

Should I Stay or Should I Go? A Dependence Model of Breakups

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A model of breakup decisions is proposed that extends interdependence theory. This *dependence model* asserts that the primary issue in understanding breakup decisions is degree of dependence on a relationship. Dependence is great when important outcomes in the current relationship are not available elsewhere. *Need satisfaction dependence* measures identify important needs in a relationship and compare satisfaction of those needs in the current relationship to satisfaction in alternative relationships. Two longitudinal studies provide good support for the dependence model. Need satisfaction dependence measures significantly differentiated between subjects who remained in their relationships and those who voluntarily broke up. The studies also compared the model to simpler breakup models and assessed whether commitment mediates the link between dependence and breakup decisions.

Why do individuals sometimes remain in relationships that are not terribly satisfying? This article advances a *dependence model* of breakups. The dependence model clarifies and extends concepts from interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959), proposing that the decision to remain in or voluntarily end a given relationship is strongly related to the degree of dependence on that relationship. Dependence is asserted to be great when the most important needs a relationship fulfills cannot be gratified elsewhere. Thus, we suggest that an individual may sometimes remain in a relationship that is not terribly satisfying because of high dependence on that relationship—dissatisfying as it is, the relationship may nevertheless fulfill important needs that cannot be gratified in alternative relationships.

From the outset, it is important to distinguish between the concepts of satisfaction and dependence. These constructs were first introduced in Thibaut and Kelley's (1959) interdependence theory, in their discussion of two subjective criteria for

evaluating relationships—comparison level (CL) and comparison level for alternatives (CL-alt). According to interdependence theory, individuals feel satisfied to the extent that the outcomes obtained in a given relationship exceed the individual's generalized expectations for the quality of relationships, or CL. In contrast, individuals feel dependent to the extent that the outcomes obtained in a relationship exceed what the individual perceives is available in the best available alternative relationship, or CL-alt. Dependence on a relationship is the key to understanding decisions to remain in or voluntarily end a relationship: "Whether or not an individual attains reward-cost positions above his CL-alt determines whether or not he will remain in a given dyadic relationship" (Thibaut & Kelley, 1959, p. 23).

The most prominent theories of stay-leave decisions are variants of these basic principles. For example, Rusbult's investment model (1980, 1983) suggests that relationship stability is a function of three components: degree of satisfaction, quality of alternatives, and magnitude of investments (e.g., time and energy, mutual friends). The combined impact of these three variables defines a subjective experience termed *commitment*, which in turn mediates stay-leave decisions. Levinger (1979a, 1979b) made similar claims in his cohesiveness model, arguing that stay-leave decisions are influenced by relationship attractions and alternative attractions—respectively, the forces that drive one toward a relationship versus away from a relationship. Also, M. P. Johnson (1982, in press) stated that desire to maintain a relationship is the product of three forces: personal commitment, one's personal desire to continue a relationship; moral commitment, the feeling that one ought to continue a relationship; and structural commitment, the sense that one must continue a relationship. Structural commitment is increased by a variety of factors, including the degree to which there is no acceptable alternative to the current relationship. Thus, the models that are most relevant to understanding stay-leave decisions propose that such decisions are most influenced by the attractiveness of the current relationship in comparison with the best available alternative. Furthermore, the extant research has demonstrated that two key interdependence constructs—satisfaction and quality of alternatives—account for a good deal

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of the variance in stay-leave decisions: In comparison to individuals whose relationships persist, those whose relationships terminate frequently report lower satisfaction and more attractive alternatives (Rusbult, 1983; Rusbult, Johnson, & Morrow, 1986; Sabatelli & Cecil-Pigo, 1985; Simpson, 1987).

Unfortunately, although much of the existing theory and research on stay-leave decisions has loosely adopted interdependence theory constructs, the translation from that theory frequently has been rather imprecise. Also, interdependence theory's original claims regarding the determinants of stay-leave decisions were relatively general and abstract. No clear proposals for operationalizing those abstract constructs were proffered. The dependence model is an attempt to return to original interdependence theory assertions about stay-leave decisions, to clarify several constructs central to that general approach, and to develop a means of operationally defining these refined constructs. Before presenting the dependence model, several limitations of existing work should be addressed. Below, we briefly review the most important of the limitations that we believe are addressed and at least partially resolved by the dependence model.

Critique of Existing Approaches

Dependence and Commitment

Our first critique concerns the traditional focus on commitment, which is typically described and operationalized as a global, internal, subjective mediator of stay-leave decisions (cf. Rusbult, 1983). We begin by noting that the decision to emphasize the commitment construct has not been entirely misdirected: Prior research has demonstrated a link between commitment and stay-leave decisions (Felmlee, Sprecher, & Bassin, 1990; Lund, 1985; Rusbult, 1983) and has shown that more committed individuals engage in behaviors that promote relationship stability, such as derogating attractive alternatives (D. J. Johnson & Rusbult, 1989) and accommodating rather than retaliating when a partner has behaved badly (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991). However, the emphasis on commitment simultaneously has served to deemphasize the original interdependence construct for predicting stability, namely, the degree of dependence on a relationship.

It should be clear that commitment and dependence are related constructs, and that both variables are likely to be associated with stay-leave decisions. However, dependence is not intended as a substitute for the commitment construct; these variables are not synonymous. Rather, we return to an emphasis on dependence in an attempt to theoretically represent and empirically measure the determinants of stability in a very direct and concrete manner—that is, the dependence construct directly taps the specific features of relationships that form the basis for stay-leave decisions. In contrast, subjective commitment is relatively more indirect and abstract—commitment is a global, internal, subjective summarization of the factors that underlie stay-leave decisions. Although subjective commitment is clearly an important component of ongoing relationships, we believe that stay-leave decisions may more fully be understood by more precisely representing interdependence theory claims concerning the determinants of dependence.

Also, given that level of dependence is the primary determinant of subjective commitment, in addition to examining the relationship between dependence and breakup decisions, we also explore the possibility that commitment mediates the link between dependence and decisions to remain in or end relationships (just as commitment mediates the link between other features of relationships and stay-leave decisions).

Need Satisfaction and Need Importance in the Current Relationship

Our second critique concerns operationalization of the satisfaction construct, an empirical issue about which interdependence theory has remained mute. In exploring the relationship between satisfaction and stay-leave decisions, many researchers have adopted global measures of satisfaction (e.g., "To what degree do you feel satisfied with your current relationship?"; Rusbult, 1983). Such global measures are frequently preceded by concrete items assessing relationship rewards and costs, but the relatively more global measures are typically used in attempts to predict stay-leave decisions (cf. Rusbult, 1980). Once again, this decision has not been entirely misdirected: Variations in global satisfaction are consistently associated with both stay-leave decisions (Rusbult, 1983) and the manner in which partners solve problems and deal with conflict (Birchler, Weiss, & Vincent, 1975; Gottman, Markman, & Notarius, 1977). Despite the demonstrated utility of this approach, we believe it may be useful to adopt a more differentiated operationalization of satisfaction. Specifically, the dependence model deals with the satisfaction construct by assessing the degree to which a given relationship satisfies each of several needs (e.g., intimacy, companionship).

Furthermore, the dependence model assumes that relationships may differ qualitatively. The basis for one relationship may be the partners' pleasure in the profound and passionate intimacy they share, whereas the basis for another may be companionship and a rich, shared social world. In the former relationship it may be irrelevant that the partners cannot abide each others' friends, and in the latter it may be irrelevant that one partner is deeply private and finds it impossible to reveal himself or herself to another. Accordingly, our approach takes into account the degree to which particular needs are central to particular relationships by weighting the importance of each of several needs for each particular relationship. Thus, satisfaction in an ongoing relationship is defined by the degree to which the needs that are most important in that relationship continue to be effectively satisfied in that relationship. We believe that this more differentiated means of defining satisfaction should allow for a more detailed characterization of the basis for dependence on a relationship and may also predict stay-leave decisions more powerfully than the traditional, global measurement approach.

Need Satisfaction in Alternative Relationship

Our third critique concerns operationalization of the quality of alternatives construct, another issue about which interdependence theory has remained relatively silent. As was the case for satisfaction, many researchers have adopted global mea-

asures of alternative quality (e.g., “All things considered, how satisfying would it be to become involved with the best alternative to your relationship?”; Rusbult, 1980). Once again, this decision has not been entirely misdirected: Variations in perceived quality of alternatives are consistently associated with stay–leave decisions (Felmlee et al., 1990; Rusbult, 1983). However, this global measurement approach is limited in two respects. First, it assumes that an individual considers alternatives to his or her relationship as a whole. Given that relationships may fulfill a variety of needs, an individual may actually possess an alternative for each need his or her relationship fulfills. Second, alternative quality typically has been defined in terms of the attractiveness of the best available alternative (cf. Rusbult, 1980). This “single best alternative” approach ignores the fact that an individual’s needs frequently may be fulfilled by multiple alternative partners. Sometimes individuals may end a relationship to pursue a particular alternative partner, but individuals often may choose to separate because a relationship is empty—because it fails to satisfy any (or enough) needs better than what is available from the broader social world. After ending a relationship, the need for emotional involvement may be satisfied by a friend, the need for companionship may be taken care of by a roommate, and the need for security and a sense of belonging may be gratified by siblings. The dependence model deals with the alternatives construct by assessing the degree to which each of several specific needs is satisfied in alternative relationships, allowing for different alternatives for different needs. Once again, we believe that this more differentiated approach may predict stay–leave decisions more powerfully than traditional, global approaches.

CL-alt as a Subjective Standard

Our fourth critique is related to earlier comments regarding the alternatives construct but involves a more subtle point. Prior research has typically adopted a very literal definition of alternative quality. In most of the extant research, the implicit question has been “where would the individual ‘go’ if the current relationship were to end; is the best alternative a particular partner or noninvolvement?” Rather than conceiving of alternatives in terms of a literal alternative to the current relationship, we believe it is more appropriate to treat CL-alt as a subjective standard—a standard that in many respects parallels the CL construct. After a careful reading of Thibaut and Kelley (1959), it is not entirely clear whether these authors intended CL-alt as a specific alternative “place to go” or as a multiply determined internal standard. However, we believe we are operating in the spirit of interdependence theory in recommending that CL-alt be conceptualized as an internal standard and in asserting that, as a subjective standard, CL-alt is based on outcomes experienced in either a single or multiple alternative relationships.

Given this conceptualization of CL-alt, it becomes clear that the central focus in understanding dependence on a given relationship must be the *relationship itself*. That is, adopting the current approach, dependence is defined quite simply: **Dependence is greater to the extent that the most important needs in a relationship are better satisfied in that relationship than else-**

where (i.e., to the extent that outcomes in the relationship compare favorably to CL-alt). It is not necessary to specify whether the needs that are satisfied elsewhere are fulfilled by a single partner or by multiple partners, whether the alternative partner is romantic or nonromantic, whether the alternative is a person with whom the individual realistically might become involved, and so on. It is merely necessary to measure dependence in a very concrete manner and in such a way that all of the preceding are clear possibilities. Thus, instead of focusing on the nature of the individual’s alternatives, the current research emphasizes specific features of the relationship itself, the question being to what degree an individual depends on a relationship to guarantee the continuing fulfillment of important needs.

Dependence Model

What do these critiques imply about the process by which people voluntarily end relationships? We illustrate the breakup process using one possible scenario: Over time, an individual may gradually realize that a current relationship is incapable of satisfying important needs. For example, the need for intimacy may initially be satisfied by a best friend, whereas all other needs may be better satisfied by the partner. Over time, the partner may become increasingly incapable of gratifying one need after another. Important needs may be satisfied better by a particular alternative partner, or the many needs once satisfied by the partner may come to be better fulfilled by a variety of alternatives—a friend, a sibling, and a co-worker. As the individual gradually realizes that the relationship no longer fulfills the important needs it once gratified, the decision to remain in the relationship may be questioned. Dependence on the relationship is eroded, and the possibility of ending the relationship may be entertained. The individual may ultimately end the relationship to pursue a single best alternative but may just as well end it because the relationship is empty—because it fails to satisfy any (or enough) important needs better than relationships in the broader social world. In essence, breakup occurs because the individual is no longer dependent on the relationship.¹

We believe that previous research abstractly defined and empirically assessed the direct causes of stay–leave decisions in adequate yet limited ways by addressing two critical issues—sat-

¹ Of course, we do not wish to imply that relationships end whenever individuals feel that relationships fail to satisfy their immediate needs. To begin with, failures to gratify needs that are central to a relationship—those needs that “define” the relationship—are likely to be more devastating to the health and vitality of a relationship than failures to gratify more peripheral needs. Also, such investments as a shared life, the merging of one’s identity with the partner, and the belief that it is a moral obligation to continue the relationship may help a relationship survive periods of relative distress (cf. M. P. Johnson, in press; Rusbult, in press). Because our research focuses on the satisfaction and quality of alternatives constructs, we say little more about such variables. However, it should be clear that it may ultimately be important to expand the current model to take into account additional features of the development of dependence and the phenomenon of breakup.

isfaction with the current relationship and the quality of alternatives to that relationship. But in prior research, satisfaction was frequently measured with global items that assessed overall attraction to the partner and the relationship (e.g., Rusbult, 1983; Sabatelli & Cecil-Pigo, 1985). Also, prior research frequently measured alternative quality with global items concerning the attractiveness of the best available alternative, the alternatives being either dating another person or persons or being without a romantic involvement (e.g., Felmlee et al., 1990; Rusbult, 1983). We believe it may be preferable to directly assess the specific qualities of relationships involved in stay-leave decisions.

On the basis of this reasoning, we offer an alternative and potentially more powerful means of representing the causes of voluntary breakup. Our approach measures a construct we term *need satisfaction dependence*. Measuring this construct entails assessing (a) the degree to which each of several needs is important in the individual's relationship; (b) the degree to which each of those needs is effectively satisfied in that relationship; (c) for each need, whether there is anyone other than the current partner with whom the individual has an important relationship; and (d) the degree to which each need is satisfied by the alternative relationship. (Need importance is assessed within the context of the current relationship because the key to understanding dependence on a given relationship is that relationship's ability to fulfill the needs that are most central to that relationship.)

Table 1 presents the operational definitions used in the two studies reported here. We adopted two time perspectives, one of which is termed *n - 1*. This perspective focuses on the individual's feelings just before the termination of a relationship, assuming that the immediate state of the relationship should be a strong correlate of stay-leave decisions. For relationships that persisted, this time perspective uses data from the week immediately before the end of the study, at which time it would be evident whether the relationship would continue. A second time perspective is termed *averaged*. This perspective assumes that the sense of dependence may be cumulative and therefore assesses the average level of dependence over the entire course of a relationship, up to and including the week just before the termination of a relationship (or just before each study's end).

