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Abstract

The Investment Model (IM; Rusbult, 1980, 1983) has been widely used to study the development and maintenance of romantic relationships. Its components – satisfaction, quality of alternatives, investment size and commitment – are operationalized in the Investment Model Scale (IMS; Rusbult, Martz, & Agnew, 1998). Given its importance for personal relationships literature, this article presents the adaptation and validation of the IMS to Portugal, and the development and validation of a shorter version, the IMS-S. A confirmatory factor analysis replicates the IMS's original four factors structure. A similar structure was found for the IMS-S. For both versions, results show the instruments to have validity and good reliability. Results are discussed considering the scales' importance for studying romantic relationships.

Keywords

Investment Model Scale; Romantic relationships; Validation; Psychometric properties

Romantic relationships are defined by the experience of positive affect and sexual desire (Moser, 1994), allowing individuals to fill their needs for affiliation and avoid loneliness and/or social anxiety (e.g., Berscheid, 1985; Dwyer, 2000).

In established voluntary romantic relationships, individuals strive to maximize the benefits and minimize the costs of having such relationships (Kelley & Thibaut, 1978). Based on this notion, Rusbult (1980, 1983) proposed the Investment Model (IM), which assumes the level of commitment as central for the happiness and well-being of the couple. In turn, commitment is influenced by the satisfaction felt in the relationship, the perception of less quality among alternatives, and the investments applied in the relationship (referred as its antecedents). The construct of commitment is important not only to theoretical models of love, such as the Triangular Theory of Love (Sternberg, 1986, 1987), but also to predict the maintenance or the abandon of one's romantic relationship (e.g., Le & Agnew, 2003).

Given the importance of the IM to romantic relationships research, this study aims at validating and analyzing the psychometric properties of the Investment Model Scale (IMS; Rusbult, Martz, & Agnew, 1998), as well as at developing and validating a shorter version of this instrument, the IMS-S. The relevance of this study is two-fold: (1) extend the empirical evidence regarding the validation of the IMS to Portugal, and present its shorter version IMS-S, and (2) extend the validation sample to include individuals involved in distinct types of romantic relationships (single in a committed romantic relationship, domestic partnership, married). Furthermore, this study will provide Portuguese-speaking researchers with an important tool to study romantic relationships and the factors that can influence its maintenance or break-up.

The Investment Model (IM)

The IM (Rusbult, 1980, 1983) was originally developed taking into account Kelley and Thibaut's (1978) Interdependence Theory postulates. According to this theory, individuals seek the maximization of rewards and the minimization of costs in their romantic relationships. When individuals perceive a positive balance, i.e., more rewards than costs, the baseline of comparison is high and other potential romantic relationships are not perceived as a threat. Hence, such situation should not lead to question the maintenance of the current relationship. However, when individuals perceive a negative balance, i.e., more costs than rewards, especially when associated with high expectations regarding the relationship, the comparison threshold is lower. As such, alternative relationships may be perceived as more attractive, raising questions regarding the maintenance of the current relationship.

Based on these notions of rewards and costs, Rusbult (1980, 1983) developed a model aimed at explaining how individuals maintain and promote their romantic relationship, and why some individuals decide to leave their current relationship. According to the author, these stay/leave behaviors are related with the level of commitment towards the partner and the romantic relationship. Specifically, commitment reflects the individual's "intent to persist in a relationship, including long-term orientation towards involvement as well as feelings of psychological attachment" (Rusbult, Coolsen, Kirchner, & Clarke, 2006, p. 618). The commitment, in turn, is influenced by satisfaction, perception of quality among alternatives, and investments on the relationship (i.e., the antecedents of commitment; Rusbult et al., 1998). The satisfaction with one's relationship is dependent on the experience of positive affect and

attraction towards the partner, and on the fulfillment of one's basic relational needs (e.g., intimacy). The alternatives refer to any situations, other than being with or spending time with one's partner (e.g., being alone; being with friends; being with another lover). The alternatives are usually external to the relationship and are perceived as having high quality to the extent that they fulfill relational needs that are not being fulfilled with the current partner/relationship. The investments can be intrinsic (e.g., time shared with the partner, disclosure of intimate topics) or extrinsic (e.g., assets acquired together), and correspond to every resource applied to the relationship that would be lost if the relationship ended.

