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Improvements in Partner Support Predict Sexual Satisfaction among Individuals with Multiple Sclerosis

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Abstract

Purpose—Sexual dysfunction and low sexual satisfaction are common among individuals with multiple sclerosis (MS), however, little is known about factors which influence sexual satisfaction within this population. As such, the purpose of this study was to investigate the extent to which changes in negative and positive partner support predict sexual satisfaction levels over time in individuals with MS.

Design—Eighty-one individuals with MS completed measures of sexual dysfunction, sexual satisfaction, partner social support, and depression. Data from baseline and post-treatment follow-up were obtained from a larger randomized clinical trial of telephone-administered psychotherapy for depression in a population with MS. Multiple regression analyses were conducted with change in overall sexual satisfaction from baseline to post-treatment as the outcome variable.

Results—After controlling for age, gender, sexual dysfunction, years diagnosed with MS, and depression severity, those with increased positive partner support reported significant improvement in sexual satisfaction over time ($\beta = 0.50, p < .001$), as did individuals with decreased negative partner support ($\beta = 0.36, p < .01$).

Conclusions—Results provide evidence that both positive and negative partner support have a distinctive role in the outcome of sexual satisfaction for individuals with MS. Understanding the unique role of positive and negative forms of partner support on sexual satisfaction will help lead to future interventions to improve sexual satisfaction among couples.

Keywords

Multiple sclerosis; Quality of Life; Rehabilitation; Sexual Functioning; Satisfaction

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Sexual dysfunction is common in multiple sclerosis (MS). In a recent review of the literature, it was determined that 50-90% of men and 40-80% of women report sexual dysfunction. The variability in the range of sexual dysfunction appears to be affected by levels of MS-related disability and time since diagnosis (Kessler, Fowler, & Panicker, 2009). For people with MS, sexual dysfunction includes symptoms such as erectile and orgasm problems in men and loss of genital sensation and lack of lubrication in women (Miller, Bourdette, Ritvo, & Stuart, 1994; Zorzon et al., 1999). These high rates of sexual dysfunction in MS stem from three underlying causes: 1) neurological damage directly from the illness (Foley & Werner, 2004; Zivadinov et al., 1999), such as genital numbness or erectile dysfunction, 2) MS-related physical problems such as fatigue, muscle spasms, or bladder or bowel control issues that *indirectly* lead to sexual dysfunction (Foley & Werner, 2004) 3) psychological or social factors (i.e., increased relationship strain), that cause or exacerbate the severity of sexual dysfunction (Foley & Werner, 2004; Schmidt, Hofmann, Niederwieser, Kapfhammer, & Bonelli, 2005). Not only do individuals with MS face high levels of sexual dysfunction, but they also report lower levels of sexual satisfaction (e.g., how satisfied one is with the amount of physical affection expressed in their relationship) compared to healthy controls (McCabe, McKern, McDonald, & Vowels, 2003). However, relative to what we know about sexual dysfunction in MS, little research has been conducted to examine various psychological predictors of sexual satisfaction in these individuals. To address this void in the research, this study longitudinally investigates the extent to which negative and positive forms of partner support predict sexual satisfaction levels in individuals with MS.

Positive and Negative Social Support

Social support can play an important role in a person's physical and psychological health. Importantly, social support has been conceptualized as representing two separate dimensions in previous research (i.e., Mavandadi, Rook, & Newsom, 2007). Indeed, past research underscores that negative and positive forms of social support are not just opposite ends of the same dimension (see for example, Kleiboer et al., 2007). Research on older community-dwelling adults found that positive social support (e.g., encouragement) predicted less future disability (as measured by perceived difficulty in performing activities of daily living) while negative social support (e.g., criticism) led to more future disability (Mavandadi et al., 2007). For those with MS, positive social support from one's partner can be one of the most important sources of social support and is predictive of lower disability levels (O'Brien, 1993). However, not all relationships with others have positive effects on well-being. Negative support has been found to have a stronger impact on psychological well-being than positive social support (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005; Rook, 1984) and these negative social exchanges have been found to predict later development of health problems and worse disability in sample of healthy older adults (Newsom, Mahan, Rook, & Krause, 2008). In those with MS, negative forms of partner social support have also been shown to be predictive of greater self-reported disability and poorer self-reported physical and mental health (Schwartz & Kraft, 1999).

