

Non-erotic thoughts and sexual functioning in a community sample: Associations with
thought content, affect and attentional control

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

ABSTRACT

According to Barlow's model of sexual dysfunction (1986; Sbrocco & Barlow, 1996), anxiety in sexual situations leads to attentional focus on sexual performance at the expense of erotic cues, which compromises sexual arousal. This negative experience will enhance anxiety in future sexual situations, and non-erotic thoughts (NETs) relevant to performance will receive attentional priority. Previous research with student samples (Purdon & Holdaway, 2006; Purdon & Watson, 2009) has found that people experience many types of NETs in addition to performance-relevant thoughts, and that, consistent with Barlow's model, the frequency of and anxiety evoked by these thoughts is negatively associated with sexual functioning. Extending this previous work, the current study found that in a community sample of women ($N= 81$) and men ($N= 72$) in long-term relationships women were more likely to report body image concerns and external consequences of the sexual activity, while men were more likely to report performance-related concerns. Equally likely among men and women were thoughts regarding the emotional consequences of the sexual activity. Regardless of thought content, experiencing more frequent NETs was associated with more sexual problems in both women and men. Moreover, as per Barlow's model, greater negative affect in anticipation of and during sexual activity predicted greater frequency of NETs and greater anxiety during sex was associated with greater difficulty dismissing the thoughts. However, greater difficulty in refocusing on erotic thoughts during sexual activity uniquely predicted more sexual problems above the frequency and dismissability of NETs. Together these data support the cognitive interference mechanism

implicated by Barlow's causal model of sexual dysfunction and have implications for the treatment of sexual problems.

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Introduction

Difficulties in sexual functioning are a common experience within the general population (Laumann, Paik, & Rosen, 1999) and when persistent are associated with poorer self-esteem and feelings of well-being, greater marital distress and lower ratings of happiness (Bartlik & Goldberg, 2000; Heiman, 2002; Laumann, Gagnon, Michael, & Michaels, 1995; Pridal & LoPiccolo, 2000; Rehbein-Narvaez, Garcia-Vázquez & Madson, 2006; Sprecher & Cate, 2004). How do sexual problems develop and why do they persist? Masters and Johnson (1966, 1970) implicate “spectatoring”, or, the focus on one’s own performance during sexual activity, as a key factor in sexual problems. They argue that the focus on performance occurs at the expense of focus on the erotic or pleasurable aspects of the sexual activity, compromising sexual arousal (Kaplan, 1974, Masters & Johnson, 1970).

Barlow proposed that unrealistic and/or maladaptive beliefs about sex (e.g., “A real man should be able to get a strong erection whenever he wants no matter what”) and stronger negative expectancies (e.g., “If I don’t maintain my erection my partner will understandably reject me”) result in greater anxiety and negative affect in sexual situations. In an attempt to anticipate and pre-empt performance failures the individual monitors arousal and performance, being thus hypervigilant for cues consistent with the negative expectations (e.g., indications that one’s partner is not maximally aroused or that one’s own arousal is waning) (Barlow, 1986; Wiegel, Scepkowski & Barlow, 2007). Similar to Masters and Johnson, Barlow argues that the anxiety-driven attentional focus on performance occurs at the expense of attention to stimuli that facilitate sexual arousal and performance, such as pleasurable physical sensations and the generation of positive sexual fantasy. In an insidious cycle, performance difficulties then enhance negative sexual schema, beliefs and

expectancies, and may result in a sense of hopelessness about sexual activity and ultimately, disengagement from it (Barlow, 1986, Cranston-Cuevas & Barlow, 1990; van den Hout & Barlow, 2000).

Similarly, Janssen, Everaerd, Spiering and Janssen (2000) argued that sexual stimuli can develop negative meanings and therefore be associated with negative affect. When attention is shifted from the sexual meaning to the negative meaning, the result can be a deterioration in mood state, and lower sexual arousal. They also proposed that people with sexual problems may have broader memories for, and access to, threat- or worry-related information. In turn, worry-related non-sexual meaning triggers inhibitory processes and attracts attention away from the sexual aspects of a stimulus or situation.

Research on Barlow's model (for reviews see Sbrocco & Barlow, 1996 and Wiegel, Scepkowski & Barlow, 2007) has found that men with sexual problems do indeed exhibit more negative self-evaluations in sexual situations and greater self-focus, and that their arousal is more impaired by anxiety, whereas anxiety is associated with greater arousal in men without sexual dysfunction. However, the links between affect, negative thoughts during sexual performance situations, attentional focus and their collective impact on sexual functioning has not been studied directly.

Moreover, Masters and Johnson and Barlow specifically implicate performance concerns in the development and persistence of sexual problems for women and men. More recently, researchers have suggested that body image concerns may also be responsible for sexual functioning difficulties, particularly in women (e.g., Dove & Wiederman, 2000; Faith & Schare, 1993; Meana & Nunnink, 2006; Trapnell, Meston, & Gorzalka, 1997). Indeed, this

work suggests that negative preoccupations with body and performance concerns are associated with greater avoidance of sexual activity, poorer sexual esteem and lower sexual satisfaction in women, even when controlling for general affect, sexual desire, general self-focus and sexual attitude. Taken together, these data support previous assertions about the role of negative preoccupation in sexual dysfunction, but suggest that performance concerns are not the only type of negative focus involved in sexual difficulties.