Hence, and according to the IM, an individual is more committed when he/she experiences more satisfaction with the partner and the relationship, when he/she perceives alternative situations/partners as having lesser quality and interest, and when there are more investments applied in the relationship. The importance in studying these components in romantic relationships derives from their importance to the couple's well-being, stability and happiness, being an indicator of the decision to stay or leave one's relationship (e.g., Le & Agnew, 2003; Rusbult et al., 2006). When faced with a situation perceived as a possible threat to the stability of the romantic relationship (e.g., an attractive other; Simpson, Gangestad, & Lerma, 1990), a higher level of commitment can promote a set of stability-protection mechanisms. These include behaviors such as accommodation (rather than retaliation), willingness to sacrifice oneself over the situation, comprehend, justify and/or forgive the partner, derogate potential alternatives, or engage in the construction of positive illusions towards the partner and/or relationship (for an overview, see Rusbult & Righetti, 2009).

Indeed, research has been showing the IM as a robust model to predict the commitment and the decision to stay/leave one's current romantic relationship (see Le & Agnew, 2003 for a meta-analysis). To operationalize the theoretical components of the IM, Rusbult and colleagues (1998) developed the Investment Model Scale (IMS), an objective, valid and reliable instrument.

The Investment Model Scale (IMS)

Originally, the IMS comprises two sets of items associated with the four central constructs of the IM: facet items and global items. Facet items measure the antecedents of commitment – satisfaction, quality of alternatives and investment size. These facet items are included in the IMS to activate in memory and illustrate each of the respective constructs, in order to facilitate its correct apprehension and the response to the global items. The set of global items measure satisfaction, quality of alternatives and investment size, as well as the commitment level towards the relationship.

Results from Rusbult and colleagues' (1998) investigation show that the scale is composed by four correlated factors, corresponding to the four IM's theoretical components, with good indexes of reliability, as well as convergent and discriminant validity. The authors also validated the assumptions of the IM with this scale, as commitment level positively correlated with satisfaction and investment size, and negatively correlated with quality of alternatives. In turn, quality of alternatives negatively correlated with both satisfaction and investment size. In a more detailed analysis, the authors also showed that the satisfaction, quality of alternatives and investment size significantly predicted the level of commitment. Furthermore, a higher

level of commitment, due to a higher satisfaction, the perception of lesser quality in alternatives, and a higher size of investments, was found to be associated with a better functioning on the relationship, a better adjustment between both partners, a higher inclusion of the other in the self, a higher level of trust, and a higher love and liking towards the partner (Rusbult et al., 1998). Apart from the original version, this scale was translated and validated in Canada (Giguère, Fortin, & Sabourin, 2006), and in The Netherlands (Branje, Frijns, Finkenauer, Engels, & Meeus, 2007) with similar results.

Taking this into consideration, we conducted a study to analyze the psychometric properties of the Portuguese version of the IMS, and develop and validate a shorter version of this scale, the IMS-S.

Method

Participants

In this study participated 356 heterosexual individuals (82% female), with ages varying from 17 to 55 years ($M = 27.21$, $SD = 7.49$). All participants were involved in a romantic relationship at the time of their participation, from which 63.2% were single in a committed romantic relationship, 15.2% were in a domestic partnership and 21.6% were legally married. The length of the relationships varied from 1 to 336 months ($M = 64.29$, $SD = 63.90$).

In order to conduct our analyses, we randomly extracted two subsamples from our main sample: (1) the first subsample, with approximately 65% of the cases, was used for the confirmatory factor analysis of the IMS, and consisted of 228 heterosexual

participants (82% female; $M_{\text{Age}} = 27.52$ years, $SD = 7.86$); and (2) the second subsample, with approximately 35% of the cases, was the focus of the confirmatory factor analysis of the IMS-S, and comprised 128 heterosexual participants (83.6% female; $M_{\text{Age}} = 25.94$ years, $SD = 6.15$).