For each time perspective, we assessed dependence in two ways. One approach is termed *importance-by-discrepancy*. For each need, we calculated the discrepancy between the current relationship's ability to satisfy the need and the alternatives' ability to do so, and multiplied each discrepancy by the importance of that need in the current relationship (i.e., *how effectively* are important needs satisfied in the current relationship, compared with alternative relationships?). A second approach, termed *relative importance*, assumes that individuals may operate according to a threshold effect. We determined which needs were more effectively satisfied in the current relationship than in alternative relationships and summed the importance scores for those needs (i.e., what is the *net level* of importance attached to the needs that are more effectively fulfilled in that relationship than elsewhere?).

In comparison with alternative models, this approach should

more powerfully predict breakup decisions. Accordingly, the two studies reported here compare the need satisfaction dependence approach with alternative models. In Study 1, one alternative model is simple need satisfaction in the current relationship (ignoring need importance; ignoring discrepancy relative to alternatives). A second alternative model includes two factors: need satisfaction in the current relationship and need satisfaction in alternative relationships (needs are not differentially weighted; discrepancies are not directly assessed). Study 2 includes these models and compares them with two new models: a one-factor model of global satisfaction in the current relationship and a two-factor model including global satisfaction in the current relationship and global evaluations of alternatives. Given that previous research has used global measures of satisfaction and alternatives (cf. Felmlee et al., 1990; Rusbult, 1983), we include such measures in our studies. Both studies also include measures of subjective commitment, allowing us to explore the role of commitment in mediating the relationship between dependence and breakup decisions.

Study 1

Study 1 was designed as an initial step toward assessing the promise of the dependence model. We conducted a longitudinal study of dating relationships, using the measurement techniques outlined above and in Table 1. On the occasion of a breakup, we inquired about responsibility for the decision. Whereas degree of dependence should clearly differentiate between subjects who remain in their relationships and those who voluntarily initiate breakups, it is not clear whether subjects whose relationships end *involuntarily* will necessarily report reduced dependence (i.e., dependence may not predict breakup decisions made by partners). Accordingly, Study 1 tested the following hypothesis: Need satisfaction dependence will be greater among subjects whose relationships persist than among subjects whose relationships terminate, particularly for those who voluntarily end their relationships.

Method

Subjects. Subjects were 54 women and 30 men who participated in the 8-week Computer Assisted Panel Study (CAPS) conducted at the University of North Carolina at Chapel Hill during the spring of 1989. Subjects were recruited from three fraternities and two sororities that were randomly selected from a list of all such organizations on campus. Each subject was paid a base rate of \$2 per session, with the opportunity to earn a bonus averaging \$4 per session. Each fraternity and sorority also received a financial bonus according to the number and attendance records of its participants.

A total of 60 dating relationships occurred during the course of the study. Because the data from 4 subjects who were involved in more than one relationship cannot be considered to be independent observations, in all such cases we omitted data regarding the second relationship from our analyses. The first relationship was chosen for study because the second relationship did not have the same clear endpoint—in no case did the second relationship break up before the end of the

Table 1
Dependent Measures: Studies 1 and 2

Dependent measure	Measure calculation
Time perspective $n - 1$	Scores based on the week before the final week (for relationships that ended, the week before a breakup; for relationships that persisted, the week before the end of the study): $\text{Measure}_{\text{Time } n - 1}$
Averaged	Scores averaged over the weeks during which the subject was involved in a given relationship, barring the final week (the week before a relationship ended or the week before the end of the study): $(\text{Measure}_{\text{Time } n - 1} + \text{Measure}_{\text{Time } n - 2} + \dots + \text{Measure}_{\text{Time } 1}) / n - 1$
NS-DEP Importance-by-discrepancy	Sum across needs of the discrepancy between the current partner's ability to satisfy the need and the alternative's ability to satisfy the need, each discrepancy multiplied by the importance of that need: $\sum_{\text{Need}_x} (\text{NI-CUR}_{\text{Need } x} [\text{NS-CUR}_{\text{Need } x} - \text{NS-ALT}_{\text{Need } x}])$
Relative importance	Sum of the importance scores for needs that were better satisfied by the current partner than by alternative partners: $\sum_{\text{Need}_x} (\text{If } \text{NS-CUR}_{\text{Need } x} > \text{NS-ALT}_{\text{Need } x} \text{ NI-CUR}_{\text{Need } x})$
NS-CUR	Sum across needs of the measures of need satisfaction in the current relationship: $\sum_{\text{Need}_x} (\text{NS-CUR}_{\text{Need } x})$
NS-ALT	Sum across needs of the measures of need satisfaction in alternative relationships: $\sum_{\text{Need}_x} (\text{NS-ALT}_{\text{Need } x})$
GL-CUR (Study 2 only)	Sum of the measures of global satisfaction in the current relationship: $\sum_{\text{DV}} (\text{GL-CUR}_{\text{DV}})$
GL-ALT (Study 2 only)	Sum of the measures of global satisfaction in alternative relationships: $\sum_{\text{DV}} (\text{GL-ALT}_{\text{DV}})$

Note. NS-DEP = need satisfaction dependence; NI-CUR = need importance in the current relationship; NS-CUR = need satisfaction in current relationship; NS-ALT = need satisfaction in alternative relationships; GL-CUR = global satisfaction in current relationship; GL-ALT = global satisfaction in alternative relationships; DV = dependent variable.

study. Also, subjects' second relationships typically were of briefer durations than their first relationships, and information about second relationships was therefore less valid with respect to describing relationship development or deterioration. Accordingly, we studied 56 relationships. Thirty-four relationships (61%) persisted to the end of the study, and 22 relationships (39%) ended during the study. Of the 22 relationships that ended, 8 subjects claimed personal responsibility for the breakup, and 14 indicated that their partners were responsible ($n = 6$) or that they shared equally ($n = 8$) in deciding to break up. These 14 subjects are nominally termed *abandoned*, to differentiate them from subjects who unambiguously were voluntary leavers (i.e., subjects who clearly accepted personal responsibility for the breakup).

Procedure. To protect subjects' anonymity, CAPS participants were given code numbers by which to identify themselves throughout the semester. Participation in the CAPS project required 1 hr a week for about 2 months, beginning several weeks after the start of the semester and ending 2 weeks before the last day of classes. Each week subjects reported to the CAPS research room at their appointed times and

completed a variety of modules presented on computer terminals. The particular modules subjects completed varied from week to week, as did the order in which they were completed. The modules concerned a wide variety of phenomena, including conflict management, group dynamics, and close relationships. (Latané, 1987, provides a more detailed description of the CAPS project and procedures.) Questions relevant to our project were administered every week from Week 3 through Week 8 of the project, for a total of 6 weeks.

Information regarding *dating involvement and breakups* was obtained every week. The subject first indicated whether he or she was currently involved in a dating relationship. If the subject answered *no*, the system proceeded to the next module. If the subject answered *yes*, the partner's first name, relationship duration, and measures of all dependent variables were obtained (see below). During subsequent weeks, previously uninvolved subjects were once again asked if they were involved in a dating relationship, and previously involved students were asked if they were still involved with the partner (the partner's first name was included in the query). If a previously involved subject

reported continued involvement with the partner, dependent variable measures were again obtained. If a previously involved subject said the relationship had ended, information regarding *breakup responsibility* was obtained (see below).

Information regarding *need satisfaction dependence* (NS-DEP) was gathered on every occasion a subject reported involvement in a relationship. Instructions explained that the research goal was to understand “the different areas of relationships [people] have with [their] romantic partner[s].” The module began by identifying and defining five needs that many or most relationships are likely to satisfy to a greater or lesser degree. The five needs were described as follows:

Intimacy: Sharing very personal thoughts, feelings, and secrets (past, present, or future);

Sex: Sharing a sex life (anything from holding hands through intercourse);

Emotional Involvement: Feeling emotionally attached to each other; feeling good when one’s partner feels good, feeling bad when one’s partner feels bad;

Companionship: Doing things together, spending leisure time together, enjoying each other’s company; and

Intellectual Involvement: Sharing ideas and knowledge, discussing values and attitudes, etc.

The subject then responded to the following: “Please judge the importance of each area in your overall relationship with your partner by giving it a percentage. The combination of all five percentages should add up to 100%.” Each need and its definition was presented, and an importance rating was requested (e.g., “To what degree is intimacy important in your overall relationship with [partner’s name]? [Answer with a percentage between 0 and 100]”). When the total did not sum to 100, an error message was presented and ratings were requested again. Then the subject reported degree of satisfaction with the relationship with regard to each need (e.g., “How satisfied are you with your sexual relationship with [partner’s name]?”; 1 = *not at all satisfied*, 7 = *extremely satisfied*). For each relationship area, the subject was then asked to name a person other than the partner with whom he or she had an important relationship (e.g., “Name another person with whom you have an important companionship relationship”). The person could be of either sex. If there was no significant alternative for a given need, the subject typed 99.² If an alternative relationship was reported for a given need, the subject reported on the degree to which he or she felt satisfied with the stated alternative for that need (e.g., “How satisfied are you with your companionship relationship with that person?”; 1 = *not at all satisfied*, 7 = *extremely satisfied*).

The need satisfaction dependence (NS-DEP) measures were based on information regarding need importance in the current relationship (NI-CUR), need satisfaction in the current relationship (NS-CUR), and need satisfaction in alternative relationships (NS-ALT). Table 2 presents descriptive information regarding these data. It is not appropriate to calculate reliability coefficients for these data, because these measures are not intended to serve as multiple indicators of the same construct. Indeed, given that these items are intended to tap differences across need category in NI-CUR, NS-CUR, and NS-ALT, we expected to discover nonsignificant to low correlations among items within the same need category but for different measure types (e.g., NI-CUR for sex with NS-CUR for sex) and moderate correlations among items within the same measure type but for different need categories (e.g., NI-CUR for companionship with NI-CUR for intimacy).

We performed correlational analyses to assess the psychometric properties of these measures. First, we calculated need-specific correlations across the three measure types (e.g., NI-CUR for sex with NS-

CUR for sex and NS-ALT for sex). As expected, judgments of the importance of each need were only weakly related to reports of whether relationships satisfied each need (using Fisher’s transformation, average $r = .20$; range, .08–.29; see the top panel of Table 2). Also as expected, need importance ratings were uncorrelated with reports of whether alternative relationships satisfied each need (Fisher’s average $r = .09$; range, .04–.18; see the top panel of Table 2). Also as expected, measures of need satisfaction in the current relationship were not correlated with measures of need satisfaction in alternative relationships (Fisher’s average $r = .03$; range, $-.08$ –.15; see the middle panel of Table 2).

We also calculated correlations among need items within each measure type (e.g., NS-CUR for intimacy with NS-CUR for sex). Average r s for each measure type are displayed at the bottom of each panel in Table 2. The negative correlation among need importance items was not surprising (Fisher’s average $r = -.24$; range, $-.41$ –.07). Subjects apportioned 100 points among the several needs, so that a high score for one need obviously implied a low score for some other need.³ Subjects who reported high need satisfaction in the current relationship with respect to one need were moderately likely to report high need satisfaction with respect to other needs (Fisher’s average $r = .64$; range, .46–.82). Finally, subjects’ descriptions of need satisfaction in alternative relationships were positively correlated (Fisher’s average $r = .34$; range, .08–.60). Thus, the data that form the basis of our dependence measures appeared to possess the desired psychometric properties.

As described earlier, four NS-DEP measures were developed to assess the degree to which important needs were better satisfied by the current relationship than by alternatives. There were two time perspectives ($n - 1$ and averaged) and two measure types (relative importance and importance-by-discrepancy). Relative importance measures represent the net level of importance of needs that are better satisfied by the current relationship than by alternatives. We determined which needs were better satisfied by the current relationship than by alternatives and summed the importance scores for those needs (if no alternative was listed for a need, the relationship was assumed to satisfy the need better than alternatives). These measures take on values from 0 to 100, with higher scores reflecting greater dependence. Importance-by-discrepancy measures represent how effectively important needs are satisfied in the current relationship compared with alternatives. For each need, we calculated the discrepancy between the current relationship’s ability and the alternatives’ ability to satisfy the need, multiplied this value by the importance of that need in the current relationship, and summed these scores across needs. These measures resulted in values from -600 to 600 , with higher scores reflecting greater dependence.

For each type of measure—relative importance or importance-by-discrepancy—we calculated NS-DEP scores, using two time perspectives. The $n - 1$ measures were based on data during the week immediately preceding a breakup; for relationships that persisted, this measure was based on discrepancies the week before the end of the study. (For the next to the last week, we knew whether the relationship per-

² We requested identifying information regarding alternative partners but did not specify how subjects should record alternatives’ names. Some subjects recorded alternatives’ initials, some recorded first names, and some recorded nicknames. Therefore, we were unable to chart consistency versus change over time in the alternatives subjects described. This problem is addressed and resolved in Study 2.

³ Obviously, the need importance measures are not independent of one another—the five measures must sum to 100. However, it should be clear that once need satisfaction dependence measures are calculated, importance information becomes “embedded” within individual dependence measures, thus eliminating problems of statistical nonindependence across measures.

Table 2
Components of Need Satisfaction Dependence Measures: Descriptive Statistics, Study 1

Component measure and need category	<i>M</i>	<i>SD</i>	<i>r</i> s within need category, across measure type	
			NS-CUR	NS-ALT
NI-CUR				
Companionship	23.78	7.60	.22***	.04
Emotional involvement	19.09	6.62	.08	.04
Intimacy	22.57	10.13	.22***	.10
Intellectual involvement	17.31	7.16	.29***	.08
Sex	17.25	10.48	.21***	.18**
Average <i>r</i> across need categories, within measure type = $-.24$				
NS-CUR				
Companionship	5.29	1.83		.15**
Emotional involvement	5.08	1.65		.12*
Intimacy	5.17	1.67		.02
Intellectual involvement	5.19	1.58		-.03
Sex	5.00	1.99		-.08
Average <i>r</i> across need categories, within measure type = .64				
NS-ALT				
Companionship	5.02	2.35		
Emotional involvement	4.06	2.77		
Intimacy	4.37	2.72		
Intellectual involvement	4.55	2.67		
Sex	1.18	2.27		
Average <i>r</i> across need categories, within measure type = .34				

Note. NS-CUR = need satisfaction in current relationship; NS-ALT = need satisfaction in alternative relationships; NI-CUR = need importance in current relationship. Higher numbers represent greater importance, greater satisfaction with current relationship, and greater satisfaction with alternative relationships.

* $p < .10$. ** $p < .05$. *** $p < .01$.

sisted beyond that week; such information would not be available for measures obtained during the final week of the study) The averaged measures were based on mean NS-DEP over the preceding weeks during which the subject was involved in a relationship. As expected, the four measures were highly correlated (Fisher's average $r = .78$; range, .66-.88).

