

# Commitment to the Relationship, Extradyadic Sex, and AIDS Preventive Behavior<sup>1</sup>

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This study was conducted among 251 heterosexual adults in The Netherlands that included a substantial number of individuals who had had unprotected sex with a new partner. Relationship status and commitment had independent effects upon the willingness to engage in extradyadic sex above and beyond the effects of past extradyadic sex and satisfaction, and commitment was the only psychological predictor of the intention to use condoms in extradyadic sexual contacts. Commitment predicted the willingness to inform the steady partner about one's unsafe extradyadic sex and to protect the steady partner against the possible risk of HIV infection after unsafe extradyadic sex. The implications for AIDS prevention are discussed.

Over the past decade, the investment model developed by Rusbult (1983) has generated a considerable amount of research and has been applied to a still widening range of relationships and phenomena (for a recent review, see Rusbult & Buunk, 1993). According to this model, *commitment* is the subjective representation of dependency, experienced as a feeling of psychological attachment to the partner, accompanied by the desire to maintain the relationship. Basing her theory on Thibaut and Kelley's (1959; Kelley & Thibaut, 1978) interdependence theory, Rusbult (1983) suggested that commitment to the relationship is directly influenced by three independent factors: relationship satisfaction, alternative quality, and relationship investments. Individuals will feel more satisfied with their relationships to the extent that such relationships produce high rewards (e.g., a physically attractive partner), involve low costs (e.g., few mutual quarrels), and exceed their comparison level and expectations regarding the quality of close relationships (Rusbult, Johnson, & Morrow, 1986).

<sup>1</sup>This research was financially supported by Grant No. 91033 from the Dutch Ministry of Welfare, Health and Cultural Affairs (WVC).

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A second factor that influences commitment is the quality of the alternatives to the current relationship that may pull the individual away from the relationship. One obvious pull may be the availability of an attractive alternative partner, but the perception of many potential partners may also constitute a factor undermining commitment. Quality of alternatives is also affected by individual preferences, such as the desire to spend more time with friends and the need for independence. Alternatives can be influenced negatively by financial restraints, such as an economically unfavorable situation after a divorce (Rusbult, 1991).

The third factor that influences commitment is investment size, that is the variety of ways in which individuals become bound to their relationships. Investments can be direct and indirect. Time and attention for the partner, and openness about personal feelings are examples of direct investments in the relationship. Common friends, shared memories, and shared experiences are examples of indirect investments.

The central prediction of the model that commitment will be larger the higher the relationship satisfaction, the poorer the perceived quality of alternatives, and the larger the investment size has received a considerable amount of support from cross-sectional studies (Rusbult et al., 1986), scenario studies (Rusbult, 1980a), and longitudinal studies (Johnson & Rusbult, 1989; Rusbult, 1983). Moreover, the model has been supported for various types of interpersonal bonds, including homosexual relationships (Duffy & Rusbult, 1986), friendships (Rusbult, 1980b), and organizations (Rusbult & Farrell, 1983). In addition, commitment has been shown to affect a variety of phenomena, including problem solving (Rusbult et al., 1986), accommodation to the partner (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991), derogation of attractive and threatening alternative partners (Johnson & Rusbult, 1989), and the decision to remain in an abusive relationship (Rusbult & Martz, 1992).

In the present research, the investment model is employed to explain the willingness to become involved in sexual contact with others than the primary partner, the intention to practice safe extradyadic sex, and the ways of coping with having unprotected extradyadic sexual relationships. Despite the fact that people have become more aware of the risks of varying sexual contacts, the number of nonmonogamous heterosexual relationships hardly seems to have decreased since the discovery of AIDS (e.g., Choi, Catania, & Dolcini, 1994; Jenks, 1992). For instance, Prins, Buunk, and VanYperen (1993) found that the fear of AIDS did not have any impact on the intention to engage in extradyadic sexual relationships. Furthermore, a recent representative study on sexuality in The Netherlands showed that 5% of the individuals with a steady relationship had in the previous year entered into casual extradyadic sex (VanZessen & Sandfort, 1991), and no less than three quarters of all participants

with extradyadic sex experience reported to have had unprotected vaginal intercourse in these encounters, while simultaneously having unprotected intercourse with the steady partner. Also, in the United States, low levels of condom use are found among individuals reporting extramarital sex (Choi et al., 1994). Since most extradyadic sexual relationships take place without the partner being aware of them (Blumstein & Schwartz, 1983; Buunk, 1980; Buunk & Van Driel, 1989; Hunt, 1974), people who engage in unsafe extradyadic sexual behaviors may not only put themselves, but also their steady partners at risk of being infected with the HIV and other sexually transmitted diseases. Remarkably, although this issue has been examined in Africa (e.g., Ajuwon, Oladepo, Adeniyi, & Brieger, 1994) and Thailand (e.g., Sittitrai, Phanuphak, Barry, & Brown, 1994), for example, the possible transmission of HIV through extramarital sex in western countries has hardly been studied. Thus, from the perspective of AIDS prevention, it is important to examine what factors can predict extradyadic sex and, in particular, *unprotected* extradyadic sex, and what factors are related to the readiness to protect one's partner from the potential risks involved in such behavior.