Social Support and Sexual Satisfaction

To date, no research exists as to whether positive and negative partner support predicts sexual satisfaction (e.g., satisfaction with the physical expression in one's relationship) among people with MS. Research in other populations on the impact of partner support on sexual satisfaction is extremely limited. Among a large random community sample, greater perceived partner support was found to be an important predictor of self-reported sexual satisfaction (Ojanlatva et al., 2005). Among individuals with rheumatoid arthritis, greater perceived partner support was significantly associated with higher levels of sexual

satisfaction (van Lankveld, Ruiterkamp, Naring, & de Rooij, 2004). However, the role of negative partner support on sexual satisfaction was not examined in those studies.

Therefore, the aim of this study was to investigate whether both negative and positive partner support predict sexual satisfaction in individuals with MS, who participated in a larger randomized psychotherapy study designed to treat depression in MS. Although social support was not a direct target in the larger trial, we did expect that perceptions of partner support would change as depression decreased over time. Indeed, depression and social support have been demonstrated to be highly intercorrelated amongst individuals with MS (e.g., Mohr, Classen, & Barrera, 2004; Schwartz & Kraft, 1999). In addition, past research has found that as depression ameliorates through treatment, perceptions of social support also improve (Mohr, et al., 2004). Therefore, within the context of this treatment study, we examined change in social support as a predictor of sexual satisfaction. We hypothesized the following: 1) increases in negative partner support would be associated with worse self-reported sexual satisfaction, while decreases over time in negative partner support would be associated with better sexual satisfaction; 2) rising positive partner support over time would be associated with better sexual satisfaction, while declining positive partner support would be associated with worse sexual satisfaction; 3) additionally, decreases in depression over time would be associated with better sexual satisfaction.

Methods

This study is a secondary analysis of a randomized clinical trial, which compared the efficacy of two 16 week telephone-administered psychotherapies [telephone-administered cognitive behavioral therapy (T-CBT) and telephone-administered supportive emotion-focused therapy (T-SEFT)] for depression in individuals with MS (Mohr et al., 2005).

Inclusion/Exclusion Criteria

Inclusion criteria for the parent study were 1) a MS diagnosis confirmed by the treating neurologist, 2) a functional impairment resulting in activity limitations as measured by a score of at least three out of a total possible score of six (indicating marked impact on activity) on one or more areas of functioning on the Guy's Neurological Disability Scale (Sharrack & Hughes, 1999), 3) a score of 16 or above on the Beck Depression Inventory (Beck, Steer, & Brown, 1996) and 14 or above on the Hamilton Rating Scale of Depression (Hamilton, 1960), 4) an ability to speak and read English, and 5) an age over 18 years. For the current analyses, participants also had to be in a romantic relationship with one primary partner in which they had engaged in sexual activity in the prior four weeks. This subsample of participants was equally distributed over the two treatment arms. Participants were excluded from participating in the larger trial if they: 1) met criteria for dementia, 2) were currently in psychotherapy, 3) showed severe psychopathology including psychosis, current substance abuse, plan and intent to commit suicide, 4) were currently experiencing a MS exacerbation, 5) reported physical impairments preventing study participation, such as an inability to speak, read, or write, and 6) reported using medications that affect mood (e.g., steroidal anti-inflammatories). Use of antidepressant medications was not exclusionary.

