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The Development of the MATRRESS; A Multidimensional Scale of Manipulation Tactics in Romantic Relationships

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Abstract: ***The MATRRESS, a MAnipulation Tactics in Romantic RElationships Scale was designed by 18 mental health professionals to facilitate the scientific exploration of the properties of manipulation in couples. In study 1, a PCA on a sample of 610 respondents revealed an 8-factor structure of eight distinct manipulation tactics which was cross-validated with CFA on a second sample of 609 participants. A bi-factor model produced the best fit to the data which consisted of a composite factor (General Manipulation) and 8 distinct reliable manipulation tactics (Threats of Abandonment, Induction to Guilt, Self-harm Threats, Induction to Jealousy, Coercive Distance / Silent Treatment, Dividing and Conquering, Use of Charm and Deflation of Self-esteem). In study 2, 462 participants completed the MATRRESS as well as other scales related to manipulation (Machiavellianism, Emotional Manipulation and Psychopathy) and adequate convergent validity was established as well as satisfactory test-retest reliability. Overall, it appears that the MATRRESS has excellent internal consistency (α=.95), and correlates significantly to Machiavellianism (r=.66), Emotional Manipulation (r=.73) and Psychopathy (r=.49). As a reliable and valid scale it has numerous potential applications in social, psychological and clinical research as a useful tool to assess manipulation tactics in romantic relationships.***

Keywords: Manipulation, Romantic relationships, Emotional Influence, Deception

1. Introduction

Organisms deceive and exploit other organisms (Krebs & Dawkins, 1984; Owren, 2010) using a variety of tactics which evolved under natural selection, conferring competitive advantages in reproductive relationships (Bond & Robinson, 1988). In humans, this deception is called "manipulation" and is viewed as the ways through which individuals exert malicious or benign influence on others to reinforce desired behaviors (behavioral instigation) or discourage unwanted ones (behavioral termination) (Buss, Gomes, Higgins & Lauterbach, 1987). According to Buss (1987), humans unable to manipulate others at any level may fail to elicit care, establish and retain relationships, elevate in complex social hierarchies or even attract mates.

Manipulation shares close links with certain personality types, such as people who possess Narcissistic characteristics but it has been repetitively associated with Psychopathy and Machiavellianism (Austin, Farelly, Black & Moore, 2007; Jonason, Li & Buss, 2010; Jonason, Slomski & Partyka, 2012; Paulhus & Williams, 2002). Although evolutionary psychology highlights certain reproductive advantages and gains for the use of manipulation tactics, the term is negatively employed in couple and family psychology, to vaguely describe some of the difficult and destructive behaviors of people in couple relationships (e. g. Plechaty, 1988).

In clinical psychology and psychiatry, manipulation has been traditionally linked to borderline clients (e. g. Woollaston & Hixenbaugh, 2008, Mandal & Kocur, 2013), however, the occurrence of manipulative behavior is not limited to borderline personalities. According to DSM-V, manipulative behaviors for the sake of personal gain (e. g. money) or pleasure (e. g. sex) exist at the core of the diagnostic features of Antisocial Personality Disorder. Similarly, in DSM-V it is proposed that the emotional manipulation of partners is a central feature associated with the diagnosis of Histrionic Personality Disorder (5th ed.; DSM-V). Hence, manipulation in relationships and its various forms seem to be of great diagnostic value and should be closely examined by clinicians and researchers as an area to study and determine interpersonal well-being.

Existing manipulation scales view manipulation as a single construct without treating it as a multidimensional variable constituted by numerous tactics some of which may be relationship-sabotaging while others, more productive, or even in certain instances, necessary (e. g. Austen et al., 2007). Common sense dictates that the development and validation of an instrument assessing a variety of manipulation strategies explicitly in romantic relationships is imperative to determine the repertoire of manipulative endeavors and facilitate the scientific exploration of their properties and uses.

Despite the frequent use of the term "manipulation" in couples, it is rarely defined and is consistently neglected by the scientific literature as to what it entails, why it is employed and what it achieves for both the agent and the target. Although, by definition, manipulation tactics are sought to achieve certain primary or secondary relationships gains, their use and how they relate to couple stability and relationship satisfaction for both parties involved, remains an unexplored topic of investigation.

The present body of two studies aimed to design and examine the psychometric properties of the MATRRESS (the MAnipulation Tactics in Romantic RElationships

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Scale), an assessment designed to examine manipulation tactics employed in couple relationships and explore its relationship to other measures of personality that have been traditionally linked to manipulation.

2. Methodology (Study 1)

2.1 Data Analysis

To determine a set of reliable factors that compose the MATRRESS, two analytical steps were taken. A PCA (Principal Components Analysis) with varimax rotation was completed on the first sample (N=610) and then, the factor structure which emerged was cross-validated with Maximum Likelihood CFA (Confirmatory Factor Analysis) using the second half (N=609).

2.2 Materials

After a thorough review of the literature, tactics of manipulation were identified via a group discussion among 18 mental health professionals. They were later converted into an initial pool of 52 questionnaire items. At a later stage, they were checked for clarity and coherence by four independent psychology experts who were instructed to identify items that did not effectively capture the topic of investigation or seemed incoherent and confusing. Through this process, 45 items with good face validity remained. A pilot study in an on-line sample of 124 respondents (81 women and 33 men) suggested that 13 additional items should be removed due to a significant lack of normal distribution in items which depicted highly abusive tactics of manipulation (e. g. I would hit my partner or I would humiliate my partner etc.).

2.3 Participants

The PCA and CFA sample consisted of an online English-speaking sample of 1219 adults (N=747 women and N=472 men) between 18 to 60 years of age with a mean age of 28.83 years (SD=4.6). The majority of the sample was in a dating or marital relationship (33% and 31%) and the remaining percentage was in an open relationship or single (9% and 27% respectively).

2.4 Procedure

Respondents were given the following description: “In romantic relationships, we often employ tactics to influence and control our partners. These tactics may be used on our partners to receive their affection, attention, dominate them, gain their respect, see how much they care, prevent them from abandoning us and many other reasons. Please rate the extent to which you have used the following tactics in past or current romantic and sexual relationships. ”

A 4-point Likert scale was employed ranging from “Not at all”, “Very little”, “Somewhat” and “To a great extent”. Anonymity was provided, and participants were given the right to drop out at any time they felt uncomfortable with the content of the scale. Two attention check items were also included (Meade & Craig, 2012).

2.5 Results

The data set was randomly divided into two groups using the odds and evens split method. The first group (Group A) consisted of 610 participants (age: M=28.3 years. SD=2.9) and the second group (Group B) consisted of 609 participants (age: M=28.9, SD=3.1). Gender was proportionately represented between the groups.

A principal component analysis with varimax rotation was completed on the first dataset. Taking into consideration the Keiser criterion, Cattell's screeplot and results from parallel analysis, 8 factors were yielded. These 8 factors of four items each, explained 73, 50% of the variance in the scale.

The Cronbach's alpha for the entire scale indicated excellent internal consistency with a=0.95. Factor loadings for each item may be viewed in table 1. Their reliabilities were satisfactory and ranged from.80 to.93. Finally, corrected item-total correlations were all above the.30 threshold.

Table 1: Item Loadings of the MATRRESS and Item-Total Correlations

Items of the MATRRESS (.95)	Loadings	R (Item-Total)
Factor 1 (AT): **Abandonment Threats (.88)**		
AT1. I threatened to leave him/her.	, 829	.41
AT2. I told my partner that I will abandon him/her.	, 809	.47
AT3. I showed signs that a break-up is imminent.	, 740	.42
AT4. I told him to break up, even if I didn’t really mean it.	, 649	.37
Factor 2 (IG): **Induction to Guilt (.80)**		
IG1. I appeared more vulnerable.	, 743	.43
IG2. I pretended that I am not feeling very well.	, 730	.44
IG3. I played the victim.	, 676	.46
IG4. I faked crying.	, 601	.37
Factor 3 (SH): **Self-Harm Threats (.93)**		
SH1. I implied that I would hurt myself.	, 868	.45
SH2. I appeared suicidal.	, 861	.44
SH3. I threatened that I would end my life.	, 796	.42
SH4. I displayed self-destructive behaviors.	, 679	.47
Factor 4 (IJ): **Induction to Jealousy (.80)**		
IJ1. I told my partner that other people are into me.	, 801	.38
IJ2. I told my partner that others find me attractive.	, 788	.33
IJ3. I compared him/her with other romantic candidates.	, 729	.32

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IJ4. I made him/her feel jealous.	, 667	.42
Factor 5 (CDST): **Coercive Distance/Silent Treatment (.81)**		
CDST1. I appeared indifferent to him/her.	, 758	.45
CDST2. I ignored him/her.	, 725	.45
CDST3. I used silent treatment.	, 707	.49
CDST4. I distanced myself.	, 694	.43
Factor 6 (DC): **Dividing and Conquering (.87)**		
DC1. I isolated my partner from others.	, 825	.45
DC2. I encouraged my partner to clash with others.	, 764	.34
DC3. I urged my partner to mistrust others.	, 733	.44
DC4. I told him no one else really cares about him/her.	, 631	.40
Factor 7 (CH): **Charm and Sweet-talking (.83)**		
CH1. I used sweet-talking.	, 807	.41
CH2. I used compliments.	, 803	.40
CH3. I used flattery.	, 780	.39
CH4. I used my charm over him/her.	, 651	.32
Factor 8 (DE): **Deflation of Self-Esteem (.91)**		
DE1. I lowered my partner's self-esteem.	, 824	.50
DE2. I made my partner feel useless.	, 785	.48
DE3. I made my partner feel inferior.	, 776	.47
DE4. I didn't let my partner feel too good about himself/herself.	, 682	.46

Note. Cronbach's alphas for each factor are presented in bold parentheses. Factors representing manipulation tactics were abbreviated: Abandonment Threats (AT), Induction to Guilt (IG), Self-harm Threats (SH), Induction to Jealousy (IJ), Coercive Distance/ Silent Treatment (CDST), Dividing and Conquering (DC), Use of Charm and Sweet-talking (CH) and Deflation of Self-esteem (DE).

A subsequent CFA was completed which corresponded to the 8 factors obtained by the PCA. The 8-factor model was then tested against a single factor and a bifactor model. The estimation method used was Maximum Likelihood (ML), using the variance-covariance matrix. There were no missing data in the dataset. The following indices were employed: (1) the ratio of chi-square to degrees of freedom (CMIN) (with a value lower than 3 being indicative of acceptable fit); (2) the standardized root mean square residual (SRMR) (with a value below 0.6 indicating good model fit); (3) the Tucker-Lewis index (TLI) and the comparative fit index (CFI) (values equal or higher than.95 indicative of good fit); (3) the root mean square error of approximation (RMSEA) (values below.08 indicate a good fit) (Brown, 2015). As it may be seen in table 2 the bifactor model of a composite score as well as individual tactics (fig.1) produced the most satisfactory results, indicating good model fit.