Instrument

The original IMS (Rusbult et al., 1998) has a total of 37 items (22 global items and 15 facet items) divided in four sets of questions, each corresponding to one of the IM components. Satisfaction level is measured by a total of 10 items: five facet items (e.g., “*My partner fulfills my needs for intimacy [sharing personal thoughts, secrets, etc.]*”) with a high level of reliability ($.79 < \alpha < .93$), followed by five global items (e.g., “*I feel satisfied with our relationship*”), also with high reliability ($.92 < \alpha < .95$). Quality of alternatives is measured by a total of 10 items: five facet items (e.g., “*My needs for intimacy [sharing personal thoughts, secrets, etc.] could be fulfilled in alternative relationships*”) with high reliability ($.88 < \alpha < .93$), followed by five global items (e.g., “*The people other than my partner with whom I might become involved are very appealing*”), also with a high level of reliability ($.82 < \alpha < .88$). Similarly, investment size is measured by a total of 10 items: five facet items (e.g., “*I have invested a great deal of time in our relationship*”) with high reliability ($.73 < \alpha < .84$), followed by five global items (e.g., “*I have put a great deal into our relationship that I would lose if the relationship were to end*”), also with high reliability ($.82 < \alpha < .84$). Finally, commitment level is assessed through seven global items (e.g., “*I want our relationship to last for a very long time*”) with a high level of reliability ($.91 < \alpha < .95$). Originally,

responses to the facet items are given in five-point scales, varying from 1 = *Do not agree at all* to 5 = *Agree completely*, while responses to the global items are given on nine-point scales, varying from 0 = *Do not agree at all* to 8 = *Agree completely*.

In the present research, the original items of the IMS were submitted to a translation – back-translation process. All the items were translated to Portuguese by a team of social psychologists and disagreements were resolved through discussion (approximately 95% level of agreement between judges). A Portuguese native speaker with residence in the US made the back-translation of the items to their original language, compared the final and the original items and adjusted any discrepancy in order to converge with the original items. Also, the response scales of both facet and global items were standardized to seven-point scales, varying from 1 = *Do not agree at all* to 7 = *Agree completely*.

Procedure

The items of the IMS were inserted on Qualtrics web platform (<http://www.qualtrics.com/>), and the resulting hyperlink for the on-line questionnaire was published in social network sites and sent by e-mail to mailing lists. By clicking on the hyperlink, participants were informed they would be taking part in a study about interpersonal relationships, more specifically on the dynamics that can be established between partners in a romantic relationship. The questionnaire started with a set of questions to characterize the sample of participants (age, type of relationship, length of the relationship), followed by the items of the IMS, and then a second set of questions to further characterize the sample of participants (sexual orientation). At the end,

participants were presented with a screen thanking their collaboration, and were given an email address to contact the research team in order to obtain further information or place questions/comments regarding the study. There was no time limit to fill-in the questionnaires, and mean time of response for the whole questionnaire was about 16 minutes. Only complete questionnaires were retained for further analyses (approximately 90% of collected questionnaires).

Results

Overview

Given the stability of the factorial solution of the IMS (cf., Branje et al., 2007; Giguère et al., 2006; Rusbult et al., 1998), we opted to test its original four-factor structure using a confirmatory factor analysis (CFA). A separate CFA was also conducted using facet items solely. Reliability analyses followed these procedures. Furthermore, we analyzed the correlations between facet and global items. Further down we present the IMS-S development, the test of its factorial structure using a CFA and reliability analyses of the factors. Finally, the association between factors in both the IMS and the IMS-S factors was determined.

IMS Construct Validity

Confirmatory factor analysis.

The first subsample of participants was used for CFA purposes, aimed at testing the original IMS structure as well as an alternative structure. Thus, we tested the four factors structure underlying the 22 global items of the IMS by calculating fit indexes on a four correlated factors model (our hypothesized model), and on a totally uncorrelated model (the alternative model) using Mplus (Muthén & Muthén, 2010). Relative and absolute goodness of fit indexes were obtained: (a) the chi-squared statistic (χ^2 and χ^2/df), (b) the comparative fit index (CFI), (c) the Tucker–Lewis Index (TLI), (d) the root mean square error of approximation (RMSEA), and (e) the standardized root mean squared residual (SMSR). Based on the standards established in the literature for fit indexes (Bentler, 1990; Browne & Cudeck, 1986; Jöreskog & Sörbom, 1984), our hypothesized model shows acceptable fits, $\chi^2 = 404.07$, $\chi^2/\text{df} = 2.00$, CFI = .94, TLI = .93, RMSEA = .07 (CI: .06; .08), and SMSR = .07, with moderate to high standardized regression paths between the items and their latent factors (λ s varying from .46 to .94), and latent factors correlations varying from moderate to high (ϕ s from -.36 to .75). The uncorrelated model presented poorer fit indexes, $\chi^2 = 612.35$, $\chi^2/\text{df} = 2.94$, CFI = .87, TLI = .86, RMSEA = .09 (CI: .08; .10) and SMSR = .22, thus emerging as an inadequate alternative model for the structure underlying the IMS.