The first prediction in the present research is that those with a lower commitment to their primary relationship will be more inclined to become involved in extradyadic sexual contacts. There are two reasons for this. First, a lack of commitment may make the individual less concerned about the feelings of the partner, and therefore more inclined to follow extradyadic sexual desires. Second, those low in commitment may be looking for a new partner to replace the current one. Indeed, the inclination to end the relationship has been found to be one of the major consequences of a lack of commitment (Rusbult & Buunk, 1993). Remarkably, although there is one component of the investment model (i.e., satisfaction), that has been the focus of many studies on extradyadic sex (Buunk & Van Driel, 1989), although dependency is related to a reluctance to engage in extradyadic sex (Buunk, 1980; Buunk, 1987), and although a high commitment to the relationship leads to an inclination to derogate attractive alternative partners (Johnson & Rusbult, 1989), no research has directly examined whether the investment model can predict the inclination to become involved in extradyadic sex. According to the model, only commitment to the primary relationship would have a direct effect on this inclination, and the other three variables would affect this inclination only indirectly through commitment.

The second prediction examined in the present research is that commitment to the primary relationship will affect the inclination to engage in *safe* sex with an extradyadic partner. Since the discovery of HIV, individuals who have a primary intimate relationship and who engage in unprotected sexual intercourse may not only put themselves but also their partner at risk in the case they

continue to have sex with the partner. Because a high commitment implies a willingness to take into account the interests of the partner (Rusbult et al., 1991), it may be hypothesized that feelings of commitment to the primary partner will affect the intention to practice safe sex when engaging in sex with a new partner. Compared to those low in commitment, those highly committed to their primary partner are more likely to take into account the possibility that they may infect themselves and their steady partners when they have unsafe sex with new partners. In contrast, those feeling a low commitment to the primary partner will, when having a new sexual relationship, be less likely to take preventive measures.

In the case that someone *does* have unsafe extradyadic sex, he or she faces a dilemma: Telling the partner would have serious consequences for the relationship; not telling the partner and having unprotected sex in the primary relationship would put the partner at risk; and proposing to practice safe sex with the primary partner would make the partner suspicious. It would seem possible that a high commitment could *lower* the inclination to practice safe sex in the primary relationship because raising suspicions by suddenly suggesting condom use might threaten this relationship, and such a threat would bother highly committed individuals more than lowly committed individuals. In general, however, we assume that among those who have had unprotected extradyadic sex, a relatively higher degree of commitment would be related to a stronger motivation to take the interests of the partner into account by informing the partner, and by taking precautions to protect the partner; for instance, by openly discussing one's behavior with the partner, by practicing safe sex, or by taking the HIV antibody test. Again, on the basis of the investment model, it is predicted that commitment to the steady partner will directly affect the willingness to inform and protect this partner, and that this willingness will only indirectly, through commitment, be affected by satisfaction, alternative quality, and investment size.

To summarize, in the present research we examined the effect of commitment to the primary partner on willingness to engage in extradyadic sex, on the intention to use condoms in extradyadic sexual relationships, and on the readiness to take precautionary measures within the primary relationship. These are important issues, because taboos about unprotected extradyadic sexual relationships may lead to a further spread of HIV in the heterosexual population. To allow a valid examination of these issues a sample was chosen in which a substantial number of subjects had had unprotected sex with a new partner. By choosing such a sample, the relevance of the findings for AIDS prevention is enhanced. Furthermore, because prior studies of romantic involvements have been limited largely to college-age dating relationships in the United States (see Rusbult et al., 1986, for an exception), examining the predictive value of

the investment model in a rather unique sample in The Netherlands, would contribute to establishing the validity of this model. It may be noted that in The Netherlands attitudes towards extradyadic sex are more tolerant than in the United States (Buunk & Van Driel, 1989), and that people in The Netherlands have, internationally speaking, a high level of knowledge about HIV.

## Method

### *Respondents*

The sample consisted of 251 respondents, including 179 women (71%) and 72 men (29%). The age distribution was as follows: 30 years or younger, 68%; between 30 and 40 years of age, 15%; between 40 and 50 years of age, 13%; and older than 50 years of age, 4% ( $M = 29$  years old). Relationship status was assessed by asking respondents if they currently had a *vaste relatie*, a Dutch term that unequivocally refers to a steady intimate relationship. As indicated below, those who indicated that they did not have such a relationship were excluded when selecting the present sample from a larger sample. Of the present sample, 26% indicated they were married, 23% stated they cohabited, 37% indicated having a steady partner without being married or cohabiting, and 14% answered had a more or less steady partner.