Table 2: Model Fit Indices for the Proposed Models.

Model	CMIN	SRMR	TLI	CFI	RMSEA
1. Single-factor Solution	9.352	.15	.39	.43	.22
2. Eight-factor solution	1.819	.04	.94	.95	.07
3. Bifactor Solution	1.747	.03	.95	.96	.06

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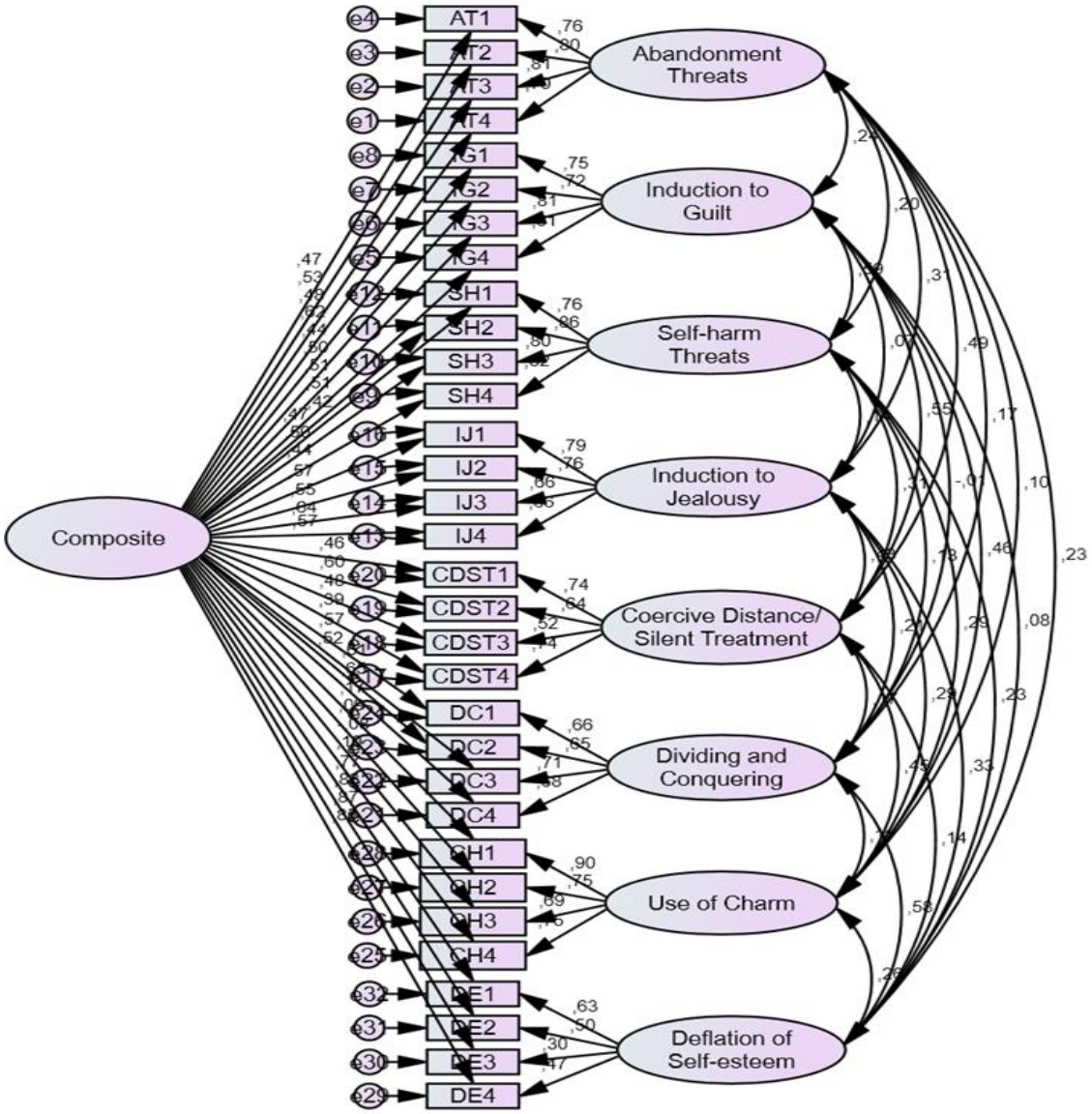


Figure 1: The Bifactor Model of Manipulation Tactics in Romantic Relationships Scale

3. Materials

To assess the convergent validity of the MATRRESS, the following measures were administered.

- *The Mach IV* (Christie & Geis, 1970) which consists of 20 items measuring Machiavellianism, a personality factor characterized by a tendency towards manipulative behaviour and deceitful practices in interpersonal relationships.
- *The Emotional Manipulation Scale* which is a reliable and concise 12-item measure introduced by Austin et al., 2007 and was designed to measure the tendency to exert emotional manipulation on others.
- *The Levenson Self-Report Psychopathy Scale* (Levenson, Kiehl, & Fitzpatrick, 1995) which is a valid and reliable 20-item self-report measure of psychopathic personality traits.

3.1 Participants

A voluntary online sample of 382 English-speaking individuals (212 women and 170 men) with a mean age of 29.5 (SD=8.1) as well as a non-voluntary opportunity sample of 80 older postgraduate university students (40 women and 40 men) with a mean age of 32.4 (SD=5.4) were used. For the assessment of convergent validity both samples were used, while for the assessment of test-retest stability only the second sample was employed. In the overall sample, 40.7% was in a marital relationship, 30% was in a committed relationship, 20, 4% was single and 9, 8% was in an open relationship.

3.2 Procedure

Similarly, to study 1, the same instructions were given, anonymity was provided, and participants were given the right to drop out at any time they felt uncomfortable. Two attention check items were also incorporated (Meade & Craig, 2012). For sample 2, participants were additionally asked to provide their email address and they were contacted again 6 weeks after their initial participation to re-complete the questionnaire. They were paid 10 Euros after the resubmission of the second questionnaire.

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3.3 Results

To assess convergent validity, Pearson's correlations were used among the constructs as it may be seen in table 3. It was found that both the composite score of General Manipulation (GM) as well as each tactic shared medium to strong significant correlations with self-report measures of Machiavellianism, Emotional Manipulation and Psychopathy ranging from .49 to .73 for the composite factor and .21 to .57 for each tactic.

The 6-week test-retest correlation coefficient for the components of the MATRRESS ranged from .70 to .81 (n=80), while for the whole scale the correlation coefficient was equal to .83 (p<.01; 95% CI =.77, .89) indicating good test-retest reliability.

Table 3: Correlations between MATRESS Factors and Measures of Convergence

(N=462)	AT	IG	SH	IJ	CDST	DC	CH	DE	GM
MACH-IV	.45	.57	.30	.38	.41	.42	55	40	.66
EMS	.42	.50	.45	.39	.41	.55	50	50	.73
LSRPS	.31	.30	.29	.25	.38	.31	20	34	.49

Note. All correlations were significant at the .01 level. MACH-IV = Machiavellianism, EMS = Emotional Manipulation Scale, LSRPS = Levenson Self-Report Psychopathy Scale, GM = General use of Manipulation Tactics.

4. Discussion

PCA and CFA analyses identified the following manipulation tactics: Abandonment Threats, Induction to Guilt, Self-harm Threats, Induction to Jealousy, Coercive Distance/Silent treatment, Dividing and Conquering and Deflation of Self-esteem. These manipulation tactics have satisfactory reliabilities and the bifactor model which incorporates a composite factor of general manipulation (GM) provides the best model fit.

It appears that the MATRRESS has satisfactory convergent validity by being positively correlated to Machiavellianism, Psychopathy and Emotional Manipulation, yielding similar correlations with other widely used scales such as the Dark Triad Dirty Dozen (Jonason & Webster, 2010). Finally, scores remained rather stable across intervals concluding that the MATRRESS is a scale of satisfactory test-retest reliability.

To our knowledge, this is the first method of assessment, other than clinical observation, to examine manipulation tactics as a multifactorial construct explicitly in romantic relationships. However, a main disadvantage of Study 1 and Study 2 was the data collection method. While online samples have been shown to be generally representative of the normal population (Berinsky, Huber, & Lenz, 2012), and extremely economical and representative of otherwise unreachable populations by reaching large samples (Baltar & Brunet, 2012) which is ideal for the examination of the psychometric properties of a scale, further studies on more diverse samples and locations should be completed before external validity is thoroughly established.

The use of measures like the MATRRESS could help scientists determine the extents to which, as well as the ways in which, manipulation tactics affect the well-being of romantic relationships as well as their individual members. By identifying the most relationship-damaging tactics or the more beneficial ones for relationships through future research endeavors, clinical practice with couples could be guided towards healthier behavioral alternatives.

Author Note
No Conflicts of Interest to Disclose

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References

[1] American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.)
[2] Austin, E. J., Farrelly, D., Black, C., & Moore, H. (2007). Emotional intelligence, Machiavellianism and emotional manipulation: Does EI have a dark side?. *Personality and individual differences*, *43* (1), 179-189.
[3] Baltar, F., & Brunet, I. (2012). Social research 2.0: virtual snowball sampling method using Facebook. *Internet research*.
[4] Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's Mechanical Turk. *Political analysis*, *20* (3), 351-368.
[5] Bond, C. F., & Robinson, M. (1988). The evolution of deception. *Journal of nonverbal behavior*, *12* (4), 295-307.
[6] Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford publications.
[7] Buss, D. M. (1987). Selection, evocation, and manipulation. *Journal of personality and social psychology*, *53* (6), 1214.
[8] Buss, D. M., Gomes, M., Higgins, D. S., & Lauterbach, K. (1987). Tactics of manipulation. *Journal of Personality and Social Psychology*, *52* (6), 1219–1229.
[9] Christie, R., & Geis, F. L. (1970). CHAPTER I-WHY MACHIAVELLI? *Studies in Machiavellianism*, 1-9.
[10] Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: a concise measure of the dark triad. *Psychological assessment*, *22* (2), 420.
[11] Jonason, P. K., Li, N. P., & Buss, D. M. (2010). The costs and benefits of the Dark Triad: Implications for mate poaching and mate retention tactics. *Personality and Individual Differences*, *48* (4), 373-378.
[12] Jonason, P. K., Slomski, S., & Partyka, J. (2012). The Dark Triad at work: How toxic employees get their way. *Personality and individual differences*, *52* (3), 449-453.
[13] Krebs J, Dawkins R (1984) Animal signals: mind-reading and manipulation. In: Krebs JR, Davies NB

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(eds) Behavioural ecology: an evolutionary approach, 2nd edn. Blackwell, Oxford, pp 380–402

[14] Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of personality and social psychology*, *68* (1), 151.

