one of the eight major towns of the Oromia Regional State's Special Zone surrounding Addis Ababa, the capital city of Ethiopia, in the west corridor. It has six kebeles, the lowest administrative unit, each having its own administration units and commonly administered under Burayu Municipality Administration. The kebeles include Laku Kata, Burayu Kata, Gafarsa Burayu, Gafarsa Guje, Malka Gafarsa, and Gafarsa Nono. According to data obtained from the municipality (2015), the town has an estimated population size of 114,426 people.

2.3. Participants of the Study

The data sources were randomly selected married women and married men dwelling in three of the six kebeles found in Burayu town's administration, namely, Laku Kata, Gafarsa Burayu and Burayu Kata. Firstly, the three kebeles were selected by lottery technique of simple random sampling method. Then, the study sample size was determined based on instrument validation rule of thumb suggested by Nunnally (1978) which puts at least 10 participants that would suffice for one item, so that, respondents to items ratio is at least 10:1. Accordingly, for the 19 items (14 for validating tool and five for anchor tool) used in this study, more than 190 participants were recommended. However, for statistical precision the researchers have increased the sample size to 213 (126 men and 87 women). The criterion used for inclusion of participants was to be in a married or cohabiting relationship for at least one year before collecting the data. Accordingly, 71 randomly selected married women and men participated from each of the three kebeles targeted for this study. However, responses of 12 participants were discarded due to skipping items unanswered, double answering a single item, and incomplete responses. Thus, data from a total of 201 persons (122 men and 79 women) were used for further analysis.

2.4. Measures

Background questions: The first section of the instrument comprised items asking about participants' demographic background (sex, age, length of stay in marital relationship, educational status, and number of children).

Revised Dyadic Adjustment Scale (RDAS): Marital adjustment measuring scale was originally developed by Spanier in 1976 and revised nearly a couple of decades later by Busy et al., 1995). The scale was developed to assess the quality of relationships between married people or cohabiting couples. It consists of 14 items measuring three subscales; (1) dyadic consensus (6 items; for instance one items asks '*How often do you discuss or have you considered divorce, separation, or terminating your relationship?*'), (2) dyadic satisfaction (4 items, one item asking '*Do you ever regret that you married (or lived together)?*'), and (3) dyadic cohesion (4 items; one item asking '*Do you have a stimulating exchange of ideas'*). The items were scored on a 6-point Likert scale ranging from 0 to 5. Higher scores are indicative of better marital adjustment of the couples.

Satisfaction with Family Life Scale (SFLS): In order to assess convergent validity of RDAS, 'Satisfaction with Family Life Scale' (SFLS) was used as an anchor tool. SFLS comprises five items with a 7-point Likert-type scale ranging from strongly disagree (=1) to strongly agree (=7); the total score being as small as 5 and as large as 35.

The SFLS has been confirmed in accurately capturing family satisfaction across time, place, and culture, which support its possible use as a universal instrument in measuring family satisfaction (Zabriskie and Ward, 2013). Besides, in the data obtained from different sample size, a consistent unidimensional factor structure was maintained with Satisfaction with Family Life Scale' with Cronbach's alpha ranging from 0.94 to 0.79 (Zabriskie and Ward, 2013). Moreover, the SFLS consistently distinguished differences in family satisfaction among samples that would theoretically be predicted to have different levels of family satisfaction. The two scales, RDAS and SFLS, have theoretically been found to be on parity in assessing couples marital satisfaction although each of it yields intended implications for researchers and practitioners interested in measuring marital satisfaction (Ward *et al*., 2009). Thus, SFLS is the right scale to be used as an anchor tool to test the construct validity of revised dyadic adjustment scale as both measure quality of marital relationship among married couples.