To provide a basis for comparative evaluation of the NS-DEP measures, we calculated two additional types of measures: averaged and $n - 1$ NS-CUR (sum across needs of the scores for need satisfaction in the current relationship, as described in Table 1; Fisher's average $r = .64$; range, .46-.82); and averaged and $n - 1$ NS-ALT (sum across needs of the scores for need satisfaction in alternative relationships, as described in Table 1; Fisher's average $r = .34$; range, .08-.60).

Commitment to relationships was measured using four items similar to those used by Rusbult (1983): "How much longer do you want your relationship with [partner's name] to last?" (0 = *a month or less*, 8 = *10 or more years*); "How committed do you feel to maintaining your relationship with [partner's name]?" (0 = *not at all committed*, 8 = *completely committed*); "How likely do you think it is that your relationship with [partner's name] will end in the near future?" (0 = *not at all likely to end*, 8 = *extremely likely to end*; reverse-scored); and "How likely do you think it is that you will start a relationship with someone else within the next year?" (0 = *not at all likely to see another*, 8 = *extremely likely to see another*; reverse-scored). Subjective commitment was the sum of the four commitment scores ($\alpha = .94$), calculated for the two time perspectives—averaged and $n - 1$.

We assessed *breakup status* in two ways: on the basis of whether or

not a relationship ended and on the basis of whether a breakup was voluntary. On the occasion of a breakup, we not only recorded the event but also asked the subject to complete two items regarding responsibility: "How much did you want to end this relationship?" (1 = *very much did not*, 7 = *very much did*) and "How much did your partner want to end this relationship?" (1 = *very much did not*, 7 = *very much did*). Subjects were initially categorized simply on the basis of whether their relationships persisted or ended during the course of the study, producing a two-group categorization—persisted versus ended. Subjects whose relationships ended were further designated as leavers or as abandoned, producing a three-group categorization—stayers versus abandoned versus leavers. This categorization was based on whether subjects attributed breakup responsibility to themselves or their partners. In the event that a subject attributed equal responsibility to self and partner, the subject was designated as abandoned. This decision seemed appropriate, in that our goal was to identify a group of leavers for whom termination of the relationship was fairly clearly voluntary. (In the context of understanding dependence and breakups, the abandoned group is relatively uninformative.)

Results

To provide a comparative evaluation of the need satisfaction dependence approach, we performed our analyses for three types of measures: need satisfaction dependence (NS-DEP), need satisfaction in the current relationship (NS-CUR), and

need satisfaction in alternative relationships (NS-ALT). If NS-DEP measures capture important information about relationships, they should be more strongly related to breakup status than NS-CUR and NS-ALT measures. Our analyses proceeded in four stages: First, we performed analyses of variance (ANOVAs) to examine mean levels of each type of measure as a function of breakup status (both persisted vs. ended and stayer vs. abandoned vs. leaver). Second, we used regression model tests to examine the relative strength of relationship between each type of measure and breakup status. Third, we used causal modeling techniques to explore the role of commitment in mediating the relationship between each type of measure and breakup status. And fourth, we used ANOVA and stepwise regression to explore the link between breakup status and NS-DEP measures for each of five needs.

Need satisfaction dependence and breakup status. We began by performing a multivariate analysis of variance (MANOVA), examining differences in NS-DEP measures for relationships that persisted versus those that ended. This revealed a nonsignificant multivariate effect, Mult. $F(4, 51) = 1.24, p < .305$ (no univariate effects were statistically significant). Parallel analyses revealed similarly nonsignificant effects for the measures of NS-CUR, Mult. $F(2, 53) = 0.67, p < .516$ (neither univariate effect was significant), and NS-ALT, Mult. $F(2, 53) = 0.52, p < .599$ (neither univariate effect was significant).

However, given that degree of dependence should most effectively distinguish between subjects who remained in their relationships and those who voluntarily ended their relationships, it was appropriate to examine mean NS-DEP scores for stayers versus abandoned versus leavers. Table 3 presents the results of MANOVAs for all three types of measures. For NS-DEP measures, the multivariate effect was marginal, but all four univariate effects were significant. Consistent with predictions, planned contrasts revealed that for all four measures, stayers (as well as the abandoned) reported significantly greater dependence than did voluntary leavers; stayers and the abandoned did not differ significantly. In contrast, the multivariate effects were not significant for NS-CUR measures (although one univariate effect was significant) or for NS-ALT measures.⁴

Predictive power of need satisfaction dependence. We used multiple regression model tests to explore the predictive power of NS-DEP measures in comparison with alternative models. Two comparison models were used. First, we compared NS-DEP measures with one-factor models, each of which included a measure of NS-CUR (averaged or $n - 1$), to determine whether dependence predicted breakup status more powerfully than did simple satisfaction. Second, given that dependence measures include information about the current relationship in comparison to alternatives, we compared NS-DEP measures with two-factor models, each of which included a measure of NS-CUR and a measure of NS-ALT. In each case, averaged dependence measures were compared with averaged measures for comparison models; $n - 1$ measures were compared with $n - 1$ measures for comparison models.

For each comparison, the procedure was the same. First, stayer versus abandoned versus leaver status (coded 0, 1, or 2) was regressed onto the measure or measures for each model. Then, breakup status was regressed onto a larger model including all measures under comparison—to a two-factor model in-

cluding one NS-DEP measure and one NS-CUR measure or to a three-factor model including NS-DEP and measures of both NS-CUR and NS-ALT. Finally, we compared each two-factor model with relevant one-factor models, calculating the reduction in percentage of variance accounted for when each measure was deleted from the two-factor model; we also compared each three-factor model with relevant one-factor (NS-DEP) and two-factor (NS-CUR and NS-ALT) models, calculating the reduction in percentage of variance accounted for when each measure (or pair of measures) was deleted from the three-factor model. If deleting a measure (or pair of measures) does not substantially reduce the predictive power of a larger model, it is assumed to be less central to the model (i.e., it contributes less unique information to predicting breakup status). These analyses are summarized in Table 4.⁵

It should be noted that the model comparison tests are somewhat conservative, in that NS-DEP measures include information from the NS-CUR and NS-ALT measures (i.e., multicollinearity is an issue in interpreting these results). With this caveat in mind, we turn to Table 4. We began by comparing NS-DEP measures with NS-CUR measures. First, stayer versus abandoned versus leaver status was regressed onto each of the four NS-DEP measures. Consistent with the earlier ANOVAs, in each case NS-DEP significantly predicted breakup status (see Dependence model, R^2 's). Breakup status was also regressed onto both measures of NS-CUR. One analysis was sig-

⁴ We performed a two-factor MANOVA, exploring differences in NS-DEP as a function of subject sex and stayer versus abandoned versus leaver status. The main effect of subject sex was not significant, nor were any univariate sex effects. The multivariate interaction of Sex \times Breakup Status was not significant (multivariate $F(8, 94) = 0.97, p < .464$; but all four univariate effects were marginal, $F_s(2, 50) = 3.13, 2.45, 3.14, \text{ and } 2.87, \text{ all } p_s < .100$. Given that the multivariate interaction of Sex \times Breakup Status was not significant and given that the univariate effects were only marginal, this set of findings does not inspire great confidence. Also, given that the sample sizes in these analyses were in some cases quite small (n s per condition ranged from 3 to 23), interpretation of these findings is at best highly speculative. However, the consistency of the marginal univariate effects suggests that there may be some weak sex differences in the relationship between dependence and breakup status. Accordingly, we mention our findings with caution. In brief, post hoc contrasts revealed that among men, NS-DEP was greatest among the abandoned, intermediate among stayers, and lowest among leavers; among women, NS-DEP was greatest among stayers, intermediate among the abandoned, and lowest among leavers. These differences should be explored in future research. (We performed a parallel two-factor analysis for persisted vs. ended status. No multivariate or univariate effects were significant in this analysis.)

⁵ To determine whether any observed relationship between need satisfaction dependence and breakup status might be due to the effects of relationship duration (i.e., to make certain that our findings were not spurious, reflecting a confounding of breakup status with duration), we performed parallel analyses, using relationship duration as a comparison model. The simple relationship between duration and breakup status was not significant, either for persisted versus ended status, $F(1, 53) = 2.67, p < .108$, or for stayer versus abandoned versus leaver status, $F(1, 53) = 1.77, p < .190$. In all model comparisons, NS-DEP measures contributed significantly to predicting stayer versus abandoned versus leaver status above and beyond simple duration.

Table 3
Mean Level of Each Dependent Measure for Stayers, the Abandoned, and Leavers, and Analysis of Variance Results: Study 1

Dependent measure	Stayers	Abandoned	Leavers	<i>F</i>	<i>df</i>	<i>p</i> <
NS-DEP						
Av: Relative importance	68.46 _a	70.30 _a	33.52 _b	6.70	2, 53	.003
Av: Importance-by-discrepancy	153.13 _a	137.50 _a	-68.75 _b	3.55	2, 53	.036
<i>n</i> - 1: Relative importance	67.50 _a	69.29 _a	24.00 _b	6.50	2, 53	.003
<i>n</i> - 1: Importance-by-discrepancy	110.50 _a	143.21 _a	-130.00 _b	3.86	2, 53	.027
Mult. <i>F</i>				2.00	8, 100	.054
NS-CUR						
Av: Current need satisfaction	26.25 _a	26.21 _{ab}	21.36 _b	2.67	2, 53	.079
<i>n</i> - 1: Current need satisfaction	25.62 _a	26.36 _a	18.50 _b	3.95	2, 53	.025
Mult. <i>F</i>				1.95	4, 104	.108
NS-ALT						
Av: Alternative need satisfaction	18.91 _a	18.19 _a	24.15 _a	1.61	2, 53	.210
<i>n</i> - 1: Alternative need satisfaction	19.79 _a	18.21 _a	24.50 _a	1.49	2, 53	.235
Mult <i>F</i>				0.97	4, 104	.452

Note. Stayers = subject remained in relationship (*n* = 34); abandoned = subject was not primarily responsible for breakup (*n* = 14); leavers = subject was responsible for breakup (*n* = 8); NS-DEP = need satisfaction dependence; NS-CUR = current need satisfaction; NS-ALT = need satisfaction in alternative relationship; Av = measures averaged over duration of relationship; *n* - 1 = measures from week just before breakup (or end of study). Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships. Means with different subscripts differ significantly, *p* < .05.

nificant and the other was marginal (see top panel, Comparison model, R^2 s). Next, breakup status was regressed onto two-factor models including one NS-DEP measure and one NS-CUR measure. Cramer's (1972) model testing techniques were used to compare each two-factor model to respective one-factor models, to determine whether deleting each measure from the larger model significantly reduced the predictive power of that model. In two of four cases, deleting the NS-DEP measure significantly reduced the predictive power of the two-factor model (see Dependence model, *F* if deleted). In no case did deleting the NS-CUR measure significantly reduce predictive power (see Comparison model, *F* if deleted).

Next, we compared NS-DEP measures with two-factor models including both NS-CUR and NS-ALT. As before, NS-DEP consistently predicted breakup status (these analyses are identical to those reported earlier). Then we regressed breakup status onto two-factor models including both NS-CUR and NS-ALT. Neither analysis was significant (see bottom panel, Comparison model R^2 s). Finally, we regressed breakup status onto three-factor models, including NS-DEP and measures of both NS-CUR and NS-ALT. Comparisons of each three-factor model to respective one- and two-factor models revealed that in two of four cases, deleting the NS-DEP measure significantly reduced predictive power; in no case did deleting NS-CUR and NS-ALT significantly reduce predictive power (see Dependence and Comparison models, *F* if deleted).⁶

Thus, although simple (i.e., unweighted) need satisfaction in the current relationship weakly predicted stayer versus abandoned versus leaver status, model comparison tests revealed that neither these measures nor models including measures of need satisfaction in both the current and the alternative rela-

tionships predicted relationship status as effectively as did need satisfaction dependence. Apparently, the superiority of NS-DEP measures emerges because these measures incorporate the *relative importance* of the various needs and *directly compare* level of satisfaction of each need in current and alternative relationships. Of course, these results are not definitive, in that NS-DEP measures contributed unique information to predicting breakup status in only four of eight cases. However, given that comparison models consistently failed to contribute predictive power above and beyond the variance accounted for by need satisfaction dependence, and given that measures from the dependence model and comparison models are moderately collinear, our findings are fairly promising.

Commitment as the mediator of need satisfaction dependence effects. Earlier, we suggested that subjective commitment might mediate the relationship between dependence and stay-leave decisions. Before assessing the plausibility of such a model, three preconditions must be met (cf. Baron & Kenny, 1986; Judd & Kenny, 1981; Reis, 1982): NS-DEP measures must be significantly related to commitment; NS-DEP measures must be related to breakup status; and commitment must be

⁶ Given that NS-DEP measures should most directly distinguish between stayers and subjects who voluntarily end their relationships, we repeated these analyses, dropping the abandoned (0 = stayers, 1 = leavers). These analyses revealed comparison test results that were substantively identical to those displayed in Table 4. Comparisons of each three-factor model to respective one- and two-factor models revealed that in two of four cases, deleting the NS-DEP measure significantly reduced predictive power; in no case did deleting NS-CUR and NS-ALT measures significantly reduce predictive power.

Table 4
Power of Need Satisfaction Dependence Measures and Alternative Models Predicting Stayer Versus Abandoned Versus Leaver Status: Multiple Regression Model Comparisons, Study 1

NS-DEP measures compared with:	Dependence model		Comparison model	
	R^2	F if deleted	R^2	F if deleted
NS-CUR				
Av NS-DEP: Relative importance	.123***	3.15**	.062*	0.05
Av NS-DEP: Importance-by-discrepancy	.088**	1.87	.062*	0.35
$n - 1$ NS-DEP: Relative importance	.123***	3.68**	.072**	0.05
$n - 1$ NS-DEP: Importance-by-discrepancy	.066**	0.35	.072**	0.69
NS-CUR and NS-ALT				
Av NS-DEP: Relative importance	.123***	2.99**	.082	0.60
Av NS-DEP: Importance-by-discrepancy	.088**	1.11	.082	0.58
$n - 1$ NS-DEP: Relative importance	.123***	2.99**	.078	0.60
$n - 1$ NS-DEP: Importance-by-discrepancy	.066**	0.53	.078	0.57

Note. Stayer = subject remained in relationship ($n = 34$); abandoned = subject was not primarily responsible for breakup ($n = 14$); leaver = subject was responsible for breakup ($n = 8$); NS-DEP = need satisfaction dependence; NS-CUR = need satisfaction in current relationship; NS-ALT = need satisfaction in alternative relationship; Av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study). Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships. For relationship status, higher numbers are assigned to leavers. * $p < .10$. ** $p < .05$. *** $p < .01$.

related to breakup status. Statistics relevant to each of these issues are displayed in Table 5. Each precondition is met in the current study. NS-DEP measures were significantly related to commitment (see R^2 s, Commitment, NS-DEP). Also, as we know on the basis of earlier analyses, NS-DEP measures were significantly related to stayer versus abandoned versus leaver status (see R^2 s, Breakup, NS-DEP). Finally, both averaged and $n - 1$ commitment measures were significantly related to breakup status (see R^2 s, Breakup, GL-COM).