Recruitment

Participants were recruited through Kaiser Permanente Medical Care Group of Northern California (KP) and regional chapters of the National Multiple Sclerosis Society (NMSS). Interested individuals received a brief telephone screen, which assessed the level of depression symptoms and several exclusion criteria. Participants who met the initial screening inclusion criteria qualified for a longer eligibility assessment. Eligible participants provided both verbal and written consent. Recruitment through regional NMSS chapters was

initiated via announcements in NMSS chapter newsletters. The consent procedures were identical to those for KP participants, but the individual was also mailed a release of medical information to confirm the MS diagnosis with the treating neurologist.

Assessments

All self-report materials were mailed to participants with stamped, addressed return envelopes. Interview assessments were conducted over the telephone. Participants were asked to complete self-report measures on the same day as the telephone assessment. Participants were paid \$10.00 to \$50.00 per assessment, depending on the time point and the length of the assessment. Telephone interview assessments were all audiotaped and conducted by trained clinical evaluators, who were unaware of treatment assignment. For these analyses, we used data from the baseline and 16-week assessments (post-treatment).

Materials

Participants completed all measures by self-report, with the exception of the Guy's Neurological Disability Scale, which was conducted by telephone interview.

Sexual Dysfunction—Sexual dysfunction was assessed with the Sexual Disabilities section of the Guy's Neurological Disability Score (GNDS) (Sharrack & Hughes, 1999), which is a structured interview on the impact of a variety of functional impairments on one's life. GNDS ratings have been demonstrated to be highly related ($r=.81$) with objective measures of functional impairment based on neurologist examination. For this study, we used the item “Do you have any problems in relation to your sexual function?” This item was rated either “yes” or “no.”

Social Support—The UCLA Social Support Scale (Schwarzer, Dunkel-Schetter, Kemeny, 1994) was used to assess positive and negative forms of social support. This scale has been designed to be adaptable, allowing for researchers to tailor it to various research questions. Positive social support received from one's partner was measured with 5 items regarding receipt of advice or information, assistance, reassurance, listening, and love (i.e., “How often have you felt loved and cared for by your partner”). Negative social support from one's partner was measured with 5 items that assessed feelings of criticism, anger, disappointment, irritation, and burden (i.e., “How often did you feel criticism or displeasure from your partner”). Each item is rated on a five-item Likert-type scale ranging from 1 = “not at all,” 5 = “extremely.” The subscale scores for negative and positive social support each range from 5-25. Internal consistencies were excellent over the course of the study ($\alpha =.84-.92$). The correlation between negative and positive support ranged from $-.22$ to $-.30$ ($ps < .05$) over the course of the study, suggesting these are related yet distinct constructs.

Sexual Satisfaction—Sexual satisfaction was measured with the Sexual Satisfaction Survey (SSS) (Ritvo et al., 1997) from the Multiple Sclerosis Quality of life Inventory. The SSS is a four item scale, which assesses intimate relations and satisfaction revolving around frequency and variety of sexual activity, expressed affection, and general sexual satisfaction (i.e., “During the past 4 weeks, how satisfied have you been with the amount of affection expressed physically in your relationship?”). Scores range from 4-24, with higher scores indicating more problems with sexual satisfaction. The SSS has been found to have strong internal consistency with Cronbach's $\alpha = .91$. Good internal consistency was also demonstrated within the current study with Cronbach's α ranging from $.86-.88$.

Beck Depression Inventory-II—Depression level was measured using the Beck Depression Inventory-II (BDI-II) (Beck et al., 1996). The BDI-II is based on the DSM-IV, consists of 21 items, and is designed to measure the level of depression within an individual

by examining their endorsement of items such as “It's hard to get interested in anything.” Scores range from 0-63 with greater scores indicating increased symptoms of depression. The BDI-II has strong test-retest reliability correlations of .93, good convergent validity, and strong discriminant validity with measures of anxiety. Good internal consistency was demonstrated over time in the current study with Cronbach's α ranging from .76-.94.