The mean length of the relationship was 6 years, with 23% having a relationship of 1 year or less; 29% having a relationship more than 1 but less than or equal to 3 years; 13% having a relationship of more than 3 but less than or equal to 5 years; 18% having a relationship of more than 5 but less than or equal to 10 years; and 17% having a relationship of more than 10 years. The mean level of relationship satisfaction as assessed with Buunk's (1990) Relationship Interaction Satisfaction Scale was 33.50 ( $SD = 4.83$ ). This was slightly lower than in a sample representative of the Dutch adult married population ( $n = 1,281$ ,  $M = 34.75$ ,  $SD = 3.71$ ),  $t(1,528) = 115.61$ ,  $p < .001$ .

In the preceding 5 years, 16% of the sample had had 1, 19% had had 2 to 5, and 10% had had more than 5 extradyadic casual sexual partners. More than half of the sample (56%) indicated having had sexual intercourse with a new partner without using a condom during this same 5-year period.

### *Procedure*

This study was part of a large study on safe sex in heterosexual relationships. The present sample was selected from a larger sample (Buunk & Bakker, 1995; Buunk, Bakker, Siero, & van den Eijnden, in press) that was recruited by announcements in national newspapers and magazines, and on television. The

announcements explained that the study addressed opinions about safe sex in heterosexual relations. Furthermore, a number of people who had placed a personal ad in a daily newspaper were contacted by a letter. The letter underlined the importance of the study for future AIDS prevention activities. Everyone who was enrolled received two mailed questionnaires: one for herself/himself, and one for a friend, partner, or acquaintance. Both questionnaires were accompanied by a letter that explained the goal of the study once again. After 1 month, nonrespondents received a reminder. Participants were rewarded with a small gift (a ballpoint pen with the logo of the university).

A total of 821 persons participated in the study, 711 persons (87%) of whom indicated being heterosexual (68% were women and 32% were men, and 59% had a steady intimate relationship). Of these respondents, half were given at random a questionnaire on features of their current or past steady intimate relationship. This questionnaire contained the variables relevant for the present research. Of those who filled out the relationship questionnaire, those who were (according to their own report) not currently involved in a steady intimate relationship (and had thus filled out the questionnaire with respect to a past relationship) were excluded from the sample. The sample employed in the present paper is the same as that employed by Buunk and Bakker (in press).

### *Measures*

The measures for alternative quality, investment size, and commitment were based on scales provided by C. E. Rusbult (personal communication, March 1992) that were adapted and translated in Dutch. Because the way that the data were collected imposed certain restrictions on the length of the questionnaire, all variables were measured with a limited number of items.

The measure for *commitment* contained four items that assessed the extent to which participants felt committed to their relationship and to their partner; that is, "To what extent do you feel attached to your partner?" (1 [*not at all*] to 5 [*extremely*]); "Do you feel committed to maintaining your relationship with your partner?" (1 [*not committed*] to 5 [*completely committed*]); "Do you want your relationship to last forever?" (1 [*definitely not*] to 5 [*definitely*]); and "How likely is it that you will end your relationship in the near future?" (1 [*very unlikely*] to 5 [*very likely*]; reverse scored). The four items were combined in one index for commitment and represented a reliable scale ( $\alpha = .82$ ).

*Satisfaction* with the relationship was measured by two items from the Relational Interaction Satisfaction Scale (Buunk, 1990) that in a pretest correlated highest with the items used by C. E. Rusbult (personal communication, March 1992). The two items were: "Things go well between us," and "I feel happy with my partner." Response options ranged from 1 (*never*) to 5 (*very often*).

The correlation between the two items was .68 ( $p < .001$ ). The Relational Interaction Satisfaction Scale was not used as a whole because this scale contains a number of items that may be viewed as assessing commitment. Moreover, it was considered more adequate to measure all three determinants of commitment with the same number of items.

*Alternative quality* was measured by summing up the items: "Can you imagine that someone else would take your partner's place?" (1 [*absolutely not*] to 5 [*possibly*]), and "How important is it for you to have a steady relationship?" (1 [*not important*] to 5 [*extremely important*]). The correlation between the two items was .45 ( $p < .001$ ).

*Investment size* was measured by summing up the following items: "At this moment, how much would you lose should your relationship be terminated?", and "How much have you emotionally invested in you relationship (in the sense of time, energy, self-disclosure and joint experiences)?" (For both questions, 1 [*little*] to 5 [*everything*].) The correlation between both items was .46 ( $p < .001$ ).

