COMMUNICATION BREAKDOWN: DIFFERING RELATIONSHIP WELLBEING
EFFECTS OF POSITIVE AND NEGATIVE SPIN IN COMMUNICATION BEHAVIOUR

BY

ROBERT RYAN SELOUS CARTWRIGHT

A thesis

submitted to the Victoria University of Wellington

in fulfilment of the requirements for the degree of

Masters of Science

in Psychology

Victoria University of Wellington

2019

ABSTRACT

Romantic couples must regularly navigate interactions to maintain satisfying relationships, but it is unclear how people's variability in communication behaviour is linked to relationship wellbeing. Varying communication behaviours may display responsiveness to a partner's needs by adjusting behaviour appropriately. Or else, inconsistent behaviour may undermine partner trust by fuelling uncertainties about commitment. Across two studies, we investigated how a person's variability of communication behaviour was associated with their own wellbeing and their partner's wellbeing. Specifically, we assessed *spin*, a measure of how often a person switches between communication behaviours. We predicted that switching between *positive* behaviours would be linked with higher relationship wellbeing but, conversely, switching between *negative* communication behaviours would be linked with lower wellbeing. We assessed spin in positive and negative forms of relationship behaviour over three weeks (Study 1; 78 couples) and over a single interaction (Study 2; 112 couples). Effects for spin in positivity emerged only in Study 1. For women, switching daily positive behaviour over three weeks was associated with higher *partner* relationship wellbeing but unexpectedly lower wellbeing for women (controlling for mean-level positivity). This suggests that, for women, being responsive to partners in diverse ways is beneficial for the partner but comes at a personal cost. Effects for spin in negativity emerged in both studies. Switching negative behaviour was linked with lower partner wellbeing in both studies, indicating that use of different negative behaviours is more dysfunctional than the sum of individual relationship behaviours. Across both studies, additional tests illustrated that these effects were independent and not due to variability in the magnitude of behaviours. Our findings show variable behaviour may benefit partner wellbeing when behaviour is positive, but inconsistent negativity interrupts intimacy processes to undermine wellbeing. Our research highlights the importance of considering behavioural variability when studying relationship maintenance processes over time.

ACKNOWLEDGEMENTS

First, to my supervisor Dr. Matthew Hammond, I would like to express my sincerest gratitude for his guidance, motivation, and insight. His autonomy and competence support provided me with the faith and self-confidence to stay organised, driven, and excited by my project. I wish Dr. Hammond, future success with his endeavours and a stimulating and rewarding career.

Second, to myself. I thank myself for staying self-disciplined, working hard, self-sacrificing, prioritising self-care, and forgiving myself for failures. This project would not have been possible without my fortitude and self-belief.

Third, I would like to acknowledge and thank the members of the Interpersonal Relationship Lab for their feedback, critique, and support. Their perspectives and assistance with coding data facilitated the success of this thesis and provided emotional support as an academic community.

Similarly, I would like to acknowledge my school, faculty and wider university community for supplying a safe, inclusive and stimulating environment in which to study and learn. Kia ora rawa atu.

To my sister Annie, my dog Harry, my grandparents, all my friends, I give my sincerest thanks for their emotional, spiritual, and financial support throughout. Finally, I would like to acknowledge and thank my mother, Louise and my father, Simon for their countless sacrifices over my life and giving me my sense of humour.

My perpetual appreciation to all those who I hold close relationships with, they truly create satisfaction and meaning in our otherwise nonsensical reality.

TABLE OF CONTENTS

Abstract.....	iii
Acknowledgements	iv
Table of Contents	v
List of Tables	viii
List of Figures.....	viii
Introduction.....	1
The Need to Maintain Close Relationships	2
The Difficulties of Maintaining Romantic Relationships	5
How Do People Maintain Relationships?	8
Wellbeing Outcomes of Relationship Maintenance——Satisfaction and Perceived Regard.....	10
Observational Communication Behaviours	12
Outcomes of Communication Behaviours	13
Does Varying Communication Behaviour Help or Hurt Relationships?.....	14
Measuring Variability	17
Overview of Current Study	18
Study 1.....	20
Method	20
Participants.....	20
Procedure	20
Measures	20
Interpersonal Behaviour.....	21
Relationship Satisfaction	21
Perceived Regard	21
Calculation of Spin	21
Calculation of Mean-level Behavioural Scores	21
Calculation of Spin Scores.....	22
Alternative Explanation——Calculation of Flux and Pulse.....	22
Calculation of Flux Scores.....	23
Calculation of Pulse Scores	23
Results.....	23
Descriptive Statistics.....	23

Variability in Positive Relationship Behaviour	25
Behavioural Spin Predicting Personal Relationship Wellbeing.....	25
Behavioural Spin Predicting Partner Relationship Wellbeing.....	31
Variability in Negative Relationship Behaviour.....	34
Behavioural Spin Predicting Personal Relationship Wellbeing.....	34
Behavioural Spin Predicting Partner Relationship Wellbeing.....	37
Analyses Testing Alternative Explanations	40
Controlling for Flux and Pulse Effects	40
Controlling for Quadratic Effects of Mean Relationship Behaviour	41
Controlling for Partner Satisfaction and Perceived Regard Effects.....	41
Controlling for Competing Positive and Negative Spin and Relationship Behaviour	42
Discussion	43
Study 2.....	44
Method	44
Participants.....	44
Procedure	45
Measures	46
Perceived Regard	46
Coding Procedure.....	46
Calculation of Spin	48
Alternative Explanation—Calculation of Flux and Pulse.....	48
Results.....	48
Descriptive Statistics.....	48
Variability in Positive Relationship Behaviour	50
Behavioural Spin Predicting Personal Perceived Regard	50
Behavioural Spin Predicting Partner Perceived Regard	50
Variability in Negative Relationship Behaviour.....	52
Behavioural Spin Predicting Personal Perceived Regard	52
Behavioural Spin Predicting Partner Perceived Regard	52
Analyses Testing Alternative Explanations	54
Controlling for Flux and Pulse Effects	54
Controlling for Quadratic Effects of Mean Relationship Behaviour	55

Controlling for Competing Positive and Negative Spin and Relationship Behaviour	56
Discussion	56
General Discussion.....	57
Extensions to Current Understanding of Variability in Romantic Relationships	62
Toward a Model of Relationship Maintenance Behaviour	64
Interaction, Trust, and Commitment	67
Methodological Strengths and Constraints on Generalisability.....	69
Future Directions	71
Conclusion	73
References.....	74

LIST OF TABLES

Table 1. Descriptive statistics and correlations among study 1 variables.....	24
Table 2. Spin for positive behaviour in dyadic models predicting people's own relationship satisfaction and perceived regard.....	26
Table 3. Spin for positive behaviours in dyadic models predicting partner's relationship satisfaction and perceived regard.....	32
Table 4. Spin for negative behaviour in dyadic models predicting people's own relationship satisfaction and perceived regard.....	36
Table 5. Spin for negative behaviour in dyadic models predicting partner's relationship satisfaction and perceived regard.....	39
Table 6. Averaged single Intra-Class Correlations for each communication strategy pre- and post-consensus discussion	47
Table 7. Descriptive statistics and correlations among study 2 variables.....	49
Table 8. Spin for positive behaviour in dyadic models predicting self and partner perceived regard post-discussion	51
Table 9. Spin for negative behaviour in dyadic models predicting self and partner perceived regard post-discussion	53

LIST OF FIGURES

Figure 1. The EVLN typology of communication.....	9
Figure 2. Circumplex models of positive and negative direct and indirect behaviours.....	19
Figure 3. Gender moderating the relationship between positive direct behaviour and people's relationship satisfaction and perceived regard.....	28
Figure 4. Gender moderating the relationship between negative indirect behaviour and people's relationship satisfaction and perceived regard	29
Figure 5. Gender moderating the relationship between spin in positive behaviour and people's relationship satisfaction and perceived regard.....	30
Figure 6. Gender moderating the relationship between positive direct behaviour and partner relationship satisfaction	33
Figure 7. Gender moderating the relationship between spin in positive behaviour and partner relationship satisfaction and perceived regard.....	35
Figure 8. Gender moderating the relationship between negative indirect behaviour and people's relationship satisfaction and perceived regard	38
Figure 9. Gender moderating the relationship between negative indirect behaviour and own perceived regard.....	54

Communication Breakdown: Differing Relationship Wellbeing Effects of Positive and Negative Spin in Communication Behaviour

The maintenance of close and satisfying relationships is essential for the facilitation of people's growth, social development and personal wellbeing (Baumeister & Leary, 1995; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). For instance, relative to married adults divorcees are approximately 30% more at risk of early death (Shor, Roelfs, Bugyi, & Schwartz, 2012). Because of the fundamental importance of maintaining close relationships for optimal wellbeing, people use several types of communication strategies in attempt to manage and change their partner's behaviours and characteristics. For example, people might seek change in their partners by amplifying hurt feelings inducing guilt over relationship obligations (Overall, Fletcher, Simpson, & Sibley, 2009), while at other times employ more constructive approaches to change partners by expressing gratitude when a partner behaves favourably. Furthermore, the switching between these strategies can occur over many different time contexts (e.g., within a single interaction, day-to-day). It remains an open question whether this variation of communication strategies is related to *higher* or *lower* relationship satisfaction and feelings of closeness. One perspective is that variability is beneficial for relationships because responding effectively to the changing needs of the relationship promotes relationship wellbeing (Debrot, Cook, Perrez, & Horn, 2012; Reis & Clark, 2013). A competing perspective is that variability is detrimental over time as it fuels uncertainties about relationship commitment and encourages increased evaluations of both positive and (especially) negative relationship aspects (Arriaga, 2001; Campbell, Simpson, Boldry, & Rubin, 2010; Kelley, 1983). In sum, there are contrasting positions in the current relationship maintenance literature about whether frequent switching between communication behaviours is reflective of destructive or constructive relationship patterns.

In the current research, we address the competing perspectives of behavioural variability by employing a model that distinguishes three components of intraindividual variability—*flux*, *pulse*, and *spin* (Moskowitz & Zuroff, 2004). Flux is the variation about a person's mean score in a single interpersonal dimension (i.e., standard deviation), pulse captures fluctuations in the extremity or magnitude of interpersonal behaviours within a multidimensional, circumplex model, and spin is the rotational variation capturing shifts between quadrants of a circumplex model (e.g., interpersonal circumplex; Moskowitz & Zuroff, 2004). Existing relationship research (Arriaga, 2001; Campbell et al., 2010; Totenhagen, Butler, Curran, & Serido, 2016) has almost exclusively examined variability in terms of flux (i.e., unidimensional standard error, deviation, and variance respectively). However, spin is crucial to understanding the relationship outcomes of maintenance behaviours. That is, we need to examine the extent to which people switch communication strategies (e.g., are rational on one day but emotionally manipulative on another day) and assess how this relates to their own, and their partner's, relationship satisfaction and perceived regard. We present two studies assessing flux, pulse and spin in communication behaviours (1) daily across a three-week period, and (2) every 30-seconds across a 6-minute interaction. Across two different time scales, our research comprehensively tests how variation in people's behavioural strategies is linked to their partner's and their own relationship wellbeing.

The Need to Maintain Close Relationships

Close relationships are meaningful, bidirectional and enduring connections between two people formed over multiple interactions to create interdependence for the mutual benefit of both—the closest of which is romantic relationships (Kelley & Thibaut, 1978). The functions of romantic relationships are fundamental for both physical and psychological wellbeing. For example, partners act to help to reduce partner anxiety when in stressful

environments by holding their partner's hand or providing supportive comments (Simpson, Rholes, & Nelligan, 1992; Simpson, Rholes, Oriña, & Grich, 2002). These kinds of subtle behaviours are effective at reducing stress (Eisenberger et al., 2011) and even experiences of pain (Master et al., 2009). Accordingly, a wide range of research has linked close relationships as one of the strongest protective factors of health and psychological wellbeing (e.g., Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Holt-Lunstad, Smith, & Layton, 2010). Consider that compared to married couples, divorced adults are at greater risk of suicide, various maladies, auto accidents (Bloom, Asher, & White, 1978), and even earlier death (Sbarra & Nietert, 2009; Shor et al., 2012). Therefore, understanding the behavioural and psychological mechanisms used to perpetuate successful and satisfying relationships over time is important for developing relationship theory and understanding wellbeing.

A foundation of modern romantic relationship research is Interdependence Theory (Kelley & Thibaut, 1978) which outlines and discusses how and why people initiate and participate in romantic relationships (Arriaga, 2013; Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). The theory states that two key components of relationships are (1) mutual (vs. relative) dependence—the extent to which dyadic members are equally reliant on each other for optimal functioning—and (2) relationship satisfaction—the extent to which a dyadic member's relationship quality is determined by the quality of the other (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Parallel to satisfaction, the extent to which a person believes they are valued by their partner—perceived regard—is an important wellbeing indicator which moderates interaction and relationship perceptions and behaviours (Murray, Bellavia, Rose, & Griffin, 2003; Murray, Holmes, & Griffin, 1996). In sum, people in relationships behave in ways to manage dependence and fulfil their own and partner's satisfaction according, in part, to perceived regard. As such, our research utilised satisfaction and perceived regard to index relationship wellbeing.

The interdependent nature of romantic coupling develops from the steady entwining of a person's self-identity with their partner's, as closeness increases. In other words, a relationship with increasing levels of trust and commitment facilitates a shift from self-oriented needs and goals to a relationship-centred orientation over time (Rusbult & Van Lange, 2003). This concept is critical to understanding motivation driving relationship-oriented behaviour in interactions which may superficially appear self-defeating or detrimental to the self. To illustrate, Jordan decides to complete a greater share of household chores when they noticed their partner (Sam) feeling unwell. This costly behaviour delivers no apparent benefit for Jordan unless a positive outcome for their partner also means a positive outcome for Jordan, due to their interdependent identity. In this way, interdependence theory explains why people are motivated towards partner and relationship goals, and perform pro-social behaviour within the relational context.

The proposition that a person will attempt to maximise their own goals with minimum detriment to their partner's is based on the theoretical assumption that couples are interdependent in their pursuit of interpersonal goals, with successful communication perceived upon successful goal completion (Spitzberg & Cupach, 1989). For instance, when Jordan chooses dinner plans they aim to maximise their personal preferences without compromising Sam's, because sharing a meal together is a reciprocally rewarding interpersonal experience. Interdependence theory outlines the transformation process which guides people's motivations in interactions. The objective costs/benefits of an action given by a person's preferences (independent of their partner) are adjusted by the contextual predilections of broader social considerations (e.g., long-term relational goals, social norms and expectations, partner preferences and strategic considerations). These are continuously revised following each behavioural display as the person attends to, perceives and interprets the behaviour, re-evaluating their expectations of partner behaviour and the most desirable

and achievable outcomes available to both persons (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2008). So when considering the evening meal, Jordan would initially maximise their preferences by going out to a restaurant, however after remembering the previous agreement to save money for new furniture, Jordan's motivations transform in to a preference for ordering pizza. After suggesting the idea to Sam, Jordan is criticised because of the existing food in the fridge and the shared goal of saving money. Resultantly, Jordan re-evaluates their understanding of Sam's goals and readjusts their motivations, now suggesting they at least get ice-cream for desert, to which Sam concedes. This example of compromise demonstrates the combination of intraindividual and interpersonal processes involved in navigating a typical interaction, displaying the need for, and nuance of, relationship maintenance.

The Difficulties of Maintaining Romantic Relationships

Romantic interdependence is universally desired and pursued—with evidence of romantic love existence in 147 out of 166 cultures (conservative estimate, Jankowiak & Fischer, 1992), however long-term success doesn't necessarily come easily: approximately 40% of marriages end in divorce (OECD, 2016). This is due, in part, to difficulties in maintaining relationships over time. The need for successful communication and problem resolution increases with a relationship's progression due to the increased incidence of conflict and problem severity co-occurring with the development of interdependence (Braiker & Kelley, 1979). This may help explain why communication itself is consistently reported as a major problem in relationships (Geiss & O'Leary, 1981; Papp, Cummings, & Goeke-Morey, 2009). To illustrate, a fledgling relationship may encounter conflict over relatively trivial matters such as dinner plans or whose apartment to stay at, whereas a couple living together may conflict over household chores, and a married couple has to navigate conflict around balancing careers and child-rearing (e.g., Hackel & Ruble, 1992) or large, shared financial investments (e.g., buying property). Therefore, increased interdependence means the

relational consequences of failed conflict resolution magnify simultaneously, imposing progressively greater demands on couple's communication skills to problem solve.

Comparatively, effective communication (i.e., brings about desired outcomes) is (1) desirable when it fixes problematic behaviours, and (2) necessary for the long-term quality of a relationship when it brings the partner closer in line with ideal standards (Overall, Fletcher, & Simpson, 2006). Nevertheless, destructive communication occurs frequently and partners are often overly critical and hurtful to each other, with cycles of reciprocal negativity the calling-card of marital distress (Gottman, 1994). So why do people use destructive strategies to communicate with their partners?