Once the preconditions for assessing mediation are established, how can one evaluate the plausibility of a model wherein commitment is assumed to mediate the relationship between dependence and the decision to remain in or end a relationship? To the extent that subjective commitment mediates the link between dependence and breakup, when commitment is included in a regression model along with a dependence measure, commitment should powerfully predict breakup status, whereas the relationship between dependence and breakup status should decline (partial mediation) or drop to nonsignificance (complete mediation). Accordingly, we performed a series of two-factor regressions, including the commitment measure along with each NS-DEP measure (pairing averaged measures with averaged measures; pairing $n - 1$ measures with $n - 1$ measures). Model comparison tests (Cramer, 1972) comparing each two-factor model to respective one-factor models (NS-DEP alone and commitment alone) revealed that when commitment was included in the regression model, the impact of NS-DEP dropped to nonsignificance (see Table 5, F s, Predictor). In all four cases, the commitment measure continued to be critical in predicting breakup status (see Table 5, F Commitment). These results demonstrate the plausibility of a model wherein subjective commitment is assumed to completely mediate the link between dependence and decisions to remain in or end a relationship.⁷

Variations as a function of need category. We used two types

of analysis to explore the relationship between need category and breakup status. The results of these analyses are displayed in Table 6. First, we performed two MANOVAs (persisted vs. ended, stayer vs. abandoned vs. leaver) on the four NS-DEP measures for each need. None of the multivariate effects were statistically significant for persisted versus ended status, although there were scattered significant univariate effects (see Persisted vs. ended F s). For stayer versus abandoned versus leaver status, the multivariate effect was significant for the intimacy measures and was marginal for the emotional involvement measures (see Stayer vs. abandoned vs. leaver F s).

Next, we performed stepwise regression analyses, regressing each breakup status variable in turn onto the five needs assessed by using each type of NS-DEP measure (e.g., onto the five $n - 1$ relative importance NS-DEP measures). Of course, given that these analyses assess dependence effects for each of five needs, the two tests that involve relative importance mea-

⁷ For the sake of completeness, we performed parallel analyses for NS-CUR and for a two-factor model including both NS-CUR and NS-ALT. Both the one-factor NS-CUR models and the two-factor NS-CUR and NS-ALT models were significantly related to commitment. Consistent with earlier analyses, NS-CUR measures were weakly related to breakup status (one effect was significant and one was marginal). Two-factor models including both NS-CUR and NS-ALT were not significantly related to breakup status. Finally, model tests revealed that commitment was more critical to predicting breakup status than was NS-CUR. Deleting NS-CUR did not significantly reduce percentage of variance accounted for, whereas in both cases commitment continued to be critical in predicting breakup status. (Commitment was obviously more critical to predicting breakup status than the two-factor model including NS-CUR and NS-ALT, given that the two-factor models did not predict breakup status even without commitment in the model.) These results suggest that subjective commitment may mediate the relationship between need satisfaction and stayer versus abandoned versus leaver status.

Table 5
Commitment Mediating Decisions to Remain in or End Relationships—Predicting Stayer Versus Abandoned Versus Leaver Status, Partialing Out Commitment Level: Multiple Regression Results, Study 1

Predictor variable	R^2 in prediction of		F if deleted for	
	Commitment	Breakup	Predictor	Commitment
GL-COM				
Av: Commitment level	—	.181**	—	—
$n - 1$: Commitment level	—	.177**	—	—
NS-DEP				
Av: Relative importance	.368**	.123**	0.89	4.56**
Av: Importance-by-discrepancy	.232**	.088*	1.64	6.56**
$n - 1$: Relative importance	.260**	.123**	1.40	4.84**
$n - 1$: Importance-by-discrepancy	.148**	.066*	1.01	8.03**

Note. Stayer = subject remained in relationship ($n = 34$); abandoned = subject was not primarily responsible for breakup ($n = 14$); leaver = subject was responsible for breakup ($n = 8$); GL-COM = global commitment to current relationship; Av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study); NS-DEP = need satisfaction dependence. Higher numbers represent greater dependence, greater satisfaction with current and alternative relationships, and greater commitment. For relationship status, higher numbers are assigned to leavers.

* $p < .05$. ** $p < .01$.

asures are not independent (these scores summed to 100). Thus, the importance-by-discrepancy measures provide a more statistically pure test of differential effects across need. The t s for the regression coefficients that contributed to predicting breakup status (for each measure type) are displayed in Table 6 (see Persisted vs. ended and Stayer vs. abandoned vs. leaver t s). These tests suggest that NS-DEP measures of companionship, emotional involvement, and (perhaps) intimacy were somewhat more likely to contribute to predicting breakup status (either persisted vs. ended or stayer vs. abandoned vs. leaver) than were NS-DEP measures of sex or intellectual involvement.

Discussion

The results of Study 1 demonstrate the utility of our expanded view of the breakup process and of the assessment method we developed to test this model. Need satisfaction dependence (NS-DEP) measures were not related to persisted versus ended status but were significantly related to stayer versus abandoned versus leaver status. That is, need satisfaction dependence predicted breakup status once we took into account whether the subject voluntarily ended his or her relationship. Also, NS-DEP measures appeared to predict stayer versus abandoned versus leaver status somewhat better than measures of need satisfaction in the current relationship or need satisfaction in alternative relationships. Furthermore, causal modeling analyses demonstrated the plausibility of a model in which subjective commitment is assumed to mediate the link between need satisfaction dependence and stay-leave decisions. Finally, exploratory analyses of individual need categories suggested that the companionship, emotional involvement, and (perhaps) intimacy needs may be more strongly related to breakup decisions than the needs for intellectual involvement or sex. However, given that the results of these analyses were rather mixed and weak, it appears that there may be substantial individual

differences in the impact of various needs on stay-leave decisions.

There are at least three problems with Study 1. To begin with, one might ask whether this approach predicts breakup status any better than several existing models of stay-leave behavior that typically use global measures of satisfaction and alternatives. Also, one assumption of the current approach is that although people may often end ongoing relationships for a single best alternative, they may just as frequently end relationships because their needs are better satisfied by multiple alternatives. Study 1 did not obtain information directly relevant to this issue. It only measured feelings about current relationships and alternative relationships in such a way that the multiple alternatives possibility was taken into account. Finally, the needs explored in Study 1 were selected on the basis of their face validity. It is not clear that these needs are the most important needs—or even among the most important needs—that relationships gratify.

Study 2

Study 2 was primarily a replication of Study 1, but it extended Study 1 in three respects. First, in addition to the measures obtained in Study 1, we also measured global satisfaction and global alternative quality, using items similar to those used in previous research (e.g., Felmlee et al., 1990; Rusbult, 1983). This allowed us to determine how well the dependence model predicts stay-leave decisions in comparison with existing theories. Second, we retained the exact names of the alternatives subjects listed for each need, to determine whether people who ended their relationships tended to report a single best alternative or multiple alternatives. Finally, we began Study 2 with pretesting to identify the needs that are most central in ongoing relationships. In addition to exploring several peripheral issues relevant to the dependence model, Study 2 tested the same primary

Table 6
Predictive Power of Need Satisfaction Dependence Measures by Category:
Analysis of Variance and Stepwise Regression Results, Study 1

Need category	Persisted versus ended		Stayer versus abandoned versus leaver	
	<i>F</i>	<i>t</i>	<i>F</i>	<i>t</i>
Companionship				
Av: Relative importance	0.02		0.28	
Av: Importance-by-discrepancy	1.27	3.25***	1.06	3.08***
<i>n</i> - 1: Relative importance	0.01		0.56	
<i>n</i> - 1: Importance-by-discrepancy	1.13	2.77***	1.68	2.50**
Mult. <i>F</i>	0.62		0.78	
Emotional involvement				
Av: Relative importance	2.80		4.99***	
Av: Importance-by-discrepancy	5.33**	3.90***	4.71**	4.38***
<i>n</i> - 1: Relative importance	2.59		3.04*	1.70*
<i>n</i> - 1: Importance-by-discrepancy	2.99*	3.12***	3.56**	2.83***
Mult. <i>F</i>	1.79		1.94*	
Intimacy				
Av: Relative importance	3.99**	2.00*	7.86***	3.24***
Av: Importance-by-discrepancy	2.70		2.05	
<i>n</i> - 1: Relative importance	5.74**	2.40***	9.15***	3.30***
<i>n</i> - 1: Importance-by-discrepancy	2.57		3.25**	1.70*
Mult. <i>F</i>	1.60		2.39**	
Intellectual involvement				
Av: Relative importance	0.23		0.15	
Av: Importance-by-discrepancy	0.23		0.97	
<i>n</i> - 1: Relative importance	0.12		0.10	
<i>n</i> - 1: Importance-by-discrepancy	0.02		1.13	
Mult. <i>F</i>	1.15		0.92	
Sex				
Av: Relative importance	0.12		4.05**	
Av: Importance-by-discrepancy	0.06		2.00	
<i>n</i> - 1: Relative importance	0.00		2.92*	
<i>n</i> - 1: Importance-by-discrepancy	0.80		2.12	
Mult. <i>F</i>	1.12		1.62	

Note. Stayer = subject remained in relationship ($n = 34$); abandoned = subject was not primarily responsible for breakup ($n = 14$); leaver = subject was responsible for breakup ($n = 8$); av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study). Higher numbers represent greater dependence. For relationship status, higher numbers are assigned to leavers and to relationships that ended.

* $p < .10$. ** $p < .05$. *** $p < .01$.

hypothesis as Study 1: Need satisfaction dependence will be greater among subjects whose relationships persist than among subjects whose relationships terminate, particularly for those who voluntarily end their relationships.

Method

Subjects. Subjects were 67 women who participated in the 9-week CAPS project conducted at the University of North Carolina at Chapel Hill during the fall of 1989. (The CAPS personnel used an all-female sample during that semester because during prior semesters women had more reliably completed their weekly CAPS sessions, without reminders or rescheduling.) Subjects were recruited from three sororities

and two dormitories that were randomly selected from a list of all such campus organizations. Subjects were paid for participation as in Study 1.

A total of 57 relationships occurred during the course of Study 2. As in Study 1, in all cases wherein a subject was involved in more than one relationship, we included data from first relationships only (the data from multiple relationships are not independent). Accordingly, Study 2 examined 52 relationships. Thirty-three relationships (63%) persisted to the end of the study and 19 (39%) ended during the course of the study. Of the 19 relationships that ended, 9 subjects claimed personal responsibility for the breakup and 6 indicated that their partners were responsible ($n = 3$) or that they shared equally ($n = 3$) in deciding to break up (4 subjects failed to answer these questions and their data are treated as missing data for analyses involving these items).

Procedure. The procedure was basically the same as that of Study 1. Questions relevant to our concerns were administered in the CAPS project every week from Week 3 through Week 9, for a total of 7 weeks. Information regarding dating involvement, breakups, and breakup responsibility was obtained as in Study 1. Also as in Study 1, information regarding NS-DEP was collected on every occasion a subject indicated involvement in a dating relationship.

The needs examined in Study 2 were identified through a pretest questionnaire completed by 64 undergraduates (34 women and 30 men). The questionnaire began with an open-ended item: "Relationships satisfy a variety of needs. These needs reflect what people want to get out of a relationship—what's important to them. Below, please list the needs you want satisfied in a romantic relationship." Subjects listed as many needs as they wished and then rated each in terms of importance ("Write a 1 next to the most important item, a 2 next to . . ."). Subjects then read a list of 12 needs (e.g., "popularity—a partner who is respected and well-liked by my friends [belongs to a good fraternity/sorority, is a great athlete, etc.]; "romance—doing romantic things together, things I have always dreamed of [e.g., weekend in the mountains, champagne picnic, walking on the beach at sunset]"). They then rated the importance of each need ("Rate how important each of the following is to you in a romantic relationship"; 0 = *not at all important*, 8 = *extremely important*). Both procedures led to the same conclusion, suggesting that it was appropriate to drop the intellectual involvement need from the Study 1 list and to add two new needs, the needs for security and self-worth. The following 6 needs were rated as most important among both women and men:

Intimacy: Sharing very personal thoughts, feelings, and secrets (past, present, or future);

Sex: Sharing a sex life (anything from holding hands through intercourse);

Emotional Involvement: Feeling emotionally attached to each other; feeling good when one's partner feels good, feeling bad when one's partner feels bad;

Companionship: Doing things together, spending leisure time together, enjoying each other's company;

Security: A relationship you can count on; one that makes your life more stable and comfortable; and

Self-Worth: A relationship that makes you feel good about yourself (someone who likes you the way you are).

As in Study 1, subjects rated the importance of each need, indicated the degree to which they were satisfied with their current relationships with regard to each need, indicated for each need whether there was anyone other than the partner with whom they had an important relationship, and rated the degree to which they were satisfied with the stated alternative for each need.

The NS-DEP measures were based on information regarding NI-CUR, NS-CUR, and NS-ALT. Table 7 presents descriptive information regarding these data. To assess the psychometric properties of these measures, we performed several types of correlational analysis. For each need, we calculated need-specific correlations between the three types of measure (e.g., NI-CUR for sex with NS-CUR for sex and NS-ALT for sex). As expected, subjects' judgments of the importance of each need in their relationships were only weakly related to reports of whether their relationships satisfied each need (using Fisher's transformation, average $r = .16$; range, .02–.28; see the top panel of Table 7). Also as expected, need importance ratings were essentially uncorrelated with reports of whether alternative relationships satisfied those needs (Fisher's average $r = .07$; range, $-.13$ –.31; see the top panel of Table 7). Finally, reports of need satisfaction in the current relationship were not significantly correlated with reports of need satisfaction in

alternative relationships (Fisher's average $r = -.06$; range, $-.15$ –.15; see the middle panel of Table 7).

We also calculated correlations among need items within each measure type (e.g., NS-CUR for intimacy with NS-CUR for sex, etc.). As in Study 1, the need importance items were weakly negatively correlated (Fisher's average $r = -.19$; range, $-.47$ –.31). Also, subjects who reported high need satisfaction in the current relationship with respect to one need were relatively likely to report high satisfaction with respect to other needs (Fisher's average $r = .57$; range, .34–.74). Finally, subjects' reports of need satisfaction in alternative relationships were positively correlated (Fisher's average $r = .33$; range, .12–.64). Thus, consistent with Study 1, the data that form the basis of our NS-DEP measures appeared to possess the desired psychometric properties.