Correlation between global and facet items

As previously noted, the IMS comprises a set of facet items in each of the model antecedent's subscales. According to Rusbult et al. (1998), these 15 facet items serve to illustrate and activate in memory the constructs measured by the global items in their respective subscale. As such facet items allow enhancing the comprehensibility, validity and reliability of the constructs underlying satisfaction, quality of alternatives and investment as measured by global items. The authors argue that a three-factor structure underlies these facet items. We ran a CFA to test this structure on the first subsample of participants. Furthermore, and given Rusbult et al.'s (1998) original proposal, facet and global items are expected to correlate within each IMS subscale. We analyzed this pattern of correlations in order to provide further evidence for the IMS construct validity.

We ran a CFA with the IMS facet items and calculated the fit indexes of two distinct models using Mplus: a three correlated factors model (our hypothesized model), and a totally uncorrelated model (the alternative model). Relative and absolute goodness of fit indexes were obtained: (a) χ^2 and χ^2/df , (b) CFI, (c) TLI, (d) RMSEA, and (e) SMSR. Based on the standards established in the literature for fit indexes (Bentler, 1990; Browne & Cudeck, 1986; Jöreskog & Sörbom, 1984), our hypothesized model shows acceptable fits, $\chi^2 = 182.14$, $\chi^2/df = 2.14$, CFI = .94, TLI = .93, RMSEA = .07 (CI: .06; .09) and SMSR = .06, with moderate to high standardized regression paths between the items and their latent factors (λ s varying from .41 to .94), and latent factors correlations varying from moderate to high (ϕ s from -.20 to .56). The uncorrelated model presented

poorer fit indexes, $\chi^2 = 240.11$, $\chi^2/df = 2.73$, CFI = .91, TLI = .89, SMSR = .09 (CI: .07; .10) and SRMR = .14.

Cronbach's alphas reveal high reliability for satisfaction (.89), quality of alternatives (.88), and investment size (.72). Furthermore, the corrected item-total of the factor correlations show that each item contributed to the reliability of its respective factor: $.58 < r < .80$ for satisfaction; $.44 < r < .83$ for quality of alternatives; and $.43 < r < .64$ for investment size.

Converging with the expected correlations between both types of items within each IMS subscale, our results show that the facet and global items are highly correlated in each factor: satisfaction, $r = .90$, $p < .001$, quality of alternatives, $r = .58$, $p < .001$, and investment size, $r = .61$, $p < .001$.

Development of the IMS-S and Construct Validity

Based on Lehmler and Agnew (2008), we also developed a short version of the IMS, the IMS-S. Following the authors' procedure, and respecting the proportion of items within each IMS subscale, we selected three items for each of the antecedents' subscales and four items for the commitment subscale. This selection was based on the CFA paths between each item and their respective factor. Hence, for the antecedents of commitment we selected the three items with the higher standardized regression paths between the items and their latent factors. Specifically, for satisfaction we selected the items 2 ($\lambda = .93$), 4 ($\lambda = .93$), and 5 ($\lambda = .94$); for quality of alternatives we selected the items 2 ($\lambda = .74$), 5 ($\lambda = .86$), and 6 ($\lambda = .74$); and for investment size we selected items 2 ($\lambda = .84$), 3 ($\lambda = .90$), and 4 ($\lambda = .58$). In addition, and regarding commitment, four

items with the highest correlation were selected, i.e., items 1 ($\lambda = .86$), 2 ($\lambda = .75$), 6 ($\lambda = .89$), and 7 ($\lambda = .81$). In its final versions, the IMS-S comprises a total of 13 items.

Confirmatory factor analysis.