Nobre and Pinto-Gouveia (2003) noted that theories of sexual dysfunction and clinical anecdotal evidence suggest that there may be still a broader range of negative thoughts during sexual activity that may compromise functioning. Specifically, they proposed that in women, concerns about failure in and disengagement from the activity, poor body-image, memories or thoughts of sexual abuse, observations about the partner's lack of affection and female sexual passivity and control (e.g., women waiting for men to make the first step) will be associated with poorer sexual functioning. In men, they argued that thoughts about performance, the anticipation of failure, negative attitudes towards sexuality and the impact of age on sexual functioning would be associated with poorer sexual functioning. They developed the Sexual Modes Questionnaire (SMQ) to assess these concerns.

Women and men who met DSM-IV criteria for a sexual dysfunction reported more negative thoughts on the SMQ during sexual activity than did those without sexual dysfunction (Nobre & Pinto-Gouveia, 2008b) and more frequent thoughts were associated with greater negative affect (Nobre & Pinto-Gouveia, 2006; 2008a). Lower self-reported sexual arousal was associated with depressed, but not anxious, mood. It may be the case that

after repeated negative sexual experiences expectancies and self-efficacy may continue to diminish, resulting in depressed mood. Whereas anxiety may play a role in the development and early persistence of the problem, depression may be a factor in the later persistence of sexual difficulties. This would be consistent with Barlow's assertion about disengagement following "failure" experiences.

Purdon and colleagues (Purdon & Holdaway, 2006; Purdon & Watson, 2009) noted that to date, no studies had simply examined the content of self-reported negative thoughts during sexual activity with a partner. They collected qualitative self-report data on the content of thoughts that "interfere with your enjoyment of sexual activity". Four categories of thoughts/concerns were identified, including performance, body image, the emotional consequences of the activity and the external consequences of the activity (e.g., pregnancy). They found that women reported more body concerns than men, whereas men reported more performance concerns than women, but both reported emotional and external consequences equally. Purdon and colleagues also found that greater frequency of NETs and greater anxiety associated with the thoughts, regardless of the content category, were associated with more sexual problems in women and men. Thus, the frequency and anxiety of negative thoughts, as opposed to content, mediated the relationship between negative thoughts and sexual functioning.

Finally, Purdon and Watson (2009) did not find differences in how students with and without frequent sexual difficulties managed their NETs, but that suppression was a less effective strategy than re-focusing on the erotic aspects of the situation. They argued that individuals who suppress their negative thoughts may do so because the thought is

threatening. However, the more threatening the thought, the more difficult it may be to suppress or dismiss the thought and to refocus attention on the erotic aspects of the situation.

Taken together, this body of research suggests that there are a range of thoughts that interfere with sexual enjoyment and functioning, in addition to those reflecting performance concerns, and that negative thoughts during sexual activity are associated with lower sexual satisfaction and overall sexual functioning. However, at this time, there have been only two studies examining the full range of content of NETs reported during sexual activity with a partner, and in both studies homogenous undergraduate samples of convenience were used. The vast majority of these individuals are unmarried and not cohabitating, they do not have children, and they are more likely to live in residence dorms or share one dwelling with numerous people where there is less privacy. It is possible that those in long-term committed relationships may report a different range of thought content. Furthermore, only one study to date has directly examined the relationship between thoughts, affect and sexual functioning during sexual activity (Nobre & Pinto-Gouveia, 2008a). However, the negative thoughts examined were identified *a priori* by the researchers based on theory and anecdote, and may not reflect the full range of non-erotic thoughts that have the potential to interfere with sexual functioning.

Moreover, leading models of sexual dysfunction suggest that negative thoughts during sexual activity are problematic because they are associated with negative affect and divert focus from the erotic, or pleasurable aspects of the activity. Based on their findings, Purdon and colleagues proposed that thoughts that lead to higher anxiety and depression may be more difficult to suppress and may compromise individuals' ability to refocus on the

erotic aspects of the situation. To date, studies have not examined the extent to which sexual difficulties are associated with individuals' ability to dismiss NETs and refocus on erotic aspects of the situation.

The purpose of the current study was to 1) examine the content of NETs reported by women and men from the community who are in long term relationships and to assess for gender differences, and 2) to examine the associations between negative and positive affect, NETs, and sexual functioning and, 3) to examine the associations between thought dismissability and the ability to re-focus attention on erotic stimuli with affect and sexual problems.

We hypothesized that the same range of thought content observed by Purdon and colleagues (Purdon & Holdaway, 2006; Purdon & Watson, 2009) would be observed in a community sample. It was also reasoned that body image concerns would be more commonly reported by women and performance concerns by men, but that men and women would report concerns about the implications of the activity for the relationship and the external consequences of the activity equally. Regardless of thought content, greater frequency of NETs was expected to predict greater sexual problems in both women and men.

In accordance with Barlow's model of sexual dysfunction we expected that the level of negative affect in anticipation of and during sexual activity would predict greater frequency of NETs and that negative affect during sexual activity, and specifically anxiety in response to NETs, would be associated with greater difficulty in dismissing NETs during sexual activity. Furthermore, we expected that poorer ability to refocus attention on erotic

thoughts would be associated with higher negative affect during sexual activity and would predict poorer sexual functioning in both women and men.

Methods

Participants

A community sample of 161 women and men unselected for sexual dysfunction were recruited from the Kitchener-Waterloo region through general advertisements in the community and emails to individuals who previously participated in sexuality research conducted in our lab. In order to assess NETs and sexual functioning in mature individuals who have been in long-term relationships, we included those who were at least 25 years of age and who had been married or living with a partner for at least two years. Eight participants who either did not complete any questionnaires ($n=4$), were younger than age 25 ($n=3$) or who reported being in a relationship less than 2 years ($n=2$) were excluded from the data for all analyses. This left 81 female and 72 male participants ($N=153$) remaining in the final sample.