[15] Mandal, E., & Kocur, D. (2013). The Machiavellianism and manipulation tactics used by patients with borderline personality disorder in everyday life and in therapy. *Psychiatria polska*, *47* (4), 667-678.

[16] Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological methods*, *17* (3), 437.

[17] Owren, M. J., Rendall, D., & Ryan, M. J. (2010). Redefining animal signaling: influence versus information in communication. *Biology & Philosophy*, *25* (5), 755-780.

[18] Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of research in personality*, *36* (6), 556-563.

[19] Pléchaty, M. (1987). Perceptual congruence of five attitudes among satisfied and unsatisfied couples. *Psychological Reports*, *61* (2), 527-537.

[20] Woollaston, K., & Hixenbaugh, P. (2008). 'Destructive Whirlwind': nurses' perceptions of patients diagnosed with borderline personality disorder. *Journal of Psychiatric and Mental Health Nursing*, *15* (9), 703-709.

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QUARRELS; A Multidimensional Assessment of Romantic Relationship Quality and its Relationship to Adult Attachment Dimensions

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Abstract: ***The present study aims to preliminary examine the psychometric properties of the QUAlity of Romantic RELationships Scale (QUARRELS). In two studies involving a total of 950 individuals across Europe, it was revealed that the QUARRELS is a tool of good overall reliability (a=.94). It comprises of a set of 6 reliable factors (Support, Emotional Intimacy, Sexual Intimacy, Rapport, Pacifism & Trust) and a composite factor of a total quality of romantic relationship score. Indications of construct validity were provided after revealing significant negative correlations between adult attachment dimensions from (-.18 to-.53) and both adult attachment anxiety and avoidance shared significant negative correlations with overall quality of romantic relationships (r=-.46) and (r=-.59). The QUARRELS has promising qualities which could be useful both in future research and in clinical settings.***

Keywords: Romantic Relationships, Support, Emotional Intimacy, Sexual Intimacy, Rapport, Pacifism, Trust, QUARRELS

1. Introduction

Romantic relationships have always attracted the interest of the scientific community due to their significance for personal and family well-being (Bradbury, Fincham & Beach, 2000). Nevertheless, scientific research often fails to examine the quality of romantic relationships as a dynamic interplay among various emotional, social or sexual aspects that co-exist within a relationship and are unique to each couple. Psychometric tools assessing the quality of romantic relationships tend to be unidimensional, centering solely on the experiencing of romantic relationship quality or satisfaction as a single construct. This may lead researchers to use multiple scales to address distinct factors of romantic relationship quality (e. g. Cho et al., 2020).

In addition, since romantic relationships represent a constellation of various factors, relationship satisfaction, happiness, adjustment and quality should be treated as distinct theoretical entities. Although these terms are often used interchangeably or are considered overlapping (e. g. Heyman, Sayers, & Bellack, 1994, Spanier, 1976) and common sense dictates that they indeed share close links, it neglects to account for relationships that may be of high quality but are not necessarily experienced as emotionally satisfying, due to mediating variables such as depression or perfectionism (McKinnon et al., 2012).

Adult attachment has been traditionally associated with various relationship variables and is considered the main theoretical framework through which romantic relationships may be systematically examined. A plethora of studies have identified adult attachment as a consistent predictor of romantic relationship satisfaction (e. g., Butzer & Campbell, 2008; Cann, Norman, Welbourne, & Calhoun, 2008; Collins & Read, 1990; Feeney, 1999; Simpson, 1990) and meta-analyses of such studies have also succeeded in validating the effect of attachment on relationship variables linked to romantic satisfaction (Haden, Smith & Webster, 2013 & Li & Chan, 2012).

The aim of the present research was to preliminarily examine the psychometric properties of a new concise measure of romantic relationships quality (QUAlity of Romantic RELationships Scale; QUARRELS) assessing relationship quality as a distinct entity from relationship happiness, adjustment and satisfaction. It was designed to assess distinct quality-related subscales and was further examined for convergence with a measure of adult attachment, since it has been repeatedly shown that relationship satisfaction is sensitive to measures of adult attachment.

2. Method

Design

The first study is of psychometric nature assessing the reliability and the factor validity of the QUARRELS. To determine a set of reliable factors that compose the QUARRELS, two analytical steps were taken. A Principal Components Analysis (varimax rotation) was completed on the first half of the sample (N=370) and then, the factor structure which emerged from the PCA was validated with Confirmatory Factor Analysis (Maximum Likelihood) using the second half (N=370). The second study was a study of correlational nature which aimed to examine the existence of negative correlations among adult attachment anxiety and avoidance with the individual factors as well as the composite score of the QUARRELS. This would verify whether the quality of romantic relationships as measured with the QUARRELS, yields similar correlations that would be consistent with previous findings related to adult

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attachment. This would help provide indications of good convergent validity of the scale and expand on the existing literature regarding the adult attachment-quality of relationships measurement.

3. Participants

For the first study, a voluntary, online English-speaking sample of 740 individuals (562 women and 178 men) was employed from various European countries (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Romania, Slovenia, Spain and Sweden) with a mean age was 28.1 years of age (SD=4.6). In study two, similarly to study 1, participants were an online sample of 210 English-speaking adults across Europe (160 women and 50 men) with a mean age of 27.9 years (SD=3.9). Participants from both studies used either social media or SurveyMonkey where questionnaire distribution took place and had previously been or currently were involved in romantic relationships.

4. Materials

After a thorough review of the existing literature on aspects of romantic relationships, 19 mental health scientists were informed as to the aims of the study and had a group discussion before identifying 40 items which depicted romantic relationship characteristics that would be relevant to relationship quality. This initial pool of 40 items was then scrutinized by 2 independent psychologists specialized in couples therapy, who were instructed to identify items that did not effectively capture (with specificity) the topic of investigation. Through this process, 24 items with good face validity remained. In addition, for study 2, the finalized version of the QUARRELS was administered accompanied by the Experiences in Close Relationships Scale-Short Form (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007). The 12-item ECR-S, was derived from the original Experiences in Close Relationships Scale (ECR; Brennan, Clark, & Shaver, 1998) and was used to assess participants' adult attachment orientation in terms of anxiety and avoidance. Six of the 12 ECR-S items represent attachment avoidance (e. g., "I want to get close to my partner, but I keep pulling back") and six items represent attachment anxiety (e. g., "My desire to be very close sometimes scares people away"). Similarly to the QUARRELS, items are also rated on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7), and item ratings on each subscale are scored so that higher scores indicate higher levels of attachment avoidance and anxiety.

5. Procedure

Respondents were given the following description:

"Please rate the extent to which you agree or disagree with the statements below regarding aspects of your present romantic relationship. If you are currently not involved in a relationship, please respond based on your latest relationship. " Participants were given the right to drop out if they felt uncomfortable with the content of the scale.

6. Results

The data set was divided into two groups using the odds and evens split method by keeping gender and geographic location proportionately represented in both samples of study 1. A principal component analysis (PCA with varimax rotation) was completed on the first dataset (N=370) and taking into consideration the Keiser criterion and Cattell's screeplot, 6 factors of 4 items each were yielded. These factors explained 76, 64% of the variance in the scale. The Cronbach's alpha for the entire scale indicated excellent internal consistency with a=.94. Factor loadings for each item may be viewed in table 1. Subscale reliabilities were all above the reliability threshold of.70 and ranged from.71 to.94. Finally, corrected item-total correlations were all above the.30 threshold. For study 2, bivariate correlations were examined.

Table 1: Factor Loadings and Corrected Item-Total Correlations of QUARRELS Items

QUARRELS Items (.94)	Loadings	Item-Total R
Factor 1 (S): **Support (.94)**		
S1. We are there for each other.	, 804	, 78
S2. We can count on one another in times of need.	, 789	, 74
S3. We support each other.	, 750	, 77
S4. We take good care of each other.	, 747	, 76
Factor 2 (E): **Emotional Intimacy (.93)**		
E1. We enjoy being affectionate to one another.	, 834	, 64
E2. We say loving things to each other.	, 824	, 66
E3. We enjoy physical expressions of affection (e. g. hugs, kisses etc.).	, 803	, 71
E4. Our relationship is not characterized by emotional intimacy. (r)	, 789	, 75
Factor 3 (SI): **Sexual Intimacy (.91)**		
SI1. We share a sexually satisfying relationship.	, 885	, 50
SI2. We have good chemistry when it comes to sex.	, 877	, 50
SI3. Our sex life is emotionally satisfying.	, 789	, 64
SI4. During sex, we experience feelings of warmth and intimacy.	, 788	, 62
Factor 4 (R): **Rapport (.89)**		
R1. We have fun when we hang out.	, 682	, 78
R2. We can be ourselves with each other.	, 608	, 60
R3. We enjoy spending time together.	, 589	, 75
R4. We rarely seek each other's company. (r)	, 547	, 79
Factor 5 (P): **Pacifism (.71)**		
P1. Our relationship can get very competitive. (r)	, 801	, 43
P2. We hold grudges. (r)	, 770	, 48
P3. We engage in power games. (r)	, 664	, 49
P4. We exclusivelyfight over things of great importance.	, 527	, 40
Factor 6 (T): **Trust (.85)**		
T1. Infidelity has never been an issue for us.	, 820	, 34
T2. We trust each other blindly.	, 789	, 63
T3. There is an atmosphere of absolute trust between us.	, 735	, 70

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T4. We get jealous and possessive. (r)	, 704	, 49

Note. Cronbach's alphas for each factor are presented in bold parentheses. (r) = items to be reversed prior to analysis. Factors were abbreviated: S= Support, E= Emotional Intimacy, SI= Sexual Intimacy, R= Rapport, P= Pacifism and T= Trust.

Next, a CFA which corresponded to the 6 factors obtained by the PCA was completed. The 6-factor model was then tested against a single factor and a bifactor model. The estimation method used was Maximum Likelihood (ML), using the variance-covariance matrix. No missing data existed in the dataset. Based on model-testing guidelines, the following indices were employed: (1) the ratio of chi-square to degrees of freedom (CMIN/Df) (values lower than 3 indicating acceptable fit); (2) the standardized root mean square residual (SRMR) (values of 0.6 and below indicating good model fit); (3) the Tucker-Lewis index (TLI) and the comparative fit index (CFI) (values equal or higher than.95 indicative of good fit); (3) the root mean square error of approximation (RMSEA) (values below.08 indicate good fit) (Brown, 2015).

As it may be seen in table 2. the bifactor model of a composite score for general «Romantic Relationship Quality» as well as individual factors (Support, Emotional Intimacy, Sexual Intimacy, Rapport, Pacifism and Trust) produced the most satisfactory results, indicating good model fit across all fit indices.

Table 2: Model Fit Indices for the Proposed Models.

