



2016-03-01

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Examining the Link Between Exercise and Marital Arguments
in Clinical Couples

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A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Science

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March 2016

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ABSTRACT

Examining the Link Between Exercise and Marital Arguments in Clinical Couples

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This study examines the following research question: Are couples that exercise on a given day are more likely to experience fewer and less intense arguments in their relationship that day? Other variables examined include relationship effect, stress level, and argument topics. Participants were 36 couples in a treatment-as-usual setting who completed the Daily Diary of Events in Couple Therapy (DDECT). Results suggested that female hours of exercise were significantly related to increased report of relationship argument intensity for both men and women. Male hours of exercise were not significantly related to any variables, however male daily stress was significantly related to female report of argument intensity.

Keywords: exercise, marriage, arguments, relationships

ACKNOWLEDGMENTS

I would like to thank Lee Johnson, my chair and mentor, for his guidance and patient teaching on this project. A big thank you also goes out to Rick Miller for his writing help and Jeremy Yorgason for statistical suggestions. Finally, I would like to thank my husband, Travis Selland, along with other family and friends who have stuck with me through this process and been powerful cheerleaders.

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Introduction

The marital relationship is likely the most significant and intimate relationship in a person's life (Kiecolt-Glaser & Newton, 2001). It is related to the health and general well being of each marital partner (Kiecolt-Glaser & Newton, 2001). However, the American Psychological Association reports that 40-50% of marriages end in divorce (Marriage and Divorce). Unhealthy marriages can lead to mental, physical, educational and social problems for children (Marriage and Divorce) and adults (Amato, 2000). In addition, all tested forms of treatment leave substantial numbers of couples distressed to some degree (Jacobson & Addis, 1993; Lebow, Chambers, Christensen, & Johnson, 2011). Therefore, the marital relationship is a critical point of research.

The purpose of this study is to examine the hypothesis that couples that exercise on a given day are less likely to argue, or if they do argue they have less "heated" arguments. Neurophysiology is a key factor in marital conflict; when one partner gets outside their window of tolerance his or her nervous system prepares the body to fight/flight, or freeze as the vagal brake is released and the sympathetic nervous system becomes more active (Porges, 2011). In an intimate relationship, this physiological response may look like one partner yelling (fight) or another partner withdrawing (flight). Emotion regulation techniques can affect vagal tone, which helps individuals remain inside their window of tolerance (El-Sheik & Erath, 2011). Emotion regulation allows individuals to influence mood by up-regulating positive emotions and down-

regulating negative emotion (Oaten & Cheng, 2004). This ability is a key component of successful communication and conflict resolution (Thompson, 1994). Deficits or impairments in emotion regulation increase the frequency and intensity of arguments between spouses (Eslami, Hasanzadeh, & Jamshidi, 2014). Exercise can both increase an individual's window of tolerance, allowing higher physiological responses before the fight/flight, or freeze response begins, and contribute to the ability of individuals to regulate emotions (El-Sheik & Erath, 2011; Oaten & Cheng, 2004).

There exists substantial literature on the benefits of exercise on physical health (Penedo & Dahn, 2005). The psychological benefits of exercise, however, have not been as thoroughly researched. Research shows that exercise is beneficial for psychological wellbeing, and the reduction of symptoms of depression and anxiety have been a focus of those studies (Stathopoulou, Powers, Berry, Smits, & Otto, 2006). Research has shown that emotion regulation, physical health, and mental health are contributing factors to marital conflict (Bloch, Hasse & Levenson, 2014). Research also shows that exercise can improve mental health, especially anxiety and depression, as well as physical health (Callaghan, 2004). There is also a small pool of research that indicates exercise can increase the ability of individuals to regulate their emotions (Oaten & Cheng, 2006). However, there is minimal research relating exercise to relationships (Lindorf, 2001; Shubin, 2007).