As previously alluded to, interaction behaviour is dyadic in that expressed behaviour of romantic individuals is a product of personal goals and motivations adjusted by perceptions of partner motivations and behaviours, combined relationship goals (e.g., maintaining high relationship quality) and situational specifics (e.g., conversation privacy). Referred to as transformation of motivation (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003), the continuous updating of situational perceptions dictate variation in communication behaviour over the course of a single interaction, multiple interactions over many days, and ultimately the course of a relationship as different issues occur and the relational environment changes. Notwithstanding, challenging circumstances or situations where partners have strongly oppositional goals with no clear compromise generate substantial conflict, making the transformation process difficult and often impossible.

Social cognition research has demonstrated transformation of motivation and revealed three factors which challenge or inhibit the transformation process. The first critical factor for a person to successfully transform their motivations to a relationship-orientation is to accurately perceive their partner's goals. In other words, the choice of communication strategy used by people in a conflict discussion is related to their sensitivity to their partner's

goals. In a predominantly student couple sample, Lakey and Canary (2002) found people who perceived themselves more sensitive to their partner's goals were more likely to use positive communication strategies and less likely to use negative strategies during a conflict discussion. Further, the more sensitive a person perceived themselves, the more often *their partner* employed positive strategies and less often used negative strategies during the discussion. Finally, greater perceived sensitivity to partner's goals was associated with higher ratings of communication competence and appropriateness by the partner (Lakey & Canary, 2002). These combined findings indicate that a person who exhibits or perceives to exhibit greater sensitivity to their partner's needs are not only more likely to communicate constructively, but will also be more likely to elicit constructive responses from and be regarded more highly by their partner.

The transformation process is apparent when there is a behavioural shift from an asocial behaviour to an action which honours broader social considerations (Arriaga, 2013; Yovetich & Rusbult, 1994). Yovetich and Rusbult theorised that responses based on the given (immediate) situation require no consideration, are emotionally driven and should therefore be quicker than responses with greater evaluation and cognitive processing time. To test this, subjects read a hypothetical situation where a romantic partner had behaved in either a constructive (relationship promoting) or destructive (relationship demoting) manner and measured subjects' retaliation response. Predicting that a destructive hypothetical situation would elicit similar retaliation unless transformation of motivation could take place, the researchers manipulated the amount of time that subjects had to respond. As predicted, those with less available response time had more destructive responses in comparison to subjects with longer response times; note this was only true of examples of destructive partner behaviour (Yovetich & Rusbult, 1994, Study 2).

Finally, Finkel and Campbell (2001) manipulated the cognitive resources of their participants through an emotional suppression task with two levels, high and low suppression, then measured responses to hypothetical destructive partner behaviours (e.g., “Your partner shows up two hours late for a date that the two of you had made together”). Results found participants with greater emotional depletion were less likely to choose constructive responses compared to participants with less depletion, supporting the hypothesis that the transformation of motivation required to (1) suppress self-protecting desires to respond destructively, and (2) switch to an accommodative response, is a cognitively demanding process (Finkel & Campbell, 2001).

The reviewed literature demonstrates that relationship maintenance is (1) difficult due to cognitive demands and the requirement of sensitivity to partner needs and goals, (2) not always driven by purely self-oriented motivations, and (3) not invariant across contexts and situations (Arriaga, 2013). Hence, interpersonal processes shape interaction behaviours and the ability to transform motivation from self-oriented outcomes to relationship-oriented goals represents an important individual difference in determining the choice and expression of different communication strategies. So what do the behaviours themselves look like?

How Do People Maintain Relationships?

People use myriad behaviours in response to discontent with their romantic partner or dissatisfaction with their relationship, such as open and active discussion (Braiker & Kelley, 1979) or passive-aggressive hostility. Furthermore, people switch behaviours throughout a discussion (Overall et al., 2009), day-to-day (Campbell et al., 2010), week-to-week (Arriaga, 2001) and conceivably over any length of time. A typology described by Rusbult, Zembrodt, and Gunn (1982) and re-conceptualised by Overall et al. (2009) measures communication behaviours along two orthogonal dimensions: directness (direct – indirect) and valence (positive – negative). These dimensions create a circumplex model of relationship

communication that consists of four categories: exit, voice, loyalty and neglect (EVLN, Figure 1). Exit and voice are direct, overt behaviours actively addressing the problem in the relationship or the partner, whereas loyalty and neglect are covert, indirect behaviours which passively refer to the impact of the problems rather than describing the issue openly. Positive behaviours (i.e., voice and loyalty) are constructive for the relationship or reward the partner with positive affect while negative behaviours (exit and neglect) are destructive as they punish a partner for transgressions or are inattentive to the relationship.

Figure 1. The EVLN typology of communication (Rusbult et al., 1982)

Exit strategies directly respond in ways which are destructive for the relationship and do not convey confidence in the future of the relationship. Such behaviours include ending (or threatening to end) the relationship, abusing the partner emotionally or physically, demanding change and directly criticising partner behaviour (Rusbult & Zembrodt, 1983).

For the remainder of the thesis, exit behaviour will be referred to as *negative direct* as we develop our model of communication behaviour.

Voice behaviours present another direct approach to problem-solving, but in a significantly more constructive way that demonstrates a person's commitment to the long-term success of the relationship. Such behaviours include discussing the problem with rational reasoning, utilising factual information and compromising (Rusbult & Zembrodt, 1983). Voice behaviour will be referred to as *positive direct* behaviour from this point onwards.

Loyalty behaviour consists of pro-relationship, passive responses to relationship problems which attempt to minimise problem severity and promote long-term relationship success. Such techniques include the expression of forgiveness, using humour to defuse tension and encourage positive affect, or providing passive support to the partner (Rusbult & Zembrodt, 1983). Loyalty behaviour will be referred to as *positive indirect* behaviour for the remainder of this thesis.

Neglect behaviour also captures passive responses to relationship problems, but in a destructive capacity which undermine relationship success long-term. Examples of neglect behaviour include ignoring or withdrawing from the partner, avoiding the discussion of issues, and acting in a hostile manner (Rusbult & Zembrodt, 1983). For the remainder of the thesis, neglect behaviours will be referred to as *negative indirect* behaviour.

Wellbeing Outcomes of Relationship Maintenance—Satisfaction and Perceived Regard

Relationship maintenance through behavioural exchange is intrinsically linked with two important markers of relationship wellbeing. Relationship satisfaction refers to a feeling of contentment with the *status quo* of the current relationship dynamic, indicating the personal and relational needs of couples are perceptually being gratified sufficiently.

Maintenance occurs because people are motivated to maintain or increase satisfaction and

choose maintenance behaviour based on three variables: (1) the degree of relationship satisfaction prior to the current problem, (2) the magnitude of the person's investment of resources (e.g., time and financial commitments), and (3) the quality of the next best alternative to the current relationship (Rusbult, 1980). Supporting the theory, Rusbult et al. (1982) demonstrated in an undergraduate sample that people with greater satisfaction prior to problems arising were more likely to use positive strategies, both direct and indirect, and less likely to use negative strategies during relationship maintenance. The first factor highlights the reciprocity of the association between communication behaviour and relationship satisfaction over time—satisfaction informs behaviour and behaviour updates satisfaction. Nevertheless, to effectively understand how relationship quality is maintained through interactions it is analytically optimal to conceptualise satisfaction as an outcome of communication behaviours.

Satisfaction and stable satisfaction are critical outcomes because they determine a person's commitment to the current relationship and ultimately whether or not couples should 'break-up' (Arriaga, 2001; Le & Agnew, 2003). However, specific satisfaction outcomes from different (mean-level) communication strategies are complex and dependent on environmental and temporal context. For instance, many cross-sectional studies find that dissatisfied couples exhibit greater disagreement, criticism and other negative strategies compared to more satisfied couples who display greater affection, humour and positive affect (e.g., Gottman, 1998; Heyman, 2001). Nevertheless, McNulty and Russell (2010) found negativity (i.e., criticism, displays of frustration) can be beneficial to longer-term satisfaction when they successfully address problems and result in conflict resolution. Collectively, the research indicates a complex association between satisfaction and maintenance behaviour.

Our research aimed to discover more about this association by detailing how temporal contexts determine satisfaction outcomes of communication behaviour.

A wellbeing construct related to relationship satisfaction is perceived regard, which refers to the degree to which people feel accepted and valued by their partner, helps determine relationship security, and indicates achievement of the innate human need to belong to close relationships (Murray et al., 2003). Essentially, people are born with a motivation to begin and maintain attachment relationships characterised by frequent interaction and mutual caring (Baumeister & Leary, 1995), thus people must be able to generate impressions of how others view and feel about them to determine whether to approach or avoid interactions. Note perceived regard, while highly related to satisfaction, is conceptually distinct as it relates to levels of dependency and attachment security rather than global satisfaction. For example, more anxiously attached people and those with lower self-esteem have chronic insecurities about their partner's regard, but are typically still satisfied in the relationship as long as conflict is minimised (Campbell, Simpson, Boldry, & Kashy, 2005; Murray, Holmes, & Collins, 2006). In romantic relationships perceived regard regulates interactions by informing people about their partner's emotional and cognitive appraisals toward them, facilitating predictions of partner behaviour thus ultimately informing interaction behaviour. Murray et al. (2003) showed that relative to people with high levels of perceived regard, people with lower perceived regard (1) feel less accepted and (2) are more likely use negativity following conflict or negative partner behaviours. Considering the reciprocal and dyadic nature of romantic interaction, it is important to note that perceiving regard and expressed behaviour occur in a continuous feedback loop throughout interactions. Despite this, upon conclusion of an interaction the final outcome will be perceived regard, as the person makes a final adjustment about how their partner values

them after the final behaviour display. Therefore akin to satisfaction, our analysis considered perceived regard as an outcome of communication behaviour.

Observational Communication Behaviours. Relying on reports from couples about communication strategies used during conflict discussions invites biased measurement. For example, people may be less likely to report negativity retrospectively if they are currently very happy with their partner, because higher current levels of partner responsiveness positively bias retrospective reports of partner behaviour (Lemay & Neal, 2013). Moreover, satisfied people possess a positive mean-level bias towards partner assessments (Fletcher & Kerr, 2010). Therefore as researchers, being able to observe and accurately code different behaviours minimises bias and provides a more objective measurement of relationship behaviour.

Heyman (2001) reviewed over 30 different behavioural scoring systems in how they converged on characterising behaviour along the valence dimension. However, Overall et al. (2009) noticed the majority of the negative codes were active, direct and partner focussed, whereas positive codes were comparatively softer, more passive and focussed on avoiding or minimising problems. While these coding guides clearly distinguish between positive and negative behaviour, they fail to conceptually separate direct from indirect behaviour within each valence. This results in an inability to fully understand relationship outcomes associated with the different communication behaviours organised along these orthogonal dimensions: valence and directness. To address the lack of clarity within coding schemes, Overall et al. (2009) collated a compendium of communication behaviours consistently used in (A) coding the observation studies of couple conflict and (B) influence tactics within close relationships, organising them within the dimensions of the EVLN model.

Outcomes of Communication Behaviours. As previously alluded to, context is critical for understanding the outcomes of different behavioural strategies. For instance,

Overall et al. (2009) tested romantic couples' communication in an interaction and longitudinally, finding negative communication strategies (i.e., exit and neglect) predicted hurt feelings during the partner discussion but *also* predicted greater partner change over time. Negative affect is associated with these destructive strategies (e.g., insulting the partner or inducing guilt), but negativity may also accurately convey the severity of the problem and be more likely to exact behavioural changes in a partner. Conversely, positive communication strategies (i.e., voice and loyalty) resulted in more positive affective responses after an interaction but were less likely to predict partner change longitudinally. Directness moderated the effects of positive and negative behaviour. Indirect strategies resulted in less distress during conflict discussion, but did not address problem severity and were less likely to predict partner change over a year; however, direct strategies may convey the severity of the problem more accurately, as they result in more negative affect response to the discussion, but greater partner change over time (Overall et al., 2009). Nevertheless, indirect strategies can also be beneficial under certain circumstances. *Negative indirect* strategies are beneficial when inducing guilt in a partner reduces relationship insecurity (Overall, Girme, Lemay, & Hammond, 2014) and *positive indirect* strategies are advantageous when they reduce partner defensiveness in order to address problems more openly (Overall, Simpson, & Struthers, 2013). In sum, seemingly negative behaviours can be beneficial when they serve important maintenance functions (i.e., diagnosis of serious relationship problems), therefore simply concluding that negativity is detrimental to enduring relationship satisfaction is erroneous. Given the temporal context of behaviour outcomes, another moderating factor deserving research attention is the extent to which behaviours are used consistently rather than unpredictably. This is because the point of negativity is to signal that something is seriously

wrong and needs action when appropriate, otherwise negative behaviour will cause unnecessary negative affect and destructive communication.

Does Varying Communication Behaviour Help or Hurt Relationships?

The existing research on communication behaviours has not adequately considered the extent to which people employ strategies *consistently*. One perspective is that higher behavioural variability actually predicts greater relationship wellbeing as it represents adaptive responsiveness to relational needs. For instance, a person will respond to their partner's personal and relational needs by tailoring their specific support behaviour to best suit the success of their partner (and the shared relationship), based on their perception of such needs (Reis & Clark, 2013; Reis & Gable, 2015). Interdependence theory considers responsiveness as the process by which couples regulate their interaction behaviours to their partners needs in conjunction with their own, previously referred to as transformation of motivation (Reis & Clark, 2013). Within conflict discussions, successful responsiveness and eventual problem resolution requires the subject of change to possess the ability to inhibit self-protective behaviours (i.e., withdrawal and defensiveness) and enact behavioural change or respond in a relationship-promoting manner. Consider another example where someone attempts to change their partner by appealing to their partner's obligations of commitment but their partner ignores the request, so they switch to rational reasoning to illustrate the severity of their partner's problem behaviour. In both circumstances, appropriately adapting strategies led to conflict resolution and successful relationship maintenance. Behaving appropriately in diagnostic situations has been shown to foster trust and commitment in romantic partners, promoting reciprocal accommodating and responsive behaviours from partners in the future, creating mutual cyclical growth of trust, commitment and responsiveness within the relationship (Reis & Clark, 2013; Wieselquist, Rusbult, Foster, & Agnew, 1999).

The contrasting perspective is that variability in relationships is detrimental for long-term success—Kelley (1983) argued that understanding the stability of relationship-promoting (or relationship-disruptive) conditions is just as meaningful as investigating the absolute (mean-level) causal conditions for predicting relationship success, due to the nature of relationships as built on repeated interaction. In other words, relationship assessments tend to be more stable when the constructive and destructive relationship forces are consistently balanced over time. Therefore, repeated disruptions to the status-quo (pro-con balance) of an intimate dynamic would destabilise relationships, independent of average relationship quality (Campbell et al., 2010; Kelley, 1983). To illustrate, Arriaga (2001) found fluctuations in satisfaction over ten consecutive days predicted relationship dissolution four months later, controlling for mean-level satisfaction. Campbell et al. (2010) conducted two studies assessing daily partner and relationship perceptions over two and three weeks respectively. The first study found greater variability in perceived relationship quality was associated with higher levels of interaction negativity in subjects and partners, and lower use of positive behaviour by partners. The second study found the same variability in perceived quality was associated greater salience of relationship problems, segregated partner cognitions, and stronger beliefs about relationship-damaging effects of disagreement (Campbell et al., 2010). More recently, Sadikaj et al. (2015b) recorded interpersonal behaviour from couples' interactions over 20 days to determine the impact of behavioural variability on goal completion and relationship satisfaction over time. Spin in interpersonal behaviour directly (and indirectly through need satisfaction) predicted lower relationship satisfaction six months later. Crucially, the effects on goal progress were only for relational goal progress compared to personal goals, which emphasizes the interpersonal consequences of interaction behavioural variability (Sadikaj et al., 2015b). Finally, Sadikaj, Moskowitz, and Zuroff (2017) found positive links between variability in perceptions of partner behaviour,

variability in partner behaviour *and* over-estimations of partner negative affect. Collectively, this research indicates how dysfunctional communication patterns are associated with fluctuations in perceptions of relationship quality, perceptions of relationship behaviour, and declining relationship wellbeing.

Consequently, a problem exists where variable communication behaviour can be beneficial when adapting strategies is accommodating and responsive to partner and relationship needs, but is also related to poor relationship functioning because it displays instability of maintenance processes and increased saliency of relationship problems. In either case, variability is a meaningful feature of the relationship maintenance process and requires consideration. The current studies integrated recent advances in research on relationship communication to address this puzzle. We expected that this different pattern of effects is due differences in the valence of relationship behaviour. Variability in positive behaviours should be regarded by the partners as flexibility and represent the responsiveness of a partner as they attend to changes within the relationship dynamic. In contrast, variability in negative behaviours should be perceived by partners as unpredictable responding to conflict, triggering negative evaluations and undermining problem-solving and relationship wellbeing. Furthermore, we studied variability in a new way by capturing the degree to which couples change between strategies (1) on a day-to-day basis and (2) within a problem-solving interaction.

