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A Qualitative Analysis of Couples' Communication Regarding Colorectal Cancer Screening Using the Interdependence Model

Sharon Manne,

Fox Chase Cancer Center, UMDNJ-Robert Woods Johnson Medical School, The Cancer Institute of New Jersey

Rebecca S. Etz,

UMDNJ- Robert Wood Johnson Medical School

Shawna V. Hudson,

UMDNJ- Robert Wood Johnson Medical School, The Cancer Institute of New Jersey

Amanda Medina-Forrester,

UMDNJ- Robert Wood Johnson Medical School, The Cancer Institute of New Jersey

Joseph A. Boscarino,

Geisinger Health Systems

Deborah J. Bowen, and

Boston University

David S. Weinberg

Fox Chase Cancer Center

Abstract

Objective—Colorectal cancer screening (CRCS) uptake in the US remains low. The purpose of this study was to use qualitative methods to characterize partner support and influence regarding CRCS decisions among couples who were both either adherent or non-adherent with CRCS.

Methods—Eighteen couples were interviewed regarding their discussions about CRCS and support and influence strategies used. Analyses were guided by the Interdependence Model.

Results—Direct and indirect partner effects were found. Direct partner effects were evidenced when the impact of one spouse on the CRCS decision of the other was clearly defined and intended. Three direct partner effect themes were leadership, persuasion, and partnership. Indirect partner effects were evidenced by one spouse considering the information, experience, or actions of the other in ways that informed CRCS decision-making, even if that influence was not intentional or specifically directed at CRCS. Three indirect partner effect themes were companionship, support, and peer socialization.

Conclusion—Spouse influence plays a role in CRCS decisions. Individuals view CRCS as being important to the health and quality of their relationship.

Practice Implications—With this increased understanding of the interpersonal context of CRCS, it may be possible to include close others in interventions to improve CRCS.

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Keywords

Colorectal cancer screening; couples; interdependence model; support and influence; intimate relationships; qualitative research

1. Introduction

Colorectal cancer (CRC) is the fourth most commonly diagnosed cancer with the second highest number of cancer deaths [1]. There are multiple early detection and prevention methods for CRC. Despite proven efficacy in reducing mortality and morbidity, CRC screening (CRCS) uptake in the US remains unacceptably low [2,3]. Thus, there is a critical need to increase CRCS.

Among the factors that may motivate CRCS, partner influence is a little-studied but possibly important influence. Although the marital relationship has not been studied with regard to CRCS, partner support has been shown to have a significant association with other types of cancer screening [4]. For example, partner involvement has been shown to enhance the efficacy of interventions to improve cancer surveillance such as skin self-examination [5]. The high degree of correspondence between couples' health behaviors such as diet [6,7] and exercise [7] also indicates a possible role for spousal influence over lifestyle and health care practices [7].

Dyad-level theories offer a framework to understand how couple processes affect behavior by accounting for the interpersonal (couple level) and intrapersonal (individual level) context of health behaviors as well as accounting for the unique level of interdependence in relationships. Lewis and colleagues' [8] Interdependence Model [9–11] separates actor, partner, and joint effects. Actor effects are those effects due to the individual. Partner effects are those arising from that individual's partner. Joint effects are those behaviors influenced by both oneself and one's partner. The model has three key constructs. The first is interdependence, which is defined as the effect that partners have on each other's motives, preferences, behaviors and health outcomes [10]. The second is transformation of motivation, which involves changing partners' basis for behavior change from an individual motivation to a relationship motivation. A third construct is correspondence of outcomes, which reflects the degree to which partners agree about shared outcomes in the relationship.

There has been little attention given to the Interdependence Model and health behavior change. Most of the research has been devoted to understanding how one partner influences the other partner's health behaviors. This literature has fallen into 3 areas: 1) identification of strategies couples use to influence the other partner to undertake a change [12–14]; 2) evaluating the role of couples' social influence strategies in change, and; 3) evaluating the role of spouse support in treatment adherence [15, 16]. The purpose of the present study was to use qualitative methods to characterize spouse support and influence regarding CRCS decisions. In joint interviews, participants were asked whether they discussed CRCS, the nature of these discussions, important factors in these discussions, and support and influence strategies used. Couples who were on-schedule with screening as well as couples who were not on-schedule with screening were interviewed to provide a more complete perspective of the experience.