Literature Review

The purpose of this study is to examine the effects of exercise as a potential factor for alleviating marital conflict in couples in therapy. The concept of windows of tolerance suggests each individual has a spectrum of emotional intensity in which that individual is capable of responding adaptively rather than with a reflexive reaction (Siegel, 1999). When partners in an intimate relationship exercise, this widens their respective windows of tolerance. More specifically, exercise lowers the chronic levels of anxiety and depression, improves vagal tone, and increases general wellbeing, all of which contribute to a wider window of tolerance (Callaghan, 2004; MacMahon, 1990; Siegel, 1999). This leaves individuals with more capacity for physiological arousal before the fight-flight or freeze response engages. In an intimate relationship, this means partners are more capable of responding flexibly by engaging the prefrontal cortex for higher-level thinking, and partners are less likely to physiologically enter fight-flight-freeze mode, which results in the body responding as if threatened (Siegel, 1999).

Windows of Tolerance

Siegel's (1999) concept of windows of tolerance, suggests each individual has a window on the spectrum of emotional intensity, in which that individual is capable of responding adaptively, rather than with an automatic reflexive reaction. That is, too much physiological arousal prevents us from being able to think flexibly, and instead

our brains resort to using more primitive neurological mechanisms, which results in what is commonly referred to as fight/flight, or freeze. When these more primitive sections of the brain are being favored, we are unable to connect, understand, or flexibly respond to our partner.

Inside one's window of tolerance, parts of the middle area of the prefrontal cortex are actively involved in our appraisal of the meaning of events and how we keep our emotional lives in balance (Siegel, 1999). The prefrontal cortex is responsible for flexible responding to changing stimuli, such as altering a decision following a shift in reward contingencies and monitoring for errors (Arnsten, 2009). This area of the brain is also responsible for delayed responding and active problem solving (Siddiqui, Chatterjee, Kumar, Siddiqui, & Goyal, 2008). This may include bringing awareness to one's own faults or blame during a spousal argument and reconciling emotion and experience with personal responsibility. This area of the brain allows for individuals to wait for a partner to finish responding and to recognize when tactics must be shifted. All of these are closely linked with emotion regulation (Siddiqui et al., 2008). Thus inside one's window of tolerance, an individual is capable of greater emotion regulation.

On the other hand, beyond-tolerance states lead to a neurological inability to use higher processing centers, and instead input from the more primitive sections of the brain including the brainstem, sensory circuits, and limbic structures is favored (Siegel,

1999). This response is more commonly referred to as fight-flight, or freeze mode, in which assumed threats to survival, with little regard to the actual danger of the stimulation, may contribute to a large withdrawal in the parasympathetic nervous system and an excitation of the sympathetic nervous system. These changes, also known as reduced vagal tone, stimulate fight-flight, or freeze behaviors (Porges, Doussard-Roosevelt & Maiti, 1994). In an intimate relationship, this may include withdrawing at the first sign of anger in a partner, or a reciprocal pursuit of a partner at the first sign of withdrawal, a common pattern in couples presenting for therapy. Thus individuals outside their window of tolerance are neurologically unable to regulate emotions effectively.

Exercise and Windows of Tolerance

Exercise is both a short-term and long-term emotion regulation technique. It increases the ability of individuals to regulate their emotions. Oaten and Cheng (2006) found that during a bout of exercise, participants reported significant decreases in perceived stress and emotional distress and an increase in emotional control and attendance to commitments. Exercise can also be used to decrease physiological and experiential aspects of negative emotions (Gross & Thompson, 2007; Grandey, 2000), which allows individuals to down-regulate negative experiences and emotions with greater ease in conflictual interpersonal interactions. In one study, mood was

significantly altered by an exercise activity, with reductions in tension and anxiety specifically evident after a single bout of exercise (Roth, 1989).

Lower levels of tension and anxiety give individuals a wider window of tolerance (Siegel, 1999), allowing them to remain in a calm state with the prefrontal cortex engaged. When this area of the brain is engaged, instead of more primitive areas involved in the fight/flight, or freeze response, individuals are able to respond adaptively, connect with, and understand a partner. A wider window of emotional tolerance gives individuals more time and space to up-regulate and/or down-regulate the appropriate emotions to maintain connection and resolve conflict with a partner.