Measuring Variability. Typical measurements of variability (i.e., standard deviation of a normally distributed behaviour around its average) are limited because they only capture variation along a single dimension. For instance, studies have used growth curve analysis to capture variability around a linear trend (e.g., Arriaga, 2001), error terms in multi-level modelling (e.g., Totenhagen et al., 2016), or created an index of variability by averaging standard deviations across several time points (e.g., Campbell et al., 2010). These measures

fail to measure meaningfully different forms of variability such as those in multidimensional spaces such as the affective or interpersonal circumplex (Moskowitz & Zuroff, 2004; Nezlek, 2012). As the typology of communication strategies is organised as a circumplex (see Figure 1; Overall et al., 2009; Rusbult & Zembrodt, 1983), the current research utilised a novel measurement of behavioural variability called spin (Moskowitz & Zuroff, 2004) to capture the degree to which people employ communication styles consistently. Consequently, we were able to determine important associations between multidimensional variability and relationship wellbeing markers for couples.

Overview of Current Study

The current research addressed whether variability in maintenance behaviour helps or harms relationship wellbeing. To test this, two studies investigated romantic couples for associations between a person's variability in communication behaviour and two important relationship wellbeing outcomes—satisfaction and perceived regard. As interdependence theory shows that people's behaviour varies over the course of an interaction and from day-to-day, we needed to examine both distinct time scales to comprehensively understand the importance of communication variability. Therefore, the first study utilised a daily diary approach to examine intrapersonal variability of people's communication behaviours in their romantic relationships across three weeks of typical dyadic life, and the second study utilised observed behavioural data to assess variability of communication behaviours within a 6-minute interaction. Both methodologies allowed us to display the nature of behavioural variability across two important relationship time contexts, providing key insight into communication behaviours above and beyond mean-level effects. We expected our measure of variability, spin, to be associated with the same outcomes in both time contexts, and be related to both the self and the partner for both relationship satisfaction and perceived regard.

As we expected the association between spin and outcome variables to differ according to the valence of the communication behaviour, we split the EVLN model by valence in order to accurately test switching between different constructive styles (direct vs. indirect) and destructive styles (direct vs. indirect; see Figure 2). We anticipated that variation across *positive* strategies (i.e., voice and loyalty) would reflect responsiveness to the needs and issues of the relationship. Therefore, greater variability in positive communication

Figure 2. Circumplex models of positive (A) and negative (B) direct and indirect behaviours.

behaviours should predict greater relationship wellbeing for the self (*Hypothesis 1*) and partner (*Hypothesis 2*). In contrast, switching between *negative* strategies would reflect unstable behaviour and signal relationship discord. Thus, we expected greater variability across negative communication behaviours would predict poorer relationship wellbeing for both the self (*Hypothesis 3*) and partner (*Hypothesis 4*).

STUDY 1

Method

Participants

Seventy-eight heterosexual couples involved in long-term committed relationships ($M_{\text{(relationship duration)}} = 30.92$ months, $SD = 23.59$) replied to recruitment advertisements posted around a New Zealand university. Participants' ages ranged from 17 to 48 years ($M = 22.44$, $SD = 4.82$); 44% were married/cohabitating, 49% reported their relationship was 'serious' and the remainder reported 'steady' relationships.

Procedure

As part of a larger study, participants were instructed to complete an online questionnaire at the end of each day for 3 weeks. Participants provided a date for each entry, which was compared with the software-logged date and time to check compliance, and then answered thirteen questions relevant to the current predictions rating relationship satisfaction (one item), perceived regard (four items), and interpersonal behaviour (eight items).

Diary analyses exclude participants who completed fewer than seven entries or did not comply with instructions (i.e., completed more than half of their diary entries the next day or later). Thirteen couples met these exclusion criteria but did not differ from included participants on any initial measures. Included participants completed an average of 19.3 entries. Participants were compensated \$90 NZD for completing all components of the study.

Measures

Interpersonal behaviour. Each day participants completed eight items measuring interpersonal behaviours (Overall, Sibley, & Travaglia, 2010; Study 2). Two items assessed each of: *positive direct* ('I tried to maintain or improve the quality of our relationship'), *positive indirect* ('I was willing to let my partner have things his/her way'), *negative direct* ('I was critical or unpleasant toward my partner'), and *negative indirect* behaviour ('I withdrew from my partner and did my own thing'). These items were used to create two circumplex models of interpersonal communication – one which captures all positive behaviours (Figure 2A), and one which captures negative behaviours (Figure 2B). Referred to as interpersonal space, different behaviours occupy each quadrant of the circumplex models. In the model of positive behaviour, the high direct and low indirect quadrant captures communication typical of *voice* behaviour. Diametrically opposite behaviours are *loyalty*, as they are low in directness and highly indirect. For negative communication, high direct and low indirect behaviour encapsulates *exit*, whereas *neglect* behaviour sit opposite to low in directness and high in indirectness.

Relationship satisfaction. Each day participants answered the extent to which "I was satisfied with our relationship" (1 = *Not At All*; 7 = *Extremely*).

Perceived regard. Four items taken from Murray et al. (2003) were averaged together to assess participants' perceptions of regard from their partner each day: "I felt cared for and supported by my partner," "I felt accepted and loved by my partner," "I felt valued and respected by my partner," and "I felt rejected or ignored by my partner [*reverse*]" (1 = *Not At All*; 7 = *Extremely*). The scale displayed acceptable reliability ($\alpha = .95$).

Calculation of Spin

Calculation of mean-level behavioural scores. To construct the mean levels of *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour, we totalled

the two items for positive-direct, positive-indirect, negative-direct and negative-indirect respectively, before aggregating each participant's scores across the 21 days of the study.

Calculation of spin scores. The calculation of spin scores for daily diary studies followed the method described by Nezlek (2012), also see Moskowitz and Zuroff (2004). Direct and indirect scores were treated as Cartesian coordinates (x, y) within the circumplex model with directness represented on the ' x ' axis and indirectness occupying the ' y ' axis. Through this format, communication behaviour was shown as a vector from the origin to the point in interpersonal space (x, y). These coordinates were transformed into polar coordinates (r, θ), where each vector is characterised by its degree of angular rotation (angular displacement, θ , expressed in radians) and its distance from the origin (r , calculated as square root ($\text{indirect}^2 + \text{direct}^2$)). Hence, the θ coordinate represents the overall communication behaviour of each day, for each of positive and negative behaviour. For instance, if a person reported high levels of *positive direct* and *positive indirect* behaviour on a given day, the θ coordinate for that day would occupy the upper-right quadrant of positive interpersonal space (see Figure 2A). Furthermore, the r coordinate indicates the extremity in the directness or indirectness of the behaviour (i.e., the distance from the origin). Means for θ and r were calculated over all 21 days. Conceptually, spin is the standard deviation of θ across the study period, and captured variation in the angular rotation of a person around the circumplex model from day-to-day (see Moskowitz & Zuroff, 2004, p. 855). In other words, spin measures the degree to which a person changes their style of communication from day-to-day. Spin scores have demonstrated temporal stability when calculated on at least seven days (Moskowitz & Zuroff, 2004).

Alternative Explanation—Calculation of Flux and Pulse

Our predictions specifically concerned variation as spin across quadrants of multidimensional models. To ensure that any effects of spin were not due to other forms of

variability in behaviour (e.g., variability from day-to-day along one dimension rather than angular rotation), we also estimated *flux* and *pulse* of interpersonal behaviour (see Nezlek, 2012).

Calculation of flux scores. Flux scores represent variability along a single dimension within the circumplex model. As we constructed our models to compare changes in the directness of behaviour within positive and negative valences separately, we calculated a flux score for indirectness and directness within each model. This score is the standard deviation of indirect and direct behaviour across the period of study, calculated from the aggregation of totalled behavioural items over 21 days.

Calculation of pulse scores. Pulse captures the variation in magnitude of behaviour from day-to-day. The polar coordinate '*r*' indicates the extremity in the directness or indirectness of a behaviour on a given day, so pulse was calculated as the standard deviation of the *r* values around the participant's mean (r_m) across 21 days.

Results

Descriptive Statistics

Descriptive statistics and correlations for the variables are displayed in Table 1. Consistent with the romantic relationship literature (Fletcher & Kerr, 2010; Murray et al., 1996), levels of relationship satisfaction and perceived regard were relatively high and were very strongly correlated. Despite this statistical overlap, we kept the two variables as distinct outcomes because relationship satisfaction indexes a conceptually different construct of more global evaluations of the relationship whereas perceived regard indexes partner-specific feelings of security and acceptance (Murray et al., 2003; Murray et al., 1996). Participants also reported relatively high levels of *positive direct* behaviour, moderate levels of *positive indirect* behaviour, and low levels of both direct and indirect negative behaviour, consistent with results from Overall et al. (2010). Flux and pulse scores indicated a reasonable degree of

Table 1

Descriptive statistics and correlations among study 1 variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Relationship Satisfaction	--														
2. Perceived Regard	.87**	--													
3. Gender	.00	-.01	--												
<i>Positive Behaviour</i>															
4. Spin	-.48**	-.49**	-.02	--											
5. Direct Behaviour	.56**	.62**	.02	-.58**	--										
6. Indirect Behaviour	-.07	.01	.05	-.14	.29**	--									
7. Flux of Direct Behaviour	-.29**	-.29**	-.15	.40**	-.48**	-.24**	--								
8. Flux of Indirect Behaviour	-.08	-.06	-.14	.37**	-.06	.04	.32**	--							
9. Pulse	-.35**	-.31**	-.15	.38**	-.31**	.06	.63**	.47**	--						
<i>Negative Behaviour</i>															
10. Spin	-.44**	-.46**	-.03	.61**	-.23**	.04	.07	.19*	.23**	--					
11. Direct Behaviour	-.55**	-.58**	-.09	.30**	-.29**	.14	.03	-.07	.17*	.61**	--				
12. Indirect Behaviour	-.63**	-.66**	.06	.44**	-.46**	.03	.21**	.02	.23**	.68**	.60**	--			
13. Flux of Direct Behaviour	-.33**	-.30**	-.17*	.21**	-.07	.05	.15	.18*	.27**	.48**	.63**	.32**	--		
14. Flux of Indirect Behaviour	-.32**	-.31**	-.08	.43**	-.22**	-.06	.37**	.32**	.44**	.60**	.34**	.59**	.50**	--	
15. Pulse	-.33**	-.35**	-.19*	.31**	-.10	.03	.23**	.18*	.42**	.47**	.42**	.37**	.61**	.65**	--
<i>M</i>	5.86	5.96		0.91	5.46	4.23	0.95	1.02	0.77	0.75	2.00	2.18	1.00	1.02	0.79
<i>SD</i>	0.92	0.81		0.44	0.99	0.96	0.45	0.37	0.26	0.47	0.78	0.93	0.48	0.49	0.33

Note. Gender was coded as *women* = -1; *men* = 1.* $p < .05$, ** $p < .01$

variability in the levels and magnitudes of relationship behaviour respectively. Levels of spin were also consistent with prior studies on relationship behaviour (Moskowitz & Zuroff, 2004; Sadikaj et al., 2015b).

In a typical regression model, the analysis assumes individual independence in the data which would increase the chances of Type 1 and Type 2 errors when using data gathered from couples in a romantic relationship (i.e., couples' individual-level and daily-level data are inherently dependent on one another). In order to explore spin with relationship outcomes for both dyadic members (self and partner), we followed the guidelines of Kenny, Kashy, and Cook (2006) and used the MIXED procedure in SPSS (IBM Corp., 2016) to run dyadic models which simultaneously estimated all model parameters separately for each partner while accounting for the dependence in the data by including repeated effects of individuals nested within couples.

Variability in Positive Relationship Behaviour

Behavioural spin predicting personal relationship wellbeing. We hypothesised that people's spin in positive behaviour would predict higher levels of their own relationship satisfaction and perceived regard. Greater spin in positive behaviour should reflect greater responsiveness to the partner and therefore more efforts to maintain the relationship. In the first analyses we conducted two models in which people's (1) relationship satisfaction and (2) perceived regard were regressed on their spin in positive behaviour, including mean-levels of *positive direct* and *positive indirect* behaviour as covariates.

Results from the analyses are displayed in Table 2. Mean-level effects indicated that people who tended to use more *positive direct* behaviours over the 21-day study period reported higher relationship satisfaction and greater perceived regard. Conversely, greater use of *positive indirect* strategies over the same period predicted lower relationship satisfaction and perceived regard. Thus, consistent with prior research (e.g., Overall et al., 2009), more

Table 2

Spin for positive behaviour in dyadic models predicting people's own relationship satisfaction and perceived regard.

<i>Predictor</i>	Relationship Satisfaction					Perceived Regard				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Positive Behavioural Spin	-.48	.15	-3.23**	-.77	-.19	-.31	.13	-2.38*	-.57	-.05
Mean Positive Direct Behaviour	.38	.07	5.29**	.24	.52	.41	.06	6.52**	.29	.53
Mean Positive Indirect Behaviour	-.18	.06	-3.21**	-.29	-.07	-.14	.05	-2.83**	-.24	-.04
Gender	-.00	.04	-0.02	-.08	.07	-.01	.04	-0.40	-.09	.06
Positive Behavioural Spin × Gender	.44	.12	3.74**	.21	.67	.27	.11	2.49*	.06	.49
Mean Positive Direct Behaviour × Gender	.17	.05	3.09**	.06	.27	.13	.05	2.49*	.03	.23
Mean Positive Indirect Behaviour × Gender	.09	.05	1.89	-.00	.18	.10	.04	2.15*	.01	.18

Note. * $p < .05$, ** $p < .01$

active strategies were related to greater relationship wellbeing while easily-missed passive strategies were related to lower relationship wellbeing over time. Surprisingly, spin in positive behaviour predicted lower relationship satisfaction and perceived regard. This result was opposite to our hypothesis and indicated that people who reported greater levels of interchanging positive communication strategies across days also reported lower relationship wellbeing.

Although we did not make specific hypotheses for gender, we included exploratory interaction effects to account for possible differences between men and women. Gender significantly moderated the links between mean-level *positive direct* behaviour and both relationship satisfaction and perceived regard. Decomposing these interactions we found a larger positive association between the use of *positive direct* behaviour and relationship satisfaction for men ($b = .54$ [95% $CI = .38$ to $.70$], $SE = .08$, $t = 6.69$, $p < .001$), compared to women; $b = .21$ [95% $CI = .02$ to $.40$], $SE = .10$, $t = 2.19$, $p = .03$ (Figure 3; Panel A). Gender also moderated the link between the *positive direct* behaviour and perceived regard (Figure 3; Panel B): the positive relationship was stronger for men ($b = .54$ [95% $CI = .40$ to $.67$], $SE = .07$, $t = 7.65$, $p < .001$) than women ($b = .28$ [95% $CI = .11$ to $.46$], $SE = .09$, $t = 3.16$, $p = .002$). These effects indicate that men, relative to women, had higher relationship wellbeing when employing more direct strategies, but lower wellbeing when using direct strategies less.

Gender also moderated the association between mean-level *positive indirect* behaviour and perceived regard (Figure 4): the negative association was being driven predominantly by women ($b = -.24$ [95% $CI = -.39$ to $-.09$], $SE = .08$, $t = -3.18$, $p = .002$), such that there was no association between indirect behaviour and perceived regard found for men ($b = -.05$ [95% $CI = -.16$ to $.07$], $SE = .06$, $t = -0.79$, $p = .43$). Interestingly, this suggests only women are likely to have lower perceived regard with less use of constructive, passive

Figure 3. Gender moderating the relationship between positive direct behaviour and people's (A) relationship satisfaction and (B) perceived regard (Study 1). *Note.* Low values represent 1 *SD* below the mean. High values represent 1 *SD* above the mean.

strategies, while men will use the same strategies consistently as their level of perceived regard fluctuates.

Figure 4. Gender moderating the relationship between positive indirect behaviour and people's perceived regard (Study 1). *Note.* High and low values are indexed at 1 *SD* above and below the mean respectively.