Materials

The *Demographic Information Questionnaire (DIQ)* was developed for the current study and asked participants to report their age, gender, ethnic background, relationship status, length of current relationship, partner's gender, education, income, number and ages of children and frequency of sexual activity within the past three months.

The *Golombok Rust Inventory of Sexual Satisfaction (GRISS; Rust & Golombok, 1986)* is a self-report questionnaire composed of 28-items that measure sexual dysfunction within opposite-sex relationships. There are separate versions for women and men that produce an overall score of sexual problems and seven subscales that produce a score for more specific sexual dysfunctions. Both the female and male versions have the following five subscales: infrequency, non-communication, dissatisfaction, avoidance and non-sensuality.

In addition, the female form also includes subscales for vaginismus and anorgasmia, while the male version includes subscales for impotence and premature ejaculation. Participants rate each item on a 5-point scale ranging from 0 = never to 4 = always. The raw scores for each subscale and total score is transformed into a 9-point scaled score, with higher scores representing greater endorsement of sexual problems. The GRISS has been validated with nonclinical samples, as well as with clinical samples diagnosed with a variety of sexual dysfunctions and has been found to have high reliability and good validity. Scores for the GRISS total were not calculated for individuals where 4 or more data points were missing out of the scale's 24 items. Furthermore, if any of the data points for the GRISS subscales were missing, the sub-scores were not analyzed.

The *Non-Erotic Thought Content Questionnaire – Revised (NETC-R)* was developed for the current study to measure the types of thoughts that occur during sexual activity that detract from the quality and pleasure of the experience. It was modeled after the NETC (Purdon & Holdaway, 2006) with the addition of a number of scales that measured emotional and attentional features associated with these reported thoughts. Participants were asked to recall any thoughts they had during their last few sexual experiences with their partner that took away from the enjoyment of the experience (i.e., “if you didn’t have these thoughts, your sexual experience would probably have been better”) and to write them down in an open-ended format. They were then asked to rate each thought on a 7-point scale on how frequently the thought occurred (1=rarely occurs; 7=always occurs), the amount of anxiety (1=none; 7=a lot), worry (1=none; 7=a lot) and sadness (1=none; 7=a lot) the thought caused during the sexual experience, the ability to dismiss the thought (1=easy to dismiss;

7=difficult to dismiss), and the ability to refocus on erotic thoughts (1=easy to refocus; 7=difficult to refocus).

The *Sexual Activity and Affect Questionnaire (SAAQ)* was designed for the current study to assess the extent of general negative and positive affect in anticipation of, during and following sexual activity with a partner. For each of the three time points (in anticipation of, during and following sexual activity), participants were asked to think back to the last few occasions they engaged in sex with their partner and rate how much anxiety, sadness, worry, pleasure, excitement and optimism they generally felt on a 7-point scale (1=none; 7=a lot). Given the strong correlations among these scales (r 's = .53-.84), the raw scores for anxiety, sadness and worry were summed to compose a measure of negative affect (NA), while the scores for pleasure, excitement and optimism were summed as a measure of positive affect (PA) for each of the three time points.

The *Sexual Anxiety Scale (SAS;* Gordon & Purdon, 2007) is a 56 item, self report measure of erotophobia-erotophilia. Eerotophobia is the tendency to respond to sexual situations with negative affect (i.e., anxiety) and avoidance, while erotophilia is the tendency to respond to sexual situations with positive affect and approach behaviours. Each item describes a sexual situation and participants are asked to rate 1) how much discomfort they would feel in each situation on a scale from 0-100 (0=extremely pleasurable; 100=extremely discomforting) and 2) how likely they would be to avoid each situation on a scale from 0-100 (0=would definitely do it; 100=would never do it). The SAS showed strong psychometric properties in a large community sample and was not correlated with mood state or neuroticism. Higher sexual anxiety and avoidance was associated with more negative

attitudes towards sex education, greater antigay prejudice, poorer sexual satisfaction, and poorer sexual functioning.

Procedure

Individuals who were interested in participating in the study contacted a research assistant through email and were sent a password to access and complete the study materials on-line at a computer of their choice. Participants were told that they would be asked to complete questionnaires about different aspects of their sexuality and that it would take approximately 30 minutes to complete, and were asked to reserve enough time and privacy to complete the measures in one sitting. All participants first filled out the demographic information questionnaire followed by the remaining 4 questionnaires in random order. As compensation, each participant had the opportunity to enter a draw for one of five \$50 gift certificates to a local restaurant for their participation.

Thoughts reported on the NETC-R were coded for content by using the categories established by Purdon and Holdaway (2006): 1) body concerns, 2) emotional and relational consequences of the sexual activity, 3) external consequences of the sexual activity and 4) performance concerns. Thoughts that did not clearly fit these categories were identified as non-codable. The list of NETs (219 responses) was compiled without accompanying information and given to two coders, including the first author and a graduate student who was blind to the study aims and hypotheses. Several examples of each category were identified and discussed by the two coders prior to coding. Cohen's kappa (κ ; 1960) was .82 for the first attempt at coding including the 5 categories. Upon review, there was a consistent discrepancy for one type of thought; the raters agreed on the appropriate code for this

discrepancy and made the adjustment resulting in a $\kappa = .88$. The remaining 21 discrepancies were discussed and coded according to agreement between the two coders. Thoughts that fit into two categories equally well or did not clearly fit into one of the four categories were identified as non-codable. Of note, there were no consistent content types in the non-codable thoughts that could have constituted a separate content category.