As in Study 1, four NS-DEP measures were developed. The two relative importance measures were computed by summing the importance scores for needs that were better satisfied by the current relationship than by alternative relationships. The two importance-by-discrepancy measures were computed by calculating the discrepancy between the current relationship's ability and the alternatives' ability to satisfy each need, multiplying this value by the importance of that need in the current relationship, and summing these scores across needs. Also as in Study 1, both $n - 1$ and averaged measures were calculated. The $n - 1$ measures were based on discrepancies during the week immediately preceding a breakup; for relationships that persisted, this measure was from the week before the end of the study. The averaged measures were based on mean NS-DEP over the preceding weeks during which the subject was involved in a relationship. The resultant four measures were highly correlated (Fisher's average $r = .84$; range, .78–.95).

To compare the predictive power of the current approach to that of existing theories of stay-leave behavior, Study 2 obtained several additional types of measures. First, we calculated measures of averaged and $n - 1$ NS-CUR (sum across needs of the scores for need satisfaction in the current relationship; as described in Table 1; Fisher's average $r = .57$; range, .34–.74); and averaged and $n - 1$ NS-ALT (sum across needs of the scores for need satisfaction in alternative relationships; as described in Table 1; Fisher's average $r = .33$; range, .12–.64). Subjective commitment was measured as in Study 1.

We also obtained global measures of satisfaction and alternative quality, using items similar to those from previous research (Rusbult, 1980; Sabatelli & Cecil-Pigo, 1985; Simpson, 1987). To assess these variables independent of need satisfaction dependence, they were included in a separate CAPS module. This module always followed the one including our items; the modules were separated by at least one unrelated module.

Following previous research (e.g., Rusbult, 1980; Sabatelli & Cecil-Pigo, 1985), three items assessed *global satisfaction with the current relationship* (GL-CUR): "Think about the relationship you have with [partner's name]—do you get along well, do you have fun together, etc. All things considered, how satisfied are you with your relationship?" (1 = *not at all satisfied*, 7 = *extremely satisfied*); "Think about how you feel about [partner's name]—do you like or love him/her, are you attracted to him/her, etc. All things considered, how satisfied are you with your partner?" (1 = *not at all satisfied*, 7 = *extremely satisfied*); and "Think about how [partner's name] feels about you—does he/she treat you well, does he/she care about you, etc. All things considered, how satisfied are you with how he/she treats you?" (1 = *not at all satisfied*, 7 = *extremely satisfied*).

Following previous research (e.g., Rusbult, 1983; Simpson, 1987), four items measured *global quality of alternatives* (GL-ALT): "Think of the person you would be most likely to become involved with if you were no longer involved with [partner's name]. How satisfying would that relationship be?" (1 = *not at all satisfying*, 7 = *extremely satisfying*);

Table 7
Components of Need Satisfaction Dependence Measures: Descriptive Statistics, Study 2

Dependence component measure and need category	<i>M</i>	<i>SD</i>	<i>r</i> s within need category, across measure type	
			NS-CUR	NS-ALT
NI-CUR				
Companionship	20.56	7.05	.16**	-.07
Emotional involvement	18.05	4.99	.28***	-.13*
Intimacy	20.32	5.85	.22***	.06
Security	12.59	5.01	.02	.07
Self-esteem enhancement	14.51	5.56	.03	.31***
Sex	13.96	6.25	.24***	.20**
Average <i>r</i> across need categories, within measure type = -.19				
NS-CUR				
Companionship	5.95	1.47		-.15**
Emotional involvement	5.76	1.31		-.07
Intimacy	5.85	1.37		-.13*
Security	5.70	1.50		-.15**
Self-esteem enhancement	6.07	1.23		-.01
Sex	5.92	1.25		.15**
Average <i>r</i> across need categories, within measure type = .57				
NS-ALT				
Companionship	5.45	1.85		
Emotional involvement	4.75	2.33		
Intimacy	5.04	2.13		
Security	4.58	2.69		
Self-esteem enhancement	5.05	2.41		
Sex	1.27	2.26		
Average <i>r</i> across need categories, within measure type = .33				

Note. NI-CUR = need importance in current relationship; NS-CUR = need satisfaction in current relationship; NS-ALT = need satisfaction in alternative relationships. Higher numbers represent greater importance, greater satisfaction with current relationship, and greater satisfaction with alternative relationships.

* $p < .10$ ** $p < .05$. *** $p < .01$.

“Think about how it would be to date around instead of being exclusively involved with [partner’s name]. How satisfying would it be to date around?” (1 = *not at all satisfying*, 7 = *extremely satisfying*); “Think of not being involved in a dating relationship, instead spending time with friends or family. How satisfying would it be to spend time on your own, not involved in a dating relationship?” (1 = *not at all satisfying*, 7 = *extremely satisfying*); and “Consider all of your alternatives to your current relationship—dating another person, dating around, or spending time on your own (with friends, family). All things considered, how satisfied would you be with your best alternative?” (1 = *not at all satisfied*, 7 = *extremely satisfied*).

The several items designed to measure GL-CUR were strongly related ($\alpha = .85$), as were the items designed to measure GL-ALT ($\alpha = .83$) and subjective commitment ($\alpha = .91$). Therefore, for each time perspective, we summed the several items designed to measure each construct to form single measures of subjective commitment, global satisfaction, and global quality of alternatives. For each construct, we calculated both averaged and $n - 1$ measures. The GL-CUR measures were correlated with measures of NS-CUR (Fisher’s average $r = .86$), and the GL-ALT measures were correlated with measures of NS-ALT (Fisher’s average $r = .45$). As in Study 1, relationships were designated as having persisted or ended, and subjects were categorized as stayers, abandoned, or leavers.

Results

Following the logic of the analysis strategy used in Study 1, we performed our primary analyses for several types of measures—need satisfaction dependence (NS-DEP), need satisfaction in the current relationship (NS-CUR), need satisfaction in alternative relationships (NS-ALT), global satisfaction in the current relationship (GL-CUR), and global alternative quality (GL-ALT). First, we performed ANOVAs to examine levels of each measure as a function of breakup status. Second, we used regression model tests to explore the relative predictive power of the measures in accounting for breakup status. Third, we used causal modeling to explore the role of commitment in mediating the relationship between NS-DEP and breakup status. Fourth, we used ANOVA and stepwise regression to examine the link between breakup status and NS-DEP for each of six needs. And fifth, we explored the frequency with which subjects reported single best alternatives versus multiple alternatives to their current relationships.

Need satisfaction dependence and breakup status. Table 8 displays the results of MANOVAs that examined differences in

Table 8
Mean Level of Each Dependent Measure for Relationships That Persisted Versus Ended: Analysis of Variance Results, Study 2

Dependent measure	Persisted	Ended	<i>F</i>	<i>df</i>	<i>p</i> <
NS-DEP					
Av: Relative importance	80.71	50.32	21.70	1, 50	.001
Av: Importance-by-discrepancy	168.39	-29.16	20.92	1, 50	.001
<i>n</i> - 1: Relative importance	80.15	41.05	25.01	1, 50	.001
<i>n</i> - 1: Importance-by-discrepancy	196.97	-66.84	19.47	1, 50	.001
Mult. <i>F</i>			6.49	4, 47	.001
NS-CUR					
Av: Current need satisfaction	35.58	30.57	8.05	1, 50	.007
<i>n</i> - 1: Current need satisfaction	34.36	28.79	6.85	1, 50	.012
Mult. <i>F</i>			3.95	2, 49	.026
NS-ALT					
Av: Alternative need satisfaction	24.67	31.43	10.19	1, 50	.002
<i>n</i> - 1: Alternative need satisfaction	21.99	31.11	10.76	1, 50	.002
Mult. <i>F</i>			5.43	2, 49	.007
GL-CUR					
Av: Global satisfaction	18.84	16.50	9.08	1, 47	.004
<i>n</i> - 1: Global satisfaction	18.32	16.11	4.88	1, 47	.032
Mult. <i>F</i>			5.01	2, 46	.011
GL-ALT					
Av: Global alternatives	14.93	18.56	6.94	1, 48	.011
<i>n</i> - 1: Global alternatives	13.88	19.39	9.76	1, 48	.003
Mult. <i>F</i>			4.87	2, 47	.012

Note. NS-DEP = need satisfaction dependence; av = measures averaged over duration of relationship; *n* - 1 = measures from week just before breakup (or end of study); NS-CUR = need satisfaction in current relationships; NS-ALT = need satisfaction in alternative relationships; GL-CUR = global satisfaction in current relationship; GL-ALT = global satisfaction in alternative relationships. For relationships that persisted, *n* = 33; for relationships that ended, *n* = 19. Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships.

each type of measure for relationships that persisted versus ended. For NS-DEP measures, the multivariate effect was significant, as were all four univariate effects. The multivariate and univariate effects were also significant for the other four types of measures—NS-CUR, NS-ALT, GL-CUR, and GL-ALT.

Given that degree of dependence should most effectively distinguish between subjects who remained in their relationships and those who voluntarily ended their relationships, it was also appropriate to examine NS-DEP for stayers versus abandoned versus leavers. The results of MANOVAs for all five types of measure are displayed in Table 9. For NS-DEP measures, the multivariate effect was significant, as were all four univariate effects. Consistent with predictions, planned contrasts revealed that for all four measures, stayers reported significantly greater NS-DEP than did voluntary leavers. However, whereas in Study 1 the abandoned differed from leavers and were not significantly different from stayers, in the present study we found that the abandoned generally differed significantly from stayers (this was true for three of four contrasts) and evidenced levels of dependence that were more similar to those of leavers. The multivariate and univariate effects were also significant for three of the other types of measures examined in Study 2—the

NS-ALT, GL-CUR, and GL-ALT measures. As in Study 1, the multivariate effect was marginally significant for NS-CUR (one univariate effect was significant; one was marginal).

Predictive power of need satisfaction dependence: Relationships with persisted versus ended status. We used regression model testing to explore the predictive power of NS-DEP measures in comparison to alternative models. Four comparison models were used. First, we compared NS-DEP measures with one-factor models including NS-CUR or GL-CUR measures, to determine whether dependence predicted breakup status more powerfully than did satisfaction. Second, given that dependence measures included information about the current relationship relative to alternatives, we compared NS-DEP measures with two-factor models including NS-CUR and NS-ALT or GL-CUR and GL-ALT. In each case, averaged measures of dependence were compared with averaged measures for comparison models; *n* - 1 measures were compared with *n* - 1 measures for comparison models.

For each comparison the procedure was the same. First, persisted versus ended status (coded 0 or 1) or stayer versus abandoned versus leaver status (coded 0, 1, or 2) was regressed onto each model. Then breakup status was regressed onto measures

Table 9
*Mean Level of Each Dependent Measure for Stayers, the Abandoned, and Leavers
 and Analysis of Variance Results: Study 2*

Dependent measure	Stayers	Abandoned	Leavers	<i>F</i>	<i>df</i>	<i>p</i> <
NS-DEP						
Av: Relative importance	80.71 _a	58.83 _b	53.44 _b	7.04	2, 45	.002
Av: Importance-by discrepancy	168.39 _a	47.33 _{a,b}	-30.56 _b	7.20	2, 45	.002
<i>n</i> - 1: Relative importance	80.15 _a	41.67 _b	47.78 _b	8.60	2, 45	.001
<i>n</i> - 1: Importance-by-discrepancy	196.97 _a	-2.50 _b	-75.00 _b	6.84	2, 45	.003
Mult. <i>F</i>				2.48	8, 84	.018
NS-CUR						
Av: Current need satisfaction	35.58 _a	35.17 _{a,b}	29.94 _b	3.69	2, 45	.033
<i>n</i> - 1: Current need satisfaction	34.36 _a	32.17 _{a,b}	28.22 _b	2.57	2, 45	.089
Mult. <i>F</i>				2.23	4, 88	.073
NS-ALT						
Av: Alternative need satisfaction	24.67 _b	33.22 _a	30.80 _a	4.63	2, 45	.015
<i>n</i> - 1: Alternative need satisfaction	21.99 _b	32.83 _a	31.78 _a	5.44	2, 45	.008
Mult. <i>F</i>				2.78	4, 88	.032
GL-CUR						
Av: Global satisfaction	18.84 _a	18.38 _a	15.44 _b	6.09	2, 43	.005
<i>n</i> - 1: Global satisfaction	18.32 _a	17.83 _{a,b}	15.00 _b	3.29	2, 43	.047
Mult. <i>F</i>				3.10	4, 84	.020
GL-ALT						
Av: Global alternatives	14.93 _b	15.52 _b	20.29 _a	4.82	2, 44	.013
<i>n</i> - 1: Global alternatives	13.88 _b	14.67 _b	22.33 _a	7.54	2, 44	.002
Mult. <i>F</i>				3.56	4, 86	.010

Note. Stayers = subject remained in relationship ($n = 33$); abandoned = subject not primarily responsible for breakup ($n = 6$); leavers = subject was responsible for breakup ($n = 9$); NS-DEP = need satisfaction dependence; av = measures averaged over duration of relationship; *n* - 1 = measures from week just before breakup (or end of study). Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships. NS-CUR = current need satisfaction; NS-ALT = need satisfaction in alternative relationship; GL-CUR = global satisfaction in current relationship; GL-ALT = global satisfaction in alternative relationships. Means with different subscripts differ significantly, $p < .05$.

from both models under comparison—to a two-factor model including one NS-DEP measure and one NS-CUR or GL-CUR measure, and to a three-factor model including one NS-DEP measure and measures of both NS-CUR and NS-ALT or measures of both GL-CUR and GL-ALT. Finally, we compared each larger model with relevant smaller models, calculating the reduction in percentage of variance accounted for when each measure (or pair of measures) was deleted from the larger model. If deleting a measure (or pair of measures) does not substantially reduce the predictive power of the larger model, it is assumed to be less central to the model—that is, it is assumed to contribute less unique information to predicting breakup status. Analyses for persisted versus ended status are summarized in Table 10, and analyses for stayer versus abandoned versus leaver status are summarized in Table 11.⁸

First, persisted versus ended status was regressed onto each of the four NS-DEP measures. Consistent with the ANOVAs, in each case NS-DEP significantly predicted breakup status (see Table 10, Dependence model, R^2 s). Breakup status was also regressed onto both measures of NS-CUR. In each case NS-CUR significantly predicted breakup status (see Comparison Model R^2 s, NS-CUR). Next, breakup status was regressed onto

two-factor models including one NS-DEP measure and one NS-CUR measure. Cramer's (1972) model tests were used to compare each two-factor model with respective one-factor models, to determine whether deleting each measure reduced the predictive power of the larger model. In all four cases, deleting the NS-DEP measure significantly reduced the predictive power of the two-factor model (see Dependence model, F s if deleted). In no case did deleting the NS-CUR measure reduce predictive power (see Comparison model, F s if deleted).

Next, we compared NS-DEP measures with two-factor mod-

⁸ To determine whether any observed relationship between NS-DEP and breakup status might be due to the effects of relationship duration (i.e., to make certain that our findings were not spurious, due to confounding of breakup status with duration), we performed parallel analyses using relationship duration as a comparison model. As in Study 1, the relationship between duration and breakup status was not significant, either for persisted versus ended status, $F(1, 50) = 1.26$, $p < .267$; or for stayer versus abandoned versus leaver status, $F(1, 46) = 1.00$, $p < .323$. In all model comparisons, NS-DEP measures contributed significantly to predicting both persisted versus ended status and stayer versus abandoned versus leaver status above and beyond simple duration.