Exercise also reduces symptoms of anxiety and depression, both of which contribute to the width of one's window of tolerance. Individuals often report that they feel good or better after participating in physical activity (MacMahon, 1990). The effect of exercise on anxiety, depression and anger is found using both short-term and long-term measures. One study found that exercise three times a week reduced depression scores on the Zung Depression Scale, with jogging showing the biggest reductions (Greist, Klein, & Eischens, 1979). As measured by the Beck Depression Inventory, exercise has also been shown to produce a large decrease in depression symptoms when compared with no treatment (Lawlor & Hopker, 2001). Exercise may also have an antidepressant effect in healthy individuals (North, McCullagh, & Tran, 1990; DiLorenzo et al, 1999; Strohle, 2009).

The majority of studies show that aerobic exercise significantly alleviates symptoms of any anxiety disorder (Ratey, 2008). Exercise also helps the average person reduce normal feelings of anxiousness (Ratey, 2008). A literature review found evidence that exercise reduces anxiety, depression and negative mood, and improves self-esteem and cognitive functioning (Callaghan, 2004). Individuals who exercise at least two to three times each week experience significantly less depression, anger, and cynical distrust (Hassmén, Koivula, & Uutela, 2000). Exercise is a powerful intervention for depression, and has also been shown to reduce symptoms of alcohol abuse, eating disorders, and anxiety disorders (Stathopoulou, Powers, Berry, Smits, & Otto, 2006).

It's easy to make an argument that exercise improves physical health, which also contributes to the width of one's window of tolerance. Regular exercisers perceive their health and fitness to be better than less frequent exercisers (Hassmén et al., 2000). Sikiru, Agbanusi, and Nwacha (2011) found that aerobic training yielded significant positive effects on erectile dysfunction. Physical activity can also improve symptoms and functioning of individuals with conditions including arthritis, cardiovascular disease, cancer and obesity (He & Baker, 2004; Headley, Ownby, & John, 2004; Lin, 2004; Wessel, Arant, & Olson, 2004).

Marital Conflict and Windows of Tolerance

In a beyond tolerance state, individuals no longer think, but rather they feel and act in ways that ensure survival or protection (Siegel, 1999). The mind may be

bombarded with a flood of energy, which takes over some brain processes. This hijacking of sorts leaves individuals unable to engage the prefrontal cortex, which is involved in more rational interpretation of emotions, creating meaning, and social interactions – those things that help us to connect with a partner. Instead, more primitive parts of the brain are engaged, responding in ways that protect us from physical danger, and it is too late to create connection between partners. Beyond tolerance states, then, likely lead to relationship conflict.

Affect regulation can only occur when the polyvagal system balances the sympathetic and parasympathetic nervous systems. This is a within tolerance state. Only then can individuals respond adaptively to a partner, be flexible in understanding and creating meaning in interactions, and connect with a partner. In this state, individuals are less likely to perceive danger in their partner's behavior. Thus in this state, marital conflict is less likely to occur.

Exercise and Marital Conflict

We have demonstrated how exercise affects one's window of tolerance; exercise can not only widen the window after a single bout of exercise (Roth, 1989), but regular exercise can also create a chronically wider window through its long term effects on physical and psychological wellbeing (El-Sheik & Erath, 2011). With a wider window of tolerance, individuals are able to remain inside their window with greater physiological and emotional arousal, allowing them to remain flexible and connected to their partner

longer. In this state, marital conflict is less likely to occur. Based on this it would be good to show exercise is linked to reduction in marital conflict.

Methods

Sample

Participants were 36 couples who requested treatment for relationship problems, where both partners agreed to participate in the study at one of the clinics. Clinics were associated with a university marriage and family therapy program in the western or southeastern United States. The average age of male participants was 30.1 years (SD = 6.7) and the average age of female participants was 28.8 years (SD = 6.0). Most participants reported their race as White (83%, n=71). Most participants also reported some education beyond high school (81%, n=68). The majority of participants reported being married (83.7%, n=72) and 55% (n=43) of participants reported being married for 7 years or less. Sixty-nine percent of participants reported an annual family income of \$40,000 or less. Over the course of their participation, couples participated in 76 therapy sessions and provided information for 767 days (1,534 individual days).