Results

Participant Characteristics

Women reported a mean age of 36.39 (SD=9.41) while men reported a mean age of 41.18 (SD=11.01), $t(1,150)=2.89, p<.01$ with a range from 25 to 80 years. Relationship length for women was on average 10.14 years (SD=7.61) and for men was 14.06 years (SD=9.84), $t(1, 129.34)=2.69, p <.01$. Twelve (7.8%) of the participants reported being in a same-sex relationship (6 female) at the time of the study; those in same-sex relationships were included in all analyses except those involving the GRISS given that this measure is designed for opposite-sex couples. One hundred and nine participants (71.2%) were married with the remainder (28.8%) cohabiting for at least two years. The mean frequency of sexual activity in the past 3 months was 14.79 occasions (SD=14.64) ranging from 0 to 75 and did not differ between women and men.

The sample was relatively wealthy, (median family income of \$80,000-99,000), highly educated (54.9% completed a university degree and another 27.5% has a graduate degree) and predominantly white (90.2%). The mean number of children was 1.28 (SD=1.32) with 63 participants reporting having no children (41.4%).

A standardized score of 5 or above on the GRISS is thought to indicate a clinically significant level of sexual problems (Rust & Golombok, 1986). Thirteen percent of women (n=9) and 40% of men (n=28) had a GRISS total score of 5 or more. Eighty-nine percent (n=72) of women and 84% (n=58) of men had a standardized score of 5 or above on at least one GRISS subscale, indicating some difficulty with sexual functioning and/or sexual satisfaction.

To assess gender differences in sexual functioning and sexual anxiety, a multivariate analysis of variance (MANOVA) was conducted with gender as the fixed factor, the GRISS total score and SAS discomfort score as dependent variables, and age and length of relationship as covariates. Results revealed a significant gender difference ($F [2, 112] = 7.72, p <.002$). The discriminant function loadings suggested that this difference was largely driven by sexual functioning with men reporting more sexual problems than women. The means and standard deviations of the scores on these measures for women and men are presented in Table 1. Similar gender differences in sexual functioning have been found in previous research (e.g., Purdon & Watson, 2009) and will be controlled for in all further analyses.

Non-Erotic Thoughts and Associated Ratings

Fifty participants (32.7%; 18 women) did not report experiencing any NETs in their previous few sexual experiences with their current partner. Given that a large number of participants did not report any NETs, we were interested whether those individuals who did not report any NETs were different from those who reported such thoughts on measures of sexual functioning and sexual anxiety, and whether there were any gender differences in this regard. Using age and length of relationship as covariates, a 2 (gender) by 2 (NETs status; reported at least one NET, reported no NETs) MANOVA on GRISS total and SAS discomfort scores revealed a significant main effect of gender ($F [2, 110] = 5.18, p <.01$); as previously reported, this was a result of men reporting more sexual problems than women. However, there was no main effect of NET status ($F [2, 110] = 2.32, p = .10$), nor was there a significant interaction between NET status and gender ($F [2, 110] = 2.28, p = .11$). Therefore,

the current data suggest that those reporting at least one NET did not differ in sexual functioning and sexual anxiety from those who did not report experiencing any NETs.

One hundred and three participants (63 women; 67.3% of the total sample) reported having at least one NET. The average number of NETs reported was 1.43 ($SD=1.48$), ranging from 0 to 7. Due to the correlations among our NETC-R rating scales (see Table 2), the ratings of anxiety, worry, and sadness from the NETC-R were combined and averaged to create a measure of NET distress and the ratings of dismissability and difficulty refocusing on erotic thoughts from the NETC-R were combined and averaged as a measure of NET attention. The mean number of thoughts, NET frequency, NET distress and NET attention scores for women and men are reported in Table 1. A MANOVA with gender as a fixed factor and the number of NETs, NET frequency, distress and attention scores as dependent variables revealed no gender differences on these characteristics of NETs ($F [4, 96] = .68, p = .61$).

Non-Erotic Thoughts and Sexual Functioning

The zero-order correlations for the number, frequency and associated ratings of NETs, affect, sexual anxiety and sexual problems are presented in Table 2. Of note, the frequency of NETs was positively correlated with sexual problems for both women ($r=.42$) and men ($r=.54$), while the number of NETs was not. However, anxiety in response to NETs during sexual activity was not significantly associated with sexual problems. Rather, greater worry was mildly associated with more sexual problems in women ($r=.30$), while greater sadness was strongly associated with greater sexual problems in men ($r=.60$).

To examine whether NETs were associated with some sexual problems and not others, we obtained the zero-order correlations between the NET ratings and the GRISS subscale scores. The correlations for women and men are presented in Table 3. Responses to NETs predicted general problems in sexual functioning (low frequency, dissatisfaction, avoidance, and, to a lesser extent, non-sensuality) for both men and women. The NET frequency and responses did not predict specific sexual functioning difficulties in women, whereas they did predict difficulties in erectile functioning (particularly frequency, sadness and difficulty refocusing on the erotic) in men.