Brief Family Relationship Scale (BFRS): BFRS is another anchor scale adopted from Family Environment Scale developed by Fok *et al.* (2014). It measures family members' perception of family relationship functioning quality. It has 16 items meant to measure three latent factors namely, expressiveness (3 items), conflict (6 items), and cohesion (7 items). The overall internal consistency of the scale is $\alpha = 0.88$. Separately, the internal consistency coefficient of the three factors are cohesion, $\alpha = 0.83$, expressiveness, $\alpha = 0.65$, and conflict, $\alpha = 0.80$). The scale is scored using a 3-point Likert scale (with '1' being 'Not at All', '3'being 'somewhat' and '5' being 'a lot'). For the purpose of this study, only conflict subscale of BFRS was used to test the discriminant validity of RDAS, as both measures two unrelated constructs and there should be low, no or negative correlation between them in principle (Hamann *et al.,* 2013).

2.5. Instrument translation procedure

Prior to translating the instrument into local language (Oromo language), the content and face validity of the items of the scale were assessed by two experts pursuing their doctoral program in the field of applied developmental psychology at Addis Ababa University, Ethiopia. Among others, item suitability to measure the variable of interest, clarity, relevance, effectiveness and appropriateness were taken as the criteria against which the instruments were checked for content and face validity. Both experts' feedback affirmed that the scales are appropriate, in original version, to use for marital relationship quality assessments and suggested to go ahead with the translation work from source language to the desired one. Accordingly, two bilingual translators i.e., Oromo language and English did forward and backward translations and thereby phrased and re-phrased the items until the meanings became similar between both language versions. Finally, the Oromo language version of the instruments was administered to the study participants.

2.6. Procedure of data collection

Firstly, consent of participants identified to serve as a data source were asked and confirmed. Then, the researchers briefed participants on the very purpose of the study at each of the three sample kebeles' administration office compounds during their break time. Next, after giving the participants a brief orientation, they were asked for any clarification on how to go about in responding to items and some misunderstandings were clarified. As a remark, the researchers encouraged participants to be honest in rating quality of their marital adjustment in response to each items of the scales. Finally, the questionnaires were administered to the participants, which were then filled returned to the researchers. Data were collected at each kebele on three different days. A total of nine days were spent on collecting the data. A 'Kebele' is the smallest administrative unit in Ethiopia.

2.7. Ethical consideration

Before moving forward with data collection, participants of the study were briefly oriented on the objective of data collection, anonymity of the information and that the data were meant for academic research purpose only. Besides, participants were informed that they were at liberty to quit responding to the questionnaire if they did not feel comfortable in addressing all items. Having confirmed the consent of participants, the data were collected accordingly.

2.4. Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 24.0 and AMOS version 24.0. Cronbach alpha consistency test was used to signify the internal consistency of the Scale as well as that of the anchor scale. Pearson product moment correlation coefficient analysis technique was employed to assess evidence of validity among dimension of RDAS (Consensus, Satisfaction and Cohesion) and the anchor tool (satisfaction with family life). Principal component analysis data extraction method employing varimax rotation method was applied to extract the underlying factor structures of RDAS. Principal component analysis is preferred to other extraction methods as the mere purpose of the current study was to check the underlying factor structure of the scale, which PCA satisfies (Costello and Osborne, 2005). This was done with the aim of knowing whether a tool developed in the western world, RDAS, with three factor structures would either maintain itself or entertain some changes when validated in an Ethiopian socio-cultural context, among Oromo language speaking couples in particular. The items loading cut off point to respective factors was set at 0.4. This was based on a premise suggested by experts that an item can be retained for one factor when the value of factor loading was equal to or greater than .40 (e.g. Stevens, 2002). Moreover, suitability of the raw data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1974) and Bartlett's test of sphericity (Dziuban and Shirkey, 1974). Finally, confirmatory factor analysis was conducted in order to test whether hypothesized RDAS factor models fits the data or not.