2. Methods

2.1. Participants

Participants were recruited from the Geisinger Health System (GHS) between July and August, 2009. GHS is a health services organization with an electronic medical record. Inclusion criteria were (1) 50 years of age; (2) married and living with a partner at the same residence; (3) both partners seen by a GHS provider in the past two years; (4) both partners at average risk for CRC, defined as asymptomatic, without a personal and family history of CRC or colorectal polyps, inflammatory bowel disease, or a family history of familial adenomatous polyposis, hereditary non-polyposis CRC, or CRC in more than one first degree relative; (5) both partners non-adherent or both partners adherent with standard CRCS recommendations at the time of the last GHS visit. Non-adherence was defined as not having any of the following: a 3-card fecal occult blood test in the last 12 months, a flexible sigmoidoscopy in the past five years, or a colonoscopy in the past 10 years. Adherence categorization was based on review of the electronic medical record with verification by self-report. We chose to focus only on those couples who were both non-adherent or both adherent with CRCS for two reasons. First, we wanted to limit the heterogeneity of the sample as this was a small qualitative study. Second, we wanted to maximize the opportunity to examine partner effects as there is a greater possibility that they may occur in congruent couples.

Two hundred and fifty eight couples were approached. Of these 258, 52 (20.2%) could not be contacted, 25 were ineligible (9.7%), and 161 refused participation (62.4%). Thus the participation rate among eligible, reachable couples was 11%. The most common reason for study refusal was concurrent health issues preventing study participation. Twenty couples consented with two withdrawing before the interview, leaving 18 couples in the final sample. Of these, ten couples were non-adherent and 8 couples were adherent with CRCS.

2.2. Procedures

GHS research staff ran an electronic medical record query using the eligibility criteria. If both partners met eligibility, the informed consent and HIPAA form were returned and the interview was scheduled. Each interview took approximately one hour and couples were interviewed as a dyad. Interviews were digitally recorded and transcribed for analyses.

2.3. Interview

A semi-focused interview guide was used to examine the role of the relationship in CRCS. Among non-screened couples, questions addressed whether they discussed having CRCS, barriers to discussing CRCS, motivation to discuss CRCS, how they might be able to talk to one another about screening, and ways they might provide support to their partner to have CRCS. Among screened couples, questions asked who went first for CRCS, whether they discussed CRCS beforehand, what role the relationship played, if they felt the partner was helpful and how, suggestions for how couples might constructively discuss CRCS, and ways they might provide support to have CRCS. Two GHS research coordinators conducted the interviews.

2.4. Analysis Overview

Our qualitative analysis used a template or thematic analysis approach. [17,18] This approach was an iterative process that included cycles of reading, summarizing and rereading the data. [18–20]. Segments of text were labeled for the purposes of identification. These labels were developed based on common themes within the Interdependence Model literature, the structured interview, and similarities across interviews that emerged as part of the first data review. Labels used repeatedly became codes of recurrent themes. These codes

were gathered into a codebook that was reviewed and assessed by the co-authors (SLM, RSE, SVH, AMF). Data were then re-read and organized using the revised codebook to ensure that codes were applied consistently across the dataset. All segments of text in the dataset were coded by an anthropologist (RSE) and half of the data ($n=9$) was re-coded by a health psychologist (AMF) who separately read through the data and applied codes to segments of the transcripts. All discrepant codes were resolved through discussion among investigators. We used ATLAS.ti [21] (v. 6.5) software to facilitate our qualitative analyses and SPSS® version 18 for Windows® (SPSS Inc., Chicago, IL) to complete the descriptive analyses.

3. Results

3.1. Sample characteristics

All participants were Caucasian and in heterosexual relationships. Average age of husbands was 64.5 years (range = 51–89) and the average age of wives was 61.9 (range = 51–79). Among the eight couples adhering to CRCS, seven couples reported talking about CRCS and one couple said initially they did not talk at all about CRCS. However, later in their interview, this couple stated they discussed CRCS. Among the ten couples not adhering to CRCS, five couples talked about CRCS before deciding not to have it and five couples reported that they did not talk at all about CRCS although their subsequent narratives contradicted this statement.

3.2 Findings

Results reported in this section are organized around the two types of spouse influence evidenced: direct partner effects and indirect partner effects.

3.2.1 Direct partner effects—Direct partner effects were evidenced when the impact of one spouse on the CRCS decision of the other spouse was clearly defined and intended. In these cases, interview respondents were clear in reporting that either (a) one spouse directed a behavior at the other with the intention of impacting the decision to be screened, or (b) that the importance of the spousal relationship was identified by the person speaking as the proximate cause for the decision to be screened. Three categories were most salient within direct partner effects: leadership, persuasion, and partnership.