*Extradyadic sexual willingness* was measured by providing respondents with one item from Extramarital Behavioral Intentions Scale (Buunk, 1990; Buunk & Bakker, 1995), namely "Would you engage in sexual intercourse with someone else than your steady partner if an occasion were to present itself?" (1 [*absolutely not*] to 5 [*absolutely yes*]). In addition, *past extradyadic casual sex* was assessed. Respondents were asked to indicate on a 5-point scale, ranging from 1 (*never*) to 5 (*more than 10 times*), how often they had had a one-time sexual contact with someone other than their steady partner during the preceding 5 years.

*Intention toward condom use with a new partner* was measured by three items asking what people planned to do when they would have sex with a new sexual partner: "use a condom when you have sexual intercourse with a new partner," "abstain from sexual intercourse with a new partner when condom use is impossible," and "insist on condom use with a new partner, even when that new partner does not want to use condoms" (1 [*absolutely not*] to 5 [*absolutely*]). Cronbach's alpha was .86 (see Buunk et al., in press, for other correlates of this intention). *Condom use in the past* was also assessed but did not correlate with any other variable in the study, and was therefore not included in the analyses.

In addition, respondents were asked how they would respond when they had had unsafe sex with someone other than the steady partner; that is, after extradyadic sex without using a condom. The answers could be indicated on scales that ranged from 1 (*absolutely not*) to 5 (*absolutely*). *Willingness to inform and protect the steady partner* was measured by five items, namely "I would tell my partner," "From then on, I would always use condoms during sexual intercourse

with my partner,” “I would apologize to my partner,” “I would promise my partner never to do it again,” and “I would take the HIV-antibody test.” Cronbach’s alpha was .80.

## Results

### *Data Analysis*<sup>3</sup>

The predictions in the present study were tested with a combination of hierarchical and stepwise regression analyses. Before conducting these analyses, it was examined if men and women differed in the predictor and outcome variables. Two gender differences were found: in extradyadic sexual willingness,  $F(1, 232) = 11.94, p < .001$ , with men ( $M = 3.30$ ) having a higher willingness than women ( $M = 2.87$ ); and in intention to use condoms in new sexual contacts,  $F(1, 232) = 6.69, p < .01$ , with women ( $M = 4.08$ ) having a higher intention than men ( $M = 3.83$ ). Because some of the correlations between predictor and outcome variables differed between men and women (Table 1), in each regression analysis it was examined if gender (1 [*female*], 2 [*male*]) and the interaction between gender and the predictors explained additional variance after the predictors had been entered. The interactions between gender and satisfaction, alternative quality, and investment size were not, any of the analyses, significant. Therefore, the results below refer to analyses that were run without the interaction terms included. In the final step, it was examined if age, length of the relationship, and relationship status explained additional variance in the case that they had a significant zero-order correlation with the dependent variable under consideration.<sup>4</sup> Relationship status was employed as a variable with four levels (1 [*more or less steady partner*], 2 [*steady partner*], 3 [*living together*], 4 [*married*]). It must be noted, of course, that this is a rather crude

<sup>3</sup>The number of subjects in the following analyses varies because of occasionally missing data.

<sup>4</sup>There were few significant correlations of these demographic variables with the predictor and outcome variables. Age was only correlated negatively with satisfaction ( $r = -.24, p < .001$ ) and positively with extradyadic sexual willingness ( $r = .35, p < .001$ ), indicating that older individuals were less happy with their relationship, and more inclined to engage in extradyadic sex. Similarly, length of the relationship was correlated negatively with satisfaction ( $r = -.19, p < .01$ ), positively with extradyadic sexual willingness ( $r = .29, p < .001$ ), and negatively with the willingness to protect and inform the partner ( $r = -.12, p < .01$ ). The higher the relationship status, the higher the psychological commitment ( $r = .35, p < .001$ ), the lower the perceived quality of alternatives ( $r = -.39, p < .001$ ), the higher the investment size ( $r = .34, p < .001$ ), the lower the extradyadic sexual willingness ( $r = -.11, p < .01$ ), and the more frequent the condom use in the past ( $r = .12, p < .01$ ). Men and women differed in length of the relationship; for men,  $M = 4.5$  years; for women,  $M = 7.8$  years;  $t(102.40) = 3.49, p < .001$ . This underlines the importance of controlling for gender and length of relationship.

Table 1

*Intercorrelations Between the Variables*

	1	2	3	4	5	6	7
1. Commitment	—	.67	-.72	.63	-.45	.26	.38
2. Satisfaction	.79	—	-.40	.41	-.45	.17	.34
3. Alternative quality	-.74	-.64	—	-.59	.38	-.18	-.28
4. Investment size	.54	.39	-.55	—	-.34	.24	.37
5. Extradysadic sexual willingness	-.43	-.41	.28*	-.08†	—	-.24	-.47
6. Intention to use condoms	.47	.28*	-.40	.16†	-.25†	—	.50
7. Willingness to inform and protect steady partner	.45	.33	-.37	.35	-.31	.36	—

*Note.* Women (minimal  $n = 171$ ) listed above diagonal, men (minimal  $n = 63$ ) listed below diagonal.