3. Results

3.1. Participants Characteristics

As indicated in Table 1, the participants' mean age was 33.37 (SD = 7.23; the age ranged between 20 to 58 years). The participants stayed in the marriage relationship for as low as a period of one year to as large as 30 years. Educational status of participants ranged from Diploma to Master's degree holders. From the couples that had a marriage relationship of one year and above, 16.4% of the participants reported having no child and 4.5% of them reported having as many as five children. On average, the participants reported living in the marriage relationship for 8.25 years (SD = 6.2; range 1–30 years of marriage).

Table 1. Participants' demographic characteristics.

Variable	Range	Mean	SD
Age	20 to 58 years	33.37	7.23
Length of stay in marriage	1 to 30 years	8.27	6.19
Number of children	0 to 5 children	1.82	1.32

3.2. Reliability

The internal consistency of the scales was determined using the Cronbach's alpha coefficient. To this end, the subscales and overall coefficients of reliability obtained with the original scale and the one obtained in this study were compared and contrasted. Nunnally (1978) indicated cronbach's alpha of 0.7 is considered as an acceptable reliability coefficient.

Table 2. Cronbach's alpha coefficients for RDAS and SFLS.

Reliability coefficients	RDAS total (14 items)	RDAS consensus (6 items)	RDAS satisfaction (4 items)	RDAS Cohesion (4 items- 1item reduced)	SWFS (5 items)
This study result	0.799	0.817	0.745	0.754	0.81
Original study result	0.90	0.81	0.85	0.80	0.79–0.94

The RDAS reliability test result ($\alpha = 0.79$) presented in Table 2 above show that the scale has got acceptable reliability coefficient in its Oromo language version with the data obtained from couples living in Burayu town. This is asserted with the premises put by Netemeyer and Cudeck (2001), which states that reliability coefficients ranging from $\alpha = 0.6$–0.7, greater or $\alpha = 0.8$ and above $\alpha = 0.95$ are judged to be acceptable, very good level and not necessarily good, respectively. The Cohesion subscale of RDAS reliability coefficient was improved from $\alpha = 0.548$ to $\alpha = 0.754$ with deletion of an item with the least contribution to the subscale. On the other hand, the reliability coefficient result of the anchor scale ($\alpha = 0.81$), satisfaction with family life scale, obtained in this study also fall within acceptable reliability coefficient range. Overall, the RADS internal consistency coefficient in the

current study was found to be a little bit lower than it was true with the original study. This may be attributed to the socio-cultural setup differences, tool administration procedures or respondent related factors that would have accounted for the differences in reliability coefficients between the original and Oromo language version of RDAS (Ursachi *et al.*, 2015).

3.3. Validity Test: Convergent and Discriminant

In this section, construct validity, in terms of convergent and discriminant validity types, was tested. In its very definition, construct validity refers to the ability of a scale to distinguish between participants with and without the behavior or quality being measured (Fink, 2010). Similar construct measuring inter-construct relations testing method, suggested by Cronbach and Meehl (1955), was employed to test convergent validity. To this end, data collected from couples by Revised Dyadic Adjustment Scale (RDAS) was correlated with data collected from the same couples with another similar construct measuring satisfaction. That is to say, Satisfaction with family Life Scale (SWFLS). On the other hand, discriminant validity was tested by correlating RDAS produced data with data obtained from the study participants by conflict subscale of brief family relationship scale (BFRS), which is theoretically believed to either do not correlate or even may negatively correlate. Table 3 and Table 4 presents summary of correlations results between RDAS and SWFLS, and RDAS and conflict subscale of BFRS.

Table 3. Summary of Inter- correlation coefficients results among RDAS and SWFLS.