Treatments and Clinicians

While the main treatment outcome results have already been reported (Mohr et al., 2005), in brief, participants were randomized to one of two 16-week telephone administered psychotherapies, telephone cognitive behavioral therapy (T-CBT) or telephone supportive-expressive focused therapy (T-SEFT) (Mohr, 2010a, 2010b). The goal of T-CBT was to teach participants skills to manage their depressive cognitions and behaviors, as well as their life stressors and MS symptoms. The goal of T-SEFT was to increase participants' level of experience of their internal world versus specific CBT skills management. It should be noted that social support, sexual functioning, and sexual satisfaction all were not explicit foci of attention in either of the two therapy arms.

Statistical Analyses

Two multiple regression analyses were conducted with change in overall sexual satisfaction from baseline to post-treatment as the outcome variable. Predictor variables included change in partner support, which was computed by calculating the baseline to post-treatment change scores for both positive and negative partner support. We assessed the linear assumption for the predictors (negative and positive social support) and found that the predictors could not be accommodated in the simple form (e.g., neither linear nor quadratic). In fact, the cubic form fit these variables best. Given that, we treated the predictors as categorical. Change in partner support (i.e., for both negative and positive partner support) was then divided into two categories: support that increased over time and support that decreased over time. These categories were dummy-coded into +1 and -1, respectively. A minority of participants (~16%) reported no change whatsoever (i.e., the exact same score) in their negative or positive partner support and were not included in the regression analyses. Age, gender, depression severity, number of years diagnosed with MS, and baseline sexual dysfunction were controlled for in all analyses. Treatment arm was not significantly associated with the primary outcome variable and therefore was not included in the analytic model.

Results

Sample Characteristics

Of the 127 participants initially randomized to treatment, seven (5.8%) refused to complete follow-up assessments. Of the 120 who completed post-treatment measures, a total of 81 participants (67.5%) reported a relationship with one primary partner and had been sexually active in the last four weeks. Participants who were eligible for this study were compared to those who were not, and no significant differences were found between the two groups on age, gender, education, race, time since MS diagnosis, depression, or changes in partner support. The only difference found was a greater proportion of eligible participants (vs. ineligible) reported sexual dysfunction (73.8% and 53.8%, respectively, $\chi^2(1,119) = 4.7, p < .05$).

The average age of the sample was 46.9 ($SD = 9.7$). Participants were predominantly female (76.5%), Caucasian (90.1%), and had been diagnosed with MS an average of 10.3 years ($SD = 10.3$) prior to study participation. Approximately 73% reported having problems with their sexual functioning. Almost half the sample reported improved sexual satisfaction over time,

while 34.6% reported decreased sexual satisfaction. Descriptive statistics for these and other variables are presented in Table 1 and Table 2.

Relationship of Depression to Sexual Satisfaction

We examined the change in depression severity from baseline to post-treatment and its relationship to change in sexual satisfaction from baseline to post-treatment, using a Pearson product-moment correlation. As the correlation was negligible ($r = 0.12$, $p = 0.28$), change in depression was included only as a covariate in subsequent analyses.

Positive Partner Support

As shown on Table 2, the majority of participants reported a change in positive partner support over time, with only 16.3% reporting no change. Approximately 41% reported a decrease and 42.5% reported an increase in positive support over time. Absolute level of change was slightly higher for those reporting increases in positive support compared to those reporting decreases in positive support (see Table 3). Findings from multiple regression analyses are reported in Table 4. The overall model was significant, $F(6, 64) = 6.47$, $p < .001$ and accounted for 33.9% of the variance in change in sexual satisfaction. After controlling for age, gender, sexual dysfunction, years diagnosed with MS, and change in depression severity, those with *increased* positive partner support reported significant improvement in sexual satisfaction over time ($\beta = 0.50$, $p < .001$).

Negative Partner Support

Table 2 shows, similar to that for positive support, the majority of participants reported a change in negative partner support over time, with only 16.3% who reported no change. Approximately 51.3% reported a decrease and 32.5% reported an increase in negative partner support over time.