Using the second and independent random subsample of participants, we ran two CFAs in Mplus testing a correlated four factors model (our hypothesized model) and an uncorrelated four factors model (the alternative model). Relative and absolute goodness of fit indexes were obtained: (a) χ^2 and χ^2/df , (b) CFI, (c) TLI, (d) RMSEA, and (e) SMSR. Based on the standards established in the literature for fit indexes (Bentler, 1990; Browne & Cudeck, 1986; Jöreskog & Sörbom, 1984), our hypothesized model shows acceptable fits, $\chi^2 = 99.03$, $\chi^2/\text{df} = 1.68$, CFI = .95, TLI = .93, RMSEA = .07 (CI: .05; .10), and SMSR = .06, with moderate to high standardized regression paths between the items and their latent factors (λ s varying from .38 to .93), and latent factors correlations varying from moderate to high (ϕ s from -.51 to .63). The uncorrelated model presented poorer fit indexes, $\chi^2 = 189.71$, $\chi^2/\text{df} = 2.92$, CFI = .84, TLI = .81, RMSEA = .12 (CI: .10; .14) and SMSR = .24.

Further analyses reveal each factor of the IMS-S to have high reliability, as shown by the Cronbach's alpha for satisfaction (.94), quality of alternatives (.80), investment size (.82), and commitment (.89). Testifying for the internal consistency of the items comprising each factor, results also show high corrected item-total correlations with each factor: $.87 < r < .89$ for satisfaction; $.60 < r < .70$ for quality of alternatives; $.53 < r < .77$ for investment size; and $.64 < r < .84$ for commitment.

Association Between IMS and IMS-S Factors

Based on the IM postulates, we analyzed the pattern of correlations between the factors comprising the IMS global items. Converging with the results from Rusbult and colleagues (1998), our results show that satisfaction was negatively correlated with quality of alternatives, $r = -.27, p < .001$, and positively correlated with investment size, $r = .16, p = .002$, while quality of alternatives was negatively correlated to investment size, $r = -.15, p = .004$. Similarly, the pattern of correlations between commitment level and its antecedents replicated the postulated by the IM. Specifically, commitment was found to be positively correlated with satisfaction, $r = .71, p < .001$, and with investment size, $r = .25, p < .001$, while negatively correlated with quality of alternatives, $r = -.40, p < .001$.

We also analyzed the pattern of correlations between the IMS-S factors. Similarly to the IMS, we found satisfaction to be negatively correlated to quality of alternatives, $r = -.29, p < .001$, and positively correlated to investment size, $r = .15, p = .004$, while quality of alternatives was negatively correlated to investment size, $r = -.20, p < .001$. Furthermore, the commitment level was found to be positively correlated to both satisfaction, $r = .68, p < .001$, and investment size, $r = .30, p < .001$, and negatively correlated with quality of alternatives, $r = -.35, p < .001$.

Discussion

The objective of this research was to obtain the main psychometric properties of the IMS (Rusbult et al., 1998) and of a short version of this instrument, the IMS-S.

Compared to previous publications regarding the IMS, the innovation of the present article was twofold: (1) extend the available empirical evidence regarding the IMS and develop the IMS-S; and (2) extend the validation sample to include individuals involved in different types of romantic relationships. The original scale was developed in order to reliably measure the factors of the IM (Rusbult, 1980, 1983), that is, assess the satisfaction with one's romantic partner, the perception of quality among the available alternatives, the size of the investments applied in the relationship, and the commitment level towards one's romantic relationship.

Taken together, our results suggest the Portuguese version of the IMS to have good psychometric properties, namely adequate construct validity and reliability. A CFA shows the adequacy of our results to both the original factorial structure (Rusbult et al., 1998), as well as the structure obtained in subsequent validations of the IMS (Braje et al., 2007; Giguère and et al., 2006). Moreover, our results show the expected pattern of correlations between the different IMS factors, replicating the IM postulates regarding the different predictors of relationship commitment, as well as convergence between facet and global items of the antecedents of commitment (cf., Rusbult et al., 1998).