Model	CMIN/df	SRMR	TLI	CFI	RMSEA
Single-factor solution	11, 597	.11	.59	.63	.17
6-factor solution	2, 769	.06	.93	.94	.07
Bi-factor Solution	2, 191	.04	.95	.96	.06

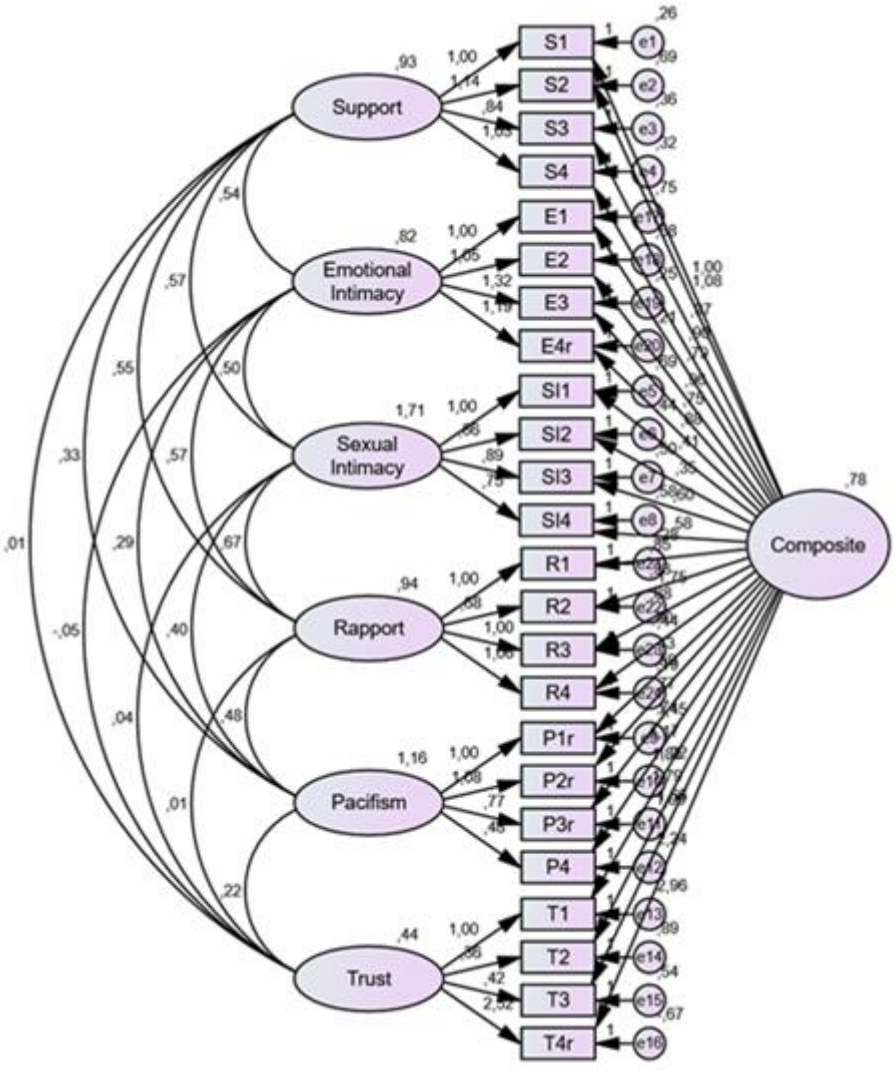


Figure 1: The Bifactor Model of the QUARRELS

As far as adult attachment dimensions and their correlates across factors were concerned, as well as the composite score of the QUARRELS, weak to moderate negative significant correlations were found for individual factors ranging from (-.18 to-.53) and both adult attachment anxiety and avoidance shared a significant negative correlation with overall quality of romantic relationships (r=-.46) and (r=-.59) as it may be seen in table 3.

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Table 3: Correlations between QUARRELS Factors and Adult Attachment Dimensions

N=210	S	E	SI	R	P	T	Overall
Attachment Avoidance	- .42	- .33	- .22	- .53	- .25	- .43	- .59
Attachment Anxiety	- .47	- .38	- .18	- .35	- .52	- .32	- .46

Note: All correlations were significant at.01 level.

7. Discussion

PCA and CFA analyses identified and validated the following romantic relationship characteristics: Support, Emotional Intimacy, Sexual Intimacy, Rapport, Pacifism and Trust as well as a general composite score of general romantic relationship quality. These factors have satisfactory reliabilities and the bifactor model has provided the best fit to the data. Furthermore, the scale yielded negative correlations with adult attachment dimensions as expected, providing indications for construct validity, although further research examining its other psychometric properties is needed (such as test-retest stability).

The use of measures like the QUARRELS could help scientists assess a wider spectrum of romantic relationship characteristics, multidimensionally, without sacrificing the attainment of an overall score of quality for romantic relationships. It is a concise and economical tool with many potential applications in future research endeavors and it has possible clinical applications in couples' therapy.

8. Disclosure

No Conflicts of Interest

References

[1] Bradbury, T. N., Fincham, F. D., & Beach, S. R. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of marriage and family*, *62* (4), 964-980.
[2] Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Experiences in Close Relationships Inventory. *PsycTESTS Dataset. doi*, *10*.
[3] Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. Guilford publications.
[4] Butzer, B., & Campbell, L. (2008). Adult attachment, sexual satisfaction, and relationship satisfaction: A study of married couples. *Personal relationships*, *15* (1), 141-154.
[5] Cann, A., Norman, M. A., Welbourne, J. L., & Calhoun, L. G. (2008). Attachment styles, conflict styles and humour styles: Interrelationships and associations with relationship satisfaction. *European Journal of Personality: Published for the European Association of Personality Psychology*, *22* (2), 131-146.
[6] Cho, M., Impett, E. A., Campos, B., Chen, S., & Keltner, D. (2020). Socioeconomic inequality undermines relationship quality in romantic relationships. *Journal of Social and Personal Relationships*, *37* (5), 1722-1742.
[7] Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of personality and social psychology*, *58* (4), 644.
[8] Feeney, J. A. (1999). Adult romantic attachment and couple relationships.
[9] Hadden, B. W., Smith, C. V., & Webster, G. D. (2014). Relationship duration moderates associations between attachment and relationship quality: Meta-analytic support for the temporal adult romantic attachment model. *Personality and Social Psychology Review*, *18* (1), 42-58.
[10] Heyman, R. E., Sayers, S. L., & Bellack, A. S. (1994). Global marital satisfaction versus marital adjustment: An empirical comparison of three measures. *Journal of Family Psychology*, *8* (4), 432.
[11] Li, T., & Chan, D. K. S. (2012). How anxious and avoidant attachment affect romantic relationship quality differently: A meta-analytic review. *European journal of social psychology*, *42* (4), 406-419.
[12] Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: perfectionism, conflict, and depression in romantic relationships. *Journal of Family Psychology*, *26* (2), 215.
[13] Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of personality and social psychology*, *59* (5), 971.
[14] Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 15-28.
[15] Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The Experiences in Close Relationship Scale (ECR)-short form: Reliability, validity, and factor structure. *Journal of personality assessment*, *88* (2), 187-204.

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Manuscript

Effects of Adult Attachment Orientations on Quality of Romantic Relationships; The Mediating Role of Manipulation

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Abstract

The present study sought to examine the mediating role of several manipulation tactics as well as the general use of manipulation in the link between adult attachment dimensions and quality of romantic relationships in a sample of 340 romantically active adults. Regression analyses as well as Structural Equation Modelling techniques (SEM), revealed that indeed, manipulation partially mediated the relationship of both adult attachment anxiety and avoidance with quality of romantic relationship even when controlling for the relationship between the predictors. SEM allowed a more in-depth examination of individual relationships of adult attachment dimensions revealing that manipulation tactics indirectly affect areas of romantic relationships both positively (e.g. Charm and Sweet-talking) and negatively (e.g. Abandonment Threats) with the SEM models providing good fit. It was concluded that manipulation indeed has an important partially mediating role in the ways that adult attachment dimensions affect the quality of romantic relationships. The present research provides interesting new insights in psychological research, implicating manipulative endeavours as potential manifestations of the adult attachment behavioural activation system.

Introduction

Attachment theory is undoubtedly one of the most widely used conceptual frameworks in the scientific study of individual differences and the development and maintenance of close relationships. It has been repeatedly supported that the primary purpose of the attachment system is biological in nature, conferring survival advantages for vulnerable individuals (e.g. infants or children) through the maintenance of proximity with caregivers [1-3]. In turn, support and protection from caregivers would ensure surviving to reproductive age permitting the genes responsible for the attachment system to be passed on [4-5]. It has been postulated that these early attachment experiences continue to play a vital role across the lifespan, especially in times of distress, shaping expectations, attitudes, beliefs, and behaviours in future relationships [1-3].

Early caregiving experiences are considered responsible for guiding individuals through the interpersonal world through the formation of cognitive schemas for the self and others; also known as internal working models [6-7]. If attachment figures are experienced as consistently available and sensitive towards signals of distress, individuals form secure attachments by internalizing the perception that others are responsive, caring, and trustworthy. This leads to a positive internal working model of self, since the individual feels more valued, competent, and confident because care needs are met, and distress is regulated [8-9]. Secure attachment fosters the development of social competencies, necessary to establish and maintain supportive and trusting relationships [10-12]. On the other hand, if attachment figures are unresponsive, rejecting or abusive, the individual internalizes negative internal working models of others (e.g. untrustworthy and unreliable) and negative working models of the self as unworthy [8-9]. This promotes the development of ineffective distress regulation strategies, and it has been shown to interfere with the development of vital social competencies [10-12].

The attachment system and internal working models formed by early caregiving relationships have been shown to remain rather stable across the lifespan when they are not challenged by new experiences. Thus, they continue to serve as a template for expectations, beliefs and behaviours in adult relationships, especially romantic ones [12-14] which are vital for mental health and general well-being [15-17]. Scientists primarily examine the attachment system in adulthood as individual difference variations across two orthogonal dimensions, namely; adult attachment anxiety and adult attachment avoidance [18-21]. In this two-dimensional space, people exhibiting secure attachments demonstrate low levels of both attachment anxiety and avoidance while insecurely attached individuals exhibit elevated levels of either anxiety (leading to emotionally hyper-activating regulatory strategies), avoidance (leading to emotionally de-activating strategies) or both. Hyper-activating strategies include active and energetic attempts to elicit support through the use of coercive, clinging and controlling behaviours [22-23]. De-activating strategies mainly involve the suppression of processes which evoke feelings of vulnerability by maintaining social withdrawal, self-reliance, and independence [24-25].

Attachment anxiety is associated with negative internal models of self, leading to an elevated degree of worry sensitivity when it comes to being unappreciated or abandoned. This results in a decreased sense of relationship security and to regulate these unwanted feelings of distress, people with attachment anxiety remain vigilant to signs of rejection and abandonment [26-27]. Since their distress is amplified through the activation of their attachment system and negative working models, they work hard to maintain proximity with the attachment figure and exaggerate negative emotions when they fail to succeed in obtaining proximity [28-30]. This may lead towards actions that smother or drive partners away, validating the distress caused by their escalating concerns, explaining why anxious individuals have less satisfying relationships of poorer quality [31-35].