As shown on Table 3, absolute level of change was significantly greater for those reporting increased negative support compared to decreased negative support ($p < .001$). Findings from multiple regression analyses are reported in Table 4. The overall model was significant, $F(6, 64) = 2.95$, $p = .014$ and accounted for 15.5% of the variance in change in sexual satisfaction. After controlling for age, gender, sexual dysfunction, years diagnosed with MS, and change in depression severity, those with *decreased* negative partner support reported significant improvement in sexual satisfaction over time ($\beta = 0.36$, $p < .01$).

Discussion

Both sexual dysfunction and low sexual satisfaction occur in a large percentage of people with MS (McCabe et al., 2003; Miller et al., 1994), yet, research on factors influencing sexual satisfaction among this population is extremely limited. The present study investigated the extent to which changes in perceived partner support were associated with sexual satisfaction among those with MS. Results indicated that changes in perceived social support received from one's partner was related to sexual satisfaction, specifically, increases in positive social support and decreases in negative partner support were associated with improved sexual satisfaction over the course of this study. Even after controlling for changes in depression brought about by treatment, individuals who reported increases in positive partner support and decreases in negative partner support endorsed significantly improved sexual satisfaction.

The current findings are consistent with past research that negative social support can be detrimental to individuals, while positive partner support often leads to improved outcomes. For example, in a longitudinal study of community-dwelling older adults, increases in

negative social support were associated with rising rates of disability. In contrast, high levels of positive support were associated with lower disability rates (Mavandadi et al., 2007). Evidence for the importance of type of social support in predicting well-being and distress level was also reported in research by Newsom et al., (2005); positive social support was associated with greater well-being in a national sample of older adults. Meanwhile, negative social exchanges were associated with poorer well-being and more distress. The role of social support in predicting psychological outcomes in populations living with MS has also been investigated. Support has been found for the impact of negative and positive social support on stress level, specifically, negative partner support served to increase perceived stress, but positive partner support reduced the detrimental impact of this negative social support on stress (Kleiboer, et al., 2007). Negative forms of partner social support have also been associated with increased disability, and worse physical and mental health among those with MS (Schwartz & Kraft, 1999). However, the current study is the first to our knowledge to investigate the role of positive *and* negative partner support on the outcome of sexual satisfaction among those with MS.

Our results suggest that indeed, for individuals living with MS, both positive and negative partner support have a distinctive role in the outcome of sexual satisfaction. Similar to other samples of people with MS, approximately 73% of our sample reported sexual dysfunction (Kessler et al., 2009). The association of increased positive partner support and decreased negative partner support with sexual satisfaction was significant even after controlling for sexual dysfunction, age, gender, and depression level. Although scant data are available on partner support and sexual satisfaction in those with MS, our data are consonant with other studies showing increased social support is associated with better sexual satisfaction in a general community sample (Ojanlatva, 2005). These findings are also consistent with other research among participants with chronic illness, which has found greater perceived partner support to be associated with sexual satisfaction in people with rheumatoid arthritis (van Lankveld et al., 2004). In addition, a study of couples with MS found that greater perceptions of support from one's partner (i.e., amount of physical and emotional support, intimacy, and understanding from one's partner) were correlated with higher sexual satisfaction (McCabe & McDonald, 2007).

We note several limitations to the current study. As with all other self-report studies, our data may be influenced by factors such as self-report bias. Moreover, our findings only generalize to those in a coupled, sexually active relationship who agreed to complete a measure of sexual satisfaction. Past research has found that those who take part in studies on sexuality have been found to have more liberal attitudes and more sexual experience than those who do not (Wiederman, 1999). In addition, our analyses showed those eligible (vs. not) for this study had a higher percentage of people reporting sexual dysfunction, but our measurement of sexual dysfunction contained only one item. The results should be replicated with more detailed measures of sexual functioning in the future. On a final note, because these participants were taking part in an RCT of psychotherapy for depression these results may not be generalizable to populations with MS who are not depressed and are not receiving treatment for depression.