RDAS and subscales and the anchor scale	RDAS total	RDAS consensus	RDAS satisfaction	RDAS cohesion	Satisfaction with family life scale
RDAS total	1	0.834**	0.684**	0.707**	0.502**
RDAS consensus	–	1	0.344**	0.451**	0.400**
RDAS satisfaction		–	1	0.186**	0.355**
RDAS cohesion		–	–	1	0.367**
Satisfaction with family life scale (SFLS)		–	–	–	1
Mean	49.61	23.81	13.64	12.15	25.69

Note: *** refers to correlation is significant at the 0.01 level (2-tailed).*

The correlation coefficients summary results presented in Table 3 show significant positive correlation between overall scores of RDAS and the anchor measure ($r = 0.552^{**}$, $p < 0.01$). Besides, the relationship of all subscales of the 'Revised Dyadic Adjustment Scale' with the anchor tool ('Satisfaction with Family Life Scale') is found to be significant and positive, ranging from the coefficient of relationship with RDAS Satisfaction ($r = 0.355^{**}$, $p < 0.01$), RDAS Cohesion ($r = 0.367^{**}$, $p < 0.01$), and RDAS Consensus ($r = 0.40^{**}$, $p< 0.01$). This indicates that RDAS has commendable convergent validity confirming that it positively correlated with the scale devoted to measure conceptually similar constructs. As can be observed in Table 4 above, the overall relationship between RDAS and conflict subscale of brief family relationship scale reads a very low negative correlation ($\alpha = –0.06$, $p < 0.05$), which confirms that RDAS was found to be divergently related with instrument measuring unrelated construct. Thus, good discriminant validity property of the Oromo version of RDAS as validated among Oromo language speaking couples living in Burayu town was reported.

Table 4. Summary of Inter-correlation coefficients results among RDAS and Conflict subscale of BFRS.

RDAS and conflict subscale of BFRS	RDAS total	RDAS consensus	RDAS satisfaction	RDAS cohesion	Conflict subscale/BFRS	P value
Conflict subscale/BFRS						
	–0.060	–0.019	–0.031	0.202	1	0.05
Mean	49.61	23.81	13.64	12.15	6.32	

3.4. Exploratory Factor Analysis

The raw data obtained from the study participants was assessed for qualifying for factor analysis by using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The KMO statistic varied between 0 and 1, and values closer to 1 are better. Kaiser (1974) recommended accepting values ≥ 0.50 and the factor analysis is said to be suitable when the Bartlett's test is statistically significant (Dziuban and Shirkey, 1974). The RDAS comprises 14 items sub-classified in to three latent variables, which further measure a construct 'marital adjustment' (Busby *et al*., 1995). The latent variables include RDAS Consensus (6 items), RDAS satisfaction (4 items) and RDAS cohesion (4 items). The KMO measure of sampling adequacy of RDAS was 0.833, which fall into the range of being greatly recommended by Kaiser (1974). In addition, the Bartlett's test was statistically significant, $\chi^2 = 901.329$, df = 91, $p < .001$. Therefore, the exploratory factor analysis was appropriate for raw data obtained in the current study.

Table 5. Items loadings to respective extracted factors and coefficients communalities.

RDAS Items by Latent Constructs		Factor Loadings of items			Communa-lities
		Comp. I	Com. II	Comp. III	
Consensus (I)	Religious matters	0.719			0.562
	Demonstrations of affection	0.715			0.590
	Making major decisions	0.712			0.529
	Sex relations	0.683			0.614
	Conventionality (correct or proper behavior)	0.675			0.542
	How often do you discuss or have you considered divorce, separation, or terminating your relationship?	0.630			0.538
Satisfaction (III)	How often do you and your partner quarrel?			0.601	0.430
	Do you ever regret that you married (or lived together)?			0.800	0.642
	How often do you and your mate "get on each other's nerves"?			0.753	0.671
	Do you and your mate engage in outside interests together?			0.772	0.679
Cohesion (II)	Do you and your mate engage in outside interests together?		0.020		0.293
	Have a stimulating exchange of ideas		0.765		0.642
	Work together on a project		0.713		0.558
	Calmly discuss something		0.777		0.628