Table 10
Power of Need Satisfaction Dependence Measures and Alternative Models in Predicting Persisted Versus Ended Status: Multiple Regression Model Comparisons, Study 2

NS-DEP measures compared with:	Dependence model		Comparison model	
	R^2	F if deleted	R^2	F if deleted
NS-CUR				
Av NS-DEP: Relative importance	.303**	12.07**	.139**	0.71
Av NS-DEP: Importance-by-discrepancy	.295**	8.47**	.139**	1.41
$n - 1$ NS-DEP: Relative importance	.333**	16.33**	.121*	0.74
$n - 1$ NS-DEP: Importance-by-discrepancy	.280**	8.12**	.121*	1.48
NS-CUR and NS-ALT				
Av NS-DEP: Relative importance	.303**	11.20**	.264**	0.70
Av NS-DEP: Importance-by-discrepancy	.295**	2.74*	.264**	0.69
$n - 1$ NS-DEP: Relative importance	.333**	10.05**	.239**	0.63
$n - 1$ NS-DEP: Importance-by-discrepancy	.280**	3.38*	.239**	0.68
GL-CUR				
Av NS-DEP: Relative importance	.303**	9.54**	.162**	0.20
Av NS-DEP: Importance-by-discrepancy	.295**	7.99**	.162**	0.08
$n - 1$ NS-DEP: Relative importance	.333**	17.93**	.098*	1.28
$n - 1$ NS-DEP: Importance-by-discrepancy	.280**	11.79**	.098*	0.13
GL-CUR and GL-ALT				
Av NS-DEP: Relative importance	.303**	7.96**	.208**	1.62
Av NS-DEP: Importance-by-discrepancy	.295**	5.63**	.208**	0.06
$n - 1$ NS-DEP: Relative importance	.333**	14.48**	.194**	4.05*
$n - 1$ NS-DEP: Importance-by-discrepancy	.280**	7.81**	.194**	2.07

Note. NS-DEP = need satisfaction dependence; NS-CUR = need satisfaction in current relationship; av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study); NS-ALT = need satisfaction in alternative relationships; GL-CUR = global satisfaction in current relationship; GL-ALT = global satisfaction in alternative relationships. Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships. For relationship status, higher numbers are assigned to relationships that ended.
 * $p < .05$. ** $p < .01$.

els including both NS-CUR and NS-ALT. As above, in all four cases NS-DEP significantly predicted persisted versus ended status. And in both cases, breakup status was significantly predicted by two-factor models including measures of NS-CUR and NS-ALT (see comparison model, R^2 s).⁹ Finally, we regressed breakup status onto three-factor models, including one NS-DEP measure and measures of both NS-CUR and NS-ALT. Comparisons of each three-factor model to respective one- and two-factor models revealed that in all four cases, deleting the NS-DEP measure significantly reduced predictive power (see Dependence model, F s if deleted). In no case did deleting NS-CUR and NS-ALT significantly reduce the predictive power of the larger model.

The next step was to compare the NS-DEP measures with global measures of satisfaction. Both GL-CUR measures significantly predicted persisted versus ended status (see Comparison model, R^2 s, GL-CUR). However, when we regressed breakup status onto two-factor models including one NS-DEP measure and one GL-CUR measure and compared the two-factor models with relevant one-factor models, in all four cases the NS-DEP measures were critical in predicting persisted versus ended status, and in no case did deleting the GL-CUR measure significantly reduce predictive power.

Finally, we compared NS-DEP measures with two-factor models including measures of both GL-CUR and GL-ALT. Both two-factor models including GL-CUR and GL-ALT significantly predicted persisted versus ended status (see GL-CUR

and GL-ALT). However, when we regressed breakup status onto three-factor models including one NS-DEP measure and measures of both GL-CUR and GL-ALT and compared the resultant three-factor models with relevant one- or two-factor models, the NS-DEP measures were critical in all four cases, whereas the GL-CUR and GL-ALT measures contributed significantly to predicting breakup status above and beyond NS-DEP in only one of four cases.

Thus, need satisfaction dependence predicted persisted versus ended status better than any of the four comparison models explored in this study—better than need satisfaction in the current relationship, better than global satisfaction in the current relationship, better than a two-factor model including measures of need satisfaction in both the current and alternative relationships, and better than a two-factor model including

⁹ In all of these analyses, the regression coefficients for need satisfaction in the current relationship were negative and those for need satisfaction in alternative relationships were positive. The same was true for the global measures; the regression coefficients for global satisfaction were negative, and the coefficients for global alternative quality were positive. That is, consistent with expectations, lesser satisfaction with the current relationship was associated with greater probability of breakup, and greater satisfaction with alternative relationships was associated with greater probability of breakup. This was the case in predicting persisted versus ended status and in predicting stayer versus abandoned versus leaver status.

Table 11
Power of Need Satisfaction Dependence Measures and Alternative Models in Predicting Stayer Versus Abandoned Versus Leaver Status: Multiple Regression Model Comparisons, Study 2

NS-DEP measures compared with:	Dependence model		Comparison model	
	R^2	F if deleted	R^2	F if deleted
NS-CUR				
Av NS-DEP: Relative importance	.226***	6.43***	.123**	0.58
Av NS-DEP: Importance-by-discrepancy	.241***	7.11***	.123**	0.59
$n - 1$ NS-DEP: Relative importance	.223***	6.92***	.101**	0.58
$n - 1$ NS-DEP: Importance-by-discrepancy	.226***	7.60***	.101**	0.58
NS-CUR and NS-ALT				
Av NS-DEP: Relative importance	.226***	1.58	.217***	0.63
Av NS-DEP: Importance-by-discrepancy	.241***	1.58	.217***	0.13
$n - 1$ NS-DEP: Relative importance	.223***	1.96	.212***	1.26
$n - 1$ NS-DEP: Importance-by-discrepancy	.226***	1.25	.212***	0.25
GL-CUR				
Av NS-DEP: Relative importance	.226***	2.81*	.200***	1.32
Av NS-DEP: Importance-by-discrepancy	.241***	3.61**	.200***	1.22
$n - 1$ NS-DEP: Relative importance	.223***	5.94***	.125**	0.34
$n - 1$ NS-DEP: Importance-by-discrepancy	.226***	6.07***	.125**	0.29
GL-CUR and GL-ALT				
Av NS-DEP: Relative importance	.226***	1.84	.262***	3.98**
Av NS-DEP: Importance-by-discrepancy	.241***	1.66	.262***	2.90**
$n - 1$ NS-DEP: Relative importance	.223***	3.78**	.257***	5.92***
$n - 1$ NS-DEP: Importance-by-discrepancy	.226***	2.84**	.257***	4.75***

Note. Stayer = subject remained in relationship ($n = 33$); abandoned = subject was not primarily responsible for breakup ($n = 6$); leaver = subject was responsible for breakup ($n = 9$); NS-DEP = need satisfaction dependence; NS-CUR = need satisfaction in current relationship; av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study); NS-ALT = need satisfaction in alternative relationships; GL-CUR = global satisfaction in current relationship; GL-ALT = global satisfaction in alternative relationships. Higher numbers represent greater dependence and greater satisfaction with current and alternative relationships. For relationship status, higher numbers are assigned to leavers.

* $p < .10$. ** $p < .05$. *** $p < .01$.

measures of global satisfaction in both the current and alternative relationships. In 16 of 16 cases, NS-DEP measures contributed unique information to the prediction of persisted versus ended status, whereas in only 1 of 16 cases did measures from alternative models exhibit predictive power above and beyond the variance accounted for by NS-DEP measures.

Predictive power of need satisfaction dependence: Relationships with stayer versus abandoned versus leaver status. The next step was to explore the power of NS-DEP measures in predicting stayer versus abandoned versus leaver status. As was the case for the ANOVAs, all four NS-DEP measures significantly predicted breakup status (see Table 11, Dependence model, R^2 s). In addition, all four types of comparison models significantly predicted breakup status (see Comparison model, R^2 s). We regressed stayer versus abandoned versus leaver status onto the relevant measures for each set of models under comparison and used multiple regression model tests to determine which models contributed unique information to predicting of stayer versus abandoned versus leaver status.

The results of these tests revealed that NS-DEP measures were clearly superior to both NS-CUR and GL-CUR (see Table 11, NS-CUR and GL-CUR). Compared with NS-CUR measures, NS-DEP measures contributed unique information to predicting breakup status in all four instances; compared with GL-CUR measures, NS-DEP measures contributed unique information to predicting breakup status in three of four cases

and contributed marginally in the fourth case. In contrast, in not one of eight cases did deleting the NS-CUR or GL-CUR measures from the two-factor regression models result in a significant reduction in predictive power.

We then performed model tests for two-factor models including measures of both NS-CUR and NS-ALT. Model comparisons revealed that for stayer versus abandoned versus leaver status, the two types of measure were relatively interchangeable—deleting NS-DEP measures from larger models did not result in a significant reduction in ability to predict breakup status and deleting NS-CUR and NS-ALT measures likewise did not result in a significant reduction in ability to predict breakup status. In contrast, comparisons of NS-DEP to two-factor models including GL-CUR and GL-ALT revealed that these two types of measure contained nonoverlapping information—in two of four cases NS-DEP measures contributed unique information to predicting breakup status above and beyond the two global measures, and in all four cases two-factor models including GL-CUR and GL-ALT contributed unique information to predicting breakup status above and beyond NS-DEP.¹⁰

¹⁰ Given that NS-DEP measures should most directly distinguish between stayers and subjects who voluntarily end their relationships, we repeated these analyses dropping the abandoned ($0 =$ stayers, $1 =$ leavers). These analyses revealed comparison tests that were similar to those displayed in Tables 10 and 11. Comparisons of each three-factor

Table 12
Commitment as Mediating Decisions to Remain in or End Relationships—Predicting Persisted Versus Ended Status and Stayer Versus Abandoned Versus Leaver Status, Partialing Out Commitment Level: Multiple Regression Results, Study 2

Predictor variable	R^2 in prediction of		F if deleted for	
	Commitment	Breakup	Predictor	Commitment
Predicting persisted versus ended status				
GL-COM				
Av: Commitment level	—	.211***	—	—
$n - 1$: Commitment level	—	.218***	—	—
NS-DEP				
Av: Relative importance	.281***	.303***	9.76***	2.90*
Av: Importance-by-discrepancy	.342***	.295***	8.28***	2.18
$n - 1$: Relative importance	.221***	.333***	11.15***	2.31
$n - 1$: Importance-by-discrepancy	.266***	.280***	7.02***	2.58*
Predicting stayer versus abandoned versus leaver status				
GL-COM				
Av: Commitment level	—	.216***	—	—
$n - 1$: Commitment level	—	.230***	—	—
NS-DEP				
Av: Relative importance	.281***	.226***	3.86**	3.24**
Av: Importance-by-discrepancy	.342***	.241***	4.00**	2.44
$n - 1$: Relative importance	.221***	.223***	3.13**	3.56**
$n - 1$: Importance-by-discrepancy	.266***	.226***	3.26**	3.51**

Note. Stayer = subject remained in relationship ($n = 33$); abandoned = subject was not primarily responsible for breakup ($n = 6$); leaver = subject was responsible for breakup ($n = 9$); GL-COM = global commitment to relationship; av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study); NS-DEP = need satisfaction dependence. Higher numbers represent greater dependence, greater satisfaction with current and alternative relationships, and greater commitment. For relationship status, higher numbers are assigned to leavers and to relationships that ended.
 * $p < .10$. ** $p < .05$. *** $p < .01$.

Thus, need satisfaction dependence predicts stayer versus abandoned versus leaver status better than either need satisfaction in the current relationship or global satisfaction in the current relationship. However, comparisons with two-factor models including need satisfaction in both current and alternative relationships revealed that these two types of model were relatively interchangeable—deleting need satisfaction dependence did not significantly reduce predictive power and deleting need satisfaction in both current and alternative relationships did not significantly reduce predictive power. Finally, comparisons with global satisfaction in current and alternative relationships revealed that each model accounted for unique variance in the relationship with breakup status. In two of four cases, need satisfaction dependence contributed to predicting breakup status above and beyond global measures; similarly, in four of four cases, measures of global satisfaction and global alternatives contributed to predicting breakup status above and beyond need satisfaction dependence.

Commitment as the mediator of need satisfaction dependence effects. As in Study 1, we performed causal modeling analyses to explore the possibility that subjective commitment mediates the relationship between need satisfaction dependence and

model to respective one- and two-factor models revealed that in 7 of 16 cases, deleting the NS-DEP measure significantly reduced predictive power; in 4 of 16 cases, deleting NS-CUR, NS-ALT, GL-CUR, and/or GL-ALT measures significantly reduced predictive power.

stay-leave decisions (cf. Baron & Kenny, 1986; Judd & Kenny, 1981; Reis, 1982). The results of these analyses are summarized in Table 12. All three preconditions necessary to explore mediation were met in Study 2: (a) NS-DEP was significantly related to subjective commitment (see Table 12, Commitment, R^2);¹¹ (b) NS-DEP was significantly related to both persisted versus ended status and stayer versus abandoned versus leaver status (see Breakup, R^2 s); and (c) commitment was related to both persisted versus ended and stayer versus abandoned versus leaver status (see R^2 s, Breakup, GL-COM).

¹¹ Although all five types of measures exhibited significant relationships with commitment, there appeared to be rather sizable differences between the magnitude of the relationships with commitment for the NS-DEP measures (R^2 s ranged from .221 to .342) and those for the two-factor models including measures of GL-CUR and GL-ALT (R^2 s = .687 and .757). Multiple regression model tests confirmed this impression. When three-factor models including NS-DEP, GL-CUR, and GL-ALT items were compared with two-factor models dropping the NS-DEP measure, in no case did dropping the NS-DEP measure result in a significant decline in predictive power (F s if deleted = 0.82, 2.53, 0.78, and 0.79; all *ns*). In contrast, dropping the GL-CUR and GL-ALT measures from the three-factor model reduced the predictive power of the larger model in all four instances (F s if deleted = 9.80, 28.72, 11.67, and 8.69; all p s < .01). Thus, the GL-CUR and GL-ALT measures appeared to contribute more unique information to predicting subjective commitment than did the NS-DEP measures.