In contrast, attachment avoidance marks the deactivation of the attachment system under threat, refraining from proximity-seeking behaviours since negative models of others are predominant viewing attachment figures as futile [36-37]. Thus, they distance themselves from others, refrain from intimate behaviours and use suppressing defences to disconnect themselves from their emotions and others, validating the need for autonomy and independence, damaging the relationship's quality [38].

Although research on the ways in which the adult attachment system guides thoughts and emotions is extensive, little scientific emphasis has been placed upon the ways in which behavioural components impact relationships and therefore the well-being and mental health of individuals. Although the effects of adult attachment anxiety and avoidance are well-documented and extensively studied with regards to emotional regulation and internal cognitive processes, little is known as to subtle everyday behavioural components of how these dimensions may negatively impact romantic relationships. Although literature suggests that due to poorer self-regulation, attachment anxiety and avoidance relates closely to poor conflict resolution and anger [39-40], research has yet to examine a wider variety of behaviours which may be by-products of the attachment system, present in daily life such as tactics of manipulation to influence, coerce or control partners to deal with or avert relationship threats such as abandonment and/or rejection.

According to Buss, manipulation as a form of communication may be advantageous for reproductive relationships in attracting potential mates as well as encouraging wanted behaviours (behavioural instigation) and discouraging unwanted ones (behavioural termination) [41-43]. The nature of manipulation in romantic relationships could be either malicious or benign and it has been shown to share close links to Machiavellianism and Psychopathy [44], personality traits that have been previously associated to attachment insecurity [45].

Understanding how these manipulative endeavours affect the quality of relationships is imperative to facilitate the scientific exploration of their properties and help determine whether such behaviours are embedded in the adult attachment system, possibly as behavioural emotional regulation strategies. Determining the ways in which they mediate the relationship between adult attachment and quality of romantic relationships will help guide clinical practice and promote greater quality in couple relationships. Specifically, understanding mechanisms that may mediate this relationship may promote a faster relief for couples by guiding the scientific focus to such behaviours which may be easier to address and alter in couples therapy when compared to the marked stability and therapeutic resistance associated with the attachment system [46].

The primary aim of the present study is to examine whether these tactics mediate the relationship between adult attachment orientations and quality of romantic relationships. Since it constitutes an unexplored area of scientific inquiry, it is not yet known whether manipulation tactics exert any influence, positive or negative towards relationship quality. However, if they do in fact mediate the influence of adult attachment dimensions on quality of relationships, this will provide valuable new information when it comes to targeting these behaviours, helping researchers to further explore similar subtle behavioural components that negatively impact the quality of relationships.

Methods

Participants

Eligible participants were adults who had been involved at least once in a romantic relationship with the capacity to comprehend and complete self-administered questionnaires. Exclusion criteria included drug abuse, psychosis, cognitive impairment and major disorders

of the central nervous system (e.g. Alzheimer's disease etc.) that would affect accurate self-reports and/or deliberate participation. Participants were 340 subjects, 260 women (76.5%) and 80 men (23.5%). The sample was constituted by 86 undergraduate students (25.3%), 199 postgraduate students (58.5%) and 55 members of academic staff (16.2%) from various Greek academic institutions with a mean age of 31.92 years (SD=7,33 years; range= 18-59 years). The majority of 137 were involved in an exclusive relationship (40.3%), 104 were single (30.6%), 56 were married (16.5%), 25 were divorced (7.4%) and 18 reported being in an open relationship (5.3%). Heterosexual subjects were 303 (89.1%), 25 were bisexual (7,4%) and 12 were homosexual (3.5%). Subjects were recruited through online ads posted in university student and staff associations. Their contribution was voluntary, and anonymity was provided. Informed consent was obtained prior to their participation adhering to the declaration of Helsinki. The study was approved by the Ethical Committee of the Greek Institute of Clinical Psychology, Athens.

Measures

All participants were administered the Greek versions of the MATRRESS (Manipulation Tactics in Romantic Relationships Scale), the ECR-S (Experiences in Close Relationships Scale; Short Version) and the QUARRELS (Quality of Romantic Relationship Scale) in pen and paper format. Respondents completed the questionnaires in a fixed order (the e-signature consent form, a detailed statement regarding study objectives and participant rights, the socio-demographic questionnaire, the MATRRESS, the ECR-Short Version and the QUARRELS).

- The MAnipulation Tactics in Romantic RELationshipS Scale (MATRRESS). The MATRRESS [44] includes 32 items depicting manipulation attempts employed within the context of romantic relationships. It is a multi-dimensional construct designed to

assess 8 distinct and reliable manipulation tactics sought to control, coerce, or influence romantic partners;

1. Charm and Sweet-talking (CHSW); Using charm, flattery, and compliments.
2. Coercive Distance/ Silent Treatment (CDST); Distancing oneself and ignoring the partner or refraining from interacting with him or her.
3. Induction to Jealousy (IJ); Deliberately showing signs that one is desirable by other romantic candidates or comparing the partner to other candidates to induce jealousy.
4. Abandonment Threats (AT); Threatening to abandon the partner or showing signs that a break-up may be imminent.
5. Induction to Guilt (IG); Appearing more vulnerable, playing the victim or fake-crying to induce guilt.
6. Self-harm Threats (SH); Deliberately appearing self-destructive or suicidal.
7. Deflation of Self-esteem (DS); Strategically sabotaging partner's self-esteem.
8. Dividing and Conquering (DC); Strategically removing external social influences and sabotaging social support systems of the partner.

Each item is rated on a 4-point Likert scale and total manipulation score is calculated by averaging participants' scores across all 32 items. Its convergent validity has been demonstrated via strong and medium positive correlations with measures of Emotional Manipulation, Machiavellianism and Psychopathy for individual tactics as well as overall MATRRESS scores and it has shown satisfactory test-retest stability. In the present study, the MATRRESS showed an almost excellent internal consistency of α=.89.

- The ECR-Short Version (Experiences in Close Relationships Scale; Short Version). The ECR–Short Version [47] was developed by selecting 12 representative items from the original ECR [48] with 6 items comprising each adult attachment dimension (adult attachment anxiety and avoidance). Items are rated on a 7-point Likert scale

and it has excellent convergent validity with the original ECR (r=.95) [47]. Moreover, its construct validity has been supported by correlations with assessments of Reassurance Seeking and various Depression measures.

- The QUAlity of Romantic RELationships Scale (QUARRELS). The QUARRELS [49] is a self-report scale designed to explicitly measure quality of romantic relationships as a distinct variable from relationship satisfaction and adjustment. It has 24 items which constitute 6 reliable factors of relationship quality with 4 items each;

  1. Support; The mutual exchange of care and tendency to count on one another.
  2. Emotional Intimacy; The mutual exchange of verbal and physical affection.
  3. Sexual Intimacy; Chemistry as well as feelings of warmth and closeness during sex.
  4. Rapport; Positive emotions and degree of comfort experienced during shared time.
  5. Pacifism; A sense of collectiveness and tendency to resolve conflicts effectively.
  6. Trust. The certainty that commitment or exclusivity in the relationship is maintained.

Total QUARRELS score is calculated by averaging participants scores across all 24 items and the higher the score the higher the quality of romantic relationship. Both individual factors as well as the composite score of the QUARRELS have been shown to share significant negative correlations with both attachment anxiety and avoidance. In the present study, the QUARRELS showed excellent internal consistency of α=.92.

Statistical Procedures

Initially, differences based on gender, sexual orientation and relationship status were examined. Moreover, correlations between age and individual manipulation tactics as well as the composite score of the QUARRELS and the MATRRESS were assessed. Prior to mediation analyses of distinct manipulation tactics in the relationship between attachment dimensions and quality of romantic relationship, zero-order correlations were calculated

among the predictors (Adult Attachment Dimensions), the suggested mediators (Manipulation Tactics) and the composite score of the outcome variable (QUARRELS score). Then, manipulation tactics which exhibited significant correlations were tested for mediation using the bootstrapping approach of the bias-corrected bootstrap method to deal with non-normality since it has been found to perform better than any other approach [50-51]. Finally, a structural equation model (SEM) was designed to assess the mediating relationship of overall manipulation on quality of romantic relationships after accounting for the correlation between the predictors (adult attachment dimensions). Two additional SEMs were employed to separately explore the relationship between adult attachment anxiety and avoidance and its specific effects on QUARRELS factors through manipulation tactics and fit indices were examined. Descriptive statistics were performed using IBM SPSS version 24, mediation-regression analyses were calculated using the Jamovi software and for SEM procedures IBM SPSS Amos version 23 was used.

Results

Descriptive Statistics

Zero-order correlation coefficients among adult attachment dimension scores, the composite score of the QUARRELS, the MATRRESS and individual manipulation tactics were calculated. These are presented in Table 1. with descriptive statistics and Cronbach's alphas for the measures employed. As expected, the negative relationship between adult attachment anxiety and avoidance with the QUARRELS score was significant ($r=-.35$; $p<.01$; $r=-53$; $p<.01$, respectively) and correlations between adult attachment dimensions and manipulation tactics ranged from -.24 to .37. Adult attachment anxiety was significantly related to every manipulation tactic with correlations ranging from .15 to .23, while adult attachment avoidance correlated with manipulation tactics at a range of -.24 to .37 but shared

no significant relationship with Induction to Guilt (r=.06; p>.05) and Dividing and Conquering (r=.02, p>.05). Further, Dividing and Conquering seemed to be the only manipulation tactic that did not share a significant relationship with Quality of Romantic Relationships (r=.02; p>.05) while the remaining 7 manipulation tactics significantly correlated to QUARRELS from -.29 to 19.

Gender differences revealed that women scored significantly higher in Adult Attachment Anxiety with t(338)=-2.375, D=-.38 p<.05, while there was no significant difference in Adult Attachment Avoidance t(338)=-.563, D=-.084, p>.05. No significant differences were also found for the QUARRELS score with t(338)=1,112, D=.141, p>.05. As far as manipulation tactics were concerned, women scored higher in Abandonment Threats with t(176.225)= -2,930, D=-.249. p<.01, while men scored higher in Dividing and Conquering with t(338)=3.373, d=.225, p<.01. There were significant differences in Adult Attachment Avoidance, QUARREL score and the manipulation tactic of Charm and Sweet-talking based on sexual orientation (F(2,337)=5.871, p<01; F(2,337)=3.891, p<.05 and F(2,337)=3.391, p<.05, respectively). Based on Tukey's test, bisexual participants exhibited significantly higher levels of Adult Attachment Avoidance compared to heterosexual (D=.63) and homosexual participants (D=1.31) who did not significantly differ. Tukey's test also suggested that bisexual participants exhibited significantly lower QUARRELS scores compared to heterosexual (D=-.506) and homosexual participants (D=-.844) and also scored significantly lower than heterosexual participants in Charm and Sweet-talking (D=-.401).