Finally, gender moderated the links between spin in positive behaviour and both relationship satisfaction and perceived regard. Simple slope analysis revealed that women's spin in positive behaviour was negatively related to their (A) relationship satisfaction ($b = -.92$ [95% $CI = -1.32$ to $-.52$], $SE = .20$, $t = -4.53$, $p < .001$), and (B) perceived regard ($b = -.59$, [95% $CI = -.96$ to $-.21$], $SE = .19$, $t = -3.10$, $p = .002$), whereas no associations were found between men's spin in positive behaviour and their (Figure 5; Panel A) relationship satisfaction ($b = -.04$ [95% $CI = -.38$ to $.31$], $SE = .17$, $t = -0.21$, $p = .83$), and (Figure 5; Panel B) perceived regard ($b = -.04$ [95% $CI = -.34$ to $.26$], $SE = .15$, $t = -0.25$, $p = .80$). These results indicate that women were more likely to switch between positive strategies when relationship satisfaction and perceived regard were low, relative to when wellbeing was high,

Figure 5. Gender moderating the relationship between spin in positive behaviour and people's (A) relationship satisfaction and (B) perceived regard (Study 1). *Note.* High and low values are indexed at 1 SD above and below the mean respectively.

suggesting increased responsiveness as relationship quality wanes. In contrast, the extent to which men switched their positive behavioural strategies was unrelated to their relationship wellbeing, indicating a lack of responsiveness to the daily state of the relationship.

Behavioural spin predicting partner relationship wellbeing. Our second hypothesis posed that behavioural spin in positive strategies would predict greater relationship wellbeing for the romantic partner: greater spin should reflect greater responsiveness to the partner and therefore more efforts to maintain the relationship, which should be noticed by the partner. We repeated the above analyses, but with the partner's (1) relationship satisfaction and (2) perceived regard regressed on their spin in positive behaviour, rather than their own relationship outcomes. Similarly, we statistically adjusted for mean-levels of *positive direct* and *positive indirect* behaviour in these models also.

Results from the analyses are displayed in Table 3. As predicted, greater spin predicted greater partner relationship satisfaction. This suggested that alternating positive communication strategies was well received by romantic partners, perhaps because they perceived the individual tending to the relationship needs constructively. No other main effects were found, indicating that simply using a positive communication strategy individually had no association with partners' relationship satisfaction or perceived regard.

As above, we explored for gender interactions in the partner analysis. We found gender significantly moderated the link between mean-level *positive direct* behaviour and partner relationship satisfaction (Figure 6). Elucidating the interactions discovered that while the interaction was significant, the simple slopes did not significantly differ from zero for both men ($b = -.14$ [95% $CI = -.35$ to $.07$], $SE = .11$, $t = -1.30$, $p = .19$) and women ($b = .14$ [95% $CI = -.06$ to $.34$], $SE = .10$, $t = 1.36$, $p = .18$), providing no indication of opposing effects due to gender.

Table 3

Spin for positive behaviours in dyadic models predicting partner's relationship satisfaction and perceived regard.

<i>Predictor</i>	Relationship Satisfaction					Perceived Regard				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Positive Behavioural Spin	.43	.19	2.39*	.07	.78	.30	.17	1.77	-.04	.63
Mean Positive Direct Behaviour	.00	.09	.00	-.17	.17	.08	.08	1.01	-.08	.24
Mean Positive Indirect Behaviour	-.01	.07	-.13	-.14	.12	-.00	.06	-.03	-.13	.12
Gender	.00	.04	.06	-.08	.08	.01	.04	.31	-.07	.10
Positive Behavioural Spin × Gender	-.35	.13	-2.67**	-.61	-.09	-.27	.13	-2.01*	-.53	-.05
Mean Positive Direct Behaviour × Gender	-.14	.06	-2.39*	-.26	-.02	-.07	.06	-1.20	-.19	.05
Mean Positive Indirect Behaviour × Gender	-.10	.05	-1.89	-.21	.01	-.09	.05	-1.64	-.19	.02

Note. * $p < .05$, ** $p < .01$

Figure 6. Gender moderating the relationship between positive direct behaviour and partner relationship satisfaction (Study 1). *Note.* High and low values are indexed at 1 *SD* above and below the mean respectively.

However, gender also moderated the link between spin in positive behaviour and partner relationship satisfaction (Figure 7; Panel A) and perceived regard (Figure 7; Panel B). Analyses indicated that the association between spin in positive behaviour and a partner's relationship satisfaction is completely driven by women, such that women who switched between positive strategies more often over the 21-day study period were more likely to have partners with higher relationship satisfaction ($b = .78$ [95% *CI* = .35 to 1.20], $SE = .22$, $t = 3.62$, $p < .001$). Comparatively, men's spin in positive behaviour was unrelated to their partner's relationship satisfaction ($b = .08$ [95% *CI* = -.37 to .52], $SE = .23$, $t = 0.33$, $p = .74$), indicating that men switching between positive strategies more or less often over the study period has no association with their partner's satisfaction. A similar pattern was found regarding partner's perceived regard: women who had partners with higher perceived regard switched between positive strategies more often ($b = .56$ [95% *CI* = .15 to .98], $SE = .21$, $t = 2.66$, $p = .009$), whereas no association was found for men; $b = .03$ (95% *CI* = -.39 to .45), SE

$= .21, t = 0.13, p = .89$. Collectively, this pattern of results suggests larger degrees of responsiveness by women relative to men.

Variability in Negative Relationship Behaviour

Behavioural spin predicting personal relationship wellbeing. In contrast to positive behaviours, we hypothesised that people's spin in negative behaviour would predict lower levels of their own relationship satisfaction and perceived regard. We expected that switching between negative strategies would be interpreted as behavioural inconsistencies and therefore be reflected in lower relationship quality. Mirroring the analyses for positive behaviour, we conducted two models in which people's (1) relationship satisfaction and (2) perceived regard were regressed on their spin in negative behaviour, including mean-levels of *negative direct* and *negative indirect* behaviour as covariates.

Results from the analyses are displayed in Table 4. As expected, mean-level effects indicated that people using more negative behaviours over the 3-week study period reported diminished relationship satisfaction and perceived regard. Consistent with prior research (e.g., Gottman & Krokoff, 1989; McNulty & Russell, 2010), both active and passive negative strategies were related to lower relationship wellbeing concurrently. Interestingly, spin in negative behaviour was related to greater levels of relationship satisfaction ($p = .05$) and perceived regard. In opposition to our hypothesis, people reporting greater switching of negative relationship behaviours across days also reported greater relationship wellbeing.

As with our positive behaviour analyses, we explored for potential gender interactions with negative behaviours and spin without making any specific hypotheses. Analyses indicated that gender significantly moderated the links between *negative indirect* behaviour with relationship satisfaction as well as with perceived regard. This interaction indicated that the association between *negative indirect* behaviour and relationship wellbeing was greater for women relative to men. For relationship satisfaction (Figure 8; Panel A), women were

Figure 7. Gender moderating the relationship between spin in positive behaviour and partner (A) relationship satisfaction and (B) perceived regard (Study 1). *Note.* High and low values are indexed at 1 *SD* above and below the mean respectively.

Table 4

Spin for negative behaviour in dyadic models predicting people's own relationship satisfaction and perceived regard.

<i>Predictor</i>	Relationship Satisfaction					Perceived Regard				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Negative Behavioural Spin	.34	.17	1.97	-.00	.09	.38	.15	2.58*	-.09	.67
Mean Negative Direct Behaviour	-.36	.09	-3.89**	-.55	-.18	-.37	.08	-4.48**	-.53	-.20
Mean Negative Indirect Behaviour	-.52	.08	-6.20**	-.69	-.35	-.49	.07	-6.73**	-.63	-.34
Gender	.01	.04	.34	-.06	.09	-.00	.04	-.05	-.07	.07
Negative Behavioural Spin × Gender	.00	.13	.01	-.26	.26	-.10	.12	-.85	-.34	.13
Mean Negative Direct Behaviour × Gender	-.05	.07	-.70	-.20	.09	-.09	.07	-1.23	-.22	.05
Mean Negative Indirect Behaviour × Gender	.15	.07	2.08*	.01	.29	.23	.06	3.71**	.11	.36

Note. * $p < .05$, ** $p < .01$

more likely to have lower relationship satisfaction when using more passive strategies ($b = -.67$ [95% $CI = -.91$ to $-.42$], $SE = .12$, $t = -5.38$, $p < .001$), compared to men ($b = -.37$ [95% $CI = -.56$ to $-.19$], $SE = .09$, $t = -4.01$, $p < .001$). Similarly for perceived regard (Figure 8; Panel B), women had lower perceived regard when employing more passive strategies ($b = -.72$ [95% $CI = -.92$ to $-.52$], $SE = .10$, $t = -6.99$, $p < .001$) relative to men ($b = -.25$ [95% $CI = -.43$ to $-.08$], $SE = .09$, $t = -2.86$, $p = .005$). These results indicate women's greater wellbeing sensitivity to passive relationship behaviour compared to men.

Behavioural spin predicting partner relationship wellbeing. The final hypothesis expected that greater spin in negative behaviour would be related to lower relationship wellbeing for their partner. In other words, a partner should interpret alternating between negative communication strategies as inconsistent behaviour and experience lower relationship satisfaction and perceived regard. To test this, we conducted two regression analyses where partner's (1) relationship satisfaction and (2) perceived regard were regressed on to spin in negative behaviour while co-varying mean-levels of *negative direct* and *negative indirect* behaviour.

Analysis results are displayed in Table 5. Surprisingly, we found a main effect of *negative indirect* behaviour such that greater use of *negative indirect* communication was related to greater levels of partner relationship satisfaction. This indicates that more withdrawal from a romantic partner accompanied higher relationship satisfaction for the partner. While coefficients for spin in negative behaviour did not reach significance, their direction indicated negative associations with both relationship outcomes; however, due to large confidence intervals these effects are tentative.

Gender interaction analyses did not reveal any significant interactions with mean-level negative behaviours or spin when predicting partner relationship satisfaction and perceived regard.

Figure 8. Gender moderating the relationship between negative indirect behaviour and people's (A) relationship satisfaction and (B) perceived regard (Study 1). Note. High and low values are indexed at 1 SD above and below the mean respectively.

Table 5

Spin for negative behaviour in dyadic models predicting partner's relationship satisfaction and perceived regard.

<i>Predictor</i>	Relationship Satisfaction					Perceived Regard				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Negative Behavioural Spin	-.23	.22	-1.04	-.67	.21	-.25	.20	-1.25	-.66	.15
Mean Negative Direct Behaviour	.15	.12	1.29	-.08	.39	.07	.11	.67	-.14	.29
Mean Negative Indirect Behaviour	.23	.10	2.26*	.03	.44	.13	.10	1.42	-.06	.33
Gender	-.01	.04	-.21	-.09	.08	.00	.04	.10	-.08	.09
Negative Behavioural Spin × Gender	-.20	.15	-1.33	-.49	.10	-.10	.15	-.70	-.40	.20
Mean Negative Direct Behaviour × Gender	-.03	.08	-.30	-.19	.14	-.05	.08	.58	-.21	.12
Mean Negative Indirect Behaviour × Gender	.04	.08	.48	-.12	.20	-.06	.08	-.79	-.22	.10

Note. * $p < .05$, ** $p < .01$

Analyses Testing Alternative Explanations

Controlling for Flux and Pulse effects. We first conducted models to assess whether other forms of behavioural variability explained the effects of behavioural spin. Flux is the variation along a single behaviour dimension (e.g., *positive direct*) represented by the standard deviation of those behavioural scores across the 21 days of diary entries (i.e., variability around a single mean). Pulse captures variability in the magnitude of their daily behaviours (i.e., variability in extremes; see Figure 2; Moskowitz & Zuroff, 2004). All results of supplementary analyses are presented in the supplementary materials (Supplementary Tables 1 to 16).

Regarding positive relationship behaviour, greater pulse was related to lower relationship satisfaction for the self, indicating that people who vary the magnitude of their positive strategies more will likely experience lower levels of relationship wellbeing. However, including flux and pulse in our models had minimal influence on our main effects, with spin and mean behaviour coefficients remaining stable for self and partner analyses. This indicates that associations between spin in positive behaviour and relationship wellbeing are independent of flux and pulse measures of behaviour variability, despite the large degree of correlation between flux, pulse and spin in positive behaviour ($r_s = .37$ to $.63$).

Comparatively, including flux and pulse in our models for negative relationship behaviour slightly reduced the coefficient of spin on people's relationship satisfaction ($b = .30$ [95% $CI = -.07$ to $.67$], $SE = .19$, $t = 1.60$, $p = .11$) and perceived regard ($b = .28$ [95% $CI = -.03$ to $.27$], $SE = .16$, $t = 1.78$, $p = .08$) without significant effects of flux and pulse individually, suggesting too much error in the model. For perceived regard, the main effect of spin became marginal with the inclusion of flux and pulse ($b = .28$ [95% $CI = -.03$ to $.27$], $SE = .16$, $t = 1.78$, $p = .08$), suggesting the spin effect was partially accounted for by the significant effects of *negative indirect* flux ($b = .44$ [95% $CI = .12$ to $.76$], $SE = .16$, $t = 2.69$,

$p = .008$), and negative pulse ($b = -.46$ [95% $CI = -.86$ to $-.05$], $SE = .20$, $t = -2.24$, $p = .027$).

These changes indicate that different forms of variability are not independent in their links with relationship wellbeing, at least regarding negative relationship behaviour. However, this is still consistent with the idea that variability in negative behaviour operates as unstable and inconsistent behaviour. In our analysis of partner relationship wellbeing, the main effect of mean-level *negative indirect* behaviour disappeared with the inclusion of flux and pulse of negative behaviour.

Controlling for quadratic effects of mean relationship behaviour. An alternative explanation for the effects of spin is that this variability measure instead indexes non-linear relationships between behaviour and relationship wellbeing (e.g., if high use of negative strategies has a disproportionately large impact on relationship satisfaction). As such, we computed quadratic terms for mean-levels of *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour and included them in our regression models as covariates.

Three out of four spin coefficients remained significant with the inclusion of quadratic mean-levels of negative strategies for all outcomes. In our regression of perceived regard on positive behaviour, the inclusion of quadratic mean-level positive behaviours diminished the negative coefficient of spin in positive behaviour on own perceived regard ($b = -.22$ [95% $CI = -.51$ to $.06$], $SE = .15$, $t = -1.55$, $p = .12$), despite finding no effects of quadratic terms ($ts < 1.41$, $ps > .16$).

Controlling for partner satisfaction and perceived regard effects. As the relational wellbeing of one partner is determined, in part, by the relationship quality of the other (e.g., Murray et al., 2006; Overall et al., 2009), it is possible this phenomenon accounts for the effects of variations in relationship behaviour across many days. Therefore, we included partner relationship outcomes in our regression models as covariates to determine if spin effects are accounted for by partner relationship wellbeing.

As expected, we found large effects of partner satisfaction and perceived regard in their respective analyses; however, most spin effects remained significant except for the analysis of own perceived regard predicted by spin in negative behaviour, which dropped below significance ($b = .37$ [95% $CI = -.01$ to $.75$], $SE = .19$, $t = 1.96$, $p = .05$), likely due to the inflation of error when including two additional variables in the model. This set of alternative explanations indicated that effects of behavioural spin are independent of partner relationship wellbeing.

Controlling for competing positive and negative spin and relationship behaviour effects. The final supplementary analyses considered whether the effects of spin were due to behavioural variability *in general*. The effects of spin in positive behaviour may instead be accounted for by greater spin in negative behaviour, or vice versa. Indeed, positive and negative relationship behaviours are often utilised simultaneously during maintenance interactions, such as a person openly sharing their feelings and opinions whilst also being critical of their partner (Overall et al., 2009). We re-ran the models above in which the predictors of spin in positive behaviour and spin in negative behaviour were entered simultaneously, including the covariates of mean-levels of *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour.

First, in the model predicting own relationship wellbeing, all effects of behavioural spin remained significant ($ts > 2.00$, $ps < .05$), except for the coefficient for spin in positive behaviour predicting perceived regard, which became marginal ($b = -.22$ [95% $CI = -.49$ to $.05$], $SE = .13$, $t = -1.67$, $p = .097$). Second, the interaction between gender and spin in positive behaviour remained consistent; however, a significant interaction between gender and negative spin was revealed (Supplementary materials, figure 1). Decomposing the interaction indicated that for women, greater switching between destructive behaviours accompanied feeling more valued by their partner ($b = .81$ [95% $CI = .40$ to 1.22], $SE = .21$, t

= 3.88, $p < .001$). The slope for men was non-significant, indicating no apparent link between negative spin and own perceived regard for men ($b = -.20$ [95% $CI = -.58$ to $.18$], $SE = .19$, $t = -1.05$, $p = .29$). These results indicate that positive and negative spin have distinct associations with a person's relationship wellbeing and do not account for each other.

Repeating the analyses for the partner's relationship outcomes found the effect of spin in positive behaviour remained significant. Interestingly, spin in negative behaviour now significantly (previously marginal) predicted partner relationship satisfaction ($b = -.46$ [95% $CI = -.89$ to $-.03$], $SE = .22$, $t = -2.14$, $p = .04$), such that greater switching between destructive behaviours was associated with lower relationship satisfaction for partners. This lends weight to our results supporting our fourth hypothesis.