3.2.1.2. Leadership: Direct partner effects through leadership occurred when one spouse reported taking an action in order to model adherent CRCS behavior for the other or when it was reported that the screening of one spouse was the proximate cause for the second spouse to decide to be screened. When seen as positive, having one spouse ‘lead by example’ was reported as an important factor in decision-making. For couples that were adhering to CRCS, this was often evidenced in interview statements like, “*since he had been through it I pretty much knew what to expect*” (Interview 02).

Spouses in both adhering and non-adhering couples reported that to have the other spouse be screened first was, or could be, a strong motivator:

- *He had his first and then his experience kind of you know, okay well that’s not so bad...yea I could do this too.* (Interview 07)

- *Can I be honest? If he’s not going to do it, I’m not going to do it. ... doing it first and telling me how easy it was ... I think that’d be excellent.* (Interview 16)

Other forms of leadership were also present. Some spouses were nurses or care providers. Among these couples, the non-medically employed spouse often deferred decision-making to the spouse with some medical knowledge, “*If I had any kind of a medical question I*

would, since [my wife] is an RN I would probably ask her” (Interview 10). In other cases, there was no expert knowledge but one spouse frequently researched and found articles relevant to medically-oriented discussions between the couple and would share the research with their spouse.

3.2.1.3. Persuasion: Like leadership, persuasion was a frequently referenced form of direct partner effect, with negative and positive characterizations. Couples were asked if they ever felt pressured to get screened from their spouses. All couples identified “pressure” as a negative and unhelpful form of influence. In contrast, most couples identified spouse encouragement as an important factor, or direct partner effect, to their decision-making, stating “*she would definitely encourage me if I was balking at all,*” and “*it does take two, because you do need the encouragement of the other person.*” (Interview 03)

Another facet of encouragement was the use of shared past experience to create a motivating message. These messages were related to personal medical history, trials they had witnessed among their friends, or a shared belief in the importance of family:

- I have known some friends that have died of it ... and there's certain things to do to keep it from coming in the door. (Interview 10)

3.2.1.4. Partnership: Among the categories of direct partner effect most clearly identified as such by interviewed couples was the stated importance of partnership in motivating their decision to receive CRCS:

- He likes me to have done what [preventive measures] I can [have] done. We want to spend a lot longer years together so that's the way to do it. (Interview 05)

- Our health is important to both of us; I think we have always been 'if not for our self, for each other'. (Interview 02)

Staying healthy for the other spouse was also identified among couples not adhering to CRCS. Non-adhering couples reported a joint interest in maintaining good health behaviors and following medical guidelines despite their decision not to be screened for CRC:

- Female: I think it's very important that we have our physicals and ... but the colon is our own decision to do. Male: Yeah, I agree with her right there. (Interview 08)

- I have diabetes. We both have high blood pressure. She has scleroderma. We talk about [those] things. But we don't talk about stuff that doesn't concern us. (Interview 15)

For these non-adherent couples, a joint belief that CRCS was unnecessary was a main motivating factor. Within these couples, spouses most often felt screening activities were only useful when a person already felt something was wrong, “If we really thought something was going on, we would discuss it. I'd have to get it done”(Interview 17). These respondents followed such comments with statements indicating the belief that one should not look for problems where none are known to exist:

That's the reason I didn't go through with it before. I was going to go through with it and she was like, “are you having any problems in that area?” And I said no. So, then, we just decided not to. (Interview 17).

The need for CRCS was often mentioned in the context that a person would be able to sense if a problem existed, “*your body tells you when there's something wrong, if you just listen to it*” (Interview 08). In these cases, the importance of staying healthy for one's spouse was not at odds with choosing not to have CRCS.

When asked what things a spouse might say to convince a non-adhering spouse to be screened, couples often identified hypothetical persuading techniques that highlighted the importance of partnership. They suggested including comments about “*how important we are to each other*” (Interview 17) and “*it’s just something you have to do, so we’ll deal with it together*” (Interview 11).

3.2.2. Indirect partner effects—Indirect partner effects were evidenced by one spouse considering the information, experience, or actions of the other spouse in ways that informed CRCS decision-making even when comments directly addressing CRCS were not being made. Most often, indirect partner effects were connected to established behaviors within the couple that were not necessarily directed at effecting CRCS. Three categories were most salient among the evidence of indirect partner effects: companionship, support, and peer socialization.