As far as relationship status was concerned, participants differed significantly in Adult Attachment Anxiety with F(4,335)=3.674, P<.01. Tukey's test indicated lower levels of adult attachment anxiety for married compared to single (D=-.693) and divorced individuals (d=-.857). Moreover, significant differences were found in adult attachment avoidance with F(4,335)=4.042, p<.01 with singles experiencing greater adult attachment avoidance

compared to those in exclusive relationships (D=.542). Finally, significant differences in QUARRELS score were found with $F(4,335)=5.512$, $p<.01$, with Tukey's test suggesting that participants in exclusive relationships reported higher levels of QUARRELS scores compared to single (D=.359) and divorced participants (D=.693). Scores did not significantly differ across manipulation tactics based on relationship status. Correlations with age revealed that age was not significantly related to any of the variables included in the present study.

Table 1. Descriptive Statistics, Reliabilities and Correlations among Adult Attachment Orientations, Manipulation Tactics and Quality of Romantic Relationship.

N=340	2	3	4	5	6	7	8	9	10	11	12	α	Mean	SD
1. Anxiety	.204**	-.347**	.316**	.151**	.156**	.228**	.198**	.197**	.175**	.217**	.169**	.86	4.24	1.26
2. Avoidance		-.530**	.169**	-.237**	.373**	.141**	.160**	.059	.132**	.119**	.016	.82	3.05	1.16
3. QUARRELS			-.263**	.190**	-.265**	-.222**	-.277**	.145**	-.289**	-.182**	-.065	.93	5.16	.99
4. MATRRESS				.259**	.600**	.725**	.743**	.647**	.514**	.653**	.554**	.89	1.71	.39
5. Charm & Sweet-talking					.120*	.174**	-.039	.085	-.044	.113*	.118**	.83	2.92	.75
6. Coercive Distance/ Silent Treatment						.411**	.500**	.189**	.129**	.366**	.149**	.87	1.97	.81
7. Induction to Jealousy							.556**	.273**	.211**	.413**	.319**	.82	1.61	.66
8. Abandonment Threats								.340**	.241**	.486**	.289**	.85	1.66	.79
9. Induction to Guilt									.512**	.393**	.343**	.85	1.53	.69
10. Self-harm Threats										.264**	.256**	.90	1.19	.50
11. Deflation of Self-esteem											.325**	.89	1.38	.60
12. Dividing and Conquering												.72	1.43	.53

*p<.05, **p<.01

Note. Anxiety= Adult Attachment Anxiety; Avoidance= Adult Attachment Avoidance; QUARRELS=Quality of Romantic Relationship; MATRRESS=Overall Use of Manipulation Tactics

The manipulation tactic of Dividing and Conquering did not meet the assumption of sharing a significant relationship with the outcome variable. Similarly, Induction to Guilt did not share a significant relationship with adult attachment avoidance. Thus, Dividing and

Conquering was excluded from further mediation analyses as was Induction to Guilt from mediation testing when using adult attachment avoidance as the predictor.

A series of regression analyses assessing the mediating role of individual manipulation tactics as well as total manipulation (MATRRESS score) revealed that Charm and Sweet-talking was the only positive partial mediator in the adult attachment anxiety – QUARRELS (Quality of Romantic Relationship) link, indicating that its presence reduces the negative effect of adult attachment anxiety on quality of romantic relationships (see table 2). There were also significant but negative partial mediations for Coercive Distance/ Silent Treatment, Induction to Jealousy, Abandonment Threats, Self-harm Threats and Deflation of Self-esteem explaining from 7.04% to 12.40% of the variance in the Adult Attachment Anxiety- QUARRELS relationship (see table 2). Finally, as it may be seen in table 2., overall use of manipulation tactics (MATRRESS score) was also a significant partial mediator in this relationship. Induction to Guilt did not seem to mediate the relationship between the predictor and outcome.

Table 2. Mediation Estimates of Manipulation in the Adult Attachment Anxiety and QUARRELS relationship.

N=340			Corrected Bias 95% CI		Adult Attachment Anxiety–QUARRELS			
Effect	B	SE	Lower	Upper	z	p	% Explained	Conclusion
Charm and Sweet-talking (CHSW)								
Indirect	.0295	.0140	.0057	.0596	2.11	<.05	8.88	Partial
Direct	-.3026	.0388	-.3833	-.2205	-7.79	<.01	91.12	Mediation
Total	-.2731	.0040	-.3512	-.1918	-6.83	<.01	100	
Coercive Distance/ Silent Treatment (CDST)								
Indirect	-.0266	.0119	-.0521	-.0067	-2.24	<.05	9.75	Partial
Direct	-.2465	.0387	-.3232	-.1675	-6.37	<.01	90.25	Mediation
Total	-.2731	.0390	-.3492	-.1942	-7.01	<.01	100	
Induction to Jealousy (IJ)								
Indirect	-.0272	.0119	-.0544	-.0073	-2.28	<.05	9.95	Partial
Direct	-.2459	.0417	-.3319	-.1680	-5.89	<.01	90.05	Mediation
Total	-2731	.0408	-.3555	-.1941	-6.69	<.01	100	
Abandonment Threats (AT)								
Indirect	-.0338	.0122	-.0607	-.0132	-2.78	<.01	12.4	Partial
Direct	-.2393	.0419	-.3201	-.1544	-5.71	<.01	87.60	Mediation
Total	-.2731	.0405	-.3525	-.1893	-6.74	<.01	100	
Induction to Guilt (IG)								
Indirect	-.0123	.0091	-.0328	.0036	-1.35	>.05	4.51	No

Direct	-.2608	.0399	-.3380	-.1805	-6.54	<.01	95.49	Mediation
Total	-.2731	.0387	-.3459	-.1959	-7.06	<.01	100	
Self-harm Threats (SH)								
Indirect	-.0324	.0127	-.0621	-.0120	-2.55	<.05	11.9	Partial
Direct	-.2407	.0384	-.3175	-.1701	-6.26	<.01	88.10	Mediation
Total	-.2731	.0385	-.3486	-.2044	-7.09	<.01	100	
Deflation of Self-Esteem (DS)								
Indirect	-.0192	.0096	-.0393	-.0022	-1.99	<.05	7.04	Partial
Direct	-.2539	.0414	-.3323	-.1722	-6.13	<.01	92.96	Mediation
Total	-.2731	.0393	-.3469	-.1927	-6.94	<.01	100	
Overall Manipulation (MATRRESS Score)								
Indirect	.0425	.0164	-.0788	-.0139	-2.59	<.01	15.60	Partial
Direct	.2306	.0426	-.3163	-.1471	-5.41	<.01	84.40	Mediation
Total	.2731	.0390	-.3528	-.1970	-7.00	<.01	100	

Note. Mediators in Italics; Abbreviations in parentheses; Bootstrapping at 1000 samples

A second series of regression analyses (see table 2.) assessing the mediations of individual manipulation tactics as well as the total manipulation score (MATRRESS), revealed significant negative partial mediations for Abandonment and Self-harm Threats (explaining 5.54% and 5.70% of the variance in the Adult Attachment Avoidance-QUARRELS relationship). Manipulation tactics such as Charm and Sweet-talking, Coercive Distance/ Silent Treatment, Induction to Jealousy and Deflation of Partner's Self-esteem were not significant mediators of the Adult Attachment Avoidance – QUARRELS relationship (see table 3.). However, as it may be seen in table 3., overall use of manipulation tactics (MATRRESS score) was a significant partial mediator in this relationship.

Table 3. Mediation Estimates of Manipulation in the Adult Attachment Avoidance and QUARRELS relationship.

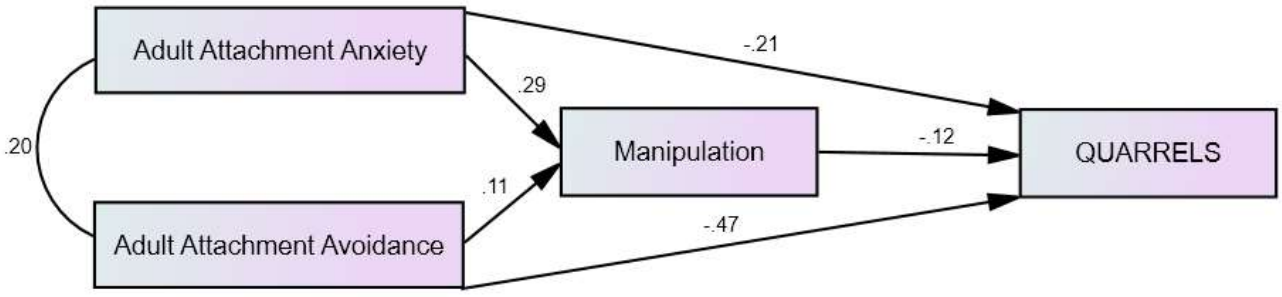
	N=340		Corrected Bias 95% CI		Adult Attachment Avoidance–QUARRELS			
Effect	B	SE	Lower	Upper	z	P	% Explained	Conclusion
Charm and Sweet-talking (CHSW)								
Indirect	.0139	.0121	-.0403	.0074	-1.15	>.05	3.06	No
Direct	.4405	.0402	-.5225	-.3659	-10.95	<.01	96.94	Mediation
Total	.4544	.0387	-.5343	-.3787	-11.76	<.01	100	
Coercive Distance/ Silent Treatment (CDST)								
Indirect	-.0250	.0162	-.0630	.0027	-1.54	>.05	5.50	No
Direct	-.4295	.0394	-.5061	-.3502	-10.90	<.01	94.50	Mediation
Total	-.4544	.0364	-.5270	-.3819	-12.48	<.01	100	
Induction to Jealousy (IJ)								
Indirect	-.0182	.0099	-.0422	-.0017	-1.83	>.05	4.01	No
Direct	-.4362	.0391	-.5141	-.3572	-11.16	<.01	95.99	Mediation
Total	-4544	.0392	-.5332	-.3728	-11.60	<.01	100	
Abandonment Threats (AT)								