The principal component analysis confirmed presence of three components, similar to the original RDAS (Busby *et al*., 1995); so does the scree plot inspection where the line is clearly observed to break after the third component with initial Eigen value of one (1). The three components were found to explain total variance of 56.55%, which satisfy the Pett *et al*. (2003) assertion that totally explained variance could be stopped as low as 50–60% in humanity science. Nonetheless, in natural science, according to Hair et al. (1995) factors should be stopped when at least 95% of the variance is explained. RDAS consensus subscale is identified as the first factor accounting for 22.05% of the variance of the items. The second factor was found to be RADS consensus, which accounted for 17.404% of the variance of the items accompanied by RADS satisfaction with very slight difference that explained 17.1% of the variance. Moreover, the three factors have shown significant positive relationship among each other, first and third factors ($r = 0.344$, $p < 0.01$), first and second factors ($r = 0.451$, $p < 0.01$), and the second and third factors ($r = 0.186$, $p < 0.01$).

Following the advice of Field (2013), one item (item number 11: *Do you and your mate engage in outside interests together?*) from RDAS cohesion subscale was reduced due to factor loading coefficients suppression for small effect; that is less than 0.4. Besides, this item has been extracted to contribute very less to the communalities (0.293). On the others hand, an item (item number 4) which has cross loaded to component I (0.638) and Component II (0.435) was considered with component I based on Howard's (2016) suggestion of the difference between that

particular item loading to the primary and alternative factor being greater than or equal to 0.2.

As can be observed in the Table 5, majority of RDAS items loaded high to their respective latent variables. Three of the six items measuring RDAS consensus showed high loading above 0.70. Among items purported to measure latent variable RDAS cohesion all the items, except item number 11 that loaded less than 0.4 and hence suppressed, showed high loadings above 0.70. All RDAS satisfaction-measuring items also showed high factor loadings above 0.70, except item number 7, which loaded 0.601. Item number 11 showed the lowest value of communality (0.293) in the extracted factors and item number 10 showed the highest value of communality (0.679).

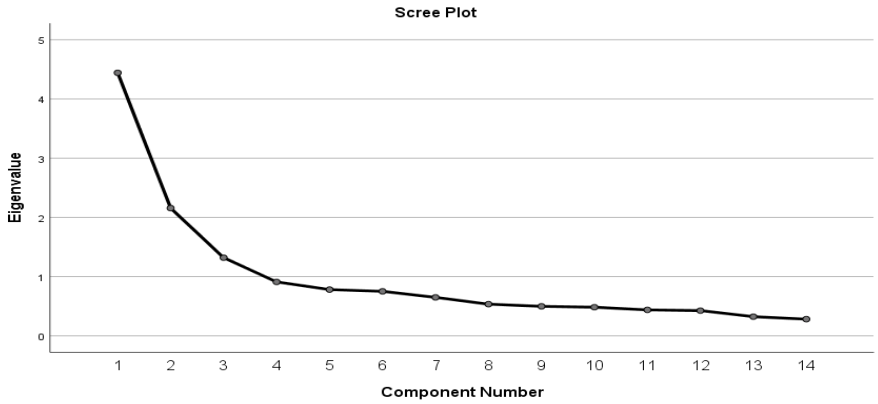

Figure 1. Scree pilot of the components of RDAS.

3.5. Confirmatory Factor Analysis

In order to test whether the factor structure proposed by Busby *et al.* (1995), confirmed in this study by the factor analysis, also suitable to the data collected from Oromo language speaking Ethiopian families the researchers performed confirmatory factor analysis. Four common statistics were used for evaluating the fit of the model to the data; chi-square, goodness of fit index (GFI), comparative fit index (CFI) and root mean square residual (RMR) (Joreskog and Sorbom, 1989). The fitness summary results of sample data obtained by the Oromo language version of RDAS to the three RDAS factors identified by EFA/PCA method is presented as follows.

Table 6. Model fit indices of confirmatory factor analysis.