The Content of Non-Erotic Thoughts

The first purpose of the current study was to examine the range of content in NETs and to assess for gender differences. To assess for such differences, a series of chi-squared analyses on the first and second thoughts reported on the NETC-R were conducted. Observed and expected frequencies are reported for each category of NETs by women and men in Table 4. Analyses of the first thought content revealed a significant gender difference ($\chi^2 [3, N = 95] = 8.94, p < .03$), whereas there was no difference in thought content across gender for the second reported thought ($\chi^2 [3, N = 59] = 2.68, p = .44$).

We used the Haberman's (1973) analytic procedure to conduct post-hoc tests of the content effect of the first reported NET. This procedure involves the calculation a deviation score between the observed frequency and the expected frequency for each cell (d). The value of d approximates the z-score, therefore a condition can be said to have had a significant effect when the deviation score is greater than 1.96 ($p < .05$). Post-hoc analyses of the first thought reported revealed that women reported more thoughts in the Body Concerns

($d=2.8$, $p < .01$) and in the External Consequences categories ($d=5.6$, $p < .001$) than men, whereas men reported more thoughts in the Performance category ($d=3.9$, $p < .001$) than women. Women and men were equally likely to report thoughts in the Emotional Consequences category ($d=.52$, $p=.30$).

To assess whether the four categories of thought content differed in their associated frequency, distress or attention ratings from the NETC-R, we conducted a series of separate analyses of variances (ANOVA) with the first thought category as a fixed factor. There were no differences between the content groups on ratings of frequency ($F [3, 90] = 1.39$, $p = .25$), distress ($F [3, 89] = .67$, $p = .57$), nor attention ($F [3, 90] = .77$, $p = .51$).

Similarly, we assessed whether the four thought content categories differed in their association with sexual functioning. An ANOVA with the first thought category as a fixed factor and the GRISS total score as a dependent variable revealed no differences between the thought content groups on sexual functioning ($F [3, 72] = .81$, $p = .22$).

Non-Erotic Thoughts, Affect, Attention and Sexual Functioning

The remaining aims of the current study were to assess the associations between NETs, affect, the dismissability of NETs, the ability to refocus attention on erotic thoughts and sexual functioning. As previously noted, the zero-order correlations between the number, frequency and associated ratings of NETs, negative and positive affect, sexual anxiety, attentional factors and sexual functioning for women and men are presented in Table 2. To assess these relationships further, we first conducted a step-wise multiple regression analysis using centered variables with the GRISS total score as the dependent variable. Gender was entered on the first step, followed by SAS discomfort as a measure of trait sexual anxiety on

the second step. The ratings of anxiety, worry, and sadness from the NETC-R were combined and averaged to create a measure of NET distress and the ratings of dismissability and difficulty refocusing on erotic thoughts from the NETC-R were combined and averaged as a measure of NET attention. Scores representing positive (PA) and negative (NA) affect were calculated by summing across positive and negative affect ratings during sex from the SAAQ. NET frequency, NET distress, NET attention, PA and NA were entered on the third step as factors that take place during sexual activity, while the interaction between gender and the 6 variables listed above were entered on the final step. This analysis revealed that while 18.6% of the variance in sexual functioning was explained by gender ($F[1, 76] = 17.42, p < .001$), SAS discomfort accounted for an additional 5.7% of the variance ($F[1, 75] = 5.65, p < .02$) such that greater discomfort was associated with poorer sexual functioning. NET frequency, NET distress, NET attention, PA and NA together predicted an additional 33.5% of the variance in sexual functioning ($F[5, 70] = 11.11, p < .001$). No gender interactions were found on the final step ($F[6, 64] = .35, p = .91$). Review of the coefficients from step 3 revealed that gender ($B = -1.85, t = -5.63, p < .001, sr^2 = .19$), SAS discomfort ($B = .04, t = 2.97, p < .01, sr^2 = .05$), NET frequency ($B = .33, t = 2.23, p < .03, sr^2 = .03$) and PA ($B = .21, t = -4.29, p < .001, sr^2 = .11$) uniquely predicted sexual problems such that being male, reporting greater sexual anxiety, more frequent NETs and lower positive affect were associated with more sexual problems. NET distress ($t = -.05, p = .96$), NET attention ($t = -.26, p = .80$) and NA ($t = .52, p = .60$) did not make a significant contribution in the model.

Next, we evaluated these factors in accordance with Barlow's model using step-wise multiple regression in a series of analyses, all controlling for gender, age, and length of

relationship on the first step. Although gender differences were not expected, all analyses assessed for gender interactions on the final step.

Based on Barlow's model, we hypothesized that greater NA in anticipation of and during sexual activity would be related to greater frequency of NETs. Summed PA and NA scores were calculated by summing the anxiety, worry and sadness ratings for anticipation of and during sexual activity from the SAAQ. The measure of PA was included with the control variables on the first step. Greater NA significantly predicted more frequent NETs (R^2 change= .23, $F[1, 92]=35.01, p<.001$) and there was no NA by gender interaction ($F[1, 91]=.00, p=.99$), suggesting that for both women and men greater negative emotions experienced in anticipation of and during sexual activity is associated with experiencing more frequent NETs.

Next we hypothesized that greater NA during sexual activity (a summation of anxiety, worry and sadness during sexual activity from the SAAQ) would be associated with greater difficulty to dismiss NETs. We controlled for PA on the first step along with the standard control variables and found that greater NA during sexual activity still reliably predicted more difficulty dismissing NETs (R^2 change=.13, $F[1,94]=16.40, p<.001$). No interaction between gender and NA was found ($F [1, 93] =.14, p=.71$). Furthermore, consistent with our hypotheses, greater anxiety associated with NETs significantly predicted more difficulty in dismissing NETs above general NA and PA during sexual activity (R^2 change=.26, $F[1,90]=48.53, p<.001$) and there was no gender by anxiety interaction ($F[1,89]=.37, p=.55$).