Measures

Demographics. Participants completed a short demographics questionnaire at the beginning of the study.

Daily Diary of Events in Couple Therapy (DDECT). The daily diary used in this study was patterned after the Daily Diary of Stressful Events (Almeida, 2002) to assess

events that may impact the change process for couples in therapy. Following initial development, the DDECT was pilot tested on graduate students, friends and colleagues. The feedback from these groups was used to modify the questions and the modified version was tested on potential research participants prior to collecting data for this study.

The DDECT asks six main yes or no questions: did you try something from therapy, did you have an argument, did something happen that you wanted to argue about but let pass, did anything happen that was positive, did anything happen at school or work that influenced your relationship, and did you exercise. Each question included open-ended follow-up questions as well as ratings of how the events impacted the relationship, stress level, daily routine, and thoughts about self and their partner. To prevent participants from answering “no” to the main questions in order to shorten the length of time required to complete the daily diary, open-ended questions were of similar length for both yes and no answers.

Variables

Arguments. Relationship argument information was collected in the DDECT in a series of nine questions. Four questions were used for this study: “ *Did you have an argument or disagreement with your partner since you reported yesterday? How ‘heated’ was the argument? How long have you been arguing about this topic? and What was the argument about?*” The heatedness and length questions were rated by participants on a 6-point

scale. The researchers created categories for the argument topic question. Participants' answers were first combined into categories by one researcher. Three additional researchers individually grouped the responses. This first round of collapsing resulted in the 22 original categories being combined into 10. The principal investigator's input and the lead researcher's final round of combining categories resulted in the following 4 categories that couples argued about: 1) issues related to the family/time together, 2) communication, 3) complaints about relationship/partner, and 4) daily tasks.

More specifically, category 1, issues related to the family/time together, was created by combining six open-ended responses: in-laws, accidents/emergencies, kids, time spent/extracurricular activities, future/goals, and health issues. Category 2, communication, combined three open-ended responses: previous arguments, miscommunication, and lying. Category 3, complaints about relationship/partner, combined seven open-ended responses: emotions/reactions/stress, topics from therapy, sex, behaviors, support issues, complaints about relationship, and previous relationships. Category 4, daily tasks, combined five open-ended responses: scheduling, finances, housing/household chores, parking, and work.

Exercise. Exercise information was collected with the questions, "Since you last reported did you spend time exercising?" and "How many minutes did you exercise?" The minutes of exercise reported were divided by 60 to create an hours of exercise variable, which was used in this study.

Procedure

Couples that requested treatment for relational problems at either of the two clinics were asked if they were interested in participating in an ongoing clinical study. Potential participants were provided with information about the procedures, including that they would be asked to complete a short questionnaire each day of up to 20 minutes in length, and indicated their willingness to participate by signing an IRB approved consent form. Each day participants were emailed a unique link to a questionnaire they were instructed to fill out that evening for that specific day. The participants were assessed each day because the questions were regarding events that could occur on a daily basis. Ideally the participants would have completed the diary at the same time each day, but due to the clients' circumstances, there was a need for some flexibility, and a more specific time period was not specified. Questions were reworded to reflect this flexibility; for example questions asking, "did... happen today?" were changed to "since you last reported, did... happen?" This adjustment captured the information desired while giving participants some flexibility.

Lag time between the time events occurred and the time the event was reported was also collected. As part of the questionnaire, participants recorded the date for which they were reporting and the online questionnaire recorded the date the report was made. The average reporting lag was 1.15 (SD = 1.68) for females and 1.41 (SD =

2.33) for males. This suggests that individuals generally reported about events one day after they occurred.

Questionnaire completion was monitored frequently and if any participant failed to respond for three consecutive days, a personal email or phone call was made to see if there were any questions or concerns about completing the questionnaires. A paper version of the questionnaire was available for those who chose not to complete them online, however no participants chose this method.