Number of Items	χ^2	df	GFI	CFI	RAMSEA
14	101.649	62	0.925	0.951	0.057

As could be understood from Table 6, the goodness of fit indices ($x^2 = 101.649, DF = 62; \frac{x^2}{DF} = 1.64$, GFI = 0.925, CFI = 0.951 and RMSEA = 0.057) confirmed that the three-factor model of RDAS was satisfactory replicated in the sample data collected with RDAS Afan Oromo version. This is affirmed by the fact that all indices obtained from the model proved to be in the desired range recommended by the experts in the area (Hooper *et al.*, 2008).

Figure 1 below shows the measurement model with 13 items out of the total of 14 items of RDAS. One item decreased because of its very low contribution to communalities and suppressed for loading small coefficient below 0.4. Hence, the 13 items were specified as indicators for the latent factors; RDAS consensus, RDAS cohesion, and RDAS satisfaction being the first, second and third factors, respectively.

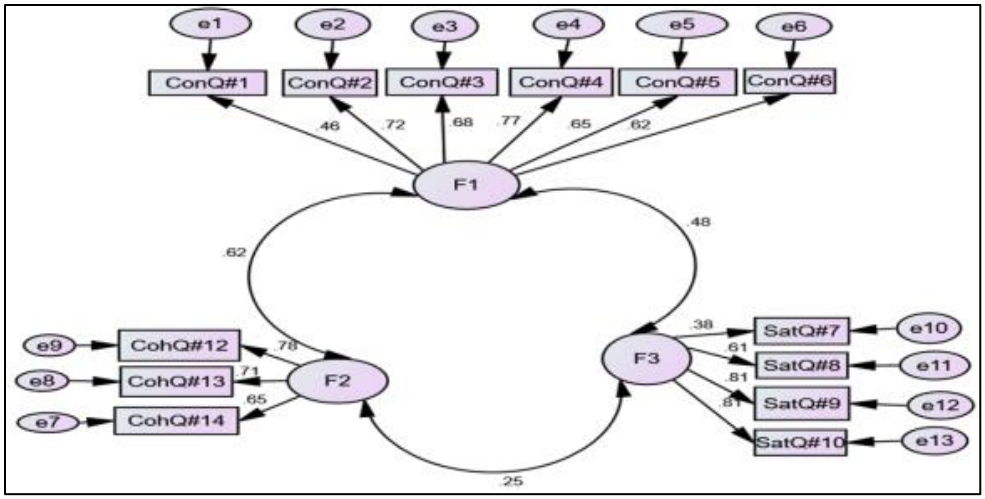

Figure 2. Measurement model with three dimensions of Revised Dyadic Adjustment Scale (RDAS).

4. Discussion

This study examined the psychometric properties of the Revised Dyadic Adjustment Scale (RDAS) in a sample of Oromo language speaking Ethiopian couples in Ethiopia. Validation of the tool in Ethiopian socio-cultural context has of paramount importance in supporting family researchers and therapists in their future contribution to the field of family psychology and better serve Ethiopian couples in their marital relationships. Different family researchers have used RDAS through adopting and validating it to their own contexts (Hollist *et al.,* 2012; Turliuc and Muraru, 2013; Maroufizadeh *et al.,* 2020 and Naeem *et al.,* 2021), and hence the current study would serve as a driving force for the scale utilization in Ethiopian context among Afan oromo Speaking families.

In this study, an internal consistency of revised dyadic adjustment scale (RDAS) was found to be $\alpha = 0.779$, whereas, Busby *et al.* (1995) reported the RDAS, internal consistency $\alpha = 0.90$. Although there was some decline in the internal consistency of the RDAS items in the current study compared to the original Cronbach's alpha value of RDAS, it proved to be within the generally acceptable scales internal consistency (α ranging from 0.6–0.7) suggested by the scholars in the area (Paiva *et al*., 2014). In other adoption and validation studies of RDAS, for instance, in Portuguese/Portuguese version $\alpha = 0.822$ (Hollist *et al.,* 2012), in Persia/Persian version $\alpha = 0.847$ (Maroufizadeh *et al.,* 2020), in Romania/Romanian version $\alpha = 0.90$ (Turliuc and Muraru, 2013) and in Pakistan/Urdu version $\alpha = 0.70$ (Naeem *et al*., 2021) internal consistency results were reported. These studies results indicate that RDAS has had good reliability coefficients across different sample data obtained from socio-culturally diversified participants, which confirmed in the current study too. Hence, the reliability of RDAS items has been viable to be used in Oromo language speaking Ethiopian families.