†*ns.* \* $p < .05$ .  $p < .01$  for all other correlations.

measure because there is no reason to assume that the distances between all categories are equal.

Before examining the hypotheses, it was assessed if, in line with the investment model, commitment is independently determined by satisfaction, alternative quality, and investment size. Indeed, satisfaction ( $\beta = .44, p < .001$ ), alternative quality ( $\beta = -.39, p < .001$ ), and investment size ( $\beta = .18, p < .001$ ) were independent predictors of commitment. Gender did not add additional variance. However, relationship status still had an effect above and beyond the psychological predictors of commitment ( $\beta = .09, p < .05$ ), suggesting that this variable is related to psychological commitment, aside from the factors proposed in the investment model (Rusbult, 1983). For the final regression,  $R = .85$ ,  $R^2 = .72$ .

*Extradysadic Sexual Willingness*

The first prediction in the present research was that commitment would be directly related to willingness to engage in extradysadic sexual relationships, and that the determinants of commitment (satisfaction, alternative quality, and investment) would affect extradysadic sexual willingness mainly through commitment. Although, as Table 1 shows, satisfaction, alternative quality, and investment are

correlated with extradyadic sexual willingness, we would expect that these variables are no longer predictors of this willingness once the effect of commitment is controlled for. To examine this prediction, a regression analysis was done with extradyadic sexual willingness as the dependent variable. To control for the effect of past extradyadic sex, this variable was entered first, and commitment was entered in the second step. Next, with a stepwise regression, it was examined if satisfaction, alternative quality, and investment had significant effects on extradyadic willingness above and beyond commitment, and subsequently if this was the case for gender and for age, relationship length, and relationship status, all of which had significant zero-order correlations with extradyadic willingness.

Commitment ( $\beta = -.30, p < .001$ ) was an independent predictor of extradyadic sexual willingness, even though past extradyadic sex ( $\beta = .46, p < .001$ ) had a strong effect on this willingness, whereas investment size and alternative quality did not add additional variance. However, satisfaction ( $\beta = -.15, p < .05$ ), gender ( $\beta = .21, p < .001$ ), and relationship status ( $\beta = -.16, p < .01$ ), affected willingness to engage in extradyadic sex above and beyond past extradyadic sex and commitment. For the final regression,  $R = .72, R^2 = .53$ .

To summarize, the willingness to engage in extradyadic sex in the future is higher among men than among women, and is especially enhanced among those who have engaged in this behavior in the past and among those who experience a low degree of commitment and satisfaction in their current relationship.

### *Intention to Use Condoms*

The second prediction was that the intention to use condoms with new sexual partners would be higher among those committed to the relationship. As indicated above, past condom use did not correlate with any of the other variables, and was therefore not included in the analyses. Thus, commitment was entered in the first step, and next it was examined with a stepwise regression if satisfaction, alternative quality, and investment explained additional variance. In a subsequent step, it was only assessed if gender was an additional predictor, because the other demographic variables did not correlate with condom use intention. Only commitment ( $\beta = .30, p < .001$ ) and gender ( $\beta = -.20, p < .001$ ) were independent predictors of condom use intention ( $R = .35, R^2 = .12$ ). Thus, the intention to practice safe sex was higher among those with a high commitment to their relationship, and, independent of this, among women.

From the perspective of AIDS prevention, the intention to use condoms with new sexual partners is mainly a relevant issue for those who are open to extradyadic sex. Therefore, the same regression analysis as the one just described

was carried out among those who *did not* say they would “definitely not” (score 1) engage in such behavior ( $n = 144$ ). The results were virtually the same as in the previous analysis ( $R = .36, R^2 = .13$ ; for commitment,  $\beta = .34, p < .001$ ; for gender,  $\beta = -.18, p < .05$ ).

### *Willingness to Inform and Protect the Partner*

The third issue in the present research concerned the relationship between commitment and the willingness to inform and protect the partner. As in previous analyses, a regression analysis was done with the willingness to inform and protect the partner as the dependent variable. Commitment was entered in the first step, and next it was examined if satisfaction, alternative quality, and investment explained additional variance, and subsequently if this was the case for gender and relationship length (the only demographic variable that had a zero-order correlation with willingness to protect and inform the partner).