Furthermore, we developed a shorter version of the IMS, the IMS-S, based on the procedure presented by Lehmler and Agnew (2008). This shorter version comprises 13 items, and results also show the IMS-S as having good psychometric properties, validity and reliability. Indeed, we found good fit indexes regarding the four factors theoretical model underlying the original IMS structure, as well as high internal consistency and the expected correlations between commitment and its antecedents.

In the present study we were not able to conduct analyses regarding the existence/inexistence of specific differences between different-sex and same-sex

romantic relationships. Some evidences in the literature suggest that we should not expect such differences in the satisfaction, perception of quality on alternatives, investment size, and commitment reported by individuals with different sexual orientations (Kurdek & Schmitt, 1986; Le & Agnew, 2003; Peplau & Fingerhut, 2007; Rusbult et al., 1998). However, these results are not consistent in the literature as Lehmiller and Agnew (2005; see also Lehmiller, 2010) also found that individuals in marginalized relationships, in which are included same-sex relationships, have lower commitment and lower investments. According to the authors, this occurs because individuals perceive their relationships as being disapproved by others, which in turn has a negative impact on how individuals perceive, feel and invest in their own romantic partner and relationship.

This is an extremely important and relevant topic to address in future studies with the IMS/IMS-S, and subsequently the IM, more so when we take into consideration the recent changes in the Portuguese social context regarding the legal recognition of same-sex domestic partnerships and same-sex marriages (Nogueira & Oliveira, 2010). By being legally allowed, and possibly more socially accepted, to publicly assume their romantic relationship, individuals in same-sex relationships may not feel marginalized by others and thus may have similar levels of commitment and investments, when compared to individuals in different-sex relationships. Similarly, it is important to analyze differences between couples that adhere to prevailing monogamic norms of functioning (“traditional couples”), and couples that develop their own set of functioning norms (e.g., permission to have casual sexual encounters with other people), independently of the individual’s sexual orientation.

Associated with this question arises another relevant one that should deserve attention in future studies. Literature shows that no differences should be expected in responses to the IMS between dating and married relationships (e.g., Le & Agnew, 2003; Rusbult, Johnson, & Morrow, 1986). In fact, and following IM assumptions, one should only expect such differences based on the commitment level, independently of the relationship status. As such, a married individual may not necessarily experience a higher level of commitment, in comparison to a dating individual, especially if both these individuals are equally involved in their romantic relationships. However, there may be some instances where married individuals report a high commitment level due to other causes, namely social and family barriers when questioning the abandon of the relationship (e.g., offspring, family pressure). This could lead the individual to decide to stay and maintain the relationship, and not necessarily be associated with a higher satisfaction, the perception of lesser quality of alternatives and/or higher investments on the relationship. This converges with the notions of moral and structural commitment (Johnson, Caughlin, & Huston, 1999), which regards the decision of maintaining a relationship exclusively motivated by moral obligations and/or social pressure not to end the relationship (e.g., religiosity, costs of the separation and difficulties when dealing with the sharing of assets).

More importantly, the notion of moral commitment is not entirely convergent with the notion originally proposed by the IM, as a general disposition to feel psychologically involved and attached to one's partner (Rusbult, 1980, 1983; Rusbult et al., 2006). In fact, it refers to a sense of moral obligation to maintain the relationship, and the need for consistency when assuming a commitment (Johnson, et al., 1999). Hence, future studies should analyze this question into greater detail, in order to

understand the association between moral commitment and the commitment level as measured by the IMS/IMS-S, as well as its association with satisfaction, quality of alternatives and the investment size, i.e., the importance of moral commitment for the IM factors.

In short, the present study shows that the Portuguese version of IMS possesses good psychometric properties, validity and reliability. These same results can also be extended to the shorter version of this scale, the IMS-S, proposed in this article. Such results give us confidence in using this instrument and open several lines of future research focused on romantic relationships.