Discussion

Our first study explored associations between important relationship wellbeing indicators (satisfaction and perceived regard) and the degree to which people switched between relationship behaviours from day-to-day across 3 weeks. Our predictions were partially supported for positive communication: results indicated daily variations in the use of positive strategies (e.g., reasoning) was linked to lower levels of relationship wellbeing for the self, but greater wellbeing for partners. Gender interactions indicated these effects were predominantly driven by women. Gender effects suggested that women, relative to men, were (1) more likely to change positive behaviours from day-to-day when relationship wellbeing is lower, and (2) this variability was associated with higher relationship wellbeing for their partners. These findings provide partial support for the idea that variability in positive communication behaviours signals greater levels of responsiveness to relationship needs and motivations of relationship maintenance, particularly for women.

Again in partial support for our hypotheses, switching negative strategies was linked to greater levels of relationship wellbeing for the self, despite mean-level behaviour being

negatively related to relationship wellbeing. Partner effects indicated that daily switching between negative strategies may be linked to lower partner relationship wellbeing, when switching between positive strategies was accounted for. However, large confidence intervals mean these results are inconclusive and further investigation is required. Changing between negative strategies from day-to-day likely has more complex associations with relationship satisfaction and perceived regard due to other factors involved, possibly due to an interaction with spin in positive behaviour.

STUDY 2

Study 2 measured variation in communication behaviour at the level of an interpersonal interaction between romantic partners. This approach assesses variability over a much shorter timeframe than our first study. Here, we specifically examined whether behavioural spin in communication over the course of 6 minutes was linked with perceived regard immediately following that interaction. Couples interacted with one another as part of a video-recorded communication game in which one partner had to instruct their partner to complete a short task. Communication behaviours were coded by observers every 30 seconds, allowing for a more objective measurement of behavioural spin over this timeframe. As in Study 1, we predicted that variability in positive communication behaviours would reflect adaptive responses to the situational needs of the relationship. Accordingly, spin in positive behaviour should be positively associated with perceived regard in both the self (*Hypothesis 1*) and their partner (*Hypothesis 2*). In contrast, we expected that variability in negative communication behaviours would reflect inconsistency and instability. Spin in negative behaviour should be negatively associated with perceived regard for the self (*Hypothesis 3*) and partner (*Hypothesis 4*).

Method

Participants

One-hundred and twelve couples involved in long-term committed relationships ($M_{\text{(relationship duration)}} = 39.93$ months, $SD = 57.61$;¹ 88.4% heterosexual) replied to recruitment advertisements posted around a New Zealand university. Participants' ages ranged from 18 to 69 years ($M = 22.73$, $SD = 6.40$); 55.3% were married/civil union/cohabitating, 35.7% reported their relationship as 'serious' with the remainder reporting 'exclusive, steady' relationships. Participants were 50.4% female, 46.4% male and 2.2% other, with four participants not disclosing gender.

Procedure

Participants in this study were part of a larger study on 'goal completion in romantic relationships.' As part of the initial session of this study, participants first completed questionnaires to gather demographic information as well as individual-difference and relationship-related measures. Participants then had an initial 'warm-up' discussion about the events of their week that familiarised participants with the procedure. Next, participants engaged in two 6-minute tasks described as "communication games". Participants were sat facing one another across a metre-wide coffee table. Before each task, a trained research assistant provided the following instructions to participants:

The following interaction will be a communication-style game for you to complete together. The instructions and rules of the game are written down on the paper on each of these clipboards. When I leave this room you can both flip the page over and begin reading the instructions, but do not discuss or begin the game until I give you the signal through the intercom.

In each task, one participant was given the instructions for the game ("task instructor") and the other participant was given information that their partner had the instructions ("task completer"). Tasks were counterbalanced for order and across gender. The

¹ Excluding the couple with longest relationship length, $M = 35.08$ months, $SD = 26.84$

instructor and completer roles were switched for the second task. Both partners were given information that they started with 100 points which would be lost for breaking rules to incentivise task engagement. One task required the task completer to assemble coloured building blocks into specific structures hidden behind a screen. The other task required the task completer to select geometric shapes that were printed on their paper. Tasks were piloted to be equivalent in difficulty; following data collection, both subjective self-report ($t(440) = 0.03, p = .98$) and objective coding ($t(440) = -1.47, p = .14$) of task success found no significant difference in success between tasks, confirming equivalence of task difficulty. After the completion of each task, participants individually completed a questionnaire which included the measure of perceived regard described below. Participants then completed questionnaires and two more discussions unrelated to the study aims described here. Participants were debriefed and compensated \$40 in vouchers for their participation in the study.

Measures

Perceived Regard. Similarly to Study 1, three items were averaged together to assess participants' perceptions of regard from their partner during each interaction: "In that interaction I felt: ...understood/validated ...accepted/valued ...loved and cared for by my partner" (1 = *Not At All*; 7 = *Very*). The scale displayed acceptable reliability ($\alpha = .77$).

Coding Procedure

A team of five research assistants were trained on the communication strategies coding schedule (Overall et al., 2009) that describes distinct patterns of maintenance behaviour. Communication strategies were coded for each participant for each 30-second segment of the interaction. Ratings were made electronically and encompassed the extent to which each communication strategy was exhibited, considering the frequency, intensity, and duration of the behaviour (1–2 = low, 3–5 = moderate, 6–7 = high). Each participant was

coded by between 2 and 4 people on the team. After each 30-second segment, coders compared ratings and discussed discrepancies to establish a final rating to limit coder drift and increase reliability. Pre- and post-consensus reliabilities indicated acceptable interrater reliability (see Table 6). The following analyses used the post-consensus ratings.

Negative direct behaviours were the average of coder ratings for coercion (blame and derogation of partner) and autocracy (assertion of authority and superiority [e.g., being patronising and condescending]. Similarly, *negative indirect* behaviours were the average of coder ratings for manipulation (guilt induction through appealing to obligations) and supplication (guilt induction by debasing the self, sulking, and expressing hurt/weakness). *Positive direct* behaviour was the average of coder ratings for rational reasoning (use of facts and logic), while *positive indirect* behaviour was the average of rated soft positive strategies (attempts to minimise problems, expression of positive affect [e.g., smiling]).

Table 6

Averaged single Intra-Class Correlations for each communication strategy pre- and post-consensus discussion

Communication Strategy	Interrater reliability	
	Pre-Consensus	Post-Consensus
Coercion	.67	.79
Autocracy	.79	.86
Rational Reasoning	.80	.85
Manipulation	.64	.80
Supplication	.73	.85
Soft Positive	.76	.85

Calculation of Spin

Spin scores were calculated following the same process as Study 1. Spin captures the angular variation of a person around the circumplex model across the time period (see Moskowitz & Zuroff, 2004, p. 855). In this study, behavioural spin indexes the degree to which a person changed between different communication strategies across the 6-minute interaction.

Alternative Explanation—Calculation of Flux and Pulse

As in Study 1, we conducted supplementary analyses to ensure that any effects of spin were not due to other forms of variability—flux and pulse—which capture fluctuations in a *single* dimension of *in/directness* and in *magnitude* of behaviour across the interaction, respectively (also see Nezlek, 2012). We calculated flux and pulse over the 6-minute period of the interaction game following the same method described in Study 1.

Results

Descriptive Statistics

Descriptive statistics and correlations for the variables are displayed in Table 7. Average levels of perceived regard were high, as was expected from previous research and the results of Study 1 (Fletcher & Kerr, 2010; Murray et al., 1996). Compared to our first study, mean-level relationship behaviours were lower, with *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour expressed at a low level on average over the interaction. However, this is likely due to the coders' technique of using the Likert scale based on 'anchors' of each behaviour, rating participants relative to one another rather than participants rating themselves. Mean flux and pulse scores indicated reasonable variability in levels and magnitudes positive behaviours, compared to lower variability measured in negative behaviours. Levels of spin were descriptively lower than in Study 1 and compared to prior literature (Moskowitz & Zuroff, 2004; Sadikaj et al., 2015b), however this would be

Table 7

Descriptive statistics and correlations among study 2 variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Perceived Regard	--													
2. Gender	-.04	--												
<i>Positive Behaviour</i>														
3. Spin	.17**	-.08	--											
4. Direct Behaviour	.15**	-.01	.47**	--										
5. Indirect Behaviour	.16**	-.15**	.71**	.18**	--									
6. Flux of Direct Behaviour	.08	.01	.42**	.24**	.06	--								
7. Flux of Indirect Behaviour	.11*	-.13**	.56**	.08	.56**	.11*	--							
8. Pulse	.04	-.08	.28**	.09	.35**	.29**	.58**	--						
<i>Negative Behaviour</i>														
9. Spin	-.22**	-.04	-.02	-.01	-.04	.05	-.04	.04	--					
10. Direct Behaviour	-.17**	.04	-.04	.28**	-.13**	-.09	-.09	.01	.60**	--				
11. Indirect Behaviour	-.13**	-.15**	.01	-.08	.04	.00	-.02	-.01	.58**	.05	--			
12. Flux of Direct Behaviour	-.24**	.01	-.05	.02	-.10*	.07	-.07	.03	.82**	.66**	.22**	--		
13. Flux of Indirect Behaviour	-.12**	-.15**	.02	-.06	.04	.04	.02	.05	.65**	.15*	.83**	.30**	--	
14. Pulse	-.23**	-.09	-.02	-.06	-.02	.03	-.00	.03	.68**	.39**	.53**	.73**	.66**	--
<i>M</i>	5.40		0.41	2.69	2.02	0.79	0.75	0.65	0.11	1.65	1.18	0.39	0.24	0.30
<i>SD</i>	1.21		0.25	0.78	0.64	0.27	0.29	0.20	0.07	0.49	0.24	0.23	0.21	0.16

Note. Gender was coded as *women* = -1; *men* = 1.* $p < .05$, ** $p < .01$

expected from the smaller timeframe of the current study—people have less of an opportunity to change between communication strategies in a single conversation than they do over the course of many weeks. Thus, because of the time-limit on the range of switching possible, we would expect to find comparatively lower levels of behavioural spin.

As in Study 1, we followed dyadic models described by Kenny et al. (2006). We simultaneously estimated model parameters for individuals while accounting for the inherent dependence between relationship partners *and* within the particular game (i.e., accounting for dependence within each dyadic interaction). We included gender interactions for exploratory purposes without making specific predictions.

Variability in Positive Relationship Behaviour

Behavioural spin predicting personal perceived regard. Our first analyses tested whether spin in positive behaviour predicted greater levels of perceived regard. People's perceived regard was regressed on to their spin in positive behaviour, including mean-levels of *positive direct* and *positive indirect* behaviour as covariates, as in Study 1. Results from the analyses are displayed in Table 8. A marginal effect indicated that greater mean-level *positive direct* behaviour within interactions predicted greater feelings of perceived regard after the interaction ($p = .05$). There was no significant link between mean-level *positive indirect* and perceived regard, consistent with prior research on how passive strategies are less noticed by partners (Drigotas, Whitney, & Rusbult, 1995; Overall et al., 2009). Unexpectedly, spin in positive behaviour was not significantly related to people's perceived regard for their partner. Thus, there was no evidence to support Hypothesis 1.

Behavioural spin predicting partner perceived regard. We next tested whether spin in a person's positive behaviour would predict greater partner perceived regard. We repeated the above analysis, instead with the partner's perceived regard regressed on a person's spin in positive behaviour, rather than their own perceived regard. Results from

Table 8

Spin for positive behaviour in dyadic models predicting self and partner perceived regard post-discussion.

<i>Predictor</i>	Perceived Regard (Self)					Perceived Regard (Partner)				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Positive Behavioural Spin	.24	.36	0.65	-.48	.95	.04	.37	0.11	-.68	.76
Mean Positive Direct Behaviour	.16	.08	1.96	-.00	.31	.06	.08	0.72	-.10	.22
Mean Positive Indirect Behaviour	.17	.13	1.26	-.09	.43	.21	.13	1.53	-.06	.47
Gender	-.02	.05	-0.47	-.12	.08	.06	.05	1.16	-.04	.16
Positive Behavioural Spin × Gender	.53	.36	1.47	-.18	1.25	.17	.37	0.47	-.55	.89
Mean Positive Direct Behaviour × Gender	.03	.08	0.40	-.13	.20	-.15	.09	-1.81	-.32	.01
Mean Positive Indirect Behaviour × Gender	-.22	.13	-1.71	-.47	.03	-.02	.13	-0.17	-.27	.23

Note. * $p < .05$, ** $p < .01$

analyses are displayed in Table 8. We did not identify any significant effects of spin in positive behaviour, mean levels of *positive direct*, or mean levels of *positive indirect* behaviour. Thus, there was no evidence to support Hypothesis 2.

Variability in Negative Relationship Behaviour

Behavioural spin predicting personal perceived regard. Next, our analyses tests whether spin in negative behaviour predicted lower levels of perceived regard. People's perceived regard was regressed on to their spin in negative behaviour, with mean-level *negative direct* and *negative indirect* behaviour included as covariates. Results are displayed in Table 9. Main effects of mean-level negative behaviours were non-significant in predicting perceived regard, despite trending in the predicted (negative) direction. Similarly, spin in negative behaviour did not significantly predict a people's perceived regard. Thus, there was no evidence to support Hypothesis 3.

Testing for gender interactions indicated that gender significantly moderated the link between *negative indirect* behaviour and perceived regard (Figure 9). For men, greater use of *negative indirect* behaviour in the interaction was associated with lower perceived regard ($b = -1.08$ [95% $CI = -2.12$ to -0.04], $SE = .53$, $t = -2.04$, $p = .04$), but no association was found for women ($b = .26$ [95% $CI = -.53$ to 1.06], $SE = .04$, $t = 0.65$, $p = .51$).

Behavioural spin predicting partner perceived regard. Finally, we tested whether spin in a person's negative behaviour would predict lower partner perceived regard. We repeated the above analysis, instead with the partner's perceived regard regressed on to spin in negative behaviour, rather than their own perceived regard. Results are displayed in Table 9. Main effects of *negative direct* and *negative indirect* behaviour did not significantly predict partners' perceived regard. Supporting Hypothesis 4, spin in negative behaviour was negatively associated with partner perceived regard, that is, greater switching between

Table 9

Spin for negative behaviour in dyadic models predicting self and partner perceived regard post-discussion.

<i>Predictor</i>	Perceived Regard (Self)					Perceived Regard (Partner)				
	<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>		<i>B</i>	<i>S.E.</i>	<i>t</i>	95% <i>CI</i>	
				<i>Low</i>	<i>High</i>				<i>Low</i>	<i>High</i>
Negative Behavioural Spin	-1.45	1.29	-1.12	-3.99	1.10	-3.01	1.28	-2.34*	-5.53	-.48
Mean Negative Direct Behaviour	-.20	.16	-1.30	-.51	.10	.20	.15	0.14	-.28	.32
Mean Negative Indirect Behaviour	-.41	.34	-1.21	-1.07	.25	-.16	.33	-0.48	-.81	.50
Gender	-.06	.05	-1.13	-.16	.04	.02	.05	0.45	-.08	.12
Negative Behavioural Spin × Gender	2.09	1.28	1.63	-1.07	.25	.05	1.27	0.04	-2.45	2.54
Mean Negative Direct Behaviour × Gender	-.07	.16	-0.45	-.39	.24	-.21	.16	-1.33	-.53	.10
Mean Negative Indirect Behaviour × Gender	-.67	.33	-2.04*	-1.32	-.02	-.26	.33	-0.80	-.90	.37

Note. * $p < .05$, ** $p < .01$

destructive strategies accompanied a lower sense of appreciation and less esteem felt by people's partners during the interaction.

Figure 9. Gender moderating the relationship between negative indirect behaviour and personal perceived regard (Study 2). *Note.* Low values represent 1 *SD* below the mean. High values represent 1 *SD* above the mean.

Analyses Testing Alternative Explanations

Controlling for Flux and Pulse effects. As in Study 1, we conducted analyses to determine whether other forms of variability in relationship behaviour (i.e., flux and pulse) accounted for the effects of spin. Results of supplementary analyses are presented in the supplementary materials (Supplementary Tables 17 to 24). In the model of fluctuations in positive behaviours, flux and pulse did not predict perceived regard and did not substantially alter the effects reported in Table 8.