The results of this analysis show that commitment is indeed the major predictor of the willingness to inform and protect the partner ( $\beta = .27, p < .001$ ), but that investment size ( $\beta = .22, p < .01$ ) and duration of the relationship ( $\beta = -.13, p < .01$ ) are additional significant predictors ( $R = .41, R^2 = .17$ ). None of the other variables had a significant effect. Thus, the willingness to inform and protect the partner was higher among those in relatively short-term relationships who nevertheless experienced a high commitment to, and investment in, their relationship.

Because from the perspective of AIDS prevention the willingness to protect the partner is only a relevant issue for those who are open to extradyadic sex, the same regression analysis as the one just described was carried out among those who *did not* say they would “definitely not” (score 1) engage in such behavior ( $n = 144$ ). This analysis showed only a significant effect of commitment ( $R = .35, R^2 = .12, p < .001$ ). Furthermore, because the willingness to protect the partner is particularly a relevant issue among those who might practice risky sex with a new partner, the next regression analysis examined the predictors of the willingness to inform and protect the partner among those who were more or less open to extradyadic sex, *and* who were not definitely sure they would practice safe sex (a score lower than 5 on condom use intention). The  $n$  for this group was 69. In the final equation ( $R = .31, R^2 = .10, p < .05$ ), commitment no longer had a significant effect ( $\beta = -.05, ns$ ), but satisfaction was a significant predictor ( $\beta = .35, p < .05$ ).

### Discussion

The major goal of the present research was to apply Rusbult's (1983) investment model to explain the willingness to become involved in sexual contact

with partners other than the primary partner, the willingness to practice safe extradyadic sex, and the ways of coping with having unprotected extradyadic sexual relationships. Before discussing the findings bearing on these issues, it may be noted that by examining the investment model in a Dutch sample consisting of individuals of varying ages, involved in married, cohabiting, and other steady relationships, many of whom were open to having extradyadic sex, the results of the present research contribute to the already impressive support that this model has received in past decades (Rusbult & Buunk, 1993). Also in the present sample, commitment in close relationships is dependent on a high relationship satisfaction, a low perceived quality of relationship alternatives, and a high perceived investment size. Of course, it must be emphasized that because of the cross-sectional character of the study, no unequivocal causal statements can be made. Moreover, the fact that most variables could only be measured by a few items may mean that various constructs were underrepresented. The fact that commitment was measured with more items than its supposed determinants may have made the impact of commitment in the present research stronger than is conceptually warranted.

The major contribution of the present study concerns the expansion of the investment model by examining the role of commitment with respect to extradyadic sexual behavior. Our results suggest that commitment to the steady partner is an important determinant of the intention to engage in extradyadic sexual relationships and that, although satisfaction also has an independent effect, it is to an important extent through their effect on commitment that a lack of satisfaction, attractive alternatives, and low investments in the relationship contribute to the intention to have sexual relationships with partners other than the steady partner. Thus, although it has been shown that the intention to engage in extradyadic sexual relationships may be affected by a high comparison level of alternatives (Buunk, 1980), and by a low satisfaction with the relationship (e.g., Prins et al., 1993), the present research suggests that such factors make individuals less committed to the relationship, and that such lowered commitment makes individuals open themselves up to sexual relationships with others. This is in line with the finding of Johnson and Rusbult (1989) that those with a low commitment are more open for contact with attractive members of the opposite gender, whereas those high in commitment tend to derogate attractive potential partners.

The present research suggests that the investment model can not only predict the willingness to become involved in extradyadic sex, but also the inclination to practice unsafe extradyadic sex. The less individuals felt committed to the steady partner, the more they were inclined to abstain from condom use in new sexual contacts. More importantly, satisfaction, alternative quality and investment size did not have an effect on the intention to use condoms with new sexual

partners above and beyond commitment. Furthermore, commitment was the only variable from the investment model that predicted condom-use intention in the subgroup of those open to involvement in extradyadic sex. Thus, with respect to the intention to use condoms with new partners, the mediating role of commitment was more unequivocal than in the case of extradyadic sex.

It must be noted that a limitation of our study was that condom use in the primary relationship was not assessed, and that individuals who were already using condoms with their steady partner would face a less problematic situation after having practiced unsafe extradyadic sex than would those who did not use condoms in their primary relationship. Nevertheless, commitment had a strong impact on the way individuals tended to take into consideration the interests of their primary partner after having practiced unsafe extradyadic sex. Those highly committed to their partner expressed a relatively strong willingness to inform the steady partner about unsafe extradyadic sex, and to protect the steady partner against the possible risk of HIV infection after unsafe extradyadic sex (i.e., by always using condoms, or by taking an HIV-antibody test). Vice versa, individuals with a relatively low commitment were not only relatively more inclined to engage in unprotected extradyadic sexual relationships, but also to be less concerned about the risks of infecting their partner when they would have been involved in unprotected extradyadic sex. Interestingly, not only commitment, but also investment size contributed independently to willingness to take precautions in the primary relationship. This suggests that a high investment would be accompanied by an enhanced motivation to protect the relationship from potential threats because there is more to lose. Remarkably, even among individuals open to extradyadic sex, those with a high commitment were still more willing to protect and inform their steady partner. A low commitment may apparently not only lead to risky behavior in extradyadic sexual relationships, but may also put the steady partner at risk by being secretive about one's risky practices, and by not taking the necessary precautions with one's primary partner.