Table 13
*Predictive Power of Need Satisfaction Dependence Measures by Category:
 Analysis of Variance and Stepwise Regression Results, Study 2*

Need category	Persisted versus ended		Stayer versus abandoned versus leaver	
	<i>F</i>	<i>t</i>	<i>F</i>	<i>t</i>
Companionship				
Av: Relative importance	11.53***	2.57**	2.75*	
Av: Importance-by-discrepancy	21.11***	2.98***	7.60***	3.83***
<i>n</i> - 1: Relative importance	10.56***	2.61**	2.20	
<i>n</i> - 1: Importance-by-discrepancy	10.34***		3.30**	
Mult. <i>F</i>	5.28***		1.97*	
Emotional involvement				
Av: Relative importance	17.24***	3.43***	7.49***	3.78***
Av: Importance-by-discrepancy	14.66***	1.91*	5.36***	
<i>n</i> - 1: Relative importance	15.07***	3.31***	7.15***	3.30***
<i>n</i> - 1: Importance-by-discrepancy	15.19***		5.98***	
Mult. <i>F</i>	5.07**		2.26**	
Intimacy				
Av: Relative importance	5.44**		2.58*	2.06**
Av: Importance-by-discrepancy	10.82***		3.20**	
<i>n</i> - 1: Relative importance	11.89***		6.44***	
<i>n</i> - 1: Importance-by-discrepancy	12.08***	2.05**	4.19**	2.28**
Mult. <i>F</i>	4.01***		2.16**	
Security				
Av: Relative importance	10.83***		4.29**	2.42**
Av: Importance-by-discrepancy	14.29***		4.98**	
<i>n</i> - 1: Relative importance	7.17***		5.02**	
<i>n</i> - 1: Importance-by-discrepancy	13.87***	2.39**	5.53***	
Mult. <i>F</i>	4.03***		2.52**	
Self-esteem enhancement				
Av: Relative importance	6.25**		3.07*	
Av: Importance-by-discrepancy	9.76***		2.69*	
<i>n</i> - 1: Relative importance	3.06*		1.22	
<i>n</i> - 1: Importance-by-discrepancy	6.79**		2.00	
Mult. <i>F</i>	2.37*		1.06	
Sex				
Av: Relative importance	1.92		2.84*	2.42**
Av: Importance-by-discrepancy	0.53		5.58***	
<i>n</i> - 1: Relative importance	4.19**		4.76**	2.67**
<i>n</i> - 1: Importance-by-discrepancy	2.33		10.46***	2.10**
Mult. <i>F</i>	1.84		3.46***	

Note. Stayer = subject remained in relationship ($n = 33$); abandoned = subject was not primarily responsible for breakup ($n = 6$); leaver = subject was responsible for breakup ($n = 9$); av = measures averaged over duration of relationship; $n - 1$ = measures from week just before breakup (or end of study). Higher numbers represent greater dependence. For relationship status, higher numbers are assigned to leavers and to relationships that ended.

* $p < .10$. ** $p < .05$. *** $p < .01$.

We performed a series of two-factor analyses, regressing persisted versus ended status onto respective pairs of commitment and NS-DEP measures. Tests comparing each two-factor model with respective one-factor models revealed that even when subjective commitment was included, in all four cases NS-DEP measures continued to be significantly related to persisted versus ended status (see *F* if deleted, Predictor). Commitment did not contribute significantly to predicting persisted

versus ended status in any case, although its contribution was marginal in two of four instances (see *F* if deleted, Commitment). These results suggest that commitment level does not mediate the relationship between NS-DEP and persisted versus ended status. NS-DEP apparently bears a direct relationship with persisted versus ended status above and beyond commitment, contributing unique information to predicting breakup status.

We regressed stayer versus abandoned versus leaver status onto respective pairs of commitment and NS-DEP measures and discovered that, even when commitment was included, NS-DEP continued to contribute significantly to predicting breakup status in all four cases (although NS-DEP effects were weakened). Commitment contributed to predicting breakup status in only three of four cases. These results suggest that, at best, subjective commitment may partially mediate the relationship between NS-DEP and breakup status. NS-DEP apparently bears some direct relationship with stayer versus abandoned versus leaver status above and beyond any effects of subjective commitment.¹²

Variations as a function of need category. As in Study 1, two types of analysis examined relationships with breakup status as a function of need category. These analyses are summarized in Table 13. First, we performed two MANOVAs on the four NS-DEP measures for each need category. In predicting persisted versus ended status, the multivariate effect was significant for the companionship, emotional involvement, intimacy, and security needs and was marginal for self-esteem enhancement (see Persisted vs. ended, F s). For stayer versus abandoned versus leaver status, the multivariate effect was significant for emotional involvement, intimacy, security, and sex and was marginal for companionship (see Stayer vs. abandoned vs. leaver, F s).

Next, we performed stepwise regression analyses, regressing each breakup status variable onto the six needs assessed by using each type of NS-DEP measure (e.g., onto the six averaged relative importance NS-DEP measures). Given that these analyses assess dependence effects for each of six needs, the two tests that involve relative importance measures are not independent (these scores summed to 100). Thus, the importance-by-discrepancy measures provide a more "statistically pure" test of differential effects across need. The t s for the regression coefficients that contributed significantly to predicting breakup status are displayed in Table 12 (see Persisted vs. ended and Stayer vs. abandoned vs. leaver t s). The results of these analyses were relatively scattered but seem to suggest that two or three needs may most powerfully predict breakup status: companionship, intimacy, and emotional involvement. (Given that the latter effects were strongest for relative importance measures, we place less confidence in these findings.)

Single best alternative versus multiple alternatives. We also explored the dependence model claim that CL-alt is a standard based on the outcomes available either in a single best alternative or in multiple alternative relationships. To determine how frequently subjects listed single best alternatives to their current relationships, we retained records of the alternative partners subjects listed for each need and calculated a single best alternative proportion for each subject. For each week, we determined which alternative partner was listed most frequently, calculated the proportion of times that person was listed relative to the total number of alternatives listed, and calculated the average proportion over the preceding weeks during which the subject was involved in a given relationship. Across the entire sample, the value of this proportion was .599, substantially less than the ceiling value of 1.000 defined by a hypothetical single best alternative ($z = 5.90, p < .01$); that is, when we asked subjects whether, for each need, there was a person other than the partner with whom they had an important relationship, on only 6 out of every 10 occasions did they list the same person. Thus,

it hardly appears that subjects overwhelmingly report single best alternatives.

However, it could be that subjects who end their relationships more uniformly report single best alternatives, whereas subjects in stable relationships report multiple alternatives. That is, if CL-alt serves as a specific "place to go" should the current relationship end—rather than as a subjective standard—one might find that relationships end only when there is a particular alternative partner for whom the current relationship is ended. Accordingly, we compared proportions for relationships that persisted versus ended. The proportion for subjects whose relationships ended was actually slightly lower than that of subjects whose relationships persisted, albeit nonsignificantly so (.553 vs. .625); $F(1, 50) = 0.14, p < .711$. Both proportions differed significantly from 1.000 (z s = 3.92 and 4.45, both p s < .01). Also, examining proportions as a function of stayer versus abandoned versus leaver status, we found that the three groups were not differentially likely to report single best alternatives (.625 vs. .537 vs. .500), $F(2, 45) = 0.11, p < .892$. Once again, all three proportions differed significantly from the value of 1.000 defined by a hypothetical single best alternative (z s = 4.45, 2.27, and 3.00, all p s < .05).

It is generally not wise to search for meaning in null findings (one is reminded of Captain Cook repeatedly traversing the Pacific, attempting to "prove" there was no continent). However, this may be one instance in which null findings are meaningful.

¹² As in Study 1, for the sake of completeness we performed parallel analyses for NS-CUR and GL-CUR, as well as for two-factor models including NS-CUR and NS-ALT or GL-CUR and GL-ALT. All one- and two-factor models were significantly related to commitment, persisted versus ended status, and stayer versus abandoned versus leaver status. When subjective commitment was included in regression models along with satisfaction measures, neither NS-CUR nor GL-CUR contributed to predicting either persisted versus ended status or stayer versus abandoned versus leaver status (not one of eight F s was significant). Subjective commitment predicted unique variance above and beyond satisfaction in six of eight cases and contributed marginally in a seventh case. Thus, subjective commitment appeared to completely mediate the link between satisfaction and stay-leave decisions (both persisted vs. ended and stayer vs. abandoned vs. leaver status). When commitment was added to two-factor models including measures of need satisfaction in the current and alternative relationships, NS-CUR and NS-ALT measures predicted unique variance in accounting for both persisted versus ended status and stayer versus abandoned versus leaver status; likewise, when the influence of NS-CUR and NS-ALT measures was accounted for, commitment continued to account for unique variance in predicting both breakup status variables. Thus, these measures seem to capture nonoverlapping information about features of relationships. In contrast, when commitment was added to two-factor models including measures of global satisfaction in the current and alternative relationships, GL-CUR and GL-ALT generally failed to contribute additional information to predicting breakup status (two tests were marginal; two were nonsignificant). Likewise, when the influence of GL-CUR and GL-ALT was accounted for, commitment failed to predict a significant portion of the variance in breakup status (all four tests were nonsignificant). Thus, two-factor models including global measures of satisfaction with current and alternative relationships appear to overlap considerably with subjective commitment; in predicting both persisted versus ended status and stayer versus abandoned versus leaver status, these models are somewhat interchangeable.

It appears that many people report multiple alternatives who fulfill their needs and that people who voluntarily end their relationships are no more likely to report single best alternatives than are those who remain with their partners.

Discussion

Study 2 results regarding breakup status provide good support for the dependence model. Subjects whose relationships persisted reported significantly greater dependence on their relationships than did those whose relationships ended; also, stayers reported significantly greater dependence than did voluntary leavers. Furthermore, multiple regression model tests demonstrated that measures of need satisfaction dependence fairly consistently contributed unique information to predicting persisted versus ended status and stayer versus abandoned versus leaver status above and beyond several comparison models—beyond the variance accounted for by models including measures of need satisfaction or global satisfaction in the current relationship, and beyond the variance accounted for by two-factor models including measures of need satisfaction in both the current and alternative relationships or global satisfaction in both the current and alternative relationships.

We performed causal modeling analyses to determine whether it is plausible that commitment mediates the relationship between dependence and stay–leave decisions. Whereas Study 1 provided good support for such a model, in Study 2 the role of commitment in mediating dependence effects was at best only partial. Although subjective commitment may partially mediate the relationship between need satisfaction dependence and stayer versus abandoned versus leaver status, it appears to play little mediating role for persisted versus ended status.

We performed exploratory analyses to study differences across needs in ability to predict breakup status. These analyses suggested that the needs for companionship, intimacy, and (perhaps) emotional involvement may exert greater impact on breakup decisions than do other needs, although dependence with respect to each of the other needs (security, self-worth enhancement, and sex) exhibited some power in predicting stay–leave decisions. As was the case for Study 1, given that the results of these analyses were rather mixed and weak, it appears that there may be rather substantial individual differences in the relationship between the various needs and breakup decisions.

We also explored one last implication of the dependence model. If it is true that CL-alt is a subjective standard based on outcomes available in all alternative relationships—whether they come packaged as a single best alternative or appear in the form of multiple alternative relationships—then we should find that relatively large numbers of individuals report that their needs would be best fulfilled by multiple rather than single alternatives. Indeed, Study 2 subjects did not consistently report single best alternatives. In fact, subjects who voluntarily ended their relationships were no more likely to report single best alternatives than were stayers.

General Discussion

The two studies reported here provide good support for the dependence model. Although in Study 1, need satisfaction de-

pendence did not differ significantly for relationships that persisted and those that ended, in Study 2, all four dependence measures significantly differentiated relationships that persisted from those that ended. Furthermore, in both studies, all four dependence measures significantly distinguished between individuals who remained in their relationships and those who voluntarily left (i.e., as a function of stayer vs. abandoned vs. leaver status). As noted earlier, given that a primary goal in understanding dependence issues is the ability to predict whether an individual will voluntarily remain in or end a relationship, the analyses for stayer versus abandoned versus leaver status are somewhat more diagnostic with respect to evaluating the dependence model.

Are dependence measures more strongly related to stay–leave decisions than measures from alternative approaches? In Study 1, no measures significantly predicted persisted versus ended status, but Study 2 demonstrated that in 16 of 16 cases, NS-DEP measures accounted for unique variance in predicting breakup status. There was only one instance out of 16 in which measures from comparison models accounted for unique variance above and beyond NS-DEP measures, and even in that single instance NS-DEP was also significantly related to persisted versus ended status. Furthermore, for stayer versus abandoned versus leaver status, model comparisons revealed that in 14 out of 24 cases NS-DEP measures contributed unique information above and beyond alternative models (13 comparisons were significant; one was marginal). In contrast, alternative models accounted for unique variance beyond NS-DEP in only 4 out of 24 cases—in comparison with two-factor models including measures of global satisfaction and global alternative quality (in 2 of those 4 cases, NS-DEP measures also contributed significantly to predicting stayer vs. abandoned vs. leaver status). Thus, compared with alternative models, the dependence model appears to account for a greater portion of the variance in stay–leave decisions.

Study 2 was also designed to examine one of the subtler implications of the dependence model. As noted earlier, it may be fruitful to regard CL-alt as a subjective standard for evaluating the current relationship, not as a literal “place to go” should the relationship end. The vitality and viability of an ongoing relationship may be threatened not so much by the presence of an irresistible alternative but rather by the fact that the individual no longer needs the relationship—because it no longer “does” for the individual what it once “did.” Consistent with this line of reasoning, Study 2 demonstrated that although some people report single best alternatives, large numbers report multiple alternatives. This was true even among voluntary leavers, who were no more likely to report single best alternatives than were stayers.

How does commitment relate to the dependence model? The dependence construct is not intended to replace the construct of subjective commitment. Dependence taps the specific, concrete aspects of relationships that are relevant to understanding stay–leave decisions, whereas commitment is an indirect, abstract, subjective stand-in for those factors. Obviously, subjective commitment is a very important feature of ongoing relationships, predicting not only stay–leave decisions but also a variety of behaviors that may be relevant to promoting long-term stability (e.g., accommodation, derogation of threatening alternatives; D. J. Johnson & Rusbult, 1989; Lund, 1985; Rus-

bult et al., 1991). However, in light of the fact that need satisfaction dependence taps the specific features of relationships that underlie breakup decisions, we believe that the dependence model may be a more appropriate means of characterizing the qualities that underlie stay-leave decisions.

From this point of view, it becomes clear that dependence should be regarded as a quality that is parallel to the satisfaction and quality of alternatives constructs that are used in traditional models of stay-leave decisions (cf. Levinger, 1979a; Rusbult, 1983). Indeed, the dependence model appears to account for a greater portion of the variability in stay-leave decisions than any of the comparison models explored in our research. It is nevertheless possible that subjective commitment mediates the relationship between dependence and stay-leave decisions, as it has been shown to mediate other relationships with stay-leave behaviors (cf. Rusbult, 1983). Both studies used causal modeling analyses to assess the plausibility of this line of reasoning. Study 1 analyses demonstrated that when commitment is included in regression models along with measures of NS-DEP, the relationship between dependence and stayer versus abandoned versus leaver status drops to nonsignificance. These results are compatible with a model wherein commitment completely mediates the link between dependence and stay-leave decisions.