Analysis

Random-effects multilevel models were used in Stata Version 14 to analyze the relationship between hours of exercise and reports of arguments on a given day. We used xtregression set with day and couple as the panel variables to account for the nested nature of the data within these two variables.

A composite dependent variable was created to for each gender by adding the responses to the questions “how long was the argument?” and “how heated was the argument?” The composite variable was created to reflect the intensity of the argument, and will hereafter be referred to as argument intensity. Two models were used for this study. Model one regressed the female composite variable on hours of exercise for each gender, daily stress for each gender, daily relationship effect for each gender, and the categorical variable based on the question “what did you argue about?” for each

gender. Model two substituted the male report of argument intensity for the female report of argument intensity. Each model clustered the data by couple.

We created scatterplots two scatterplots to visually search for outliers in the dataset. The first plotted female hours of exercise and female report of argument intensity. The second plotted male hours of exercise and male report of argument intensity. In the female scatter plot, 4 data points appeared to be outliers. The random-effects multilevel models were adjusted to take out those 4 data points. There were no significant changes in the results. The male scatterplot appeared to have 5 outliers, which included males who exercised 2 or 3 hours. The two random-effects multilevel models were adjusted to remove only the male outliers. Again, there were no significant changes. Finally, the random-effects multilevel models were used without both the male and female outliers. No significant changes resulted with any removal of data points, so we used the initial models with all data.

Results

This study examined the relationship between relationship argument intensity in clinical couples and the following variables: exercise, relationship effect, stress level (See Table 1), and argument topics (See Table 2 and Table 3). We hypothesized that couples who exercise on a given day are less likely to argue, due to a widened window of tolerance which allows individuals to experience more physiological sensation before

Table 1

Descriptive Statistics

Variable	Mean	SD	Min	Max
Female hours of exercise	.233	.495	0	4
Male hours of exercise	.273	.522	0	3
Female argument intensity	4.75	2.04	2	9
Male argument intensity	4.72	2.06	2	9
Female positive relationship effect	3.64	.865	1	5
Male positive relationship effect	3.35	.994	0	5
Female daily stress	1.68	.735	1	4
Male daily stress	1.58	.713	1	4

Table 2

Frequency of Argument Topics Reported by Females

Topic	Freq
No event	539
Family issues/time together	37
Communication	33
Complaints about relationship/partner	62
Daily tasks	31
Total	702

Table 3

Frequency of Argument Topics Reported by Males

Topic	Freq.
No event	464
Family issues/time together	30
Communication	18
Complaints about relationship/partner	39
Daily tasks	30
Total	581

an reporting intense conflict. Male daily stress had a significant, positive correlation with both male ($r=.256, p=.009$) and female ($r=.344, p<.001$) report of argument intensity and is negatively correlated with both male ($r=-.143, p=.003$) and female ($r=-.154, p<.001$) report of the daily relationship effect. Female daily stress was positively correlated with female report of argument intensity ($r=.329, p<.001$) and negatively correlated with both female ($r=-.474, p<.001$) and male ($r=-.134, p=.005$) report of the daily relationship effect. It was also interesting to note the positive correlation between male and female hours of exercise ($r=.117, p=.008$)(See Table 6).

The research question examined whether exercise on a given day is related to report of marital arguments on that day. This was examined using random-effects multilevel model by looking at the coefficients for the variables on which marital argument intensity was regressed. The model for female report of argument intensity (See Table 4) was significant (Wald Chi-Square=104.65, $p<.001$) as well as the model for male report of argument intensity (See Table 5) (Wald Chi-Square=304.67, $p<.001$).