This study results indicated that RDAS has good construct validity, which was tested in terms of Convergent and Discriminant validity tests. The convergence validity test between RDAS and satisfaction with family life scale showed an overall significant positive correlation ($r = 0.502^{**}$, $p < 0.001$) which affirms that RDAS has good convergent validity. In a validation study by Ward *et al.* (2009), similar convergence validity test result ($r = 0.782^{**}$; $p < 0.01$) was obtained between RDAS and satisfaction with family life scale which was also repeated in this study. Maroufizadeh *et al.* (2020) also found good convergent validity test results between RDAS and other scales measuring similar construct including the Relationship Assessment Scale (RAS, $r = 0.688$), the Kansas Marital Satisfaction Scale (KMSS, $r = 0.667$) and the Couples Satisfaction Index- 4 item (CSI-4, $r = 0.591$). On the other hand, discriminant validity test result of the current study revealed that RDAS found to poorly correlate ($r = –0.060$) with dissimilar construct measuring instrument i.e., conflict subscale of Brief Family relationship scale, with sound evidence of its convergent validity by having low and negative relationship with the instrument it should. The results of good constructive validity test results across studies supports revised dyadic adjustment scale appropriateness for use in diversified socio-cultural contexts to measure quality of marital relationship among couples.

The current study's RDAS exploratory factor analysis result confirmed three underlying factors on the scale, which are the same as the previously proposed structure (Busy et al (1995). Similarly, the three-factor structure of the RDAS was also verified in other investigations (Turliuc and Muraru, 2013; Maroufizadeh *et al.*, 2020). Moreover, this study confirmatory factor analysis results ($\text{Chi} - \text{square} = 101.649, \text{DF} = 62; \frac{x^2}{\text{DF}} = 1.64$, GFI = 0.925, CFI = 0.951 and RMSEA = 0.057) confirmed satisfactory model fitness to the sample data with all the goodness of fit indices at acceptable value. Hence, the three latent factors explored through EFA have been confirmed to fit in to the data obtained from current sample. Similarly, confirmatory factor analysis revealed a good statistical fit of the model with three latent correlated components to sample data in previous RDAS adoption and validation investigations (Turlik and Muraru, 2013; Isanezhad *et al.,* 2012). These would indicate that RDAS is practical for assessing the quality of marital relationships in settings other than those in which it was developed using sample data gathered through adoption and validation from socio-culturally diverse setups.

5. Conclusion and Recommendations

The present RDAS adoption and validation study results highlighted acceptable psychometric properties of the scale in terms of reliability and validity (content and construct validities) affirming that it is viable to measure the underlying latent construct consistently across participants whose marital relationships are focused for study. Moreover, the RDAS items satisfactory loadings to their corresponding subscales (Cohesion, Consensus and Satisfaction) and confirmed originally proposed three factor structure of RDAS are other key results of this study. In light of these findings, it is concluded that subsequent family researchers and therapists in Ethiopia socio-cultural context could use RDAS to measure the couples' quality marriage relationship. However, as evident in EFA result, one item found to load very small coefficient less than 0.4 and hence removed from the scale. Subsequent researchers are strongly advised to either reevaluate the scale with different sample size, which may give rise different result about this item, or use the thirteen items of the fourteen RDAS items for their research work. Besides, the current validation used sample data from Oromo language speaking Ethiopian families, whereas, Ethiopia is a multicultural and multi ethnic country. This necessitates future researchers to try out the scale in other subculture of different Ethiopian ethnic groups for its reliability and validity in reference to that particular ethnic groups' socio cultural ways of life.

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