Indirect	-.0270	.0122	-.0558	-.0076	-2.21	<.05	5.95	Partial
Direct	-.4274	.0364	-.4935	-.3498	-11.73	<.01	94.05	Mediation
Total	-.4544	.0367	-.5242	-.3830	-12.40	<.01	100	
Self-harm Threats (SH)								
Indirect	-.0252	.0114	-.0490	-.0034	-2.21	<.05	5.54	Partial
Direct	-.4293	.0369	-.5005	-.3539	-11.64	<.01	94.46	Mediation
Total	-.4544	.0380	-.5247	-.3741	-11.95	<.01	100	
Deflation of Self-Esteem (DS)								
Indirect	-.0123	.0065	-.0258	-.1.78e4	-1.90	>.05	2.71	No
Direct	-.4421	.0385	-.5156	-.362	-11.49	<.01	97.29	Mediation
Total	-.4544	.0384	-.5233	-.375	-11.85	<.01	100	
Manipulation Total (MATRRESS)								
Indirect	-.0259	.0107	-.0497	-.0076	-2.43	<.05	5.70	Partial
Direct	-.4285	.0360	-.4962	-.3536	-11.92	<.01	94.30	Mediation
Total	-.4544	.0356	-.5240	-.3801	-12.75	<.01	100	

Note. Mediators in Italics; Abbreviations in parentheses; Bootstrapping at 1000 samples

A secondary exploration of the mediating effect of overall use of manipulation tactics (including Dividing and Conquering and Induction to Guilt) while accounting for the correlation between Adult Attachment Anxiety and Avoidance using SEM (Bias-Corrected Bootstrapping at 1000 samples) revealed that manipulation continued to be a significant partial mediator for both predictors (see Diagram 1.). More specifically, Adult Attachment Anxiety (B=-.169, t=-4.603, p<.05) and Adult Attachment Avoidance (B=-.400, t=10.392, p<.01) continued to negatively predict Quality of Romantic Relationship (QUARRELS). Manipulation independently had a negative effect on QUARRELS (B=-.295, t=-2.509, p<.05) and significantly mediated both the Adult Attachment Anxiety - QUARRELS relationship (B=.091, t=5.612, p<.01) as well as the Adult Attachment Avoidance – QUARRELS relationship (B=.037, t=2.094, p<.05).

Diagram 1. Mediation of Manipulation in the Effect of Adult Attachment Anxiety and Avoidance on QUARRELS



Note. Standardized Estimates; All relationships were significant at .05 level with Bias-Corrected Bootstrapping (1000 samples)

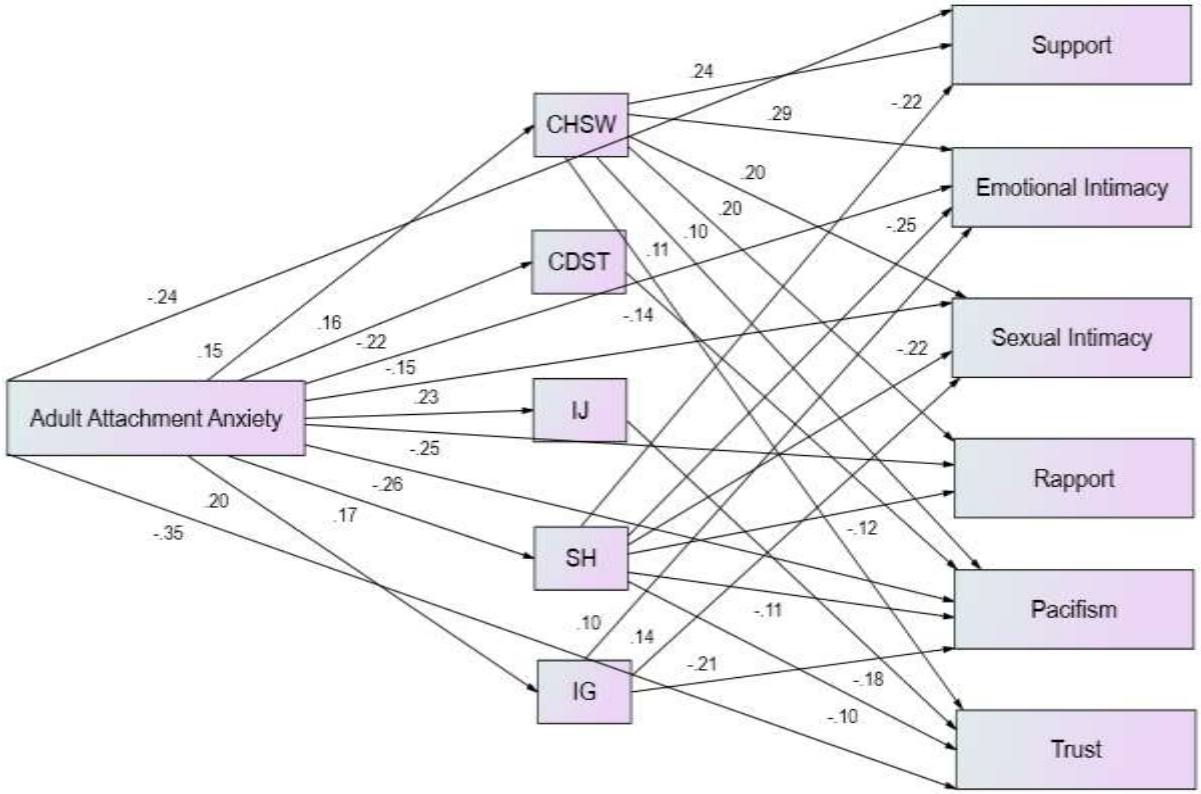
Finally, exploratory SEM analyses were used to better account for individual effects of adult attachment dimensions on QUARRELS' subscales through individual manipulation tactics as it may be seen in diagram 2 & 3. and fit indexes were examined. As it may be seen in table 4, both models had an excellent fit to the data across all fit indices based on suggestions of Schumacker and Lomax (2016).

Table 4. Fit Indices for SEM models of Adult Attachment Anxiety and Avoidance on QUARRELS Factors

Model	CMIN/df	P	CFI	TLI	NFI	RMSEA	PCLOSE	SRMR
Adult Attachment Anxiety	1.068	.382	.999	.997	.990	.014	.903	.032
Adult Attachment Avoidance	1.268	.188	.996	.987	.982	.028	.876	.025

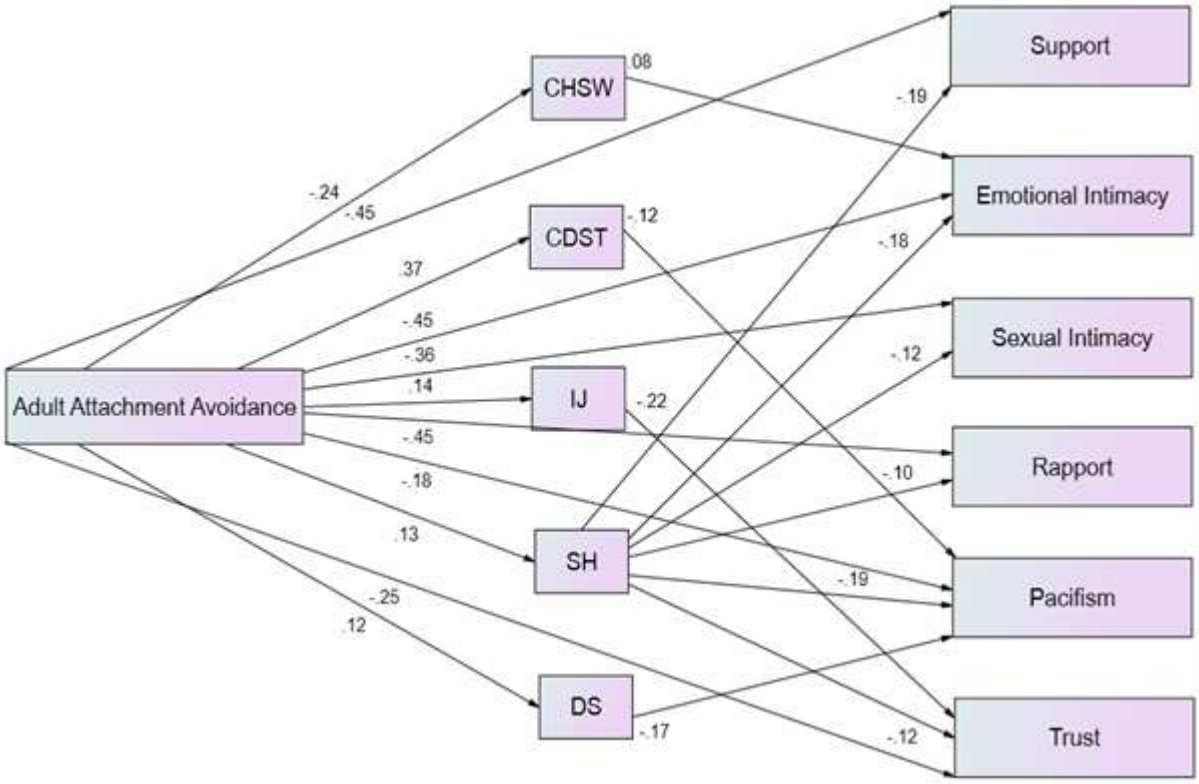
Note. CMIN/df= chi square to df ratio or χ^2/df; p= significance for CMIN/df; CFI= Comparative Fit Index; TLI= Tucker-Lewis Index; NFI= Normed Fit Index; RMSEA= Root Mean Square Error of Approximation; PCLOSE= Close Fit; SRMR= Standardized Root Mean Square Residual.

Diagram 2. Structural Equation Model of the Effect of Adult Attachment Anxiety on QUARRELS factors through Individual Manipulation Tactics.



Note. Standardized Estimates; All relationships were significant at .05 level with Bias-Corrected Bootstrapping (1000 samples)

Diagram 3. Structural Equation Model of the Effect of Adult Attachment Avoidance on QUARRELS factors through Individual Manipulation Tactics.



Note. Standardized Estimates; All relationships were significant at .05 level with Bias-Corrected Bootstrapping (1000 samples)

Discussion

The present research was conducted to examine the mediating role of manipulation and its tactics in the adult attachment orientations-quality of romantic relationship link. Results revealed that indeed, several manipulation tactics as well as general manipulation partially mediated the relationship of both adult attachment anxiety and avoidance with quality of romantic relationship even when controlling for the correlation between the predictors. Adult attachment dimensions, regardless of manipulation continue to exert significant direct influence on quality of romantic relationship. Manipulation and its tactics operate indirectly affecting positively the romantic relationship when using Charm and Sweet-talking, and negatively when using Coercive Distance/ Silent Treatment, Induction to Jealousy, Abandonment Threats, Self-harm Threats and Deflation of Self-Esteem. When closely examined, Induction to Guilt did negatively impact Pacifism in relationships but also

produced significant benefits for Sexual and Emotional Intimacy. Dividing and Conquering had no direct or indirect effect to quality of romantic relationship possibly due to its highly strategic nature.