In the model of fluctuations in negative behaviours, flux and pulse did not predict perceived regard. However, the original interaction with *negative indirect* behaviour became marginally significant when including the new parameters ($b = -.89$ [95% $CI = -1.87$ to $.09$],

$SE = .50, t = -1.79, p = .08$). A new interaction effect emerged in which gender now moderated the relationships between a person's perceived regard and (1) flux in *negative direct* behaviour, and (2) negative pulse. Decomposing the interaction with flux (supplementary materials, Figure 2) revealed that men who varied their use of *negative direct* strategies more were more likely to feel well regarded by their partner ($b = 2.21$ [95% $CI = .53$ to 3.90], $SE = .86, t = 2.59, p = .01$); for women the reverse was true, such that women who varied their use of *negative direct* strategies more, felt less well regarded ($b = -2.45$ [95% $CI = -4.12$ to $-.78$], $SE = .85, t = -2.89, p = .004$). For the interaction with negative pulse (supplementary materials, Figure 3), men who varied the *magnitude* of *all* negative behaviour across the interaction more were less likely to feel valued by their partner ($b = -2.93$ [95% $CI = -4.78$ to -1.08], $SE = .93, t = -3.12, p = .002$); whereas no association emerged for women ($b = .74$ [95% $CI = -.75$ to 2.22], $SE = .75, t = 0.98, p = .33$).

Next, in the model predicting the partner's perceived regard, the effect of negative spin reported in Table 9 became non-significant with the inclusion of flux and pulse. However, flux and pulse did not independently predict partner perceived regard ($ps > .08$), indicating that the statistical model was made unreliable due to multicollinearity (i.e., negative spin was strongly correlated with flux and pulse; $rs = .65$ to $.82$).

Controlling for quadratic effects of mean relationship behaviour. As in Study 1, we conducted supplementary models testing the quadratic effects of mean-levels of *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour. Across all these supplementary models only one (marginal) effect emerged: the quadratic term for *positive indirect* behaviour was related to people's own perceived regard ($b = -.22$ [95% $CI = -.44$ to $-.00$], $SE = .11, t = -1.97, p = .05$). Given that only one of eight potential parameters was significant and we did not hypothesise this effect would be present, we suggest that this result should be interpreted cautiously and did not draw any conclusions from it. Importantly, the

effect of negative spin reported in Table 9 remained unaltered when including quadratic terms for *negative direct* and *negative indirect* behaviours.

Controlling for competing positive and negative spin and relationship behaviour effects. The effects of spin could be due to behavioural variability *in general* and be independent of the valence of behaviour. Thus, we re-ran the analyses with perceived regard regressed on to spin in positive behaviour and spin in negative behaviour simultaneously, including the covariates of mean-levels of *positive direct*, *positive indirect*, *negative direct* and *negative indirect* behaviour.

In the model predicting people's perceived regard, main effects of both direct behaviours emerged predicting perceived regard. *Positive direct* behaviour positively predicted perceived regard such that people with a greater use of positive active strategies were more likely to feel well regarded during the interaction ($b = .25$ [95% $CI = .08$ to $.42$], $SE = .09$, $t = 2.86$, $p = .004$). Inversely, greater use of negative active strategies accompanied diminished partner felt appreciation ($b = -.41$ [95% $CI = -.75$ to $-.07$], $SE = .17$, $t = -2.40$, $p = .02$). Consistent with previous research (e.g., Overall et al., 2009), this indicates the valence of behaviour is linked to momentary feelings of appreciation and valuing by partners.

Analysing partner effects found the effect of spin in negative behaviour remained significant in predicting partner's perceived regard, suggesting the negative association between switching destructive strategies and partner's felt regard during an interaction is independent of any form of simultaneous constructive behaviour. Also, the interaction between gender and *negative indirect* behaviour remained significant and simple slope effects remained consistent.

Discussion

Study 2 tested the links between perceived regard and behavioural spin as assessed by objective coders across 6-minute interactions. Hypotheses 1 and 2 were not supported: we did

not identify links between spin in positive behaviour and perceived regard for the self or for the partner. Instead, a main effect of *positive direct* strategies indicated that people observed to use more rational reasoning, logic and factual information over the course of the interaction reported higher levels of perceived regard.

Regarding negative behaviour, we did not find support for Hypothesis 3, as no link was found between spin in negative behaviour and a person's perceived regard. However, supporting Hypothesis 4, we identified a link with partner's perceived regard indicating the relevance of switching negative behaviours within an interaction—greater observed switching was associated with lower partner perceived regard. Supplementary analyses showed this effect is independent of aggregate behaviour and switching between positive behaviours. An unexpected effect emerged in which men observed to use more *negative indirect* behaviours in the interaction were less likely to feel positively regarded by their partner, whereas no effect was found for women.

Thus, this study extended our understanding of the link between variability in communication and relationship wellbeing.

GENERAL DISCUSSION

Maintaining intimate relationships requires partners' negotiation of their independent goals *and* their shared relational goals (Kelley & Thibaut, 1978). The current thesis tested a new aspect of the behaviours involved in these maintenance processes—examining whether variability in communication behaviour is relationship promoting or relationship demoting. Switching between different relationship maintenance behaviours could represent an adaptive responsiveness to partner needs, and therefore would be associated with greater relationship wellbeing. Alternatively, switching between maintenance strategies (i.e., behavioural spin across dimensions of direct and indirect behaviours) could represent instability and disruptions to the relationship status-quo, and therefore would be associated with lower

wellbeing. We proposed that both were simultaneously plausible but depended on the valence of behaviour. Switching positive strategies would be linked with higher wellbeing for the self and partner (*Hypotheses 1 and 2*) whereas switching between negative strategies would be linked with lower wellbeing for the self and partner (*Hypotheses 3 and 4*). Our additional analyses ruled out that effects could be instead due to variability in one particular behavioural strategy (i.e., flux) or in the magnitude of behaviours (i.e., pulse; Moskowitz & Zuroff, 2004).

We tested our hypotheses about variability in communication behaviours in two dyadic studies and across two different scales of time. Couples in committed romantic relationships reported on their own and their partner's relationship behaviour every day for a 3-week period (Study 1) or engaged in video-recorded interactions requiring the completion of a shared cooperative task in which behaviours were coded at 30-second intervals (Study 2). Hypothesis 1 was not supported in either study. There was no evidence that switching between positive communication strategies was linked with higher wellbeing. Instead, greater daily switching of positive behaviours was associated with *lower* relationship wellbeing for women. Hypothesis 2 was supported in Study 1 but not Study 2. Thus, greater switching of positive relationship behaviours day-to-day was linked with higher relationship wellbeing for women's partners, statistically adjusting for mean-level positivity. Collectively, these findings suggest that varying positive behaviour from day-to-day may signal responsiveness to *partners* of women but may come at a personal cost for women. There was no evidence that switching between direct and indirect forms of positive behaviours in a cooperative task were linked with relationship wellbeing beyond the component mean-level effects of positive behaviours.

We also found a surprising result for the prediction that switching between negative behaviours would be associated with people's lower relationship wellbeing (*Hypothesis 3*). Instead, in Study 1, more day-to-day switching of negative behaviours was linked with *higher*

relationship wellbeing for the self, over and above the link between mean-level negative behaviour and lower wellbeing. These results highlight the distinct importance of studying variability in behaviour as well as mean levels of behaviour, and we return to this effect later. Results across both Study 1 and Study 2 were consistent with Hypothesis 4. More daily variability between different negative behaviours across days (Study 1) or variability in negative strategies (as coded by observers) in a cooperative task (Study 2) was linked with lower partner relationship wellbeing. Thus, switching between negative relationship behaviours was more consistently linked with lower wellbeing for partners than wellbeing for the self, above and beyond the lower wellbeing already associated with those individual strategies.

These findings provide an answer to a puzzle of behavioural variability—adaptive responsiveness to relational needs or unstable disruption to relationship status-quo? Evidence indicated that day-to-day switching between positive behaviours was linked with relationship wellbeing for the partner. Change in positive relationship behaviours likely signals strong comprehension of a partner's needs and goals, respect for those needs, and the expression of affection and warmth when contextually appropriate—all components of *responsiveness* toward partners which is a primary predictor of relationship wellbeing (Reis & Gable, 2015). However, simultaneously, efforts to be responsive can be effortful and demanding, particularly when needing to accommodate negativity. Accordingly, greater daily switching of positivity was found to be associated with lower wellbeing for the self, but only for women and not for men. This gender difference follows a pattern in many studies that women tend to be more attentive to relational needs than men (Acitelli, 2001; Moskowitz, Suh, & Desaulniers, 1994; Vogt & Colvin, 2003). In sum, by examining variability in the directness and indirectness of positive relationship behaviours at a daily level, we likely captured the benefits and costs of relationship maintenance processes.

We did not identify any effects of switching between positive behaviours in a shorter timeframe of a discussion (Study 2). We expected varying between positive behaviours would signal understanding of the partner's goals and validate their position, while expressing warmth and concern for the problem at hand. For example, a successful behaviour cascade might start by seeking factual information (*positive direct*), displaying an openness to the partner's input which can then be validated with *positive indirect* behaviour. Then, providing rational reasoning and suggesting solutions in a logical fashion (switching back to *positive direct*) shows a cooperative orientation to the shared task. Finally, a loving smile (*positive indirect*) signals warmth and security to the partner. Such combinations of positive behaviours were expected to be reflected in greater partner perceived regard following the discussion, but no associations above and beyond mean-level behaviour were found.

Due to several methodological differences between studies (e.g., differences in timescale; differences in self-report vs. observer-coded behaviours), we can only speculate on why we did not identify any effects of spin in positive behaviour in Study 2. Notably, mean-level *positive direct* behaviour within the cooperative task strongly predicted relationship wellbeing. It remains unclear as to why mean-level *positive direct* behaviour dominated effects of spin—it is possible the task-completion profited more from *positive direct* relative to *positive indirect* behaviour, resulting in *positive direct* strategies acting as the most responsive behaviour for partners. Future investigation of positive spin in different interaction contexts (e.g., conflict) will help elucidate whether switching positive behaviours within discussions have implications for relationship wellbeing.

In contrast, we found the predicted pattern that switching between negative behaviours (e.g., mixing criticism with guilt induction) was a particularly destructive pattern of communication. We expected these changes to occur over-and-above negative behaviour *in general* because this unpredictability undermines the partner's capacity to accommodate

negative behaviours. Individually, negative strategies are double-edged swords. Negativity is costly for relationship wellbeing, such as hurting feelings, but can be beneficial when leading to real changes in problem-behaviour (for review, see Overall & McNulty, 2017). However, *variable* negative communication muddies the signal of what the partner needs to address or how to address the issue. For example, when a person was critical of their partner on one day (*negative direct* behaviour) and the next day they withdrew from their partner (*negative indirect*), their partner experienced a simultaneous reduction in wellbeing. When negative behaviours vary across time a partner's confidence in efficaciously navigating interactions should be undermined. Evidence shows that accommodating partner behaviour becomes more difficult when people are under time pressure (Yovetich & Rusbult, 1994), fail to accurately perceive partner motivations (Lakey & Canary, 2002), or have compromised cognitive resources (Finkel & Campbell, 2001). In other words, inconsistencies in negative behaviour makes accommodation and compromise more difficult because it is harder to predict likely behaviours and outcomes of problem-solving interactions. Accordingly, highly variable negative behaviour is part of a destructive pattern of relationship communication.

Our cross-sectional model considered wellbeing measures as outcomes of behavioural effects. Although we acknowledge the reciprocal and bi-directional nature of interaction behaviour, interdependence theory (Kelley & Thibaut, 1978) explains how relationship evaluation is the final event of an interaction following all behaviour completion, and the transformation of motivation process describes how changes in maintenance behaviours contribute to the quality of a relationship. People maintain relationships when personal goals must be negotiated toward shared outcomes (e.g., couples living together must negotiate the division of domestic housework and re-negotiate as labour demands change over time). Over the course of a relationship people must navigate repeated interactions and therefore benefit from creating stable patterns of maintenance. This can be achieved by correctly predicting

behavioural patterns over successive interactions. Interaction expectations are met if there is balance between relationship-promoting and relationship disruptive maintenance forces within a given time period (Rusbult, Arriaga, & Agnew, 2001). Therefore, if variations in negative communication behaviour dominate over variations in positive behaviour over time and contexts, then relationship wellbeing will decline (Arriaga, 2001). As such, measuring wellbeing as an outcome of behavioural patterns allowed us to capture part of this effect: highly variable negative behaviour interrupts helpful maintenance processes by creating uncertainties about destructive behaviour, reflected in lower relationship wellbeing for partners.

Extensions to Current Understanding of Variability in Romantic Relationships

Our research extends our understanding of behavioural variability in romantic relationships in three ways. First, we revealed how outcomes differ according to the valence of behaviour. To our knowledge, this is the third study on behavioural spin in romantic relationship literature. Previously, Sadikaj et al. (2015b) found spin in interaction behaviour over 20 days predicted decreased satisfaction and goal progress six months later, but only for relational rather than personal goals. Consistent with the links between behavioural spin and relationship wellbeing in our second study, this highlights the interpersonal consequences of interaction behavioural variability. Furthermore, consistent with the idea that varying behaviour creates expectations of inconsistent behaviour across interactions, Sadikaj et al. (2017) found variability in perceptions of partner behaviour predicted partner behavioural spin *and* over-estimations of partner negative affect. Yet, our findings develop this explanation because the effect occurred specifically with *negative* behaviour, rather than general behavioural spin. Switching negative behaviours seems especially disruptive to relationship maintenance processes and harmony. Therefore, our findings go beyond previous research by showing that while behavioural spin may index individual consistency of

behaviour across situations, relationship outcomes depend on the valence of behaviour.

Understanding how behavioural variability functions differentially by valence is important for future study on variability in relationship behaviour—not all variability undermines relationship processes.

The second and third advancements from our research implicate the relevance of behavioural variability (a) for relationship wellbeing over different time-periods and (b) in studies of relationship constructs over time. The idea that high intrapersonal variability of behaviour (e.g., spin) may index a person's consistency of their enacted behaviour across time and contexts is based on measuring the effects of spin across multiple interactions each day for 20 days (Côté, Moskowitz, & Zuroff, 2012; Fleeson, 2001; Moskowitz & Zuroff, 2004). By finding wellbeing was associated with switching behaviour from day-to-day (Study 1) and within a single interaction (Study 2), we strengthen the idea that behavioural spin is an important individual-level variable for people's romantic functioning and wellbeing.

Our studies also reiterate that understanding relationship processes over time requires consideration of variability and the means of relationship constructs. Research by Arriaga (2001), Campbell et al. (2010), and Totenhagen et al. (2016) collectively demonstrated that variability in important constructs such as satisfaction, closeness, trust, security, maintenance and commitment have meaningful outcomes for relationship satisfaction, stability, quality, and success. Collectively with our findings, this literature reveals the benefits of considering intraindividual variability over time when studying relationship processes. For instance, Arriaga (2001) found that fluctuations in satisfaction and average satisfaction levels both predicted relationship dissolution simultaneously. Crucially, the effects were in opposing directions: highly satisfied people were less likely to break-up but people with highly variable satisfaction levels were more likely to break-up, despite their average satisfaction level. So while measuring the mean of constructs at discrete time points can elucidate relationships

between variables and provide predictive power for important outcomes (i.e., dissolution), such techniques provide limited description and explanation of mechanisms of the relevant processes. By measuring dynamic patterns of behaviour over time, such as behavioural spin in interactions, we can gain unique insight into how relationship processes lead to changes in wellbeing. Therefore, relationship researchers must consider how variability operates independently of mean-level effects to comprehensively develop theory and explain phenomena within relationships.

Toward a Model of Relationship Maintenance Behaviour

Current understandings of relationship behaviours summarise how the same sets of behaviours can be costly or beneficial for relationship wellbeing depending on the needs of both partners (see Murray et al., 2006; Overall & McNulty, 2017). However, it focusses on individual behaviours and fails to account for effects of behavioural variability within interactions and over time. Including an understanding of how variability in behaviour operates beyond individual behaviours will move the model toward a more comprehensive grasp of relationship maintenance.

Switching positive behaviour (i.e., responsiveness) benefits partners but costs the self. Previously, positive behaviour has been associated with higher relationship wellbeing (for a review, see Heyman, 2001), resulting in interventions touting increasing constructive problem-solving behaviours and reducing destructive behaviour (e.g., Epstein & Baucom, 1989). More recently, other research found the directness of behaviour also determines outcomes of relationship interaction (for a summary, see Overall & McNulty, 2017). Our research extends this by displaying how *switching* behaviours relates to wellbeing and operates independently of individual behaviours. Specifically, switching between direct and indirect daily positive behaviour over three weeks predicted reduced wellbeing for women, but greater wellbeing for their partners. Consistent with Reis and Clark's (2013)

responsiveness model and interdependence theory (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003), the finding highlights a personal cost for being responsive and *transforming* motivations. That is, switching of daily positive behaviour may capture the transformation process of sacrificing personal goals and adjusting to partner needs, simultaneously reflected in a dip in personal wellbeing and a spike in partner wellbeing. All positive behaviour should signal a pro-relationship orientation through displays of loyalty, warmth (indirect behaviour), and rationality (direct behaviour); but the act of switching between these behaviours to adapt to specific aspects of partner goals indicates the behaviour is not superficial and shows an active engagement in relationship maintenance. However, there is a wellbeing cost for the individual that may come from responsiveness efforts and sacrificing personal goals. Therefore, including effects of varying positive behaviour in models of positive behaviour and responsiveness will provide a more nuanced understanding of constructive maintenance processes.