References

- Bentler, P. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238-246. DOI:10.1037//0033-2909.107.2.238
- Berscheid, E. (1985). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed.). NY: Random House.
- Branje, S., Frijns, T., Finkenauer, C., Engels, R., & Meeus, W. (2007). You are my best friend: Commitment and stability in adolescents' same-sex friendship. *Personal Relationships*, *14*, 587-603. DOI: 10.1111/j.1475-6811.2007.00173.x
- Browne, M. W., & Cudeck, R. (1989). Single sample cross-validation indices for covariance structures. *Multivariate Behavioral Research*, *24*, 445-455. DOI: 10.1207/s15327906mbr2404_4
- Dwyer, D. (2000). *Interpersonal relationships*. London: Routledge.
- Giguère, J., Fortin, C., & Sabourin, S. (2006). Déterminants de la persistance conjugale chez des personnes vivant en première et en seconde union conjugale. *Canadian Journal of Behavioural Science*, *38*, 185-199. DOI: 10.1037/cjbs2006007
- Johnson, M. Caughlin, J., & Huston, T. (1999). The tripartite nature of marital commitment: Personal, moral, and structural reasons to stay married. *Journal of Marriage and the Family*, *61*, 160-177. DOI: 10.2307/353891
- Jöreskog, K. G., & Sörbom, D. (1984). *LISREL 6: User's guide*. Mooresville, IN: Scientific Software International.
- Kelley, H. & Thibaut, J. (1978) *Interpersonal relations: A theory of interdependence*. NY: Wiley.
- Kurdek, L. & Schmitt, J. (1986). Relationship quality of partners in heterosexual

- married, heterosexual cohabiting, and gay and lesbian relationships. *Journal of Personality and Social Psychology*, 51, 711-720. DOI: 10.1037//0022-3514.51.4.711
- Le, B. & Agnew, C. (2003). Commitment and its theorized determinants: A meta-analysis of the investment model. *Personal Relationships*, 10, 37-57. DOI: 10.1111/1475-6811.00035
- Lehmiller, J. (2010). Differences in relationship investments between gay and heterosexual men. *Personal Relationships*, 17, 91-96. DOI: 10.1111/j.1475-6811.2010.01254.x
- Lehmiller, J. & Agnew, C. (2005). Marginalized relationships: The impact of social disapproval on romantic relationships. *Personality and Social Psychology Bulletin*, 32, 40-51. DOI: 10.1177/0146167205278710
- Lehmiller, J. & Agnew, C. (2008). Commitment in age-gap heterosexual romantic relationships: A test of evolutionary and socio-cultural predictions. *Psychology of Women Quarterly*, 32, 74-82. DOI: 10.1111/j.1471-6402.2007.00408.x
- Moser, G. (1994). *Les relations interpersonnelles*. Paris: Presses Universitaires de France.
- Nogueira, C. & Oliveira, J. (Eds., 2010). *A diversidade sexual em Portugal: Discriminações, direitos e cidadania de pessoas lésbicas, gay, bissexuais e transgénero*. Lisboa: Comissão para a Cidadania e Igualdade de Género.
- Peplau, L. & Fingerhut, A. (2007). The close relationships of lesbians and gay men. *Annual Review of Psychology*, 58, 405-424. DOI: 10.1146/annurev.psych.58.110405.085701
- Rusbult, C. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology*, 16, 172-186. DOI:

10.1016/0022-1031(80)90007-4

Rusbult, C. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, *45*, 172-186. DOI: 10.1037//0022-3514.45.1.101

Rusbult, C., Coolsen, M., Kirchner, J., & Clarke, J. (2006). Commitment. In A. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 615-635). NY: Cambridge.

Rusbult, C., Johnson, D., & Morrow, G. (1986). Predicting satisfaction and commitment in adult romantic involvements: An assessment of the generalizability of the Investment Model. *Social Psychology Quarterly*, *49*, 81-89. DOI: 10.2307/2786859

Rusbult, C., Martz, J., & Agnew, C. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, *5*, 357-391. DOI: 10.1111/j.1475-6811.1998.tb00177.x

Rusbult, C., & Righetti, F. (2009). Investment model. In H. Reis & S. Sprecher (Eds.), *Encyclopedia of human relationships* (pp. 927-930). CA: Sage.

Simpson, J., Gangestad, S., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, *59*, 1192-1201. DOI: 10.1037//0022-3514.59.6.1192

Sternberg, R. (1986). A triangular theory of love. *Psychological Review*, *93*, 119-135. DOI: 10.1037//0033-295X.93.2.119

Sternberg, R. (1987). Liking versus romantic: A comparative evaluation of theories. *Psychological Bulletin*, *102*, 331-345. DOI: 10.1037//0033-2909.102.3.331