Health care providers and professionals need to be aware of high rates of sexual dysfunction and low levels of sexual satisfaction among MS populations (Kessler et al., 2009; McCabe et al., 2003). Although sexual dysfunction is one factor shown to be associated with lower sexual satisfaction (McCabe, & McDonald, 2007), data from this study suggest that sexual satisfaction can also be influenced by relationship variables. Other research underscores this point. For example, among a community sample of individuals with MS who were more satisfied with their relationship also had more positive appraisals about their sex life (McCabe, McDonald, Deeks, Vowels, & Cobain, 1996). Likewise, a qualitative study on

couples living with MS found couples reporting stronger communication also had improved appraisals of their sex life (Esmail, Munro, & Gibson, 2007).

Clinicians should note that strengthening relationship satisfaction and communication among couples may positively influence levels of sexual satisfaction. While this relationship needs further investigation, interventions for couples living with MS aimed at improving the overall quality of partner support may be one promising direction. Future studies might also examine dyadic data to better understand the partner's viewpoint of the interaction and how partners mutually influence one another's sexual satisfaction. In conclusion, sexual dysfunction in MS is due in large part to physiological effects of the illness (Zivadinov et al., 1999) while sexual satisfaction is a more subjective experience and therefore, may be more amenable to psychosocial interventions. Understanding the unique role of positive and negative forms of partner support on sexual satisfaction will help lead to future interventions to improve sexual satisfaction among couples through bolstering positive partner support.

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Table 1

Sample Demographics and Clinical Characteristics at Baseline (N=81)

Variable	n (%)	M (SD)
Age (years)		46.90 (9.72)
Education (years)		15.09 (2.24)
Sex		
Women	62 (76.5)	
Men	19 (23.5)	
Monthly household income		\$4,375 (\$2,326)
Years diagnosed with MS		10.28 (10.34)
Marital Status		
Married or Partnered	81 (100.0)	
Ethnicity		
Caucasian	73(90.1)	
African American	4 (4.9)	
Hispanic	1 (12)	
Native American	1 (12)	
Asian or Pacific Islander	1 (12)	
Other	1 (1.2)	
Employment status		
Employed	22 (27.2)	
Unemployed	10 (12.3)	
Disability	42 (51.9)	
Other	7 (8.6)	
Sexual Dysfunction	59 (72.8)	

Table 2

Percent of Participants Reporting Change in Sexual Satisfaction, Negative Social Support, and Positive Social Support from Baseline to Post-Treatment (N = 81)

	No Change (%)	Increased (%)	Decreased (%)
Sexual Satisfaction	17.3	48.1	34.6
Negative Social Support	16.3	32.5	51.3
Positive Social Support	16.3	42.5	41.3

Table 3

Absolute Change Scores for Positive Social Support, Negative Social Support, and Sexual Satisfaction from Baseline to Post-Treatment

	Increased		Decreased	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>	<i>p</i>
Negative Social Support	2.73 (1.76)	3.00 (2.02)	11.87	.000
Positive Social Support	3.38 (2.36)	2.88 (2.12)	-11.41	.000
Sexual Satisfaction	5.46 (3.74)	4.50 (4.10)	-10.33	.50

Table 4

Multiple Regression Analyses Examining Predictors of Change in Sexual Satisfaction Over Time (n = 65)

Model	Beta	SE	t	p
Negative Partner Support Model				
Age	-.08	.08	-.61	.54
Gender	.03	1.53	.24	.81
Sexual Dysfunction	.20	1.55	1.65	.11
Years Diagnosed with MS	.24	.07	1.86	.07
Change in Depression Severity	-.11	.07	-.90	.37
Change in Negative Social Support	.36	.71	3.02	.004
Positive Partner Support Model				
Age	.08	.06	.70	.49
Gender	-.09	1.45	-.81	.42
Sexual Dysfunction	.16	1.28	1.48	.15
Years Diagnosed with MS	.15	.06	1.37	.18
Change in Depression Severity	.15	.06	1.39	.17
Change in Positive Social Support	.50	.57	4.81	.000