In Study 2, statistics relevant to this issue were less clear-cut. In predicting stayer versus abandoned versus leaver status, both dependence and commitment appeared to account for unique variance. When dependence was included along with commitment in a model for predicting stayer versus abandoned versus leaver status, the predictive power of commitment declined but did not drop to nonsignificance (commitment was "necessary" in three of four cases); similarly, the predictive power of dependence declined but did not drop to nonsignificance (dependence was "necessary" in all four cases). These results are compatible with a partial mediation model, in which some portion of the dependence-breakup relationship is mediated through subjective commitment, but wherein dependence continues to exert some direct effect on stayer versus abandoned versus leaver status. Alternatively, it could be that in terms of their relationships with stay-leave decisions, dependence and commitment are parallel but somewhat nonoverlapping constructs.

The picture was slightly different in causal modeling analyses for persisted versus ended status. When subjective commitment was included along with dependence, dependence continued to account for significant variance in all four instances; in contrast, the relationship between commitment and breakup status dropped to nonsignificance (although two of four tests were marginal). At present, it is most prudent to note the following: For persisted versus ended status, the relationship between breakup status and need satisfaction dependence does not appear to be mediated by subjective commitment. For stayer versus abandoned versus leaver status, the relationship between dependence and breakup decisions may be either partially mediated (Study 2) or wholly mediated (Study 1) by subjective commitment.

Both studies examined differences across needs in the relationship between dependence and decisions to remain in or end relationships. Although our work was not designed to assess a comprehensive list of the many needs relationships might fulfill, our design allowed us to conduct exploratory analyses

relevant to this issue. To the extent that dependence with respect to any of the needs we examined relates more powerfully to stay-leave decisions, three stand out as plausible candidates: emotional involvement, intimacy, and companionship. Breakup status was not as powerfully linked to the other needs we examined namely, intellectual involvement (Study 1), sexual fulfillment (Studies 1 and 2), security (Study 2), or self-esteem enhancement (Study 2). However, there was evidence that each of these needs bore at least some relationship to stay-leave decisions. Also, even with respect to the top three needs, the evidence was somewhat inconsistent. Thus, the most important lesson to be learned from these analyses is that there may be rather substantial individual differences in what close relationships do for young adults. The broader implication of this general finding is that theories attempting to account for important phenomena in close relationships would do well to take into account individual differences in what is central to relationships. Indeed, many of the more promising theories of adult involvement do take into account such differences (cf. Hazan & Shaver, 1987; Hendrick & Hendrick, 1986).

Before closing, we should comment on two final issues. The first issue concerns the correlates of subjective commitment. In Study 2, commitment was more strongly related to measures of global satisfaction and global alternative quality than to measures of need satisfaction dependence (this point was briefly addressed earlier, in Footnote 11). Of course, it should be noted that the Study 2 procedure entailed first answering questions concerning need satisfaction dependence and then answering questions concerning global satisfaction and alternative quality. It is possible that the act of answering a series of questions regarding need satisfaction dependence led to more precise and accurate global measures. But assuming that the current findings are reliable, one must ask, Is this bad news for the dependence model? As is frequently the case, the answer is "it depends." If a researcher's goal is to identify the strongest correlates of subjective commitment, the use of global measures of satisfaction and alternatives would appear to be preferable. But if a researcher's goal is to identify the strongest correlates of stay-leave decisions, the need satisfaction dependence approach may be preferable. In retrospect, this is not surprising. Researchers have long recognized that measures at similar points on a dimension of concreteness versus abstraction are likely to correlate more powerfully than are measures at different points on such a continuum (cf. Fishbein & Ajzen, 1975). Clearly, the decision to remain in or to end a relationship is closer to the concrete end of this continuum, as are need satisfaction dependence measures (i.e., such measures fairly concretely describe where a relationship "stands" relative to experiences in alternative relationships); conversely, global measures of satisfaction and alternatives are closer to the abstract end of this continuum, as is subjective commitment. Not to belabor the point, we merely note that this general issue has theoretical implications that are well worth exploring in future work.

The second substantive issue we address concerns three intriguing differences between the results of Study 1 and Study 2. The first concerns the group of subjects we termed abandoned. In Study 1, the dependence scores of the abandoned were significantly different from those of leavers, but did not differ from those of stayers. In Study 2, the dependence scores of the abandoned were not significantly different from those of leavers but

generally differed from those of stayers. Also, Study 2 revealed significant differences in dependence as a function of persisted versus ended status, whereas this effect was not significant in Study 1. Finally, in Study 1, subjective commitment appeared to entirely mediate the relationship between dependence and stayer versus abandoned versus leaver status; in Study 2, commitment at best stood as a partial mediator of the link between dependence and stayer versus abandoned versus leaver status. How should we interpret these differences? Of course, it is possible that these few inconsistencies were due to relatively minor methodological differences between the studies (e.g., Study 2 examined a slightly different list of needs than Study 1). But assuming that the differences are substantively meaningful, how might we explain these findings?

Our interpretation emerges from an account of the psychological processes that may operate among the abandoned. The abandoned may in some sense anticipate the occurrence of breakups and in various ways prepare themselves for that eventuality. The process may unfold something like this: Later-to-be-abandoned partners may notice that things are not going well—in comparison to alternative relationships, their relationships are no longer fulfilling the needs that were previously gratified. However, the later-to-be-abandoned may remain committed to continuing their relationships. Indeed, in making global judgments regarding their relationships, they may report that they continue to feel satisfied and believe that their best available alternatives are not very attractive. Desire to continue a relationship that is going poorly may even lead to defensive bolstering of the current partner and derogation of alternatives (cf. D. J. Johnson & Rusbult, 1989). However, when asked whether the current relationship gratifies very specific needs—as is the case for dependence measures—people may note realistically that things are on the skids and that alternatives are becoming increasingly proficient at fulfilling the needs the relationship once fulfilled. Anticipating that the relationship may soon end, the individual may even begin a tentative search for alternatives who might serve as effective substitutes and may at some level note that one or more of these alternatives might do a fair job of satisfying the needs the relationship once satisfied.

This account of the possible feelings and behavior of the abandoned would render several findings explicable. There are four pieces to this puzzle: First, why is it that in Study 1 the dependence scores of the abandoned were more similar to those of stayers, whereas in Study 2 the dependence scores of the abandoned were more similar to those of leavers? In Study 1, there was suggestive evidence that abandoned women were more similar to leavers, whereas abandoned men were more similar to stayers (these findings were addressed briefly in Footnote 4). That is, abandoned women appeared to recognize that their relationships were not satisfying important needs in comparison to alternatives. These results are consistent with previous research demonstrating that in comparison with men, women are more likely to identify problems in their relationships (Jacobson, Follette, & McDonald, 1982; Levinger, 1966, 1979a; Macklin, 1978). In Study 2—in which all of our subjects were women—abandoned subjects' dependence scores were once again more similar to those of leavers than to those of stayers. These findings support our claim that to the extent that the abandoned become aware of problems, their dependence scores are likely to move closer to those of voluntary leavers.

These findings also explain why dependence differed as a function of persisted versus ended status in Study 2 but not in Study 1. In analyses using persisted versus ended status as the breakup categorization, the abandoned are included along with leavers in the ended category. Thus, when the dependence levels of the abandoned are more similar to those of leavers (as in Study 2), dependence levels accordingly differ as a function of the persisted versus ended distinction; when the dependence levels of the abandoned are more similar to those of stayers (as in Study 1), dependence levels are much less likely to differ as a function of persisted versus ended status.

A third piece of the puzzle concerns the following: Why is it that in Study 1, variations in subjective commitment appeared to wholly mediate the relationship between dependence and breakup status, whereas in Study 2 such mediation was at best partial? To the extent that dependence measures tap realistic conditions, and to the extent that women are more likely than men to be accurate estimators of such conditions, the fact that Study 2 subjects were women may once again explain this finding. Being reported by women, the Study 2 dependence measures may have more concretely and accurately reflected where a relationship was realistically going, thereby accounting for variance in relationship status above and beyond subjective commitment. Unfortunately, there were insufficient subjects of either sex in Study 1 to allow for causal modeling analyses to explore this possibility.

The final piece of the puzzle is the following: Why is it that in Study 2, dependence measures and global measures of satisfaction and alternatives were differentially correlated with commitment? (This finding, too, was briefly addressed in Footnote 11.) As global measures may better reflect global, subjective preferences, it makes sense that they relate more powerfully to subjective commitment. In contrast, to the extent that dependence measures are realistic assessments of actual conditions, it makes sense that they do not correlate as powerfully with subjective commitment.

Directions for Future Research

The primary strength of the current research is that we studied real, ongoing relationships, examining the relationship between dependence measures and actual stay-leave decisions. Our findings suggest that the dependence model theoretically accounts for decisions to remain in or to end relationships and that this model complements and extends traditional approaches to the study of relationship stability. However, we believe that future research might benefit from several modifications and extensions.

First, several theoretical ambiguities remain to be explored. For example, we did not directly address the question of how or why some needs come to be more important than others. Do needs emerge from early attachment experiences, are they a reflection of the needs that remained unmet in previous relationships, or are they based on the unique qualities of each new relationship? Also, it is not clear how much "better" a given need must be satisfied in the current relationship than in alternative relationships in order to "count" in creating feelings of dependence. Here we adopted two means of measuring dependence, methods that appeared to work about equally well in accounting for stay-leave decisions. The relative importance

measures assume a threshold effect, such that if a need is better satisfied in the current relationship than by alternatives, it is classified as better; in contrast, the importance-by-discrepancy measures deal with this question by calculating an actual discrepancy score and weighting this by the importance of each need. Future work might benefit from pretesting to determine precisely how such matters are cognitively and affectively represented in the experiences of individuals in actual, ongoing relationships. In addition, although we have occasionally speculated about the actual process by which dependence affects relationship dissolution, it might be fruitful to focus more directly on process issues. For example, it would be interesting to determine how disaffiliating individuals gradually disaffiliate (i.e., become less dependent), perhaps exploring declining dependence on a need-by-need basis.

Second, several recommendations can be made regarding the manner in which need importance and need satisfaction in current and alternative relationships are conceptualized and measured. Although the needs we examined in Study 2 were derived from simple pretest activities, future research might attempt to identify the full range of needs that relationships satisfy. It might also be fruitful to adopt an ideographic approach, analyzing the unique needs that relationships satisfy for particular individuals. Such an approach would allow researchers to fully explore the potential richness of the dependence model, taking advantage of its ability to account for the precise reasons for dependence on a given relationship. Also, it may be that different forms of need satisfaction deficiency result in different forms of relationship distress (e.g., failure to fulfill the need for emotional involvement may result in feelings of emotional isolation or loneliness). In addition, it is not entirely clear how subjects identified alternatives to their current relationships. For example, did they identify the most intimate alternative who fulfilled each need or did they identify the alternative who best fulfilled each need (irrespective of the closeness of that relationship)? Future research might benefit from including more precise instructions regarding identification of alternatives. Furthermore, we believe it might be useful to give careful thought to the need importance construct. When subjects provide importance ratings, are they reporting how important each need is to them in general, are they reporting how important each need is in the current relationship, or are they reporting the amount of time and energy they devote to each need in the current relationship? And, from a theoretical point of view, which of these meanings *should* the importance measures tap?

Third, we urge future researchers to explore sex differences in dependence and probability of breakup by studying larger samples over more extended time periods. Study 1 revealed some interesting suggestive evidence regarding sex differences in the link between dependence and stay-leave decisions, but these findings were of insufficient strength to form confident conclusions about such matters. Studying changes in dependence over longer periods of time would also make it possible to calculate trend scores representing changes over time in dependence, a procedure that might even more effectively capture the process by which relationships deteriorate and end.

Fourth, in future work it would be useful to explore other factors that have been said to be important features of the

breakup process, including, for example, the impact of investing in a relationship, the influence of broader social networks (e.g., ties to an extended family), or the effects of personal beliefs regarding the advisability of maintaining a relationship (e.g., religious proscriptions against divorce). Also, it might be fruitful to examine the interactive effects of need satisfaction dependence with such variables.

Fifth, it would be interesting to determine whether—and how—issues concerning dependence relate to important processes in extended relationships. For example, in a long-standing marriage, a sharp decline in dependence may serve as the trigger for a variety of processes that promote enhanced stability. When partners begin to fear that their marriages no longer fulfill their own and their partners' most important needs, they may exaggerate the importance of the needs their relationships *do* continue to gratify, or they may defensively derogate threatening alternatives.

Conclusions

The dependence model is deceptively simple. In comparison with existing theories, this model is capable of providing a richer and more precise characterization of the basis for the decision to continue a relationship or to voluntarily end it. For example, we can understand why people sometimes remain involved in relationships with apparent serious deficiencies. Such a relationship may persist because the deficiency concerns a need that is less central to that relationship, because the relationship compensates for the deficiency by fulfilling other important needs, or because the meager level of fulfillment nevertheless exceeds what is available elsewhere. Also, this model can account for two forms of breakup. One form might be termed the *single-best-alternative* breakup, which occurs when a relationship is actively defeated by a preferred alternative partner. A second form might be termed the *empty relationship* breakup, which occurs when a relationship simply fades and dies—because, ultimately, the partner offers less than the broader social world. Although the current results are not definitive on this point, the fact that large numbers of people who ended their relationships reported multiple alternatives is certainly compatible with the claim that some breakups are of the empty relationship form.

Before closing, it is appropriate to speculate briefly on process issues: People may not necessarily suddenly and objectively note that they no longer need their partners and that a specific alternative relationship objectively would be superior. This global judgment may well be preceded by a slow and piecemeal realization. One day an individual may notice that he enjoys more laughs with his favorite colleague than with his partner, months later he may notice that making love has become routinized and unimaginative in comparison to what he imagines is available elsewhere, and months after that he may realize that his best friend expresses more spontaneous affection than his partner. That individual's feelings of dependence may gradually be eroded through comparison to his subjective, multiply determined CL-alt, such that by the time he makes the overt global judgment that the relationship has died, it may in fact have been devoid of meaning for some time.

The current findings are congruent with our expanded

model of breakups and extend previous work in several important respects. The experience of dependence is a reflection of the degree to which a given relationship fulfills the needs that are most important to that relationship as well or better than those needs are gratified elsewhere, in either single or multiple alternative relationships. Our research demonstrated that dependence level is strongly related to decisions to remain in or voluntarily end relationships and that the dependence construct relates to breakup status more powerfully than any of the alternative models we explored. Therefore, it would seem that future research and theory would benefit from incorporating dependence model assertions, propositions that not only extend interdependence theory and the theories of stay-leave decisions derived from that theory but also contribute to our more general understanding of the process by which ongoing relationships either prosper and flourish or deteriorate and die.

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