It must be noted, however, that among those who were open to extradyadic sex and who were not clearly motivated to practice safe sex, the willingness to protect and inform the partner was only related to high satisfaction, and not to commitment, maybe because in this group the commitment was, in general, low.

The results showed a remarkable gender difference: Women were less inclined than men to engage in extradyadic sex, also when controlling for past extradyadic sex, commitment, and satisfaction. This finding is in line with a host of other research showing that men are more inclined to engage in promiscuous behavior. For example, compared to women, men are more easily tempted to engage in short-term sexual encounters (Clark & Hatfield, 1989; Ellis & Symons,

1990), and men more often have extramarital sex (Glass & Wright, 1985; Prins et al., 1991). There is considerable evidence that, throughout human history and in a variety of cultures, men are more open to short-term sexual affairs than are women (Kinsey, Pomeroy, & Martin, 1948; Symons, 1979). According to evolutionary theorists such as Buss and Schmitt (1993) and Symons (1979), these widespread gender differences reflect the evolution of the human species, because men in our evolutionary past could also enhance their reproductive success by copulating with as many women as possible, whereas there were fewer reproductive benefits of such short-term mating for women, resulting in a more cautious attitude of women toward casual sexual encounters. The fact that, as in many other studies (e.g., Morrison, Gillmore-Roger, & Baker, 1995), women in the present research were also more determined to practice safe sex with new sexual partners may in part reflect this attitude.

The present findings may have a number of important implications for AIDS prevention. It must be noted that extradyadic sex in itself is not necessarily sexual risk behavior. However, considering the fact that a majority of the sample had had unprotected sex with a new partner in the past and that those who were inclined to have such contacts again were also less likely to inform and protect their steady partner, the present findings point to a possible way through which HIV might spread through the heterosexual population. In this context, it is relevant that the relational satisfaction of the current sample was only slightly lower than that of the general population, suggesting that many extradyadic sexual relationships in our sample were not engaged primarily to find a new partner, but foremost reflected a desire for extradyadic sex while maintaining the primary relationship.

In general, the results of the present research underline the importance of health education about the risks of unprotected extradyadic sex, a topic that often seems to be surrounded by a veil of secrecy. These health educational messages could explicitly stress that individuals in a steady intimate relationship who themselves do not engage in sex outside the relationships, may be at risk for HIV infection because they cannot be certain that their partners do not engage in unprotected extradyadic sex. It could be communicated that this applies especially to individuals in relationships with a relatively low degree of commitment. Furthermore, messages aimed at individuals who engage in unsafe sexual relationships outside their primary relationships may emphasize that such individuals not only put themselves, but also their steady partners at risk for AIDS. Of course, such appeals might not be optimally effective because individuals with a low commitment—thus, those who are more inclined to practice unsafe extradyadic sex—may not be very sensitive to messages emphasizing the need to take the interests of their partners into account. Nevertheless, a message that would highlight the terrifying possibility of infecting someone by

whom one is trusted and who one knows very well may even appeal to individuals with low commitment. To summarize, it is important that individuals who engage in unprotected extradyadic sex are persuaded to take preventive action when they have intercourse with their steady partners, and health educational messages pointing at the responsibility for the other may play an important role in this regard.

To conclude, the results of the present study in a unique sample of heterosexual adults provide empirical evidence for the investment model (Rusbult, 1980a, 1983). Partly because of its simple elegance, this model was able to explain a considerable amount of variance in commitment. Commitment seems not only to have an impact on the intention to terminate the relationship (Rusbult, 1980a; Rusbult & Buunk, 1993), but also on the intention to engage in extradyadic sexual relationships. More important in the present context, the investment model appears to provide a fruitful framework for research on determinants of unsafe extradyadic sex and on AIDS-preventive behavior within close relationships, and to generate findings that may have important implications for health education aimed at AIDS prevention.