3.2.2.1. Companionship: Many couples discussed ways in which companionship was an important factor. Although companionship was not the main motivating factor in the decision to be screened, it was cited as an important consideration with the power to either sway a decision or make a decision easier.

- *I prefer for him to be in the waiting room and waiting...for him to be there – it’s just really, really is supportive.* (Interview 07)

Other examples of responses that indicated companionship as an important factor for decision making include the ideas of “being there,” “staying active together,” and “being able to share results with someone.”

3.2.2.2. Support: In addition to companionship, general support for medical and behavioral decisions was seen as significant. While some couples hesitated to specifically label support as “influence,” almost all couples identified joint effects in the form of support from their spouse as a necessary environmental factor. Most highlighted were the ideas of talking about health issues and providing assurance:

- *We talk about other tests and all kinds of things. That’s what we do; let each other know what’s going on.* (Interview 14)

In some cases, couples suggested simply mentioning CRCS in conversation might “*set your mind to wondering about whether you should have it done or not*” (Interview 17). In other cases, the supportive role could be the role of the spouse receiving screening to appease a partner that was worried: “*I’d probably get my appointment made and take care of it if he was that worried about it.*” (Interview 11)

3.2.2.3. Relationship Norms: Couples often identified social norms within the relationship that were based on having shared life experiences. Over time, spouses learned to identify a certain set of behaviors that were expected of them and when considering new decisions, they drew upon these shared patterns. Relationship norms included factors closely related to screening decisions such as shared “common knowledge” regarding the importance of preventive screening and the role of family medical history as a predictor of cancer.

Other joint effects were less specifically connected to screening decisions but were nonetheless influential. These included aspects of daily routines, such as how appointments were scheduled (*she makes all the phone calls at our house* – Interview 08), expectations with regard to health (*we are both pretty health conscious* – Interview 02), and topics of usual conversation:

- Like if he wants to do something, he asks me what's my opinion... we usually talk it over between the two of us before we do anything... we've done that ever since we've been married. (Interview 14).

4. Discussion and Conclusion

4.1. Discussion

Research continues to emphasize the importance of close interpersonal relationships for health [22], but the interpersonal mechanisms responsible for linking close relationships with health care behaviors and outcomes are poorly delineated. One way to gather such information is to adopt a dyadic approach. In this study, we attempted to understand how couples managed CRCS. Results suggest partner influences may play a role in CRCS decisions among couples who are either up-to-date or not up-to-date with regard to CRCS. Direct partner effects, those behaviors intended to sway the decision to get screened or an indication that the relationship was a motivation, were grouped into three salient categories: leadership, persuasion, and partnership. Indirect partner effects, which were identified as shared relationship expectations such as keeping healthy or about the companionate nature of the relationship, were grouped into three additional categories: companionship, support, and peer socialization. These results also extend our understanding of the forms of partner influence and inform underlying theory.

Efforts to influence a partner's screening decisions consisted of direct, intentional maneuvers such as leading by example, providing information, encouraging one's spouse, and using the relationship as a direct motivating influence. These direct strategies have been also described in previous studies of spouse influence for other health behaviors [16, 23]. Modeling and offering encouragement are considered communal, accommodative strategies which emphasize the interdependent nature of health care decisions.

Couples' indirect strategies and effects, which largely focused on relationship roles and norms regarding the commitment to maintain one's health and being supportive to one another in all areas pertaining to health, underscore the possible interdependent nature of couples' views about screening and the fact that some couples may view their health outcomes as mutually influenced. The indirect influences identified differ from specific "tactics" employed intentionally that have been measured in previous studies (e.g., dropping hints) [24] and suggest that interpersonal influences may be unintentional and involve relationship norms and expectations. That is, relationship expectations may be a realm of interpersonal influence that are less easily captured by paper and pencil measure focusing on intentional tactics.

Many of the themes illustrate that couples view CRCS as meaningful for the health of the relationship and support the construct of transformation of motivation where motivation is considered in relationship terms and screening is viewed as a part of the commitment to the relationship [24, 25, 26, 27]. Underlying relationship norms and expectations may form the basis for screening decisions.

Much of the previous literature has attempted to characterize efforts as positive or negative in their effects [23, 28–30]. Our interview questions specifically asked about pressure or other negative strategies such as nagging. Although couples agreed that coercion was a negative form of influence, the majority of couples did not state they engaged in or experienced these coercive methods. One potential explanation is that couples were interviewed together. It is possible that partners were not comfortable sharing negative strategies publically. Future studies should include individual interviews to reduce the likelihood of this possible influence. A second possible explanation is the fact that we

included couples who were either both screened or both not screened. Coercive methods may be more prevalent when one partner has had CRCS and desires the other partner to do the same.