Overall, the results of the study were consistent with theories of the behavioural activation system of adult attachment. Adult attachment anxiety appeared to be more highly related to general use of manipulation than adult attachment avoidance and was positively related to a wider repertoire of manipulation tactics as measured by the MATRRESS. This could be explained by the hyper-activation of the attachment system, linking attachment anxiety with more active efforts to deal with distress. On the other hand, attachment avoidance seemed to relate with tactics which involve a certain degree of withdrawal and/or negative models of others (e.g. Coercive Distance/ Silent Treatment, Induction to Jealousy, Abandonment Threats, Self-harm Threats and Deflation of Self-esteem) refraining from the use of tactics that promote vulnerability (Induction to Guilt) or active approach of partners (Charm and Sweet-talking) with which it was negatively related.

Although the results of the present study are in congruence with attachment theory, it should be noted that the present research concerns exclusively consciously employed manipulation in relationships. To a certain degree, as with other behaviours related to attachment, manipulation could be a not entirely conscious, autonomic response of the adult attachment system, thus influencing participants responses styles. Further research employing a multitude of scientific designs from observations to actor-partner independence models, are needed before broader conclusions are drawn. In addition, although the MATRRESS is a psychometrically sound tool to assess manipulation tactics, it is highly unlikely that it covers the whole spectrum of manipulative behaviours that appear in couples. Thus, extensions of the MATRRESS may bring forward additional tactics for further exploration.

Although manipulation seems to contribute to the effect of the adult attachment system in the quality of romantic relationships, future research should focus on more comprehensive models which would incorporate a differential effect based on type of relationship stressors. For instance, «loss of partner's attention» could lead the behavioural activation system to deploy specific manipulation tactics which, based on experience, are perceived to be more successful when dealing with the stressor at hand. A process which would be supported by the goal-oriented and goal-corrected motivational

system of adult attachment. Moreover, it should identify whether manipulation tactics confer certain benefits in reducing distress in the short run, despite the long-term damage in relationship quality. Finally, future research should examine the role of manipulation tactics which induce positive emotions in buffering or even improving the quality of romantic relationship and may be linked to long-term relationship benefits. Finally, future research could benefit by clinical samples, assessing the degree to which mental health difficulties (e.g. personality disorders) may be associated to the use of manipulation tactics in close relationships since they are characterized by a pervasive pattern of behaviours that negatively affect relationship formation and maintenance.

References

1. BOWLBY, J. Attachment and Loss (vol. 1) Basic Books. *New York*, 1969.

2. BOWLBY, John. Attachment and loss: Volume II: Separation, anxiety and anger. In: *Attachment and loss: Volume II: Separation, anxiety and anger*. London: The Hogarth press and the institute of psycho-analysis, 1973. p. 1-429.

3. BOWLBY, John. Attachment and loss: Volume III: Loss, sadness and depression. In: *Attachment and Loss: Volume III: Loss, Sadness and Depression*. London: The Hogarth press and the institute of psycho-analysis, 1980. p. 1-462.

4. FEENEY, J. A.; CASSIDY, J.; SHAVER, P. R. Handbook of attachment: Theory, research, and clinical applications. 2016.

5. SIMPSON, Jeffry A.; BELSKY, Jay. Attachment theory within a modern evolutionary framework. 2008.

6. COLLINS, Nancy L., et al. Working models of attachment: New developments and emerging themes. 2004.

7. RHOLES, W.; SIMPSON, Jeffry A. *Adult attachment: Theory, research, and clinical implications*. Guilford Publications, 2004.

8. MIKULINCER, Mario; SHAVER, Phillip R. The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. 2003.

9. MIKULINCER, Mario; SHAVER, Phillip R. *Attachment in adulthood: Structure, dynamics, and change*. Guilford Press, 2007.

10. MALLINCKRODT, Brent; WEI, Meifen. Attachment, social competencies, social support, and psychological distress. *Journal of Counseling Psychology*, 2005, 52.3: 358.

11. DITOMMASO, Enrico, et al. Attachment styles, social skills and loneliness in young adults. *Personality and individual differences*, 2003, 35.2: 303-312.

12. CHRIS FRALEY, R. Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and social psychology review*, 2002, 6.2: 123-151.

13. FRALEY, R. Chris, et al. A dynamical systems approach to conceptualizing and studying stability and change in attachment security. *Adult attachment: Theory, research, and clinical implications*, 2004, 86-132.

14. FRALEY, R. Chris, et al. Patterns of stability in adult attachment: an empirical test of two models of continuity and change. *Journal of personality and social psychology*, 2011, 101.5: 974.

15. BRAITHWAITE, Scott R.; DELEVI, Raquel; FINCHAM, Frank D. Romantic relationships and the physical and mental health of college students. *Personal relationships*, 2010, 17.1: 1-12.

16. FROST, David M.; FORRESTER, Cat. Closeness discrepancies in romantic relationships: Implications for relational well-being, stability, and mental health. *Personality and Social Psychology Bulletin*, 2013, 39.4: 456-469.

17. BRAITHWAITE, Scott; HOLT-LUNSTAD, Julianne. Romantic relationships and mental health. *Current Opinion in Psychology*, 2017, 13: 120-125.

18. BRENNAN, Kelly A.; CLARK, Catherine L.; SHAVER, Phillip R. Self-report measurement of adult attachment: An integrative overview. 1998.

19. FRALEY, R. Chris; WALLER, Niels G.; BRENNAN, Kelly A. An item response theory analysis of self-report measures of adult attachment. *Journal of personality and social psychology*, 2000, 78.2: 350.

20. GRIFFIN, Dale W.; BARTHOLOMEW, Kim. Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of personality and social psychology*, 1994, 67.3: 430.

21. SIMPSON, Jeffry A.; RHOLES, W. Steven; PHILLIPS, Dede. Conflict in close relationships: An attachment perspective. *Journal of personality and social psychology*, 1996, 71.5: 899.

22. MIKULINCER, Mario; SHAVER, Phillip R. Attachment orientations and emotion regulation. *Current Opinion in Psychology*, 2019, 25: 6-10.

23. SHAVER, Phillip R.; MIKULINCER, Mario. Attachment-related psychodynamics. *Attachment & human development*, 2002, 4.2: 133-161.

24. KOBAK, R. Rogers; SCEERY, Amy. Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child development*, 1988, 135-146.

25. MIKULINCER, Mario; SHAVER, Phillip R.; PEREG, Dana. Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and emotion*, 2003, 27.2: 77-102.

26. BRETHERTON, Inge; MUNHOLLAND, Kristine A. Internal working models in attachment relationships: Elaborating a central construct in attachment theory. 2008.

27. BEEBE, Beatrice, et al. On the origins of disorganized attachment and internal working models: Paper II. An empirical microanalysis of 4-month mother–infant interaction. *Psychoanalytic dialogues*, 2012, 22.3: 352-374.

28. BARTHOLOMEW, Kim; HOROWITZ, Leonard M. Attachment styles among young adults: a test of a four-category model. *Journal of personality and social psychology*, 1991, 61.2: 226.

29. HAZAN, Cindy; SHAVER, Phillip. Romantic love conceptualized as an attachment process. *Journal of personality and social psychology*, 1987, 52.3: 511.

30. PIETROMONACO, Paula R.; BARRETT, Lisa Feldman. Working models of attachment and daily social interactions. *Journal of personality and social psychology*, 1997, 73.6: 1409.

31. COLLINS, Nancy L.; FEENEY, Brooke C. A safe haven: an attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of personality and social psychology*, 2000, 78.6: 1053.

32. FRALEY, R. Chris; SHAVER, Phillip R. Airport separations: A naturalistic study of adult attachment dynamics in separating couples. *Journal of personality and Social Psychology*, 1998, 75.5: 1198.

33. MONTEOLIVA, Adelaida; GARCÍA-MARTÍNEZ, J. Miguel A. Adult attachment style and its effect on the quality of romantic relationships in Spanish students. *The Journal of social psychology*, 2005, 145.6: 745-747.

34. SIMPSON, Jeffry A., et al. Attachment and the experience and expression of emotions in romantic relationships: a developmental perspective. *Journal of personality and social psychology*, 2007, 92.2: 355.

35. SIMPSON, Jeffry A.; RHOLES, William S.; NELLIGAN, Julia S. Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of personality and social psychology*, 1992, 62.3: 434.

36. BRETHERTON, Inge. New perspectives on attachment relations: Security, communication, and internal working models. 1987.

37. ZIMMERMANN, Peter. Structure and functions of internal working models of attachment and their role for emotion regulation. *Attachment & Human Development*, 1999, 1.3: 291-306.

38. SIMPSON, Jeffry A., et al. Working models of attachment and reactions to different forms of caregiving from romantic partners. *Journal of personality and social psychology*, 2007, 93.3: 466.

39. DUTTON, Donald G., et al. Intimacy-anger and insecure attachment as precursors of abuse in intimate relationships 1. *Journal of applied social psychology*, 1994, 24.15: 1367-1386.

40. MIKULINCER, Mario. Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of personality and social psychology*, 1998, 74.2: 513.

41. BUSS, David M. Manipulation in close relationships: Five personality factors in interactional context. *Journal of personality*, 1992, 60.2: 477-499.

42. BUSS, David M., et al. Tactics of manipulation. *Journal of personality and social psychology*, 1987, 52.6: 1219.

43. BUSS, David M. Selection, evocation, and manipulation. *Journal of personality and social psychology*, 1987, 53.6: 1214.

44. IOANNIDIS, Pavlos. The Development of the MATRRESS; A Multidimensional Scale of Manipulation Tactics in Romantic Relationships. *International Journal of Science and Research* (IJSR), 2021, 10.10: 1510 – 1515

45. BLOXSOM, Claire AJ, et al. Dark shadow of the self: How the Dark Triad and empathy impact parental and intimate adult attachment relationships in women. *Forensic Science International: Mind and Law*, 2021, 2: 100045.

46. FRALEY, R. Chris; ROISMAN, Glenn I. The development of adult attachment styles: Four lessons. *Current opinion in psychology*, 2019, 25: 26-30.

47. WEI, Meifen, et al. The Experiences in Close Relationship Scale (ECR)-short form: Reliability, validity, and factor structure. *Journal of personality assessment*, 2007, 88.2: 187-204.

48. BRENNAN, Kelly A.; CLARK, Catherine L.; SHAVER, Phillip R. Self-report measurement of adult attachment: An integrative overview. 1998.

49. IOANNIDIS, Pavlos; ALVANOU, Anna. QUARRELS; A Multidimensional Assessment of Romantic Relationship Quality and its Relationship to Adult Attachment Dimensions. *International Journal of Science and Research (IJSR)*, 2021, 10.11: 446 – 449

50. CHEUNG, Gordon W.; LAU, Rebecca S. Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational research methods*, 2008, 11.2: 296-325.

51. NG, Marie; LIN, Jingjing. Testing for mediation effects under non-normality and heteroscedasticity: a comparison of classic and modern methods. *International Journal of Quantitative Research in Education*, 2016, 3.1-2: 24-40.