#### References

- Ajuwon, A. J., Oladepo, O., Adeniyi, J. D., & Brieger, W. R. (1994). Sexual practices that may favor the transmission of HIV in a rural community in Nigeria. *International Quarterly of Community Health Education*, *14*, 403-416.
- Blumstein, P., & Schwartz, P. (1983). *American couples*. New York, NY: William Morrow.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204-232.
- Buunk, B. P. (1980). Extramarital sex in The Netherlands: Motivations in social and marital context. *Alternative Lifestyles*, *3*, 11-39.
- Buunk, B. P. (1987). Conditions that promote break-ups as a consequence of extradyadic involvements. *Journal of Social and Clinical Psychology*, *5*, 237-250.
- Buunk, B. P. (1990). Relational Interaction Satisfaction Scale. In J. Touliatos, B. F. Perlmutter, & M. A. Straus (Eds.), *Handbook of family measurement techniques* (pp. 106-107). Newbury Park, CA: Sage.
- Buunk, B. P., & Bakker, A. B. (1995). Extradyadic sex: The role of descriptive and injunctive norms. *The Journal of Sex Research*, *32*, 313-318.
- Buunk, B. P., & Bakker, A. B. (in press). Responses to unprotected sex by one's partner. Testing predictions from interdependence and equity theory. *The Journal of Sex Research*.

- Buunk, B. P., Bakker, A. B., Siero, F. W., & van den Eijnden, R. J. J. M. (in press). Predictors of AIDS-preventive intentions among adult heterosexuals at risk for HIV-infection: Extending current models and measures. *AIDS: Education and Prevention*.
- Buunk, B. P., & van Driel, B. (1989). *Variant lifestyles and relationships*. Newbury Park, CA: Sage.
- Choi, K. H., Catania, J. A., & Dolcini, M. M. (1994). Extramarital sex and HIV risk behavior among U.S. adults: Results from the National AIDS Behavioral Survey. *American Journal of Public Health, 84*, 2003-2007.
- Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Psychology and Human Sexuality, 2*, 39-55.
- Duffy, S. M., & Rusbult, C. E. (1986). Satisfaction and commitment in homosexual and heterosexual relationships. *Journal of Homosexuality, 12*, 1-23.
- Ellis, B., & Symons, D. (1990). Sex differences in sexual fantasy: An evolutionary psychological approach. *Journal of Sex Research, 27*, 527-556.
- Glass, S. P., & Wright, T. L. (1985). Sex differences in type of extramarital involvement and marital dissatisfaction. *Sex Roles, 12*, 1101-1119.
- Hunt, N. (1974). *Sexual behavior in the 1970's*. Chicago, IL: Dell.
- Jenks, R. J. (1992). Fear of AIDS among swingers. *Annals of Sex Research, 5*, 227-237.
- Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology, 57*, 967-980.
- Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York, NY: John Wiley & Sons.
- Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders.
- Morrison, D. M., Gillmore-Roger, M., & Baker, S. A. (1995). Determinants of condom use among high-risk heterosexual adults: A test of the theory of reasoned action. *Journal of Applied Social Psychology, 25*, 651-676.
- Prins, K. S., Buunk, B. P., & VanYperen, N. W. (1993). Equity, normative disapproval and extramarital relationships. *Journal of Social and Personal Relationships, 10*, 39-53.
- Rusbult, C. E. (1980a). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16*, 172-186.
- Rusbult, C. E. (1980b). Satisfaction and commitment in friendships. *Representative Research in Social Psychology, 11*, 96-105.
- Rusbult, C. E. (1983). A longitudinal study test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology, 45*, 101-117.

- Rusbult, C. E. (1991). Commentary on Johnson's "Commitments to personal relationships": What is interesting, and what's new? *Advances in Personal Relationships*, *3*, 151-169.
- Rusbult, C. E., & Buunk, B. P. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships*, *10*, 175-204.
- Rusbult, C. E., & Farrell, D. (1983). A longitudinal test of the investment model: The impact on job satisfaction, job commitment and turnover of variations in rewards, costs, alternatives and investments. *Journal of Applied Psychology*, *68*, 429-438.
- Rusbult, C. E., Johnson, D. J., & Morrow, G. D. (1986). Predicting satisfaction and commitment in adult romantic involvements: An assessment of the generalizability of the investment model. *Social Psychology Quarterly*, *49*, 81-89.
- Rusbult, C. E., & Martz, J. (1992). *The decision to remain in an abusive relationship: An investment analysis*. Unpublished manuscript, University of North Carolina at Chapel Hill.
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology*, *60*, 53-78.
- Sittitrai, W., Phanuphak, P., Barry, J., & Brown, T. (1994). A survey of Thai sexual behaviour and risk of HIV infection. *International Journal of STD and AIDS*, *5*, 377-379.
- Symons, D. (1979). *The evolution of human sexuality*. Oxford, England: Oxford University Press.
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York, NY: John Wiley & Sons.
- VanZessen, G., & Sandfort, T. (1991). *Seksualiteit in Nederland: Seksueel gedrag, risico en preventie van AIDS* [Sexuality in The Netherlands: Sexual behavior, risks and AIDS-prevention]. Amsterdam, The Netherlands: Swets & Zeitlinger.