When considering the components of the Interdependence Model - interdependence, transformation of motivation, and correspondence of outcomes-the present study provides support for a role for each in CRCS decisions. Partners emphasized the influence of spouses on screening motivation, cited reasons related to the relationship for having CRCS, and viewed the outcomes of screening on a relationship level. However, it should be noted that not all felt the relationship played an important, positive role in screening. Several couples reported having influenced each other when deciding not to be screened.

It is interesting that there were no clear differences with regard to how influence strategies were reported by adherent and non-adherent couples. Prior research would suggest that negative strategies would be more prevalent among couples who are less adherent to health behavior changes (e.g., 14). It is possible that the interview approach elucidated influence strategies but was not an effective way to understand the role of strategies in adherence.

The present study has limitations. First, adherent couples discussed CRCS decisions after they had CRCS and it is possible a retrospective description inaccurately reflected what occurred prior to the tests. Second, the sample did not include couples where one partner had CRCS and the other did not. Inclusion of discordant couples may have illustrated different influence strategies (e.g., more pressure). Third, our interview approach had limitations. We did not ask specifically about individual attitudes or other social influences on CRCS. Thus, we were less able to identify the comparative role of other influences. Interview questions were guided by the Interdependence Model which may have constrained the findings and biased them towards joint effects. The interview was structured, which may have limited the discussion between partners during data collection and our findings. Adopting a less structured, more phenomenological approach may have provided a broader account of dyadic influences. Fourth, we did not assess relationship length or quality which may have influenced both couples' level of communication, their ability to be influenced by their partner and their ability to transform motivation to a dyadic level [31]. Fifth, the acceptance rate was low and it is possible that those couples who participated differed. For example, participating couples may have been more communicative about health or health care decisions. Sixth, the sample was comprised of Caucasian, heterosexual couples, and it is not known to what degree this influenced the findings. Finally, information was not collected on study refusers.

4.2. Conclusions

Our findings suggest that partners influence each other's decisions to have CRCS by encouraging one another, setting an example for one another by having CRCS themselves first, creating shared expectations for maintaining their health, and by offering assurance that they would be able to assist their partner in having CRCS. Couples who did not have CRCS may have conveyed shared beliefs that CRCS was not important and influenced one another to not have CRCS.

4.3. Practice Implications

If we are able to better understand the role of partner influence, it may be possible to harness the positive influence partners may have upon one another as well as mitigate detrimental influence by developing behavioral interventions to improve CRCS that include partners.