Lastly, we hypothesized that greater difficulty in refocusing on erotic thoughts, above and beyond the frequency of and difficulty to dismiss NETs, would be associated with greater NA during sexual activity and similarly, difficulty refocusing on erotic thoughts (above these same factors) would be associated with greater sexual problems. Regression analyses confirmed the first hypothesis (R^2 change=.07, $F [1, 93] = 11.31, p < .001$) with no significant gender by refocus interaction ($F [1, 92] = 2.17, p = .14$). The second hypothesis was also confirmed; we found that whereas greater frequency of and difficulty to dismiss NETs significantly predicted poorer sexual functioning and satisfaction above the control variables (R^2 change=.17, $F [2, 74] = 10.25, p < .001$), difficulty in refocusing attention on erotic thoughts uniquely predicted poorer sexual functioning and satisfaction above these factors (R^2 change=.03, $F [1, 73] = 4.17, p < .05$). Again, no interaction between gender and the ability to refocus attention on erotic cues was found ($F [1, 72] = 1.36, p = .25$). Consistent with Barlow's cognitive interference mechanism in the development and persistence of sexual dysfunction, these results indicate that those with greater sexual problems experience more frequent NETs, have more difficulty diverting their attention away from these distracting thoughts and have greater difficulty focusing their attention on erotic cues.

Discussion

The first purpose of the current study was to assess the range in content of NETs reported by women and men in a community sample in long term relationships. We found that the range of NETs identified by Purdon and colleagues in undergraduate samples (Purdon & Holdaway, 2006; Purdon & Watson, 2009) was similar to those in a community sample and the thoughts fit the four content categories well. We also found that, consistent with these previous studies, women reported more body image concerns than men, men reported more performance concerns than women and both men and women reported thoughts about the emotional consequences of the activity equally. One difference, however, was that in the current study women reported more external consequences of the activity than men. A large portion of these thoughts involved pregnancy (12.7%) and concerns about children (38%). Thus, this difference can be understood by the fact that those in the community sample were more likely to have children than the university samples and that the responsibilities associated with child rearing are more likely to fall on women in marital relationships than men (e.g., Biernat & Wortman, 1991).

In the current study over 32% of the community sample did not report experiencing any NETs in their last few sexual experiences with their partner. This result was much higher than in the undergraduate samples in which only 8%-11% (Purdon & Holdaway, 2006; Purdon & Watson, 2009) of participants did not report any NETs. Given that the current study did not exclude participants who had not engaged in sexual activity at least once in the past 3 months, it was possible that those reporting no sexual activity in that time would have difficulty recalling NETs, resulting in lower reporting of such thoughts. However, in the

current study only 4 of the 14 people who reported not engaging in sexual activity in the past 3 months also did not report any NETs. The fact that the average number of NETs was 1.43 compared to 3.85 (Purdon & Holdaway, 2006) and 4.40 (Purdon & Watson, 2009) is consistent with the lower reporting of NETs in a community sample than the undergraduate samples. Whether this is a product of differences in reporting behaviour rather than reflecting actual differences in experience, is difficult to determine. Regardless, there did not appear to be any significant differences in sexual functioning in those who did and did not report NETs suggesting that simply experiencing thoughts that detract from one's sexual experience is not predictive of sexual problems and that other factors are likely to be involved.

As in previous research, NET content did not vary according to frequency, degree of emotional response, or sexual functioning. This suggests once again that it is the individual's response to the NET, rather than the type of thought, that is important to understanding sexual difficulties. We did find that responses to NETs were associated with general difficulties in sexual functioning for both men and women, and that in men, frequency of NETs and sadness – but not anxiety – elicited by NETs and poorer ability to refocus on the erotic aspects of the situation were strong predictors of difficulties in erectile functioning. These data are consistent with Nobre and Pinto-Gouveia (2006, 2008a) who found that depression, more so than anxiety, was associated with arousal difficulties. Again, it may be the case that depression occurs once the individual begins to expect “failure”. In future work it may be worthwhile to examine the relationship between the duration of the sexual difficulty, NETs and affect. Whereas NETs that occur within the context of transient or

relatively recent problems may evoke anxiety, those occurring within the context of longer-standing problems may evoke sadness.

The second purpose of the study was to examine the relationship between sexual functioning, NETs and affect in anticipation of and during sexual activity. In this unselected sample, positive affect was a strong predictor of better sexual functioning, and more frequent NETs was a strong predictor of poorer sexual functioning. It is interesting that the presence of optimism, excitement and pleasure was a better predictor of functioning than the presence of negative affect. This suggests that treatment of sexual problems may be improved by not only amelioration of negative predictions and mood state, but the fostering of a positive orientation towards sexual activity. Whereas previous research found that anxiety over NETs predicted sexual functioning (Purdon & Holdaway, 2006; Purdon & Watson, 2009) this was not found in the current study. Perhaps people with more sexual experience are better at managing their NETs, such that the thoughts do not evoke negative emotions to the same degree.

Nobre and Pinto-Gouveia (2006, 2008a) argued that depressive affect, rather than anxiety, is associated with greater sexual problems. In the present study, negative affect did not predict sexual functioning, only positive affect did. However, this finding may be the result of comparing treatment seeking participants with a diagnosed DSM-IV sexual dysfunction with a community control sample given that those seeking treatment could be more likely to be experiencing persistent sexual problems that compromise relationship satisfaction.