Contrary to what was expected, female hours of exercise were significantly related to an increase in both female ($b=1.14, z=5.72, p<.001$) and male ($b=.590, z=1.96, p=.05$) reports of relationship argument intensity. This means in our sample, female partners who exercised more also reported more intense arguments and so did their male partners. In addition, male report of daily stress was significantly related to an increase in male report of relationship argument intensity ($b=1.39, z=2.71, p=.007$). In other words, males

Table 4

Summary of Random-Effects Multilevel Model Analyses for Exercise Predicting Male Report of Argument Length + Heatedness

Variable	Coef.	z	P> z
Female hours of exercise	.590	1.96	.050
Male hours of exercise	.351	1.18	.237
Female daily relationship effect	.012	.06	.954
Male daily relationship effect	-.034	-.15	.877
Female daily stress	-.436	-.84	.399
Male daily stress	1.39	2.71	.007
Female topics of argument			
Family Issues	-.185	-.32	.746
Communication	.050	.05	.958
Complaints about	-.234	-.30	.768
Daily tasks	.430	-.47	.639
Male topics of argument			
Communication	.319	.39	.696
Complaints about	.511	.64	.523
Daily tasks	-.687	-.72	.469

who reported more stress on a given day tended to report higher intensity arguments in their relationship. No other variables included in the models were significantly related to relationship argument intensity.

Discussion

The study focused on examining the relationship between exercise and marital arguments in clinically distressed couples that are attending therapy. Results suggested that in clinical couples, female hours of exercise increase both spouses' report of marital argument intensity. In addition, male stress on a given day is significantly related to male report of argument intensity.

At first glance these results are inconsistent with other research findings on exercise. For example, exercise has been shown to beneficially affect variables that contribute to one's window of tolerance such as reduction of anxiety (Ratey, 2008), depression (Lawlor & Hopker, 2001), anger and cynical distrust (Hassmén et al., 2000) both after a single bout of exercise (Roth, 1989) and over the long term (El-Sheik &

Table 5

Summary of Random-Effects Multilevel Model Analyses for Exercise Predicting Female Report of Argument Length + Heatedness

Variable	Coef.	z	P> z
Female hours of exercise	1.14	5.72	.000
Male hours of exercise	-.178	-.61	.540
Female daily relationship effect	-.117	-.50	.619
Male daily relationship effect	.163	.55	.580
Female daily stress	.614	1.93	.054
Male daily stress	.281	.65	.517
Female topics of argument			
Communication	-.819	-1.51	.131
Complaints about	-1.02	-1.67	.095
Daily tasks	-.720	-1.10	.271
Male topics of argument			
Family issues	.728	.99	.320
Communication	.813	1.12	.264
Complaints about	.059	.07	.944
Daily tasks	-.520	1.08	.282

Erath, 2011).As previously demonstrated in this paper, a wider window of tolerance is one potential pathway to reduced marital conflict. However, the nature of the participants in this study must be taken into account. The participants were clinically

Table 6

Correlations

	Female argument intensity	Male argument intensity	Female positive relationship effect	Male positive relationship effect	Female daily stress	Male daily stress	Female hours of exercise	Male hours of exercise
Female argument intensity	-							
Male argument intensity	.389**	-						
Female positive relationship effect	-.067	-.071	-					
Male positive relationship effect	.020	-.046	.200***	-				
Female daily stress	.329***	.166	-.474***	-.134**	-			
Male daily stress	.256**	.344***	-.143**	-.154***	.306***	-		
Female hours of exercise	.194*	.155	-.001	.065	.122**	-.002	-	
Male hours of exercise	-.025	.059	-.043	-.073	.063	.020	.117**	-

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

distressed and seeking couple therapy on their own accord. The level of conflict and tension already present in these relationships likely contributes to our findings. We propose a few potential reasons for our findings below.

First, assuming that most partners exercise individually, exercise takes time away from the relationship. Clinical couples are more likely to perceive a partner's alone time as rejection due to relationship and attachment insecurities (Johnson, 2012; Bowlby, 2005). In early stages of therapy, then, individuals might view their spouse's exercise time this way. Arguments may result about this topic directly, or indirectly as the window of tolerance is reduced by negative feelings and anger (Siegel, 1999). In contrast, some partners may take time away from their spouse to exercise because of anger or other negative emotions toward their partner.