References

1. American Cancer Society. Cancer Facts and Figures. Atlanta: American Cancer Society; 1996.
2. Breen N, Wagener DK, Brown ML, Davis WW, Ballard-Barbash R. Progress in cancer screening over a decade: results of cancer screening from 1987, 1992, and 1998 National Health Interview Surveys. *J Natl Cancer Inst.* 2001; 93:1704–1713. [PubMed: 11717331]
3. Swan J, Breen N, Coates RJ, Rimer BK, Lee NC. Progress in cancer screening practices in the United States: Results from the 2000 National Health Interview Survey. *Cancer.* 2003; 97:1528–1540. [PubMed: 12627518]
4. Meiser B, Cowan R, Costello A, Giles GG, Lindeman GJ, Gaff CL. Prostate cancer screening in men with a family history of prostate cancer: The role of partners in influencing men's screening uptake. *Urol.* 2007; 70:738–742. [PubMed: 17991547]
5. Robinson JK, Turrisi R, Stapleton J. Examination of mediating variables in a partner assistance intervention designed to increase performance of skin self-examination. *J Am Acad Dermatol.* 2007; 56:391–397. [PubMed: 17147966]
6. Kolonel LN, Lee J. Husband-wife correspondence in smoking, drinking, and dietary habits. *Am J Clin Nutr.* 1981; 34:99–104. [PubMed: 7446465]
7. Wilson SE. The health capital of families: an investigation of the inter-spousal correlation in health status. *Soc Sci Med.* 2002; 55:1157–1172. [PubMed: 12365528]
8. Lewis MA, McBride CM, Pollak KI, Puleo E, Butterfield RM, Emmons KM. Understanding health behavior change among couples: an interdependence and communal coping approach. *Soc Sci Med.* 2006; 62:1369–1380. [PubMed: 16146666]
9. Kelley, HH.; Berscheid, E.; Christensen, A.; Harvey, JH.; Huston, TL.; Levinger, G., et al. *Close Relationships.* Wilson, J.; Stewart, MA., editors. New York: W.H. Freeman and Company; 1983.
10. Rusbult, CE.; Van Lange, PAM. Interdependence processes. In: Higgins, ET.; Kruglanski, AW., editors. *Social psychology: Handbook of basic principles.* New York: The Guilford Press; 1996. p. 564-596.
11. Kelley, HH.; Thibaut, TW. *Interpersonal relations: A theory of interdependence.* New York: Riley; 1978.
12. Butterfield R, Lewis M. Health-related social influence: A social ecological perspective on tactic use. *J Soc Pers Rel.* 2002; 19:505–626.
13. Lewis MA, Rook KS. Social control in personal relationships: Impact on health behaviors and psychological distress. *Health Psychol.* 1999; 18:63–71. [PubMed: 9925047]
14. Franks MM, Rook KS, Keteyian SJ, Stephens MA, Franklin BA, Artinian NT. Spouses' provision of health-related support and control to patients participating in cardiac rehabilitation. *J Fam Psychol.* 2006; 20:311–318. [PubMed: 16756407]
15. Lewis, MA.; Butterfield, R.; Darbes, L.; Johnston-Brooks, CH. Husbands' and wives' use of health-related social control tactics; Paper presented at the Annual Meeting of the Society of Behavioral Medicine; San Diego, CA:
16. Tucker JS, Mueller J. Spouses' social control of health behaviors: Use and effectiveness of specific strategies. *Per Soc Psychol Bull.* 2000; 26:1120–1130.
17. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res in Psychol.* 2006; 3:77–101.
18. Crabtree, BF.; Miller, WL. *Doing qualitative research.* 2nd ed.. Thousand Oaks, Calif.: Sage Publications; 1999.
19. Denzin, NK.; Lincoln, YS. *Handbook of qualitative research.* 2nd ed.. Thousand Oaks, Calif.: Sage Publications; 2000.
20. Miles, MB.; Huberman, AM. *Qualitative data analysis : an expanded sourcebook.* 2nd ed.. Thousand Oaks: Sage Publications; 1994.
21. Muhr, T. *ATLAS.ti (Version 5.2.4).* Berlin: Scientific Software Development; 2006.
22. Ryff, CD.; Singer, B.; Wing, E.; Love, GD. Elective affinities and uninvited agonies: Mapping emotion with significant others onto health. In: Ryff, CD.; Singer, B., editors. *Emotion, Social relationships and Health.* New York: Oxford University Press; 2001.

23. Lewis MA, Butterfield R, Darbes L, Brooks C. The conceptualization of health related social control. *J Soc Pers Rel.* 2004; 21:669–687.
24. Butterfield R, Lewis M. Health-related social influence: A social ecological perspective on tactic use. *J Soc Pers Rel.* 2002; 19:505–626.
25. Lewis, MA.; DeVellis, BM.; Sleath. Social influence and interpersonal communication in health behavior. In: Glanz, DK.; Rimer, BK.; Lewis, FM., editors. *Health behavior and health education: theory, research, and practice.* 3rd ed. San Francisco: Jossey-Bass; 2002. p. 240-264.
26. Butterfield R, Lewis M. Health-related social influence: A social ecological perspective on tactic use. *J Soc Pers Rel.* 2002; 19:505–626.
27. Rusbult, CE.; Van Lange, PAM. Interdependence Processes. In: Higgins, ET.; Kruglanski, A., editors. *Social Psychology: Handbook of Basic Principles.* New York: Guilford Press; 1996. p. 564-596.
28. Helgeson VS, Snyder P, Seltman H. Psychological and physical adjustment to breast cancer over 4 years: identifying distinct trajectories of change. *Health Psychol.* 2004; 23:3–15. [PubMed: 14756598]
29. Cohen S, Lichenstein E. Partner behaviors that support quitting smoking. *J Couns Clin Psychol.* 1990; 58:304–309.
30. Roski J, Schmid L, Lando H. Long-term associations of helpful and harmful spousal behaviors with smoking cessation. *Addict Beh.* 1996; 21:173–185.
31. Van Lange PAM, Rusbult CE, Drigotas SM, Ariaga XB, Witcher BS, Cox CL. Willingness to sacrifice in close relationships. *J Pers Soc Psychol.* 1997; 72:1373–1395. [PubMed: 9177022]