The third purpose of the study was to examine attentional control factors, specifically the ability to dismiss NETs and refocus on erotic thoughts during sexual activity. Consistent with Barlow's model, we found that negative affect experienced in anticipation of and during sexual activity was associated with greater frequency of NETs, even while controlling for gender, age, length of relationship and positive affect. Furthermore, greater negative affect during sexual activity, and more specifically greater anxiety associated with NETs, were both associated with greater difficulty dismissing NETs. This finding is consistent with research that indicates anxiety can narrow attention towards a perceived threat thus, making it more difficult to disengage attention from a threat cue (e.g., Yiend & Mathews, 2001). Moreover, consistent with the cognitive interference mechanism implicated in Barlow's model, the current study found that greater difficulties refocusing on erotic cues during sexual activity (above the impact of gender, age, length of relationship and the frequency and dismissability of NETs) was associated with greater sexual problems. In a similar vein, Purdon and Watson (2009) found that refocusing on the erotic aspects of the situation was a more effective strategy for managing NETs than attempting to suppress them. Therefore, not only is the ability to dismiss distracting thoughts important in predicting sexual functioning, but the ability to then refocus attention on erotic cues during sexual activity appears to be an important factor in the development and persistence of sexual problems. This is also consistent with Nobre and Pinto-Gouveia (2008a), who found that more erotic thoughts predicted better sexual functioning.

The results of the current study will need to be interpreted with caution due to a number of limitations. First, the data was collected retrospectively and memory and response

biases could have influenced the results. Although an open-ended format of reporting thoughts allowed us to prevent limiting the range of thoughts reported by participants, this methodology relies heavily on memory recall and therefore may not reveal the extent of all types of NETs experienced. Second, the data were correlational in nature and we cannot infer directionality of the associations between negative affect, NETs, attention and sexual problems. Longitudinal research examining the tendencies to experience negative affect, NETs and attentional difficulties during sexual activity and subsequent changes in sexual problems would address these directional predictions in the development of sexual problems. A third limitation of the current study is that we used a community sample of convenience that was largely white, highly educated and reported a high social economic status. The generalizability of our findings to people of other ethnic and socio-economic groups may be poor. In addition, due to limitations in our measure of sexual functioning, we could not include those in same-sex relationships in the majority of our analyses. Further research with other representative samples would need to be conducted before generalizing these results to those in non-heterosexual relationships.

Finally, relationship satisfaction was not assessed in this study. Purdon and Watson (2009) found that relationship satisfaction mediated the relationship between NET frequency and sexual functioning. It is possible that relationship satisfaction is a mediator of positive affect as well. Similarly, the interpersonal context in which the thoughts arose was not assessed in this study. Non-erotic thoughts may be driven not only by negative sexual schema but also quite probable consequences. For example, if one's partner is likely to become very hurt in response to one's own problems with arousal there may be, objectively

speaking, more pressure to maintain arousal. If one's partner's arousal is likely to be poorly affected by one's own body image characteristics (e.g., recent weight gain, the appearance of a scar) then body image concerns are likely to receive attentional priority. This has implications for treatment, in that it may be important to identify NETs and address the issue(s) that render them threatening, which could include negative schema about sex, as argued by Barlow, but also relationship or other issues.

The results of the current study suggest that women and men in long-term relationships experience a wide range of thoughts that detract from their sexual experience and, regardless of the thought content, the frequency of these thoughts is positively associated with sexual problems. This study also demonstrated the importance of considering emotional and attentional factors in understanding the development and persistence of sexual problems and together support the cognitive interference mechanism implicated in Barlow's causal model of sexual dysfunction. Such findings have important implications for improving sexual functioning in women and men and potentially for the treatment of sexual dysfunction.

Table 1*Means and Standard Deviations on Measures Across Women and Men*

Measure	Women			Men			t
	M	SD	N	M	SD	N	
GRISS	2.43	1.50	65	3.70	2.05	64	4.03***
NETC-R							
Number	1.57	1.39	81	1.28	1.58	72	-1.21
Frequency	3.70	1.48	62	3.96	1.45	40	0.89
Distress	2.82	1.78	61	3.13	1.46	40	0.98
Attention	2.94	1.40	62	2.98	1.19	40	0.16
SAS Discomfort	36.37	11.96	74	32.89	9.72	66	-1.90*

Note. GRISS=standardized overall score on the Golombok-Rust Sexual Satisfaction Scale for Heterosexual Men and Women (range:0-9); NETC-R=Non-Erotic Thought Content Questionnaire-Revised; Number= total number of thoughts reported on the NETC-R; Frequency= average frequency rating for all thoughts reported on the NETC-R (range:0-6); Distress= overall average of the anxiety, worry and sadness ratings on the NETC-R (range:0-6); Attention=overall average of the dismissability and refocusing on erotic thoughts ratings on the NETC-R (range:0-6); SAS Discomfort=average discomfort score on the Sexual Anxiety Scale(range: 0-100).