Our findings also extend understanding of negative behaviour. Currently, *negative direct* behaviour typically causes hurt feelings but can sometimes be beneficial for satisfaction over time (e.g., Gottman & Krokoff, 1989; Heavey, Christensen, & Malamuth, 1995; Heavey, Layne, & Christensen, 1993; Karney & Bradbury, 1997; Overall et al., 2009) if they are diagnostic of the problem's severity (McNulty & Russell, 2010) and the problem is perceived solvable (Baker & McNulty, 2015). Indirect behaviour can reassure certain people's felt security (e.g., Jayamaha, Antonellis, & Overall, 2016; Overall et al., 2014) but fails to address problems directly and carries a cost for partner satisfaction (Overall et al., 2009; Overall et al., 2014). In extension of previous research, varying negative behaviour had two effects on wellbeing independent of effects of mean-level behaviour. First, people's inconsistency in daily negative relationship behaviour was associated with their own improved relationship wellbeing over time. This unexpected effect suggested that people

varying their negative behaviour day-to-day was linked with higher satisfaction, counteracting the links between mean-level negativity and lower satisfaction. Perhaps switching negative behaviours produces desired behaviour changes from a partner more immediately than using negative behaviour consistently, by communicating a problem's severity or relationship discord more effectively (McNulty & Russell, 2010; Overall et al., 2009). This explanation is congruent with the cost to the partner of a highly variable pattern of negative behaviour. Inconsistent negative behaviour predicted lower partner wellbeing in both studies, beyond the negative effects of mean-level negative behaviour. So, it is likely that some inconsistency in negative behaviour is manageable in a relationship, if it eventuates in problem resolution. One factor which may help manage inconsistent negative behaviour is positive partner behaviour, which is found to moderate the punishing wellbeing effect of mean-level negative behaviour by tempering problem severity and buffering discord (Chow & Ruhl, 2017). Therefore, if inconsistent negativity signals relationship discord, positive partner behaviour may also act as a protective factor against negative behavioural spin. Nevertheless, continued behavioural inconsistency over time likely disrupts the intimacy process, as partners learn to expect unknown destructive behaviour in interactions, eroding trust, and encouraging self-protective rather than relationship-promoting behaviour.

Alternatively, avoiding inconsistency in negative behaviour encourages the intimacy process by fostering the transformation of motivation process in interactions. Responding consistently across time and contexts should help people to predict interaction behaviour by allowing them to infer their partner's needs and goals with greater accuracy. This is critical for the transformation process, as evidenced by Lakey and Canary (2002), who found people who perceived greater sensitivity to partner goals predicted (1) greater use of positive relationship behaviour and (2) less use of negative behaviour in conflict discussion. Moreover, partners who perceived greater sensitivity to their goals were (1) less likely to

respond with destructive behaviours and (2) rated their partners high in communication ability and appropriateness. Therefore, consistent behaviour is important for displaying sensitivity to a partner and encouraging constructive behavioural exchanges. Hence, findings from the current research support Sadikaj et al. (2015b) and Fleenon's (2001) position that high within-person behavioural variability may predict worsening relationship outcomes, when it indexes consistency of behaviours across time and context.

It is worth noting there is no perfect model for optimal behaviours because of the importance of context in determining ideal relationship behaviour. However, if couples manage to develop relatively consistent patterns of interaction and practice accommodation, they will be more prepared for the continued and novel challenges which accompany relationships over time.

Interaction, Trust, and Commitment

The association found between behavioural variability and relationship wellbeing has implications for the longevity of relationships. As we explained above, inconsistencies in communication behaviours should undermine the stability of relationships via preventing partners from clearly understanding or addressing issues in the relationship. Interdependence theory conceptualises a close relationship as a set of repeated interactions that produce immediate and long-term outcomes for relationship quality, wellbeing, and future interactions (Kelley, 1984; Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). This conceptualisation explains why people are motivated to make short-term sacrifices for long-term benefits. For example, more committed people are more likely to (1) use constructive relationship behaviours (Rusbult et al., 1982), and (2) accommodate destructive partner behaviour in conflict-based interactions (Yovetich & Rusbult, 1994), indicating that they are willing to act toward goals of future relationship quality and continue participating in the relationship (Le & Agnew, 2003). From an interdependence theory approach to understanding relationship

stability—consistency in behaviour indicates a pro-relationship behavioural orientation that increases the chances of a lasting relationship, whereas unpredictable negativity indicates a self-orientation or no orientation that likely leads to relationship dissolution (Arriaga, 2001).

Commitment represents the psychological experience of dependence. In other words, the subjective experience of relying on a partner for support, to gratify important outcomes, and achieve need fulfilment (Baumeister & Leary, 1995; Reis et al., 2000; Rusbult, Martz, & Agnew, 1998). We believe switching negative relationship behaviours undermines commitment by failing to signal intimacy and felt security, thereby discouraging partners from trusting their vulnerability will not be exploited (Murray, 2005). This will also hinder developing beneficial interaction norms. The links between inconsistent negative behaviour and declining partner wellbeing, within interactions *and* over three weeks, support our reasoning. Developing intimacy requires a pro-relational orientation, the tendency for which is captured by a person's commitment. When people display pro-relational behaviour in an interaction (e.g., apologise for a transgression) they make themselves vulnerable to rejection and exploitation, but also display trust in their partner by placing themselves in a dependent position (Omarzu, 2000). When a partner also responds in a pro-social manner (e.g., forgiveness) and doesn't exploit the vulnerability (e.g., shaming), they display understanding, caring, and acceptance (i.e., responsiveness; Reis & Clark, 2013). This also fosters perceived regard and mutual trust (Collins & Miller, 1994; Laurenceau, Barrett, & Pietromonaco, 1998). As relationships are constructed by repeated interactions, recurrent vulnerability is inevitable, so people must rely on partners to not exploit them in future interactions. Empirically, the likelihood of choosing a pro-social interaction behaviour decreases if the expected response is (1) more likely to be self-oriented and destructive (Murray et al., 2013), and (2) unpredictable (Campbell et al., 2010). Therefore, as inconsistent negative behaviour is both destructive *and* unpredictable, the interaction pattern has detrimental implications for

developing intimacy, trust, and commitment over time, leading to poor relationship functioning and lower wellbeing.

Methodological Strengths and Constraints on Generalisability

Key strengths of our research were that we assessed behavioural variability over two different time frames, used observational behavioural assessment to measure spin, and analysed partner effects of within-person behavioural variability. Nevertheless our work carries important limitations, the first of which arises from the flux, pulse, and spin variables. While these variables allowed for the measurement of three unique forms of behavioural variability over a given time period, their calculation conflates longitudinal data into cross-sectional variables. As such, we are unable to infer the causality of spin influencing relationship wellbeing. Hence, the key methodological strength of indexing variability over time also creates a major limitation—an inability to ascertain causal inference between predictors and outcomes. Studies which follow a longitudinal design similar to Sadikaj et al. (2015b) with follow-up assessments of relevant outcomes after a period of time (6-9 months), or growth curve modelling (e.g., Arriaga, 2001) are useful for making more causal inferences about effects of variability. However these designs are costly and beyond the scope of the current study, but offer an excellent opportunity to extend our findings in the next line of research on behavioural variability in romantic relationships.

Second, we constructed models of (a) positive and (b) negative behavioural spin from the dimensions of *directness* and *indirectness* of communication behaviours (see Figure 2). The analytic strategy meant we were able to capture effects of shifting directness of behaviour *within* the valence of behaviour. As such, we were unable to study effects of switching valence within direct and indirect behaviours. However, we believed the puzzle of behavioural variability would be addressed more effectively by studying directness within valence. Our supplementary results support this—both studies found spin effects remained

consistent when analysing positive and negative behaviour simultaneously. Consequently and consistent with our theoretical reasoning, switching positive behaviours and switching negative behaviours must operate independently on relationship wellbeing.

Our final limitation regards the generalisability of our results due to the homogeneity and context of our sample. Firstly, our samples were primarily young adults in serious relationships. Assuming that interdependence increases with age and relationship length (Braiker & Kelley, 1979), we would expect that couples' behaviour should become less variable over time as they develop interaction norms which typically result in favourable outcomes (Totenhagen et al., 2016). We expect that as interdependence increases, it protects against detrimental effects of variations in behaviour as partners are more experienced with understanding their partner's fluctuations in behaviour. However, an alternative possibility is that, as interdependence increases, the expectation to act reliably also increases, which would predict heightened effects of unexpected changes in behaviour on relationship quality. Supporting this perspective, problems with "communication" are consistently reported by couples of all ages (Geiss & O'Leary, 1981; Papp et al., 2009). Given that most research on variability in romantic relationships has sampled primarily young-adult couples (e.g., Arriaga, 2001; Campbell et al., 2010; Sadikaj, Moskowitz, & Zuroff, 2015a; Sadikaj et al., 2017; Sadikaj et al., 2015b; Totenhagen et al., 2016), there is a need to research older, longer relationships to determine if and how variability functions differentially by age and relationship length.

Secondly, we cannot be certain how generalisable our findings are to cultural contexts external to New Zealand—our samples primarily consist of WEIRD populations shown to be meaningfully different on many dimensions, including low on collectivism (Henrich, Heine, & Norenzayan, 2010). Compared to explicit expression in individualistic cultures, communication in collectivist cultures often relies on non-verbal, implicit behaviour used

against a backdrop of cultural expectations (Liu, 2016). Therefore, explicitly signalling relationship discord with high behavioural variability may defy cultural expectations of communication protocols and relationship harmony. If this is true, then effects of switching negative behaviour on partner wellbeing would be intensified. However, partners may buffer this increased effect by accommodating destructive behaviour patterns more due to greater expectations to maintain harmony. Exploring the accuracy of these predictions and determining culture-based variation is essential for understanding how interaction behaviours function in the formation and maintenance of romantic relationships universally.

Future Directions

The current study closely examined communication behaviours in samples of committed couples by focusing on the behavioural level rather than factors at the individual level. An important future direction is to explore individual-level variables which moderate interpersonal processes, such as differences in attachment styles. Attachment styles assess individual differences in the ways that people conceptualise and respond to perceived threats to dependence and commitment in their close relationships (Feeney & Kirkpatrick, 1996; Mikulincer & Shaver, 2007; Simpson et al., 1992), and are among the most crucial variables for predicting relationship behaviour and functioning (e.g., Ghering, 2008; Kobak & Hazan, 1991; Simpson et al., 1992). Determining how attachment styles moderate effects of behavioural variability on relationship wellbeing will help clarify and evaluate the proposed mechanisms behind the effects.

Differing effects of behavioural spin due to attachment anxiety will clarify the specific mechanisms of spin. Because of a sensitivity to security threats, people higher in attachment anxiety are more likely to perceive signs of rejection and lower regard in negative or ambiguous partner behaviour (Downey, Freitas, Michaelis, & Khouri, 1998; Murray et al., 2003). As such, we can make three predictions for how people high in attachment anxiety

would respond to partners with high behavioural spin. First, if spin in positive behaviour represents responsiveness and partners higher in attachment anxiety perceive it accurately, then the beneficial effects of spin should be augmented. Second, if partners fail to perceive spin accurately as responsiveness, then the beneficial effects of positive spin would be lost or even reversed. Because of a tendency to negatively bias perceptions of partner behaviour when a threat response is activated (e.g., Murray et al., 2003), we expect the second prediction to be more likely. Finally, if it is true that excessive switching of *negative* behaviour signals threats to commitment, attachment anxiety should also increase the effects of switching negative behaviour. Sensitivity to experiences of negativity (e.g., Campbell et al., 2005; Feeney & Kirkpatrick, 1996) and a tendency to respond destructively to negative partner behaviour (e.g., Campbell, Simpson, Kashy, & Rholes, 2001) should increase effects of negative spin on partners high in attachment anxiety. By implicating attachment systems with behavioural variability in interactions, determining the accuracy of these predictions will progress understanding of maintenance processes and attachment working models.

Behavioural variability is particularly relevant because the attachment system is shaped by the extent to which people are certain vs. uncertain about their attachment figures' responses in times of stress (Simpson & Rholes, 2012). To illustrate, people high in attachment avoidance psychologically resist dependence with others due to distrust and believe that others cannot be relied upon for support, instead valuing their independence (Feeney & Kirkpatrick, 1996; Mikulincer & Shaver, 2007; Simpson et al., 1992). High attachment avoidance is linked with perceptions of lower responsiveness during couple discussions of positive life events (Shallcross, Howland, Bemis, Simpson, & Frazier, 2011), lower security in partner interactions (Sadikaj et al., 2015a), and more self-defensive behaviours (e.g., anger and withdrawal) during relationship conflict (e.g., Overall et al., 2013). Despite this, more research is needed to uncover *how* people high in attachment

avoidance build more pessimistic expectations about their partner's relationship behaviours. One avenue for future research is to test whether people higher in avoidance are more sensitive to variability in their partner's interaction behaviours, because variability signals inconsistency and relationship instability. If this is the case, then behavioural spin—particularly in negative behaviours—may undermine trust-building and establish expectations that partners are unreliable support providers. We could not test these moderation predictions in the current research due to limitations of statistical power. However, subsequent investigation in this area will inform research on both behavioural variability and attachment theory.

Conclusion

This thesis examined how variability in communication behaviour over two unique timeframes was linked with relationship wellbeing. We predicted that variability in positive communication behaviour would capture a person's responsiveness and be reflected in higher relationship wellbeing for them and their partner. Conversely, we predicted variability in negative behaviour would be an unstable and destructive communication pattern, reflected in lower wellbeing for couples. We found that switching positive behaviours day-to-day was associated with poorer relationship wellbeing for women—but their partner's experienced greater wellbeing. Furthermore, switching between negative behaviours day-to-day and during a cooperative task was associated with poor outcomes for partners. These results support the idea that valence of behavioural variability determines whether that behaviour represents responsiveness or instability. Highly variable negative behaviours may undermine trust and erode commitment, leading to poor partner wellbeing. Critically, this effect operates independently and has detrimental outcomes above and beyond those of individual negative behaviours.

REFERENCES

- Acitelli, L. K. (2001). Maintaining and enhancing a relationship by attending to it. In J. Harvey & A. Wenzel (Eds.), *Close romantic relationships: Maintenance and enhancement* (pp. 153-167, Chapter vii, 400 Pages): Lawrence Erlbaum Associates Publishers, Mahwah, NJ.
- Arriaga, X. B. (2001). The ups and downs of dating: Fluctuations in satisfaction in newly formed romantic relationships. *Journal of Personality and Social Psychology*, 80(5), 754-765. doi:10.1037/0022-3514.80.5.754
- Arriaga, X. B. (2013). An Interdependence Analysis of Close Relationships. In J. Simpson & L. Campbell (Eds.), *The Oxford Handbook of Close Relationships*. New York, NY.
- Baker, L. R., & McNulty, J. K. (2015). Adding insult to injury: Partner depression moderates the association between partner-regulation attempts and partners' motivation to resolve interpersonal problems. *Personality and Social Psychology Bulletin*, 41(6), 839-852. doi:10.1177/0146167215580777
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529. doi:10.1037/0033-2909.117.3.497
- Bloom, B. L., Asher, S. J., & White, S. W. (1978). Marital disruption as a stressor: A review and analysis. *Psychological Bulletin*, 85(4), 867-894. doi:10.1037/0033-2909.85.4.867
- Braiker, H. B., & Kelley, H. H. (1979). Conflict in the Development of Close Relationships. In R. L. Burgess & T. L. Huston (Eds.), *Social Exchange in Developing Relationships* (pp. 135-168). New York, NY: Academic Press.

- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology*, 88(3), 510-531. doi:10.1037/0022-3514.88.3.510
- Campbell, L., Simpson, J. A., Boldry, J. G., & Rubin, H. (2010). Trust, variability in relationship evaluations, and relationship processes. *Journal of Personality and Social Psychology*, 99(1), 14-31. doi:10.1037/a0019714
- Campbell, L., Simpson, J. A., Kashy, D. A., & Rholes, W. S. (2001). Attachment Orientations, Dependence, and Behavior in a Stressful Situation: An Application of the Actor-Partner Interdependence Model. *Journal of Social and Personal Relationships*, 18(6), 821-843. doi:10.1177/0265407501186005
- Chow, C. M., & Ruhl, H. (2017). Congruity of observed social support behaviors and couple relationship quality. *European Journal of Social Psychology*. doi:10.1002/ejsp.2302
- Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: A meta-analytic review. *Psychological Bulletin*, 116(3), 457-475. doi:10.1037/0033-2909.116.3.457
- Côté, S., Moskowitz, D. S., & Zuroff, D. C. (2012). Social relationships and intraindividual variability in interpersonal behavior: Correlates of interpersonal spin. *Journal of Personality and Social Psychology*, 102(3), 646-659. doi:10.1037/a0025313
- Debrot, A., Cook, W. L., Perrez, M., & Horn, A. B. (2012). Deeds matter: Daily enacted responsiveness and intimacy in couples' daily lives. *Journal of Family Psychology*, 26(4), 617-627. doi:10.1037/a0028666
- Downey, G., Freitas, A. L., Michaelis, B., & Khouri, H. (1998). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology*, 75(2), 545-560. doi:10.1037/0022-3514.75.2.545

- Drigotas, S. M., Whitney, G. A., & Rusbult, C. E. (1995). On the Peculiarities of Loyalty: A Diary Study of Responses to Dissatisfaction in Everyday Life. *Personality and Social Psychology Bulletin*, 21(6), 596-609. doi:10.1177/0146167295216006
- Eisenberger, N. I., Master, S. L., Inagaki, T. K., Taylor, S. E., Shirinyan, D., Lieberman, M. D., & Naliboff, B. D. (2011). Attachment figures activate a safety signal-related neural region and reduce pain experience. *Proceedings of the National Academy of Sciences*, 108(28), 11721-11726. doi:10.1073/pnas.1108239108
- Epstein, N., & Baucom, D. H. (1989). Cognitive-Behavioral Marital Therapy. In A. Freeman, K. M. Simon, L. E. Beutler, & H. Arkowitz (Eds.), *Comprehensive Handbook of Cognitive Therapy* (pp. 491-513). New York, NY: Springer US.
- Feeney, B. C., & Kirkpatrick, L. A. (1996). Effects of adult attachment and presence of romantic partners on physiological responses to stress. *Journal of Personality and Social Psychology*, 70(2), 255-270. doi:10.1037/0022-3514.70.2.255
- Finkel, E. J., & Campbell, W. K. (2001). Self-control and accommodation in close relationships: An interdependence analysis. *Journal of Personality and Social Psychology*, 81(2), 263-277. doi:10.1037/0022-3514.81.2.263
- Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology*, 80(6), 1011-1027. doi:10.1037/0022-3514.80.6.1011
- Fletcher, G., & Kerr, P. S. G. (2010). Through the eyes of love: Reality and illusion in intimate relationships. *Psychological Bulletin*, 136(4), 627-658. doi:10.1037/a0019792
- Geiss, S. K., & O'Leary, K. D. (1981). Therapist ratings of frequency and severity of marital problems: Implications for research. *Journal of Marital and Family Therapy*, 7(4), 515-520. doi:10.1111/j.1752-0606.1981.tb01407.x

- Ghering, K. A. (2008). *Associations between partners' attachment styles and relationship functioning*. (PhD), Idaho State University, ProQuest Dissertations Publishing. PsycINFO database.
- Gottman, J. M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes*. Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc.
- Gottman, J. M. (1998). Psychology and the study of marital processes. *Annual Review of Psychology*, 49, 169-197. doi:10.1146/annurev.psych.49.1.169
- Gottman, J. M., & Krokoff, L. J. (1989). Marital interaction and satisfaction: A longitudinal view. *Journal of Consulting and Clinical Psychology*, 57(1), 47-52. doi:10.1037/0022-006X.57.1.47
- Hackel, L. S., & Ruble, D. N. (1992). Changes in the marital relationship after the first baby is born: Predicting the impact of expectancy disconfirmation. *Journal of Personality and Social Psychology*, 62(6), 944-957. doi:10.1037/0022-3514.62.6.944
- Heavey, C. L., Christensen, A., & Malamuth, N. M. (1995). The longitudinal impact of demand and withdrawal during marital conflict. *Journal of Consulting and Clinical Psychology*, 63(5), 797-801. doi:10.1037/0022-006X.63.5.797
- Heavey, C. L., Layne, C., & Christensen, A. (1993). Gender and conflict structure in marital interaction: A replication and extension. *Journal of Consulting and Clinical Psychology*, 61(1), 16-27. doi:10.1037/0022-006X.61.1.16
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2-3), 61-83. doi:10.1017/S0140525X0999152X
- Heyman, R. E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment*, 13(1), 5-35. doi:10.1037/1040-3590.13.1.5

- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science*, 10(2), 227-237. doi:10.1177/1745691614568352
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine*, 7(7), e1000316. doi:10.1371/journal.pmed.1000316
- IBM. (Released 2016). IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.
- Jankowiak, W. R., & Fischer, E. F. (1992). A cross-cultural perspective on romantic love. *Ethnology*, 31(2), 149-155. doi:10.2307/3773618
- Jayamaha, S. D., Antonellis, C., & Overall, N. C. (2016). Attachment insecurity and inducing guilt to produce desired change in romantic partners. *Personal Relationships*, 23(2), 311-338. doi:10.1111/pere.12128
- Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology*, 72(5), 1075-1092. doi:10.1037/0022-3514.72.5.1075
- Kelley, H. H. (1983). Love and commitment. In H. H. Kelley, E. Berscheid, A. Christensen, J. H. Harvey, T. L. Huston, G. Levinger, E. McClintock, L. A. Peplau, & E. D. R. Peterson (Eds.), *Close Relationships* (pp. 265-314). New York: W. H. Freeman.
- Kelley, H. H. (1984). The theoretical description of interdependence by means of transition lists. *Journal of Personality and Social Psychology*, 47(5), 956-982. doi:10.1037/0022-3514.47.5.956
- Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York: Wiley.

- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis*. New York: The Guilford Press.
- Kobak, R. R., & Hazan, C. (1991). Attachment in marriage: Effects of security and accuracy of working models. *Journal of Personality and Social Psychology*, 60(6), 861-869. doi:10.1037/0022-3514.60.6.861
- Lakey, S. G., & Canary, D. J. (2002). Actor goal achievement and sensitivity to partner as critical factors in understanding interpersonal communication competence and conflict strategies. *Communication Monographs*, 69(3), 217-235. doi:10.1080/03637750216542
- Laurenceau, J. P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology*, 74(5), 1238-1251. doi:10.1037/0022-3514.74.5.1238
- Le, B., & Agnew, C. R. (2003). Commitment and its theorized determinants: A meta-analysis of the investment model. *Personal Relationships*, 10(1), 37-57. doi:10.1111/1475-6811.00035
- Lemay, E. P., Jr., & Neal, A. M. (2013). The wishful memory of interpersonal responsiveness. *Journal of Personality and Social Psychology*, 104(4), 653-672. doi:10.1037/a0030422
- Liu, M. (2016). Verbal Communication Styles and Culture. Retrieved from oxfordre.com/communication/view/10.1093/acrefore/9780190228613.001.0001/acrefore-9780190228613-e-162. doi:10.1093/acrefore/9780190228613.013.162
- Master, S. L., Eisenberger, N. I., Taylor, S. E., Naliboff, B. D., Shirinyan, D., & Lieberman, M. D. (2009). A picture's worth: Partner photographs reduce experimentally induced

- pain. *Psychological Science*, 20(11), 1316-1318. doi:10.1111/j.1467-9280.2009.02444.x
- McNulty, J. K., & Russell, V. M. (2010). When “negative” behaviors are positive: A contextual analysis of the long-term effects of problem-solving behaviors on changes in relationship satisfaction. *Journal of Personality and Social Psychology*, 98(4), 587-604. doi:10.1037/a0017479
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*: Guilford Press, New York, NY.
- Moskowitz, D. S., Suh, E. J., & Desaulniers, J. (1994). Situational influences on gender differences in agency and communion. *Journal of Personality and Social Psychology*, 66(4), 753-761. doi:10.1037/0022-3514.66.4.753
- Moskowitz, D. S., & Zuroff, D. C. (2004). Flux, pulse, and spin: Dynamic additions to the personality lexicon. *Journal of Personality and Social Psychology*, 86(6), 880-893. doi:10.1037/0022-3514.86.6.880
- Murray, S. L. (2005). Regulating the risks of closeness: A relationship-specific sense of felt security. *Current Directions in Psychological Science*, 14(2), 74-78. doi:10.1111/j.0963-7214.2005.00338.x
- Murray, S. L., Bellavia, G. M., Rose, P., & Griffin, D. W. (2003). Once hurt, twice hurtful: How perceived regard regulates daily marital interactions. *Journal of Personality and Social Psychology*, 84(1), 126-147. doi:10.1037/0022-3514.84.1.126
- Murray, S. L., Holmes, J. G., & Collins, N. L. (2006). Optimizing assurance: The risk regulation system in relationships. *Psychological Bulletin*, 132(5), 641-666. doi:10.1037/0033-2909.132.5.641
- Murray, S. L., Holmes, J. G., Derrick, J. L., Harris, B., Griffin, D. W., & Pinkus, R. T. (2013). Cautious to a fault: Self-protection and the trajectory of marital satisfaction.

Journal of Experimental Social Psychology, 49(3), 522-533.

doi:10.1016/j.jesp.2012.10.010

Murray, S. L., Holmes, J. G., & Griffin, D. W. (1996). The benefits of positive illusions:

Idealization and the construction of satisfaction in close relationships. *Journal of Personality and Social Psychology*, 70(1), 79-98. doi:10.1037/0022-3514.70.1.79

Nezlek, J. (2012). *The Sage Library of Methods in Social and Personality Psychology: Diary methods for social and personality psychology*. Retrieved from

methods.sagepub.com/book/diary-methods doi:10.4135/9781446287903

OECD. (2016). Marriage and Divorce Rates. Retrieved from

oecd.org/els/family/SF_3_1_Marriage_and_divorce_rates.pdf

Omarzu, J. (2000). A disclosure decision model: Determining how and when individuals will self-disclose. *Personality and Social Psychology Review*, 4(2), 174-185.

doi:10.1207/s15327957pspr0402_05

Overall, N. C., Fletcher, G. J. O., & Simpson, J. A. (2006). Regulation processes in intimate relationships: The role of ideal standards. *Journal of Personality and Social Psychology*, 91(4), 662-685. doi:10.1037/0022-3514.91.4.662

Overall, N. C., Fletcher, G. J. O., Simpson, J. A., & Sibley, C. G. (2009). Regulating partners

in intimate relationships: The costs and benefits of different communication strategies. *Journal of Personality and Social Psychology*, 96(3), 620-639.

doi:10.1037/a0012961

Overall, N. C., Fletcher, G. J. O., Simpson, J. A., & Sibley, C. G. (2009). Regulating partners

in intimate relationships: The costs and benefits of different communication strategies. *Journal of Personality and Social Psychology*, 96(3), 620-639.

Overall, N. C., Girme, Y. U., Lemay, E. P., Jr., & Hammond, M. D. (2014). Attachment anxiety and reactions to relationship threat: The benefits and costs of inducing guilt in romantic partners. *Journal of Personality and Social Psychology*, 106(2), 235-256.

doi:10.1037/a0034371

- Overall, N. C., & McNulty, J. K. (2017). What type of communication during conflict is beneficial for intimate relationships? *Current Opinion in Psychology*, 13, 1-5.
doi:10.1016/j.copsyc.2016.03.002
- Overall, N. C., Sibley, C. G., & Travaglia, L. K. (2010). Loyal but ignored: The benefits and costs of constructive communication behavior. *Personal Relationships*, 17(1), 127-148. doi:10.1111/j.1475-6811.2010.01257.x
- Overall, N. C., Simpson, J. A., & Struthers, H. (2013). Buffering attachment-related avoidance: Softening emotional and behavioral defenses during conflict discussions. *Journal of Personality and Social Psychology*, 104(5), 854-871.
doi:10.1037/a0031798
- Papp, L. M., Cummings, E. M., & Goeke-Morey, M. C. (2009). For richer, for poorer: Money as a topic of marital conflict in the home. *Family Relations*, 58(1), 91-103.
doi:10.1111/j.1741-3729.2008.00537.x
- Reis, H. T., & Clark, M. S. (2013). Responsiveness. In J. Simpson & L. Campbell (Eds.), *The Oxford Handbook of Close Relationships*. New York, NY: Oxford University Press.
- Reis, H. T., & Gable, S. L. (2015). Responsiveness. *Current Opinion in Psychology*, 1, 67-71.
doi:10.1016/j.copsyc.2015.01.001
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26(4), 419-435. doi:10.1177/0146167200266002
- Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology*, 16(2), 172-186.
doi:10.1016/0022-1031(80)90007-4
- Rusbult, C. E., Arriaga, X. B., & Agnew, C. R. (2001). Interdependence in close relationships. In G. J. O. Fletcher & M. S. Clark (Eds.), *Blackwell handbook of social*

psychology: Interpersonal processes (pp. 359-387). Oxford, England: Blackwell Publishers.

- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, 5(4), 357-387. doi:10.1111/j.1475-6811.1998.tb00177.x
- Rusbult, C. E., & Van Lange, P. A. M. (2003). Interdependence, Interaction, and Relationships. *Annual Review of Psychology*, 54(1), 351-375. doi:10.1146/annurev.psych.54.101601.145059
- Rusbult, C. E., & Van Lange, P. A. M. (2008). Why we need Interdependence theory. *Social and Personality Psychology Compass*, 2(5), 2049-2070. doi:10.1111/j.1751-9004.2008.00147.x
- Rusbult, C. E., & Zembrodt, I. M. (1983). Responses to dissatisfaction in romantic involvements: A multidimensional scaling analysis. *Journal of Experimental Social Psychology*, 19(3), 274-293. doi:10.1016/0022-1031(83)90042-2
- Rusbult, C. E., Zembrodt, I. M., & Gunn, L. K. (1982). Exit, voice, loyalty, and neglect: Responses to dissatisfaction in romantic involvements. *Journal of Personality and Social Psychology*, 43(6), 1230-1242. doi:10.1037/0022-3514.43.6.1230
- Sadikaj, G., Moskowitz, D. S., & Zuroff, D. C. (2015a). Felt security in daily interactions as a mediator of the effect of attachment on relationship satisfaction. *European Journal of Personality*, 29(2), 187-200. doi:10.1002/per.1988
- Sadikaj, G., Moskowitz, D. S., & Zuroff, D. C. (2017). Intrapersonal variability in interpersonal perception in romantic relationships: Biases and accuracy. *Journal of Research in Personality*, 69, 67-77. doi:10.1016/j.jrp.2016.06.011

- Sadikaj, G., Rappaport, L. M., Moskowitz, D. S., Zuroff, D. C., Koestner, R., & Powers, T. (2015b). Consequences of interpersonal spin on couple-relevant goal progress and relationship satisfaction in romantic relationships. *Journal of Personality and Social Psychology, 109*(4), 722-737. doi:10.1037/pspp0000043
- Sbarra, D. A., & Nietert, P. J. (2009). Divorce and death: Forty years of the Charleston Heart Study. *Psychological Science, 20*(1), 107-113. doi:10.1111/j.1467-9280.2008.02252.x
- Shallcross, S. L., Howland, M., Bemis, J., Simpson, J. A., & Frazier, P. (2011). Not "capitalizing" on social capitalization interactions: the role of attachment insecurity. *Journal of Family Psychology, 25*(1), 77-85. doi:10.1037/a0021876
- Shor, E., Roelfs, D. J., Bugyi, P., & Schwartz, J. E. (2012). Meta-analysis of marital dissolution and mortality: Reevaluating the intersection of gender and age. *Social Science & Medicine, 75*(1), 46-59. doi:10.1016/j.socscimed.2012.03.010
- Simpson, J., Rholes, W., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology, 62*(3), 434-446. doi:10.1037/0022-3514.62.3.434
- Simpson, J. A., & Rholes, W. S. (2012). Adult attachment orientations, stress, and romantic relationships. In P. Devine & A. Plant (Eds.), *Advances in experimental social psychology, Vol 45* (pp. 279-328, Chapter vii, 350 Pages): Academic Press, San Diego, CA.
- Simpson, J. A., Rholes, W. S., Oriña, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin, 28*(5), 598-608. doi:10.1177/0146167202288004
- Spitzberg, B. H., & Cupach, W. R. (1989). *Handbook of interpersonal competence research*. New York, NY: Springer.

- Totenhagen, C. J., Butler, E. A., Curran, M. A., & Serido, J. (2016). The calm after the storm: Relationship length as associated with couples' daily variability. *Journal of Social and Personal Relationships*, 33(6), 768-791. doi:10.1177/0265407515597562
- Vogt, D. S., & Colvin, R. C. (2003). Interpersonal orientation and the accuracy of personality judgments. *Journal of Personality*, 71(2), 267-295. doi:10.1111/1467-6494.7102005
- Wieselquist, J., Rusbult, C. E., Foster, C. A., & Agnew, C. R. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality and Social Psychology*, 77(5), 942-966. doi:10.1037/0022-3514.77.5.942
- Yovetich, N. A., & Rusbult, C. E. (1994). Accommodative behavior in close relationships: Exploring transformation of motivation. *Journal of Experimental Social Psychology*, 30(2), 138-164. doi:10.1006/jesp.1994.1007