Second, the significant relationship between increased male stress and increased male report of argument intensity is in line with other research findings. For example, Gottman, Coan, Carrere, and Swanson (1998) have suggested that males experience stress in a physiologically different and perhaps more intense way than females and that according to this difference, physiological soothing of male partners is a predictor of marital outcomes. In addition, chronic levels of physiological arousal in either spouse are related to divorce prediction (Gottman, 1993). Accordingly, male stress without soothing is an indicator of marital conflict. Our findings are in line with previous

research, as in the current study women experienced more intense conflict when males reported higher levels of personal stress.

Fourth, we address the non-significant relationships in the current study. The topic of the argument had no significant relationship to argument intensity. This is somewhat different than findings by Papp, Kouros, and Cummings (2009) that couples demonstrated more disagreements during discussions relating to their own relationship as opposed to external people and events. Male exercise was likewise not significantly related to any variables. This is consistent with previous findings that female exercise was related to both male and female report of positive relationship events while male exercise was not significantly related to either partner's report of positive relationship events (Johnson, Selland, Mennenga, Oka, Tambling & Anderson, 2016). Daily relationship effect, a measurement of how individuals rate their relationship on a given day, was also a non-significant predictor of argument intensity for both men and women. Research suggests that happy couples still experience conflict (Gottman et al., 1998), so the current study findings suggesting no significant difference in argument intensity between couples reporting a more positive relationship on a given day and a more negative relationship fit in this context.

The non-significance of these relationships may be due to floor effects, or the inability of the measures to account for the functioning of clinical couples. In other words, the measures may only be capable of capturing a level of functioning above that

of the couples in the sample. The high level of dysfunction in this convenience sample of clinically distressed couples may be below the minimum level of functioning the measures can perceive.

Implications

Both clinical and research implications can be found in the current study. First, we suggest clinicians should be attentive to how they prescribe exercise interventions in couples therapy. Exercise in this study was not prescribed, but rather was completed by participants of their own accord and then reported through the questionnaire previously mentioned. Couple counselors can prepare clients for a potential increase in argument intensity when an exercise intervention begins. Partners may be forewarned that exercise time may be initially viewed in a negative light as selfish or rejection. However, research also shows that clinically distressed couples may report more positive relational events with increased female hours of exercise (Johnson, Selland, Mennenga, Oka, Tambling & Anderson, 2016). Couples can be encouraged to notice the benefits of their exercise regimens to provide motivation for continued exercise.

The relationship between stress and argument intensity likewise has both clinical and research implications. Clinically, couple therapists can help males learn to be attentive to their own physiology and facilitate self and partner soothing. Gottman et al. (1998) suggest this process is an important predictor of marital outcomes. In addition, Johnson, Bradford, and Miller (2015) proposed a physio-relational theory in which the

stress level of both spouses is a key point of intervention. The findings in the current study add to the literature that supports stress reduction as an intervention.

Research should also continue to address the relationship between relationship argument intensity and variables including relationship effect, stress level, and argument topics, specifically in populations of clinically distressed couples. As couples therapists have a better understanding of how to reduce conflict in the initial stages of therapy, couples will be able to improve relationship quality more quickly.

Limitations

There are two main limitations in this study. The first is generalizability. The study sample was small, and steps were taken to improve external validity. The study was constructed in a treatment as usual setting similar to what occurs in many treatment settings. In addition, this study employed longitudinal methods to obtain information from clients each day, rather than each therapy session, which improves the ecological validity (Gunthert & Wenzel, 2012; Yorgason, Johnson, & Hardy, 2014).

The second limitation is construct validity. The DDECT has been used in previous research (Johnson et al., 2016). While the questions were created following an established daily diary survey and pilot tested, the validity of this measure remains unknown aside from content validity. This should be taken into account when interpreting the results of this study.

Conclusion

Despite limitations, the current study provides additional insight into the effects of exercise in relationships, especially in clinically distressed couples. Clinicians wanting to use exercise as a clinical intervention should be aware of the potential for an initial increase in marital conflict and may prepare clients accordingly. The current information available on exercise in relationships and clinical settings is thin. First, future research could consider additional aspects of exercise as a clinical intervention. Second, researchers could examine the impact of exercise in relationships. Third, studies may be conducted regarding the mechanism of the effects of exercise in relationships.

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