Table 2

Zero-Order Correlations between Sexual Problems, Non-Erotic Thought Ratings, Affect and Sexual Anxiety in Women and Men in Heterosexual Relationships

	2	3	4	5	6	7	8	9	10	11
1.GRISS	.14 (.12)	.42** (.54**)	.27 (.10)	.30* (.32)	.27 (.60**)	.34* (.23)	.39** (.35*)	.37** (.56**)	-.58** (-.50**)	.33* (.26*)
2.Number of NETs		.18 (-.30)	.08 (-.08)	.15 (-.23)	.10 (-.16)	.03 (-.12)	.02 (.03)	.44** (.21)	-.18 (-.00)	.06 (.16)
3.NET Frequency			.55** (.35*)	.50** (.54**)	.64** (.62**)	.65** (.66**)	.63** (.21)	.63** (.52**)	-.25 (-.46**)	.06 (.27)
4. NET Anxiety				.88** (.80**)	.64** (.39*)	.64** (.53**)	.47** (.50**)	.59** (.42*)	-.23 (-.13)	.09 (.19)
5. NET Worry					.71** (.44**)	.55** (.53**)	.45** (.53**)	.59** (.51**)	-.27* (-.24)	.03 (.19)
6. NET Sadness						.61** (.43**)	.61** (.39*)	.63** (.69**)	-.24 (.69**)	-.02 (.11)
7. NET Dismissability							.73** (.34*)	.48** (.45**)	-.18 (-.28)	.01 (.28)
8. NET Refocus								.49** (.53**)	-.28* (-.34*)	-.01 (.26)
9. NA									-.41** (-.64**)	-.01 (.12)
10. PA										-.05 (.00)
11. SAS-D										-----

Note. Numbers in parentheses represent correlations for men. Women N= 47-74; Men N = 34-60;
 GRISS= standardized total score on the Golombok-Rust Sexual Satisfaction Scale; Number of NETs=number of reported NETs on the NETC-R; NET Frequency=average non-erotic thought frequency rating reported on the NETC-R; NET Anxiety=average non-erotic thought anxiety rating reported on the NETC-R ; NET Worry=average worry rating of non-erotic thoughts reported on the

NETC-R; NET Sadness=average sadness rating of non-erotic thoughts reported on the NETC-R; NET Dismissability=average difficulty to dismiss a NET rating reported on the NETC-R; NET Refocus=average difficulty in refocusing on erotic thoughts rating reported on the NETC-R; NA=Negative affect calculated by summing the anxiety, worry and sadness during sexual activity ratings from the SAAQ; PA=Positive Affect rating calculated by summing the pleasure, excitement and optimism during sexual activity ratings from the SAAQ; SAS-D=discomfort sub-scale on the Sexual Anxiety Scale.

*p<.05; **p<.01

Table 3

Correlations Between NETC-R Ratings and GRISS Subscale Dysfunctions in Women and Men in Heterosexual Relationships

	INF	NCO	DIS	AV	NS	VAG	ANORG	IMP	PE
NET Rating									
Frequency	.46** (.54**)	.07 (-.19)	.36** (.24)	.46** (.48**)	.27* (.39*)	.12	.15		
Anxiety	.40** (.02)	.16 (-.32)	.35** (.02)	.33* (.41**)	.10 (.20)	.13	.20		
Worry	.50** (.21)	.20 (-.20)	.41** (.08)	.38** (.47**)	.13 (.38*)	.17	.19		
Sadness	.45** (.56**)	.11 (-.08)	.45** (.57**)	.45** (.54**)	.17 (.38*)	.09	.16		
Dismissability	.57** (.29)	.21 (-.40*)	.32* (.16)	.33** (.27)	.23 (.18)	.06	.22		
Refocus	.46** (.30)	.20 (-.21)	.44** (.13)	.34** (.62**)	.13 (.31)	.11	.24		
								(.54**)	(-.08)

Note. Numbers in parentheses represent correlations for men. Women N=54-57; Men N=34;
 Frequency=average non-erotic thought frequency rating reported on the NETC-R; Anxiety=average non-erotic thought anxiety rating reported on the NETC-R; Worry=average worry rating of non-erotic thoughts reported on the NETC-R; Sadness=average sadness rating of non-erotic thoughts reported on the NETC-R; Dismissability=average difficulty to dismiss a NET rating reported on the NETC-R; Refocus=average difficulty in refocusing on erotic thoughts rating reported on the NETC-R; INF=Infrequency scale from the GRISS; NCO=Non-communication scale from the GRISS; DIS=Dissatisfaction scale from the GRISS; AV=Avoidance scale from the GRISS; NS=Non-

sensuality scale from the Golombok-Rust Sexual Satisfaction Scale; VAG=Vaginismus scale from the female version of the Golombok-Rust Sexual Satisfaction Scale; ANORG=Anorgasmia scale from the female version of the Golombok-Rust Sexual Satisfaction Scale; IMP=Impotence scale from the male version of the Golombok-Rust Sexual Satisfaction Scale; PE=Premature Ejaculation scale from the male version of the Golombok-Rust Sexual Satisfaction Scale.

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

Table 4*Observed and Expected Frequencies of Thought Categories by Gender*

	Thought # 1		Thought # 2	
	Women	Men	Women	Men
	(n=63)	(n=40)	(n=34)	(n=27)
Body Concerns	7 <i>5.5</i>	2 <i>3.5</i>	9 <i>7.8</i>	5 <i>6.2</i>
Emotional Consequences	11 <i>11.6</i>	8 <i>7.4</i>	4 <i>5.0</i>	5 <i>4.0</i>
External Consequences	31 <i>26.3</i>	12 <i>16.7</i>	12 <i>10.1</i>	6 <i>7.9</i>
Performance	9 <i>14.7</i>	15 <i>9.3</i>	8 <i>10.1</i>	10 <i>7.9</i>

Note. Numbers in italics indicate expected frequencies for each cell; numbers not italicized are the observed frequencies.

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